KSA 70th ANNIVERSARY
1956-2026
THE KOREAN SOCIETY OF ANESTHESIOLOGISTS

103RD

KOREANESTHESIA 2026

The 103rd Annual Scientific Meeting of the Korean Society of Anesthesiologists

NOV 5 (THU) - **NOV 7** (SAT)

PARADISE CITY & HYATT REGENCY, INCHEON, KOREA

ABSTRACT BOOK

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The 103rd Annual Scientific Meeting of the Korean Society of Anesthesiologists

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Hall 1 (Grand Ballroom C)
- KoreAnesthesia 2026 Sessions
- Luncheon Sessions

Hall 2 (Grand Ballroom B)
- KoreAnesthesia 2026 Sessions
- Luncheon Sessions
- 지도전문의 교육

Hall 3 (Grand Ballroom A)
- KoreAnesthesia 2026 Sessions
- Luncheon Sessions
- 추계연수교육

Hall 4 (Emerald)
- KoreAnesthesia 2026 Sessions
- Luncheon Sessions
- KSA Board Meeting (평의원회)
- General Assembly (총회)
- KMA 필수교육
- KSPAN Annual Conference (회복마취간호사회)

Exhibition 1 (Sapphire)

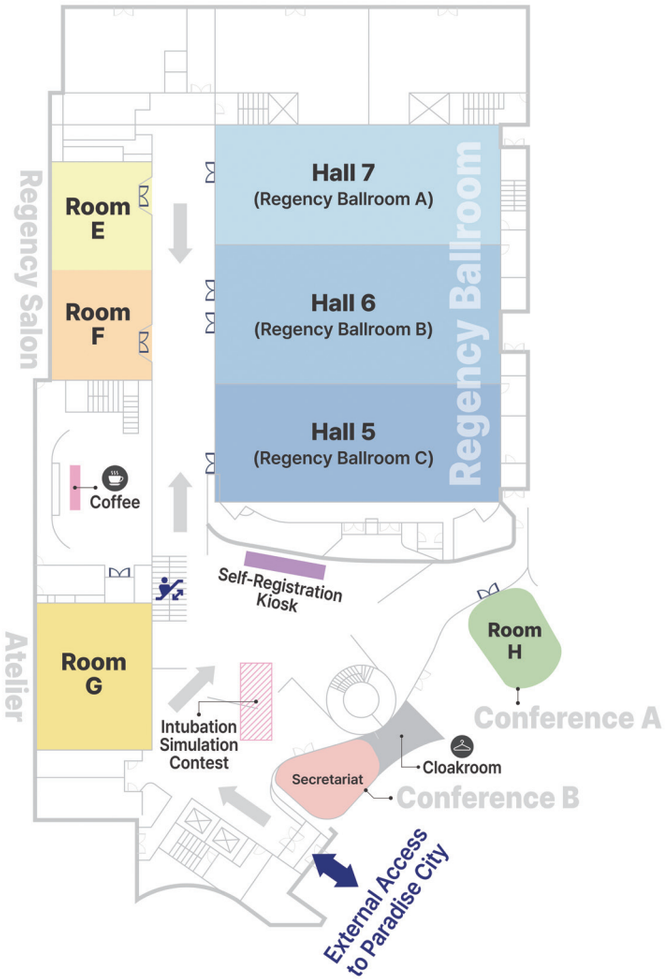
Room A
- Workshops

Room B, C, D
- Abstract Presentation
- Workshops

Board Meeting Room

FLOOR PLAN

B1F Hyatt Regency



Hall 5 (Regency Ballroom C)
- KoreAnesthesia 2026 Sessions
- Luncheon Sessions

Hall 6 (Regency Ballroom B)
- KoreAnesthesia 2026 Sessions
- Luncheon Sessions

Hall 7 (Regency Ballroom A)
- Luncheon Sessions

Exhibition 2 (Lobby)

Room E (Regency Salon A)
- Abstract Presentation
- Abstract Competition

Room F (Regency Salon B)
- Abstract Presentation

Room G (Atelier)
- Workshops

Room H (Conference A)
- Meet the Expert

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ABSTRACT

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Competition

Abstract Competition

Date / Time	Nov 6 (Fri) / 11:00-12:30
Room	Room E *(Hyatt Regency)*
Language	English
Chair(s)	Woosuk Chung *(Chungnam National University, Republic of Korea)* Sun Young Park *(Soonchunhyang University, Republic of Korea)* Jong Hwan Lee *(Sungkyunkwan University, Republic of Korea)* Ahreum Cho *(Pusan National University, Republic of Korea)*
AC-01-1 2026-0555	Enhanced Recovery After Gastric Cancer Surgery: A Multicenter Randomized Clinical Trial in South Korea Soyeong Hwang[1], Ho-Jin Lee[1*], Do Joong Park[2] 1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea 2. Department of Surgery, Seoul National University Hospital, Republic of Korea
AC-01-2 2026-0218	Plasma Ropivacaine Pharmacokinetics and Peak-Concentration Variability after Intertransverse Process and Thoracic Paravertebral Blocks: A Randomised Controlled Trial Keisuke Nakazawa[1*], Panramon Vanichvithya[1], Takefumi Kamiya[1], Tomoaki Itaya[1], Shunichi Takagi[1], Daisuke Satoh[2], Riken Kawachi[2], Hiroyuki Sakurai[2], Takahiro Suzuki[1] 1. Department of Anesthesiology, Nihon University School of Medicine, Japan 2. Department of Thoracic Surgery, Nihon University School of Medicine, Japan
AC-01-3 2026-0113	Influence of Opioid Delivery Patterns in Dual-Chamber Patient-Controlled Analgesia on Postoperative Nausea and Vomiting Jihoon Han[1], Sangho Lee[1*], Ann Hee You[1], Hee Yong Kang[1], Jung Eun Kim[1], Jeong-Hyun Choi[1], Sung Wook Park[1], Mi Kyeong Kim[1] 1. Department of Anesthesiology and Pain Medicine, Kyung Hee University Hospital, Republic of Korea
AC-01-4 2026-0570	Discrepancy Effects of Pneumoperitoneum on Arterial Waveform and Heart Sound–Derived Dynamic Indices in a Porcine Hemorrhage–Transfusion Model Woo-Jin Kim[1], Dong-Kyu Kim[1], Hyun-Soek Kim[2], Sung-Hoon Kim[1*] 1. Anesthesiology and Pain Medicine, University of Ulsan, Republic of Korea 2. Big Data Research Center, Asan Institute for Life Science, Republic of Korea
AC-01-5 2026-0416	Repeated 30-Minute Opiranserin Infusions for Moderate-to-Severe Postoperative Pain after Laparoscopic Colectomy: A Randomized, Double-Blind Phase 2 Trial Sang-Wook Lee[1], Ji-Yeon Sim[1*] 1. Department of Anesthesiology and Pain Medicine, Asan Medical Center, University of Ulsan College of Medicine, Republic of Korea
AC-01-6 2026-0317	Intertransverse Process Block to Improve Quality of Recovery and Pain Management in Cardiac Surgery: Preliminary Results of a Randomized, Double-Blinded, Placebo-Controlled Trial Henry Man-kin Wong[1*], Ranjith Kumar Sivakumar[1], Veronica Ka-wai Lai[2], Conan Huen[1], Pik Yi Hou[1], Mandy Hiu-man Chu[1], Randolph Hung-leung Wong[3], Kwok Ming Ho[1] 1. Department of Anaesthesia and Intensive Care, Prince of Wales Hospital, The Chinese University of Hong Kong, Hong Kong, China 2. Child Health Evaluative Sciences, The Hospital for Sick Children Research Institute, Toronto, Ontario, Canada 3. Division of Cardiothoracic Surgery, Department of Surgery, Prince of Wales Hospital, The Chinese University of Hong Kong, Hong Kong, China

AC-01-1 (2026-0555)

Enhanced Recovery After Gastric Cancer Surgery: A Multicenter Randomized Clinical Trial in South Korea

Soyeong Hwang[1], Ho-Jin Lee[1*], Do Joong Park[2]

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2. Department of Surgery, Seoul National University Hospital, Republic of Korea

Background

Evidence for enhanced recovery after surgery (ERAS) in gastric cancer remains limited. We evaluated a consensus-driven ERAS protocol against conventional care.

Methods

In this multicenter, open-label randomized trial, adults undergoing laparoscopic or robotic gastrectomy at 10 Korean tertiary centers were assigned 1:1 to ERAS or conventional care. The primary outcome was meeting four recovery criteria at 9:00 AM on postoperative day 4: soft diet tolerance for at least 24 hours, independent ambulation of at least 600 m, pain score of 3 or lower with oral nonopioid analgesics alone, and no abnormal clinical or laboratory findings. Secondary outcomes were pain scores, postoperative nausea and vomiting (PONV), gastrointestinal recovery, EuroQol 5-Dimension 5-Level (EQ-5D-5L) index scores, and major complications. Postoperative length of hospital stay (LOS) and readmission were assessed. The primary analysis used the modified intention-to-treat population (mITT).

Results

Of 308 patients, 283 comprised the mITT population (ERAS, 142; conventional care, 141). All four recovery criteria were achieved by 74.6% and 59.6%, respectively (risk ratio, 1.25; 95% CI, 1.06-1.48; P = .010). ERAS reduced pain scores and improved EQ-5D-5L index scores. PONV, gastrointestinal recovery, major complications (6.3% vs 6.4%), and readmissions (4.2% vs 4.3%) did not differ. Median postoperative LOS was 4 versus 5 days (median difference, −1.0 day; 95% CI, −1.0 to 0.0; P < .001).

Conclusion

An ERAS protocol accelerated functional recovery, improved patient-reported outcomes, and shortened hospitalization after minimally invasive gastric cancer surgery, without increasing major complications or readmissions.

AC-01-1 (2026-0555)

Figure & Table

Figure & Table 1.



Figure & Table 2.

Table 2. Primary and secondary outcomes (Modified intention-to-treat population)

Outcome	ERAS (n=142)	Conventional (n=141)	Effect estimate (95% CI)	P value
Recovery criteria achieved at 09:00 on POD 4	106 (74.6%)	84 (59.6%)	1.25 (1.06–1.48)	0.010
Resting pain at 2 h	4.0 (3.0–5.0); n=139	5.0 (4.0–7.0); n=138	-1.0 (-2.0–0.0)	<0.001
Resting pain at 24 h	3.0 (2.0–4.0)	4.0 (3.0–5.0)	-1.0 (-2.0–0.0)	<0.001
Resting pain at 48 h	2.0 (1.0–3.0)	3.0 (2.0–4.0)	-1.0 (-1.0–-1.0)	<0.001
Resting pain at 72 h	1.0 (1.0–2.8)	3.0 (1.0–3.0)	-2.0 (-2.0–0.0)	<0.001
Pain during coughing at 2 h	5.0 (4.0–7.0); n=127	7.0 (5.0–8.0); n=120	-2.0 (-3.0–-2.0)	<0.001
Pain during coughing at 24 h	5.0 (3.0–6.0)	6.0 (4.0–7.0)	-1.0 (-2.0–-1.0)	<0.001
Pain during coughing at 48 h	4.0 (3.0–5.0)	5.0 (3.0–6.0)	-1.0 (-2.0–-0.5)	<0.001
Pain during coughing at 72 h	3.0 (2.0–4.0)	4.0 (3.0–5.0)	-1.0 (-1.0–0.0)	<0.001
Gastrointestinal intolerance or dysfunction at 24h	16 (11.3%)	21 (14.9%)	0.76 (0.41–1.49)	0.466
Gastrointestinal intolerance or dysfunction at 48h	18 (12.7%)	30 (21.3%)	0.60 (0.35–1.02)	0.077
Gastrointestinal intolerance or dysfunction at 72h	19 (13.4%)	24 (17.0%)	0.79 (0.45–1.37)	0.492
Postoperative nausea and vomiting, 0–24 h	23 (16.2%)	26 (18.4%)	0.88 (0.53–1.46)	0.733
Postoperative nausea and vomiting, 24–48 h	8 (5.6%)	7 (5.0%)	1.13 (0.42–3.05)	> 0.999
Postoperative nausea and vomiting, 48–72 h	7 (4.9%)	5 (3.6%)	1.38 (0.45–4.25)	0.787
EQ-5D-5L index score at 24h	0.692 (0.464–0.752); n=137	0.574 (0.440–0.703); n=139	0.116 (0.001–0.161)	0.004
EQ-5D-5L index score at 48h	0.733 (0.679–0.784); n=136	0.700 (0.585–0.763); n=139	0.033 (0.008–0.060)	0.002
EQ-5D-5L index score at 72h	0.763 (0.722–0.809); n=136	0.730 (0.673–0.763); n=139	0.033 (0.011–0.040)	0.002
Major postoperative complications	9 (6.3%)	9 (6.4%)	0.99 (0.41–2.43)	> 0.999

Data are presented as n (%) or median [interquartile range]. Effect estimates are presented as risk ratios (ERAS vs conventional) for binary outcomes and median differences (ERAS minus conventional) for continuous outcomes, with 95% confidence intervals (CIs).

Abbreviations: EQ-5D-5L, EuroQol 5-Dimension 5-Level; POD, postoperative day

ABSTRACT
Competition
Presentation
E-Poster

AC-01-2 (2026-0218)

Plasma Ropivacaine Pharmacokinetics and Peak-Concentration Variability after Intertransverse Process and Thoracic Paravertebral Blocks: A Randomised Controlled Trial

Keisuke Nakazawa[1*], Panramon Vanichvithya[1], Takefumi Kamiya[1], Tomoaki Itaya[1], Shunichi Takagi[1], Daisuke Satoh[2], Riken Kawachi[2], Hiroyuki Sakurai[2], Takahiro Suzuki[1]

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2. Department of Thoracic Surgery, Nihon University School of Medicine, Japan

Background
Thoracic paravertebral block provides unilateral thoracic analgesia by depositing local anaesthetic beside the thoracic spinal nerves, immediately behind the pleura. Intertransverse process block deposits local anaesthetic into the intertransverse tissue complex, a compartment distinct from the paravertebral space, from where spread toward the paravertebral space is thought to produce comparable analgesia, and it is increasingly used as a "paravertebral block by proxy". How local anaesthetic deposited at this site behaves systemically is unknown. The intertransverse tissue complex lies adjacent to intercostal muscle and vessels, and its needle endpoint is farther from the pleura, but neither feature establishes anything about systemic absorption. We compared systemic ropivacaine exposure after the two techniques at the same weight-based dose.

Methods
In this single-centre randomised controlled trial (jRCT1031240233), 40 adults undergoing video-assisted thoracoscopic surgery received ropivacaine 0.75% at a weight-based dose of 3 mg/kg by intertransverse process block or thoracic paravertebral block (n=20 per group). Arterial total plasma ropivacaine was measured to 120 min by liquid chromatography–tandem mass spectrometry. The registered primary outcomes were the maximum arterial total plasma concentration (Cmax) and the time to maximum concentration (Tmax). Equivalence was assessed post hoc by two one-sided tests with a geometric mean ratio margin of 0.70–1.30.

Results
Mean Cmax was 2.97 (SD 1.17) μg/ml after intertransverse process block and 2.44 (0.55) μg/ml after paravertebral block (mean difference 0.53 μg/ml; P=0.078). Median Tmax was 10.0 and 12.5 min, respectively (P=0.470). Equivalence was not demonstrated (geometric mean ratio 1.16, 90% CI 0.98–1.38). Between-patient variability in Cmax was greater after intertransverse process block (coefficient of variation 39.6% vs 22.7%; P=0.010). No overt cardiovascular manifestation compatible with local anaesthetic systemic toxicity was observed under general anaesthesia.

Conclusion
We found no evidence that systemic ropivacaine exposure was lower after intertransverse process block than after thoracic paravertebral block, and peak concentrations were more variable between patients despite weight-based dosing. The procedural advantage of a needle endpoint farther from the pleura should not be assumed to imply lower systemic ropivacaine exposure.

AC-01-3 (2026-0113)

Influence of Opioid Delivery Patterns in Dual-Chamber Patient-Controlled Analgesia on Postoperative Nausea and Vomiting

Jihoon Han[1], Sangho Lee[1*], Ann Hee You[1], Hee Yong Kang[1], Jung Eun Kim[1], Jeong-Hyun Choi[1], Sung Wook Park[1], Mi Kyeong Kim[1]

1. Department of Anesthesiology and Pain Medicine, Kyung Hee University Hospital, Republic of Korea

Background
Postoperative nausea and vomiting (PONV) remains a major complication after general anesthesia, with incidences up to 20% to 80%, especially in young women undergoing gynecologic laparoscopic surgery. Continuous opioid infusion of PCA may increase total opioid exposure leading to opioid related adverse effects including PONV. This double-blind randomized controlled trial evaluated whether opioid delivery patterns using a novel dual-chamber PCA affect PONV incidence and postoperative pain control without compromising safety.

Methods
We enrolled 108 female patients undergoing gynecologic laparoscopic surgery under general anesthesia. Participants were randomly assigned to either B group (fentanyl loaded into the bolus chamber and ketorolac into the continuous chamber) or C group (fentanyl loaded into the continuous chamber and ketorolac into the bolus chamber). The total doses of fentanyl (15ug/kg), ketorolac (90mg), and ramosetron (0.6mg) were identical. The primary outcome were the incidence of PONV within 48 hours postoperatively and the PONV impact scale at 24 and 48 hours postoperatively. The secondary outcomes included NRS pain scores, rescue medications, and recovery profiles.

Results
Baseline characteristics were comparable between B group (n=54) and C group (n=54). The overall incidence of PONV within 48 hours postoperatively was significantly lower in B group than in C group (35.2% vs. 57.4%, P=0.034). While no significant differences were observed in the PACU, and at 12 hours, the incidence of PONV at 24 hours, and at 48 hours postoperatively were significantly lower in B group (9.3% vs. 37.0%, P=0.001, 1.9% vs. 20.4%, P=0.006). Clinically important PONV assessed by the PONV impact scale was also less frequent in the B group at 24 hours (P=0.037), whereas the difference at 48 hours showed a similar trend but did not reach statistical significance (P=0.065). Postoperative pain assessed using the NRS was significantly higher in the C group at 12 hours (3 [3; 3] vs. 3 [3; 5], P<0.001) and 24 hours postoperatively (3 [2; 3] vs. 3 [3; 4], P=0.017) and more patients in the C group required additional analgesics at 12 hours (53.7% vs. 25.9%, P=0.006). Total PCA fentanyl consumption was higher in the B group (925 ug vs. 865 ug, P=0.020). Vital signs and recovery complications did not differ between groups.

Conclusion
Bolus-dominant opioid delivery using a dual-chamber PCA device significantly reduced PONV incidence, minimized clinical symptom burden, and achieved superior early pain control compared with a continuous opioid infusion approach without introducing safety concerns or delaying recovery profiles in young women undergoing gynecologic laparoscopic surgery.

Figure & Table

Figure & Table 1.

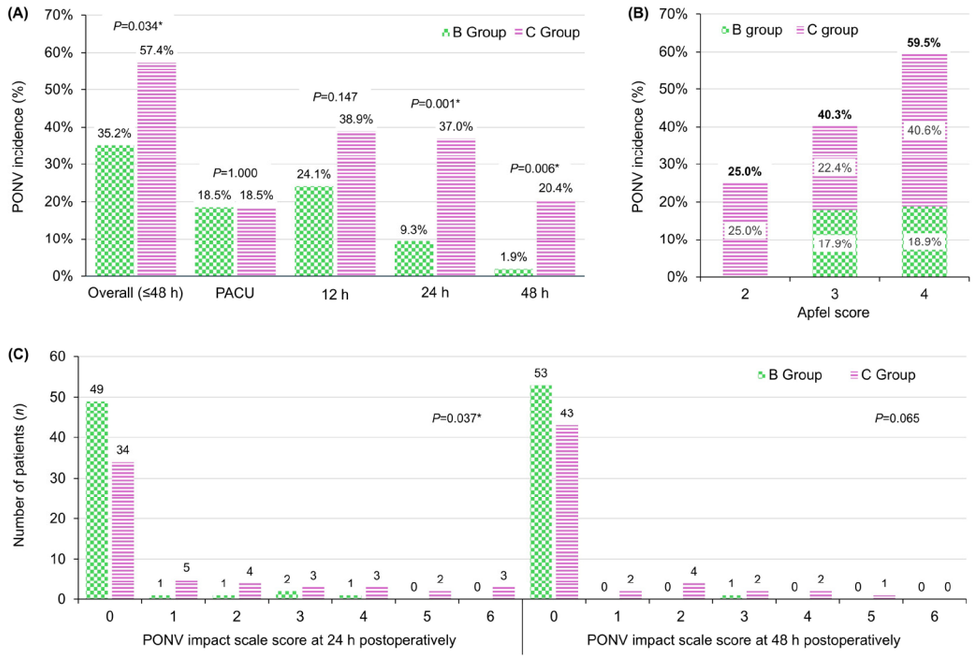


Figure & Table

Figure & Table 2.

Table 2. Univariate and multivariable logistic regression analyses of factors associated with overall postoperative nausea and vomiting (PONV)

	Univariable		Multivariable		
	OR (95% CI)	*P* value	OR (95% CI)	*P* value	VIF†
Age	1.00 (0.97, 1.03)	0.891	0.99 (0.95, 1.03)	0.526	1.479
BMI	0.99 (0.90, 1.10)	0.921			
ASA-PS class					
I	reference				
II	1.44 (0.68, 3.11)	0.342			
DM	0.40 (0.08, 1.47)	0.194	0.24 (0.04, 1.18)	0.096	1.285
Hypertension	1.35 (0.53, 3.44)	0.525	2.23 (0.66, 8.19)	0.208	1.564
Dyslipidemia	0.75 (0.18, 2.80)	0.676			
Smoking	0.30 (0.04, 1.33)	0.149	0.15 (0.02, 0.85)	0.045*	1.215
History of PONV	1.75 (0.80, 3.85)	0.161	2.03 (0.83, 5.13)	0.124	1.135
Apfel score					
2	reference				
3	2.02 (0.24, 42.12)	0.550			
4	4.40 (0.51, 93.76)	0.218			
Type of surgery					
Adnexectomy	reference				
Hysterectomy	1.42 (0.66, 3.09)	0.373			
Myoma enucleation	1.36 (0.05, 35.51)	0.831			
WBC	1.00 (1.00, 1.00)	0.331	1.00 (1.00, 1.00)	0.403	1.372
Hematocrit	0.95 (0.85, 1.06)	0.346	0.98 (0.86, 1.13)	0.824	1.382
Platelet	1.00 (0.99, 1.01)	1.000			
Bilirubin	1.55(0.40, 6.53)	0.526			
Albumin	0.46 (0.09, 2.27)	0.345	0.14 (0.02, 1.07)	0.063	1.475
Study group					
B group	reference		reference		
C group	2.48 (1.15, 5.47)	0.022*	2.99 (1.25, 7.53)	0.016*	1.169
Anesthesia time	1.00 (0.99, 1.02)	0.915	1.00 (0.98, 1.02)	0.833	1.180
Additional opioid use‡	1.82 (0.64, 5.42)	0.263	0.93 (0.26, 3.22)	0.903	1.175

Variables not included in the multivariable model were excluded due to lack of clinical relevance or statistical significance in univariate analyses. *Statistical significance. †VIF <10 indicated no significant multicollinearity. ‡Additional opioid use refers to rescue fentanyl administered postoperatively beyond the study PCA regimen and represents the subset of patients who received opioids among those given additional analgesics. ASA-PS, American Society of Anesthesiologists physical status; B group, opioid bolus group (bolus-chamber fentanyl with continuous-chamber ketorolac); BMI, body mass index; C group, opioid continuous group (continuous-chamber fentanyl with bolus-chamber ketorolac); CI, confidence interval; DM, diabetes mellitus; OR, odds ratio; VIF, variance inflation factor; WBC, white blood cell count.

AC-01-4 (2026-0570)

Discrepancy Effects of Pneumoperitoneum on Arterial Waveform and Heart Sound–Derived Dynamic Indices in a Porcine Hemorrhage–Transfusion Model

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2. Big Data Research Center, Asan Institute for Life Science, Republic of Korea

Background

Pulse pressure variation (PPV) and stroke volume variation (SVV) are commonly used to assess preload dependence during controlled ventilation, but pneumoperitoneum (PnP) may modify cardiopulmonary interactions and complicate their interpretation. The acoustic variability index (AVI) is a heart sound–derived dynamic index. We examined whether PnP differentially alters the responses of PPV, SVV, and AVI to controlled blood-volume changes.

Methods

Fourteen anesthetized, mechanically ventilated Yorkshire pigs were studied. Blood was withdrawn in 100-mL steps to a cumulative 600 mL and then transfused in the same increments. Three animals contributed PnP-only pilot data, and the subsequent cohort underwent randomized crossover testing under PnP at 15 mmHg and no-PnP conditions. PPV and SVV were obtained from continuous arterial waveform monitoring, and AVI was calculated from esophageal heart-sound recordings. Separate linear mixed-effects models for hemorrhage and transfusion included condition, protocol window, and their interaction as fixed effects, with animal as a random intercept. A paired analysis in nine animals quantified within-animal differences between conditions.

Results

PPV, SVV, and AVI increased with progressive hemorrhage and decreased during transfusion (all $P<0.001$). During hemorrhage, PPV and SVV were higher under PnP than no-PnP (both $P<0.001$), whereas AVI did not differ between conditions ($P=0.956$). At the end of hemorrhage, PPV was 35.6±11.4% versus 20.0±7.6%, SVV was 30.7 ±9.2% versus 15.3±5.7%, and AVI was 32.1±12.7% versus 27.1±7.0% under PnP and no-PnP, respectively. During transfusion, the PnP-associated elevation persisted for PPV ($P<0.001$) and SVV ($P=0.013$), while AVI remained comparable ($P=0.883$). Within-animal differences progressively widened for PPV and SVV during hemorrhage but showed no similar pattern for AVI.

Conclusion

PnP amplified arterial waveform–derived PPV and SVV in a volume-state-dependent manner, particularly during progressive blood loss. AVI tracked hemorrhage and transfusion with less separation between PnP conditions. These findings support cautious interpretation of PPV and SVV during laparoscopy and further evaluation of AVI as a complementary index of acute volume change.

AC-01-4 (2026-0570)

Figure & Table

Figure & Table 1.

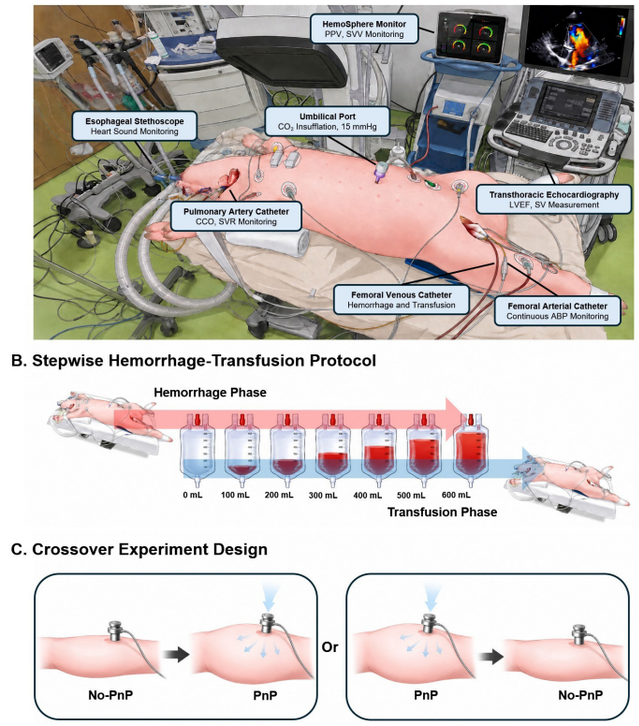
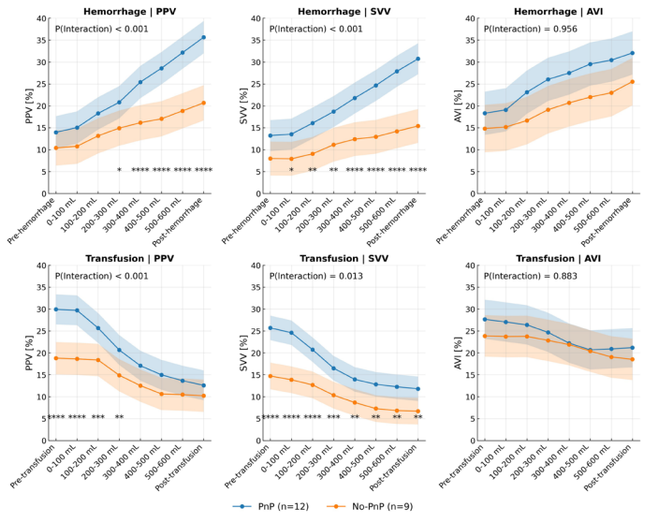


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

Repeated 30-Minute Opiranserin Infusions for Moderate-to-Severe Postoperative Pain after Laparoscopic Colectomy: A Randomized, Double-Blind Phase 2 Trial

Sang-Wook Lee[1], Ji-Yeon Sim[1*]

1. Department of Anesthesiology and Pain Medicine, Asan Medical Center, University of Ulsan College of Medicine, Republic of Korea

Background

Early postoperative pain after major abdominal surgery remains difficult to control despite multimodal analgesia. As a first-in-class, non-opioid analgesic that was approved in Korea for acute postoperative pain, opiranserin is a first-in-class non-opioid analgesic that inhibits glycine transporter 2 and antagonizes the serotonin 2A receptor. This exploratory phase 2 trial evaluated whether scheduled repeated 30-min intravenous infusions of opiranserin could reduce early pain burden after laparoscopic colectomy.

Methods

In this single-center, randomized, double-blind, placebo-controlled trial (CRIS KCT0010996), patients undergoing laparoscopic colectomy received four 30-minute intravenous infusions of opiranserin 180 mg or matching placebo infusions. The first infusion began 30-minute before the end of surgery, followed by postoperative infusions at 1, 4, and 7 h after emergence from anesthesia. Pain intensity was assessed using an 11-point numerical rating scale (NRS). The primary endpoint was the area under the pain intensity-time curve from 0 to 9 h after emergence (AUC9).

Results

Sixty-four randomized patients were treated with opiranserin (n=32) or placebo (n=32). Despite the modest sample size, opiranserin significantly reduced AUC9 compared with placebo (45.7 ± 14.3 vs. 55.3 ± 16.0; least-squares mean difference, -9.59; 95% CI, -17.15 to -2.03; p = 0.014). AUC24 was also lower with opiranserin (93.0 ± 32.7 vs. 111.1 ± 35.6; p = 0.039). Pain intensity decreased by at least 1 point after each postoperative opiranserin infusion. Mild pain (NRS 0 to 3) was significantly more frequent with opiranserin at 7 and 7.5 h after emergence. Rescue analgesic use during the first 2 h was lower with opiranserin than with placebo (median, 1 [IQR, 1-2] vs. 2 [IQR, 1.75-3]; adjusted p = 0.034), alongside a significantly delayed request for the second rescue medication (2.64 h vs. 0.72 h in placebo; hazard ratio, 0.50 [95% CI, 0.29-0.87], p = 0.012). All treatment-emergent adverse events were mild, and no serious or investigator-assessed treatment-related adverse events occurred.

Conclusion

Repeated 30-min intravenous infusions of opiranserin significantly reduced early postoperative pain burden after laparoscopic colectomy, decreased early rescue analgesic requirements, and were generally well tolerated. These findings demonstrate that scheduled short-infusion opiranserin can provide effective non-opioid analgesic coverage for moderate-to-severe postoperative pain.

AC-01-5 (2026-0416)

Figure & Table

Figure & Table 1.

Figure 1. Pain Intensity

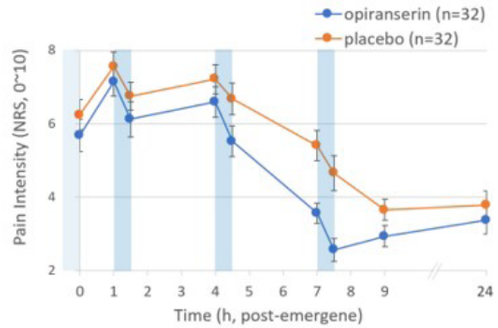


Figure Caption. Line graph illustrating the pain intensity over 24 hours post-emergence. Data are presented as mean ± standard error of the mean (SEM). The shaded vertical bars represent the infusion start time of the four dosing occasions, demonstrating cumulative benefits of repeated 30-min infusions for pain reduction.

ABSTRACT
Competition
Presentation
E-Poster

AC-01-6 (2026-0317)

Intertransverse Process Block to Improve Quality of Recovery and Pain Management in Cardiac Surgery: Preliminary Results of a Randomized, Double-Blinded, Placebo-Controlled Trial

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Background

PROSPECT guidelines and ERAS Society recommendations support regional analgesia as a cornerstone of enhanced recovery protocols after cardiac surgery. Existing techniques, however, have notable limitations and do not address visceral pain. Intertransverse process block (ITPB) offers both somatic and visceral analgesia, with recent studies demonstrating local anaesthetic spread to intercostal, paravertebral and epidural spaces and to the dorsal root and sympathetic ganglia [1], suggesting broader pain control and potential attenuation of chronic postsurgical pain. This is the first RCT of ITPB in cardiac surgery, investigating its safety, analgesic efficacy and effect on quality of recovery.

Methods

This is an ongoing single-center, double-blinded RCT. Following ethics approval (CREC 2024.555) and registration (ClinicalTrials.gov, NCT06926764), adults undergoing elective coronary artery bypass grafting, with or without valve surgery, were randomized to receive bilateral ITPB or sham block before anaesthesia induction within a multimodal anaesthetic regimen. ITPB comprised 20 ml 0.25% levobupivacaine per side at T4/5 under ultrasound guidance; controls received an equal volume of normal saline. The primary outcome was QoR-15 at 24 h post-extubation. Secondary outcomes included QoR-15 at 72 h, intraoperative opioid requirements, pain scores, morphine consumption, patient satisfaction, opioid-related side effects, ICU/hospital stay, and chronic postsurgical pain (CPSP) and pain interference at 3 and 6 months. Generalized estimating equations modelled group, time and group×time effects on repeated pain scores. P<0.05 was considered significant, without adjustment for multiple comparisons.

Results

Eighty patients were randomized (40 per group). The primary outcome, QoR-15 at 24 h, did not differ (median [IQR] 103 [90-110] vs 107 [94-113], p=0.215), nor did QoR-15 at 72 h (115 [105-121] vs 114 [100-123], p=0.883); both differences were below the 8-point MCID. ITPB significantly reduced intraoperative opioid requirements (13.4±4.2 vs 17.2±4.9 mg morphine equivalents, p<0.001). However, no differences were observed for postoperative morphine consumption up to 72 h (18.9 [9.1-42.8] vs 26.8 [13.3-36.5] mg, p=0.464), pain scores, patient satisfaction and opioid-related adverse events; no block-related complications occurred. At 6 months (n=70 analyzed), CPSP was less frequent after ITPB (16.2% vs 39.4%; OR 0.30, 95% CI 0.10-0.91, p=0.029), with lower SF-MPQ-2 total (median 0 vs 2, p=0.041) and neuropathic subscale scores (p=0.007); these secondary outcomes were unadjusted for multiplicity.

Conclusion

ITPB did not improve early quality of recovery after cardiac surgery, but was intraoperatively opioid-sparing and associated with less CPSP and persistent neuropathic pain at 6 months. These exploratory secondary findings warrant confirmation in an adequately powered trial.

Presentation

Abstract Presentation 1

Date / Time	Nov 5 (Thu), 11:00-12:30
Room	Room B *(Paradise City)*
Language	English
Chair(s)	Jae Hun Kim *(Konkuk University, Republic of Korea)* Seunguk Bang *(The Catholic University of Korea, Republic of Korea)*

AP-01-1 2026-0386

Clinical Utility of an Artificial Intelligence-Assisted Brachial Plexus Tracking System in Ultrasound-Guided Regional Anaesthesia: A Randomised Crossover Study

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AP-01-2 2026-0525

Pecto-Intercostal Fascial Block Versus Erector Spinae Plane Block for Analgesia and Respiratory Recovery after Cardiac Surgery: A Preliminary Analysis of a Randomized Controlled Trial

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AP-01-3 2026-0163

Lipid Emulsion Inhibits Bupivacaine-Induced Cardiotoxicity via Reversal of the AMPK–mTOR Pathway

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AP-01-4 2026-0375

Effects of Combined Pectoserratus and Pecto-Intercostal Fascial Plane Blocks for Cardiac Surgery via Median Sternotomy: A Randomized Controlled Trial

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AP-01-5 2026-0538

Stakeholder Perspectives on Prone-Compatible Virtual Reality for Interventional Pain Procedures: A Customer Discovery–Informed Qualitative Study

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AP-01-6 2026-0297

A Comparative Study of Anesthetic Techniques for Achilles Tendon Repair Surgery: Popliteal Nerve Block vs Spinal Anesthesia

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AP-01-7 2026-0171

Comparison between Analgesic Efficacy of Sacral Erector Spinae Plane Block and Caudal Block in Pediatric Anorectal Surgeries - A Randomized Controlled Trial

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AP-01-8 2026-0482

Professionally Prescribed Individualized Music Versus Intravenous Propofol for Perioperative Anxiety During Regional Anaesthesia: A Prospective Comparative Study

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Clinical Utility of an Artificial Intelligence-Assisted Brachial Plexus Tracking System in Ultrasound-Guided Regional Anaesthesia: A Randomised Crossover Study

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Background

Existing AI tools for ultrasound-guided regional anaesthesia are largely limited to static, single-frame segmentation, insufficient for supraclavicular scanning where continuous tracking of multiple neural elements is required. We evaluated a newly developed ultrasound utility designed for a real-time AI guided brachial plexus tracking for educating trainees.

Methods

Objective: the aim of this study was to evaluate whether a real-time, AI-assisted brachial plexus tracking system improves anaesthesia trainees' identification of supraclavicular brachial plexus structures during ultrasound scanning.
Design: Prospective, single-centre, randomised 2×2 crossover study.
Setting: Chungnam National University Hospital in Daejeon from April to June 2026.
Patients: Eighteen anaesthesia trainees with no prior formal training in ultrasound-guided brachial plexus block.
Intervention: Bilateral supraclavicular ultrasound scanning under two conditions in randomised crossover order; real-time AI-assisted tracking overlay versus conventional (unassisted) scanning.
Main outcome measures: The primary outcome was the total anatomical identification score (10 target structures), analysed by linear mixed-effects model. Structure-specific identification rates, scanning duration, self-rated confidence, and perceived AI utility were included as secondary outcomes.

Results

AI assistance significantly improved median total scores (8.25 [IQR 5.25–9.00] vs. 6.75 [IQR 4.50–7.75], p = 0.003). LMM confirmed AI as an independent predictor of success (β = 1.25, 95% CI 0.55–1.95, p = 0.002). The largest structure-specific gains occurred in the anterior (55.6% vs. 22.2%) and posterior divisions (58.3% vs. 22.2%) (both p < 0.001). Trainee self-confidence also improved significantly post-assistance (1.78 ± 0.73 to 3.83 ± 0.71, p < 0.001). Furthermore, AI assistance did not meaningfully prolong scanning duration (48.1 ± 11.8s vs. 45.3 ± 18.2s) and was universally rated as highly useful by all participants (median utility score 10/10).

Conclusion

AI-assisted real-time brachial plexus tracking significantly improved trainee identification of supraclavicular structures during dynamic scanning, particularly for the challenging structures, and uniformly enhanced self-confidence. These findings support the integration of real-time AI-guided tools into regional anaesthesia simulation training.

AP-01-1 (2026-0386)

Figure & Table

Figure & Table 1.

Table 2. Linear mixed-effects model results (session-level, 0–10 scale; REML)

Term	Beta	SE	95% CI	p
Intercept	5.875	0.532	4.779 – 6.971	< 0.001
Condition: AI vs Control	1.250	0.331	0.548 – 1.952	0.002
Session: Session 2 vs Session 1	0.528	0.331	-0.175 – 1.230	0.131

CI: confidence interval; SE: standard error; SD: standard deviation; ICC: intraclass correlation coefficient; AIC: Akaike information criterion; REML: restricted maximum likelihood.

Figure & Table 2.

Table 3. Primary outcome and structure-wise identification rates (expert assessment) by condition

	Structure/Item	AI-assisted	Control	Difference	p value
Total identification score (max = 10)	Median [IQR]	8.25 [5.25–9.00]	6.75 [4.50–7.75]	1.5 (0.0–2.0)[a]	0.003
	Mean ± SD	7.4 ± 2.2	6.1 ± 2.1		
Structure-wise identification rate, n (%)	C5	29 (80.6%)	30 (83.3%)	-2.8%	1.000
	C6	31 (86.1%)	29 (80.6%)	+5.6%	0.727
	C7	30 (83.3%)	26 (72.2%)	+11.1%	0.344
	UT	31 (86.1%)	27 (75.0%)	+11.1%	0.219
	MT	25 (69.4%)	22 (61.1%)	+8.3%	0.508
	LT	21 (58.3%)	20 (55.6%)	+2.8%	1.000
	AD	20 (55.6%)	8 (22.2%)	+33.3%	< 0.001 **
	PD	21 (58.3%)	8 (22.2%)	+36.1%	< 0.001 **
	SSN	24 (66.7%)	17 (47.2%)	+19.4%	0.092 †
	CP	34 (94.4%)	34 (94.4%)	+0.0%	1.000

Values are presented as median [interquartile range] or number of successful identifications (%). IQR: interquartile range; CI: confidence interval; UT: upper trunk; MT: middle trunk; LT: lower trunk; AD: anterior division; PD: posterior division; SSN: suprascapular nerve; CP: corner pocket.

ABSTRACT
Competition
Presentation
E-Poster

Pecto-Intercostal Fascial Block Versus Erector Spinae Plane Block for Analgesia and Respiratory Recovery after Cardiac Surgery: A Preliminary Analysis of a Randomized Controlled Trial

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Background

Regional analgesia after median sternotomy remains debated. The erector spinae plane (ESP) block is favored for its broad anatomical spread, whereas the pecto-intercostal fascial block (PIFB) directly targets the parasternal anterior cutaneous branches that innervate the sternotomy field. We hypothesized that ESP's broader spread would provide superior analgesia, and compared opioid consumption, respiratory recovery, and quality of recovery.

Methods

In this ongoing single-center randomized controlled trial (NCT06322810), adults undergoing cardiac surgery via median sternotomy were randomized to bilateral ESP or PIFB with catheter placement: a pre-incision bolus of 0.5% ropivacaine (0.3 mL/kg ideal body weight per side), followed postoperatively by programmed intermittent boluses of 0.166% ropivacaine (0.3 mL/kg/side) every 4 h. The primary outcome was cumulative opioid consumption (oral morphine equivalents, OME) over the first 48 postoperative hours. Secondary outcomes included numerical rating scale (NRS) pain at rest and on movement (12–48 h), incentive spirometry volume on postoperative days (POD) 1–3, and the 15-item Quality of Recovery (QoR-15) score at POD3. Data were compared with the Mann–Whitney U test; as baseline spirometry was lower in the PIFB group, postoperative spirometry was analyzed by ANCOVA with baseline as a covariate.

Results

Of a planned 80 patients, 75 (ESP 35, PIFB 40) were analyzed; groups differed only in higher BMI and lower baseline spirometry in PIFB. PIFB significantly reduced 48-h opioid consumption and improved QoR-15 at POD3, exceeding its minimal clinically important difference (Table). Baseline-adjusted incentive spirometry volume was greater with PIFB at every POD (Figure). NRS pain scores were largely comparable except lower resting pain with PIFB at 36 h.

Conclusion

In this preliminary analysis of an ongoing RCT, PIFB provided superior early analgesia, greater baseline-adjusted respiratory recovery, and better quality of recovery than ESP after cardiac surgery via median sternotomy. Contrary to our hypothesis, the more anatomically targeted PIFB was superior, supporting a site-specific rationale for parasternal blockade. Recruitment is ongoing and these findings remain preliminary.

Figure & Table

Figure & Table 1.

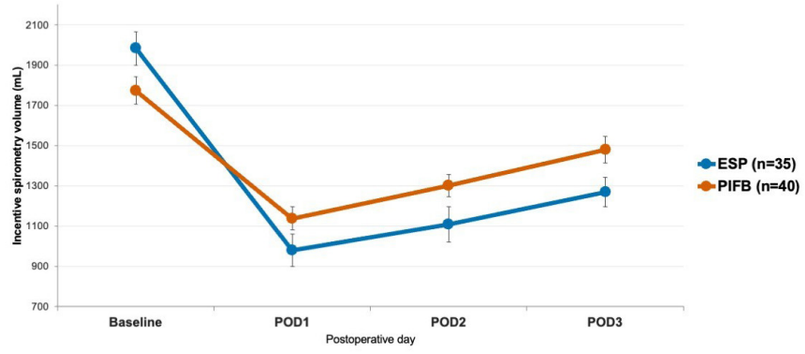
Table. Primary and secondary outcomes.

Outcome	ESP (n=35)	PIFB (n=40)	*p* value
Primary outcome			
48-h opioid consumption, OME (mg)	15 [6–35]	5 [0–15]	**0.004**
Secondary outcomes			
NRS at rest, 12 h	0 [0–1.5]	0 [0–0.5]	0.594
NRS at rest, 24 h	0 [0–0]	0 [0–0]	0.659
NRS at rest, 36 h	0 [0–2]	0 [0–0]	**0.024**
NRS at rest, 48 h	0 [0–0]	0 [0–0]	0.078
NRS on movement, 12 h	1 [0–2.5]	1 [0–2.25]	0.843
NRS on movement, 24 h	1 [0–3]	2 [0–3]	0.828
NRS on movement, 36 h	3 [0–5]	2 [0–3.25]	0.189
NRS on movement, 48 h	2 [0–3.5]	2 [0–3]	0.281
Incentive spirometry, POD1 (mL)	980 ± 466	1138 ± 354	**<0.001‡**
Incentive spirometry, POD2 (mL)	1109 ± 500	1301 ± 362	**<0.001‡**
Incentive spirometry, POD3 (mL)	1269 ± 422	1480 ± 418	**<0.001‡**
QoR-15 total (POD3)	131 [120–140]	142 [129–144]	**0.037**

Data are median [IQR]; P by Mann–Whitney U test, except incentive spirometry (mean ± SD; ‡ ANCOVA adjusted for baseline POD0, adjusted differences 328/359/344 mL at POD1–3).

Figure & Table 2.

Incentive spirometry recovery: PIFB vs ESP



‡ ANCOVA-adjusted for baseline (POD0); adjusted between-group differences 328 / 359 / 344 mL at POD1–3, all P<0.001. Interim analysis, n=75 (ESP 35, PIFB 40).

AP-01-3 (2026-0163)

Lipid Emulsion Inhibits Bupivacaine-Induced Cardiotoxicity via Reversal of the AMPK–mTOR Pathway

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Background
Bupivacaine occasionally causes cardiotoxicity. Activation of AMP-activated protein kinase (AMPK), which is triggered by energy depletion (an increased AMP/ATP ratio), inhibits mechanistic target of rapamycin complex 1 (mTORC1), leading to suppression of eukaryotic initiation factor 4E-binding protein 1 (4E-BP1) and ribosomal S6 kinase (S6K) signaling. This adaptive response reduces protein synthesis and conserves cellular energy under low-energy conditions. Lipid emulsion is widely used to treat bupivacaine-induced cardiotoxicity. Although previous studies have implicated AMPK–mTOR signaling in the protective effects of lipid emulsion, the involvement of the AMPK–mTORC1–4E-BP1/S6K signaling pathway has not been fully elucidated in cell-based models. Therefore, this study investigated the effects of lipid emulsion on bupivacaine-induced cardiotoxicity in H9c2 rat cardiomyoblasts, with particular emphasis on the AMPK–mTORC1–4E-BP1/S6K signaling pathway.

Methods
The effects of lipid emulsion (Intralipid®, 0.5%, 0.75%, and 1%) on toxic-dose bupivacaine (10^{-3} M)-induced reductions in cell viability and migration were evaluated in H9c2 cells. The effects of bupivacaine, lipid emulsion, and the AMPK inhibitor dorsomorphin (10^{-6} M), alone or in combination, on the expression of cleaved caspase-3, cleaved caspase-9, the Bax/Bcl-2 ratio, and binding immunoglobulin protein (BiP) were examined by Western blotting. The effects of these treatments on reactive oxygen species (ROS) production, mitochondrial membrane potential, intracellular calcium levels, and apoptosis were evaluated using fluorescence-based assays and TUNEL staining. In addition, the effects of lipid emulsion on bupivacaine-induced phosphorylation of AMPK, mTORC1, 4E-BP1, and S6K were examined.

Results
Lipid emulsion (0.5%, 0.75%, and 1%) significantly reversed the toxic-dose bupivacaine (10^{-3} M)-induced reductions in cell viability and migration. Lipid emulsion or dorsomorphin attenuated the bupivacaine-induced increases in cleaved caspase-3, cleaved caspase-9, the Bax/Bcl-2 ratio, and BiP expression. Both lipid emulsion and dorsomorphin also inhibited bupivacaine-induced ROS production, mitochondrial membrane depolarization, intracellular calcium overload, and the increase in TUNEL-positive cells. Furthermore, lipid emulsion reversed the bupivacaine-induced increase in AMPK phosphorylation and restored the phosphorylation of mTORC1, 4E-BP1, and S6K.

Conclusion
These findings suggest that lipid emulsion attenuates toxic-dose bupivacaine-induced cardiotoxicity by suppressing ROS production and apoptosis associated with mitochondrial and endoplasmic reticulum stress. These protective effects appear to be mediated, at least in part, through modulation of the AMPK–mTORC1–4E-BP1/S6K signaling pathway in H9c2 rat cardiomyoblasts.

AP-01-4 (2026-0375)

Effects of Combined Pectoserratus and Pecto-Intercostal Fascial Plane Blocks for Cardiac Surgery via Median Sternotomy: A Randomized Controlled Trial

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Background
Ultrasound-guided fascial plane blocks have emerged as opioid-sparing analgesic strategies for cardiac surgery; however, evidence regarding combined block techniques remains limited. This randomized controlled trial evaluated the analgesic efficacy of combined pectoserratus plane block (PSPB) and pecto-intercostal fascial plane block (PIFB) in patients undergoing cardiac surgery via median sternotomy.

Methods
Sixty-two adult patients undergoing cardiac surgery via median sternotomy were randomized to either a block group receiving bilateral PSPB and PIFB after anesthetic induction or a control group receiving conventional analgesia alone. The primary outcome was postoperative visual analog scale (VAS) pain score at 6, 12, 24, and 48 h after surgery. Secondary outcomes included Korean version of Quality of Recovery-15 (QoR-15K) scores, total opioid consumption, rescue analgesic dose, time to first rescue analgesia, extubation time, intensive care unit (ICU) stay, hospital stay, and the incidence of postoperative nausea and vomiting.

Results
Fifty-four patients were included in the final analysis. Postoperative VAS scores did not differ significantly between groups after Bonferroni correction for repeated measurements. No significant overall between-group effect was observed in repeated-measures ANOVA. ICU stay was statistically shorter in the block group, although the absolute difference was small and of uncertain clinical relevance. No significant differences were observed in the remaining secondary outcomes.

Conclusion
Combined PSPB and PIFB did not reduce postoperative pain or improve recovery outcomes after cardiac surgery via median sternotomy. Early postoperative pain scores were numerically higher in the block group, although these differences were not statistically significant after correction for multiple comparisons. The incremental analgesic benefit of combined fascial plane blocks may therefore be limited in this clinical setting.

Figure & Table

Figure & Table 1.

Table 2. Outcome comparisons between the groups.

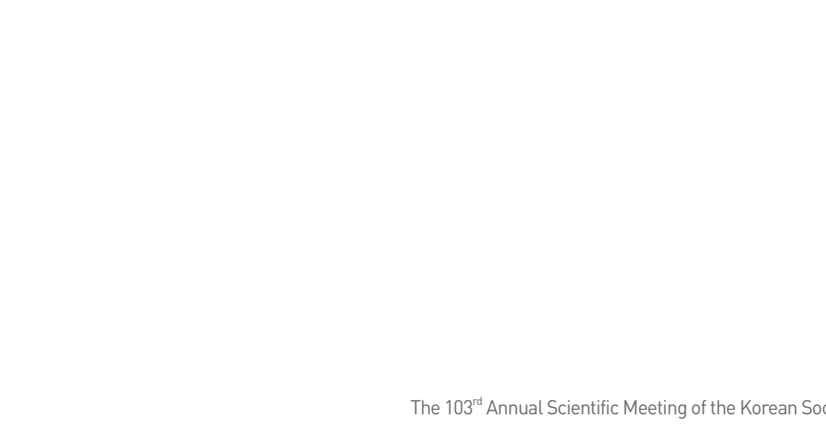
	Control Group (n = 26)	Block Group (n = 28)	p-Value	Mean Difference (95% CI)
Primary outcomes				
VAS 6 h	45.00 [30.00–80.00]	70.00 [60.00–81.50]	0.034 (0.136)	—
VAS 12 h	51.65 ± 25.01 [0, 100]	66.86 ± 24.30 [10, 100]	0.028 (0.112)	15.20 (1.74, 28.67)
VAS 24 h	50.92 ± 24.23 [0, 91]	48.21 ± 27.28 [0, 90]	0.702 (1.000)	−2.71 (−16.84, 11.42)
VAS 48 h	37.81 ± 24.14 [0, 87]	39.29 ± 24.38 [0, 90]	0.824 (1.000)	1.48 (−11.78, 14.74)
VAS (70–100) 6 h	9 (34.6)	16 (57.1)	0.097 (0.194)	—
VAS (70–100) 12 h	7 (26.9)	16 (57.1)	0.025 (0.050)	—
Secondary outcomes				
QoR-15K Total 24 h	94.00 ± 24.29	94.46 ± 27.46	0.948	0.46 (−13.74, 14.66)
QoR-15K Total 48 h	111.54 ± 20.01	107.86 ± 20.46	0.507	−3.68 (−14.75, 7.38)
QoR-15K N/V questionnaire 24 h	10.00 [9.00–10.00]	10.00 [5.00–10.00]	0.084	—
QoR-15K N/V questionnaire 48 h	10.00 [10.00–10.00]	9.00 [6.00–10.00]	0.005 *	—
Time to 1st rescue analgesics	718.62 ± 388.84 [200, 1635]	787.32 ± 317.21 [225, 1290]	0.479	68.71 (−124.47, 261.88)
Rescue analgesic dose (MME)	49.79 ± 26.04 [0, 120]	43.13 ± 24.03 [0, 90]	0.333	−6.66 (−20.34, 7.01)
Total opioid analgesic dose (MME)	415.27 ± 68.71 [315, 585]	399.38 ± 64.34 [322.5, 570]	0.384	−15.89 (−52.23, 20.44)
Total acetaminophen dose (mg)	3354.81 ± 2677.90 [0, 9550]	2652.68 ± 1922.519 [975, 9550]	0.271	−702.13 (−1968.20, 563.95)
Patients requiring rescue analgesia	25 (96.2)	25 (89.3)	0.336	—
New onset atrial fibrillation	0 (0)	3 (10.7)	0.086	—
Wound infection	0 (0)	0 (0)	1.000	—
Mortality	0 (0)	0 (0)	1.000	—
Length of ICU stay (hour)	26.05 [23.38–27.00]	24.00 [21.63–25.75]	0.045 *	—
Length of hospital stay (day)	10.00 [8.00–12.00]	9.00 [8.00–10.00]	0.118	—
Time to extubation (min)	1047.50 [828.75–1146.25]	947.50 [781.25–1097.50]	0.200	—

Data are presented as mean ± SD [minimum, maximum], median [Q1–Q3], or number (%), as appropriate. The pain intensity was measured using a VAS (0 = no pain, 100 = the worst imaginable pain). Mean differences and 95% confidence intervals were calculated from unadjusted between-group comparisons for continuous variables summarized as mean ± SD, using the block group minus control group direction. p-values in parentheses indicate Bonferroni-adjusted p-values. Rescue analgesic requirement dose was calculated in MME. Length of ICU stay is presented in hours to facilitate clinical interpretation. VAS, visual analog scale; N/V, nausea/vomiting; MME, morphine milligram equivalent; ICU, intensive care unit. SD, standard deviation; CI, confidence interval; Q1–Q3, first quartile–third quartile. * = p-value < 0.05.

AP-01-4 (2026-0375)

Figure & Table

Figure & Table 2.



Stakeholder Perspectives on Prone-Compatible Virtual Reality for Interventional Pain Procedures: A Customer Discovery–Informed Qualitative Study

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Background
Pain and anxiety during interventional pain procedures may impair patient experience and increase reliance on anxiolysis or sedation. Immersive virtual reality (VR) is a nonpharmacologic distraction strategy, but many interventional pain procedures are performed prone, creating positioning, workflow, and safety challenges. We sought to characterize stakeholder perceptions of the clinical need, value, adoption barriers, and design requirements for a prone-compatible VR system.

Methods
We performed a secondary qualitative content analysis of structured customer-discovery interview summaries collected through the US National Science Foundation Innovation Corps and UC Davis Big Bang Entrepreneurship programs. This study was IRB exempt. Stakeholders included clinicians, medical-device/manufacturing representatives, and an engineering professor. Responses were organized into four domains: experience with the problem, willingness to use the proposed solution, most valuable component, and biggest concerns. Directed content analysis was used with inductive refinement of recurrent themes.

Results
The dataset included 22 stakeholders: 17 clinicians, 4 medical-device/manufacturing representatives, and 1 engineering professor. Fifteen of 17 clinicians explicitly described procedural pain or anxiety as a problem in practice, and 14 expressed clear interest in a prone-compatible VR intervention. Current approaches included reassurance, counseling, local anesthetic, music, procedural efficiency, and oral or intravenous anxiolysis/sedation. Perceived benefits included nonpharmacologic distraction, anxiety reduction, reduced sedation, prone compatibility, and integration of positioning hardware, headset, and software. Adoption was conditional on evidence of benefit, ease of use, minimal workflow disruption, patient acceptability, and procedural compatibility. Major concerns included cost, setup time, sterility, durability, size and weight, radiolucency, interference with fluoroscopy or procedural access, patient movement, communication, cybersickness, and regulatory pathway.

Conclusion
Stakeholders identified a clinical need for nonpharmacologic strategies to address pain and anxiety during prone interventional pain procedures and generally viewed prone-compatible VR favorably. Adoption will depend on demonstrating clinical benefit while preserving comfort, communication, procedural access, and workflow efficiency. These findings support continued user-centered refinement and prospective clinical evaluation of an integrated prone-compatible VR system.

AP-01-5 (2026-0538)

Figure & Table

Figure & Table 1.

Table 1. Major themes and design implications

Domain	*Major themes*	*Design or research implication*
Experience with problem	Pain, anxiety, needle phobia, movement, vasovagal symptoms, need for reassurance or sedation	Target high-anxiety patients and measure pain, anxiety, movement, and sedation use
Willingness to use	Generally favorable but conditional	Demonstrate benefit, minimize setup burden, preserve patient choice
Most valuable features	Prone compatibility, nonpharmacologic distraction, integrated package, workflow integration	Build a complete system optimized for prone procedures
Biggest concerns	Cost, setup time, size/weight, radiolucency, sterility, durability, patient communication, dizziness, regulatory pathway	Include usability, workflow, safety, cleaning, and regulatory milestones in development plan

ABSTRACT
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A Comparative Study of Anesthetic Techniques for Achilles Tendon Repair Surgery: Popliteal Nerve Block vs Spinal Anesthesia

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Background

Achilles tendon rupture is a common injury among physically active individuals and often requires surgical repair. Effective postoperative pain management is essential for early mobilization, enhanced recovery, and improved surgical outcomes. Spinal anesthesia is widely used for lower limb surgery; however, it may be associated with systemic adverse effects such as hypotension, urinary retention, and nausea. In contrast, popliteal sciatic nerve block provides targeted regional anesthesia with prolonged postoperative analgesia and fewer systemic complications.

Methods

Materials and Methods

This prospective randomized controlled study was conducted between June and December 2025 at the National Trauma and Orthopedic Research Center. A total of 40 patients aged 18–65 years with acute Achilles tendon rupture and ASA physical status I–III were enrolled and randomly allocated into two groups: popliteal sciatic nerve block (n=20) and spinal anesthesia (n=20). The popliteal block was performed under ultrasound guidance using 0.5% ropivacaine, whereas spinal anesthesia was administered with hyperbaric bupivacaine at the L3–L4 level. Postoperative pain was assessed using the Visual Analog Scale (VAS) at 6, 12, 24, and 48 hours. Duration of analgesia, opioid consumption, time to mobilization, patient satisfaction, and complications were evaluated.

Results

VAS pain scores were significantly lower in the popliteal nerve block group at all postoperative time points ($p<0.05$). Patients receiving popliteal block demonstrated prolonged analgesia, reduced opioid consumption, earlier mobilization, and higher patient satisfaction. Complications such as hypotension, nausea, and urinary retention were more frequent in the spinal anesthesia group.

Conclusion

Popliteal sciatic nerve block provides superior postoperative analgesia with fewer complications compared to spinal anesthesia in Achilles tendon repair surgery. It may represent a safer and more effective anesthetic option for lower extremity orthopedic procedures

AP-01-6 (2026-0297)

Figure & Table

Figure & Table 1.

Parameter	Popliteal Nerve Block (n=20)	Local Anesthetic Infiltration (n=20)	p-value
VAS (6 hours)	2.1 ± 0.8	3.8 ± 1.0	<0.001
VAS (12 hours)	2.5 ± 0.9	4.2 ± 1.1	<0.001
VAS (24 hours)	3.0 ± 1.0	4.5 ± 1.2	<0.01
VAS (48 hours)	2.8 ± 0.9	3.9 ± 1.0	<0.01
Duration of Analgesia (hours)	18.5 ± 4.2	6.2 ± 2.1	<0.001
Opioid Consumption (mg)	8.2 ± 3.5	18.6 ± 5.1	<0.001

ABSTRACT
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Comparison between Analgesic Efficacy of Sacral Erector Spinae Plane Block and Caudal Block in Pediatric Anorectal Surgeries - A Randomized Controlled Trial

Vinay Kain[1], Anju Gupta[1*]

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Background
The caudal block is widely used for postoperative analgesia in pediatric anorectal surgeries. The sacral erector spinae plane block (ESPB) is a novel block that targets sacral nerve fibers and provides analgesia during perineal surgeries. This study compared the analgesic efficacy of caudal block and sacral ESPB in pediatric anorectal surgeries.

Methods
Sixty children aged between 2 months and 7 years scheduled for elective anorectal procedures were randomized to receive either caudal block (n=30) or sacral erector spinae plane block (n=30). The primary objective of this study was to compare the total postoperative fentanyl requirements. The time to the first fentanyl administration, intraoperative fentanyl consumption, procedure time, FLACC scores, hemodynamic parameters, parental satisfaction score, quality of sleep, and complications were also assessed.

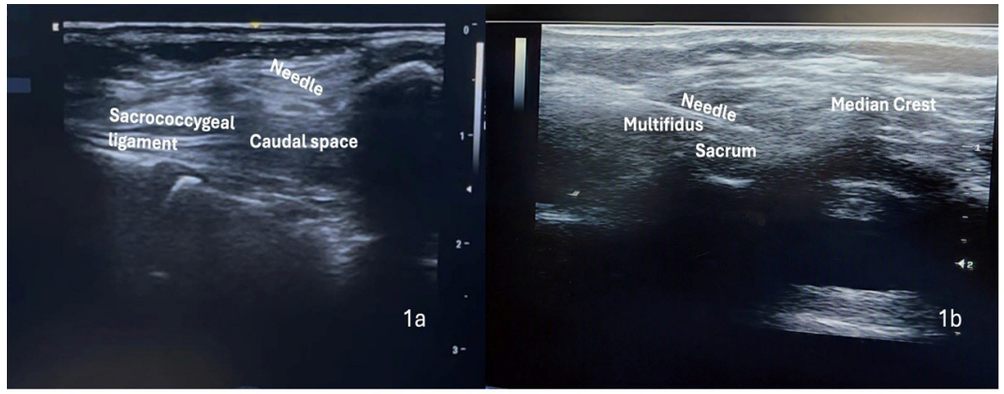
Results
The mean (SD) total postoperative fentanyl consumption was similar (11.53 ± 9.36 μg vs. 15.67 ± 9.97 μg, P=0.104; mean difference(CI) -4.133 ± 0.506 [-4.639 to -3.627]. Time to the first analgesia (P=0.12) were similar between the groups. The FLACC scores were comparable between the groups at all time points, except at 24 h (P=0.045). The total intraoperative fentanyl consumption (P=0.091), parental satisfaction scores (P=0.367), and sleep quality (P=0.052) were similar.

Conclusion
Both caudal block and sacral ESPB provide effective pain relief during anorectal surgery. Considering the potential complications of caudal block, we suggest a wider adoption of sacral ESPB for anorectal procedures in children.

AP-01-7 (2026-0171)

Figure & Table

Figure & Table 1.



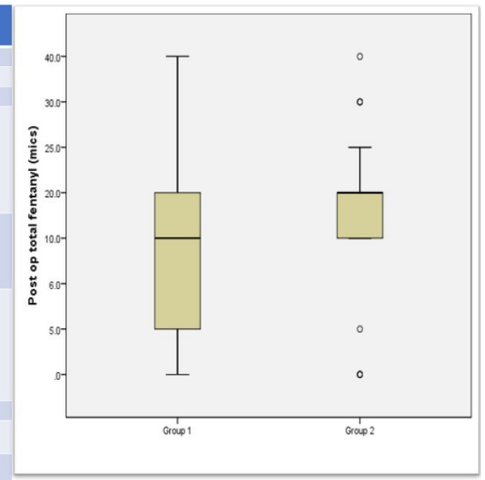
USG GUIDED CAUDAL BLOCK

USG GUIDED SACRAL ERECTOR SPINAE PLANE BLOCK

Figure & Table 2.

Variable	Group1(N=30)	Group 2 (N=30)	Mean difference (CI)	P value
Age in years, mean(SD)	2.28 (1.9)	2.9 (2.1)	-	0.247[2]
Males/ females, n	18 / 12	15 / 15	-	0.436[4]
Weight in kg, mean(SD)	10.72 (5.8)	12.92(6.7)	-	0.132[2]
Postop total fentanyl (μg)				
Mean (SD)	11.5(9.4)	15.7(9.9)	-4.13(CI)	0.104[2]
Median(IQR)	10(5-20)	20 (10-20)		0.085[2]
Mean fentanyl/kg (SD)	1.11 (0.78)	1.29 (0.74)		0.36[1]
Intra-op total Fentanyl(μg)				
Mean (SD)	17.4 (17.1)	27.2 (24.2)	-9.8 (CI)	0.091[2]
Median(IQR)	11 (3.8 – 26.3)	20 (10 – 32.5)		
Postoperative Fentanyl usage, n(%)				
0-6 hours	3 (10)	2 (6.66)		0.64[4]
6-12 hours	18 (60)	22 (73.3)		0.27[4]
12-24 hours	16 (53.3)	16 (53.3)		0.856[4]
Time to first analgesia (min)	564 (144)	620 (138)		0.12[2]
Patient/parental Satisfaction, mean(SD)	16 53.3)	16 (53.3)	0.856	0.367[1]
Sleep quality, n(%)				
Poor	13 (43.3)	6 (20)		0.052[4]
Good	17 (56.7)	24 (80)		

[1]=Independent t test, [2]=Mann Whitney U test, [3] = paired t test, [4]= Chi square test



Post operative Fentanyl consumption

ABSTRACT
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AP-01-8 (2026-0482)

Professionally Prescribed Individualized Music Versus Intravenous Propofol for Perioperative Anxiety During Regional Anaesthesia: A Prospective Comparative Study

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Background
Perioperative anxiety is common during regional anaesthesia, where patients remain exposed to the unfamiliar operating-room environment. Although intravenous sedation provides anxiolysis, it may cause excessive sedation and cardiorespiratory depression. Music offers a non-pharmacological alternative, but evidence for individualized music professionally curated by a music therapist remains limited. We compared professionally prescribed individualized music with propofol sedation for perioperative anxiolysis during regional anaesthesia.

Methods
This prospective single-centre comparative study was conducted at University Malaya Medical Centre from August 2023 to March 2024 following institutional ethics approval (MREC ID: 2023418-12366), with written informed consent obtained from all participants. Sixty ASA physical status I–II adults undergoing surgery under regional anaesthesia were allocated by scheduled operating day to music therapy (MT, n=30) or sedative-hypnotic (SH, n=30) groups. A professional music therapist interviewed MT participants regarding their music history and preferences and curated individualized playlists. The SH group received target-controlled propofol titrated using clinical assessment, Bispectral Index (BIS) and modified Observer's Assessment of Alertness/Sedation (mOAA/S). Anxiety was assessed pre- and postoperatively using the State-Trait Anxiety Inventory-State (STAI-S) and visual analogue scale (VAS). Intraoperative BIS, mOAA/S, haemodynamics and rescue interventions were recorded. Postoperative outcome assessors and the statistician were blinded to group allocation.

Results
All 60 participants were analysed by intention-to-treat. Preoperative STAI-S was significantly higher in MT than SH (43.2±9.8 vs 38.0±10.0; p=0.049). Nevertheless, STAI-S decreased by 24.2±14.1% in MT and 25.1±19.5% in SH, with no significant between-group difference (p=0.846). Anxiety VAS similarly decreased by 55.3±21.4% and 57.1 ±23.1%, respectively (p=0.629). Overall satisfaction was comparable (8.7±1.2 vs 8.9±1.4; p=0.290). The SH group demonstrated lower BIS and mOAA/S throughout surgery, consistent with deeper sedation; mOAA/S ranged from 3.9–4.4 in SH versus 4.7–4.8 in MT (p<0.05), whereas MT participants showed greater preservation of alertness. Blood pressure and heart-rate trends were similar between groups. Twenty-seven of 30 MT participants (90%) completed surgery without rescue sedation; three required additional sedative medication for restlessness, agitation or prolonged surgery. Vasopressors were required in 5 MT and 7 SH participants following neuraxial blockade, and no participant required ventilatory support beyond conventional oxygen therapy.

Conclusion
Professionally prescribed individualized music produced substantial perioperative anxiety reduction, with no significant difference in the magnitude of anxiety reduction compared with propofol sedation. Music was associated with greater preservation of intraoperative alertness while achieving similar patient satisfaction and haemodynamic profiles. Although rescue sedation was required in some patients, individualized music may offer a useful non-pharmacological strategy for selected patients undergoing regional anaesthesia when minimizing sedative administration is desirable.

Presentation

Abstract Presentation 2

Date / Time	Nov 5 (Thu), 11:00-12:30
Room	Room C *(Paradise City)*
Language	English
Chair(s)	Kyu Nam Kim *(Hanyang University, Republic of Korea)* Heeseung Lee *(Ewha Womans University, Republic of Korea)*

AP-02-1 2026-0500

Hydroxyethyl Starch and Acute Kidney Injury After Surgery: A Nationwide Cohort Study

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AP-02-2 2026-0557

Identifying a Candidate Post-Tetanic Count Range for Sugammadex 3 mg/kg: A First-Stage Exploratory Biased-Coin Up-and-Down Study

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AP-02-3 2026-0212

The Effect of Intravenous Dextrose Administration on Postoperative Nausea and Vomiting: Systematic Review and Meta-Analysis with Trial Sequential Analysis

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AP-02-4 2026-0325

Recovery Beyond Emergence: Exposure-Dependent Durability of PACU Recovery After Remimazolam–Flumazenil Anesthesia

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AP-02-6 2026-0336

Propofol-Based Total Intravenous Anesthesia vs. Sevoflurane Inhalational Anesthesia in Perioperative Natural Killer Cell Antitumor Activity after Hepatocellular Carcinoma Resection: A Prospective Randomized Pilot Study

Yoon Joo Chung[1], Gyeyoung Ahn[1], Gaab Soo Kim[2], Sangbin Han[2], Duck Cho[3], Hyun-Young Kim[3], Ji-Hye Kwon[2*]

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AP-02-7 2026-0126

Temporal Changes in Total and Unbound Remimazolam Concentrations During Cardiopulmonary Bypass With Hypothermic Circulatory Arrest: A Prospective Observational Study

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AP-02-8 2026-0224

Effect of Different Bicarbonate Concentrations on Rocuronium-Induced Neuromuscular Blockade and Sugammadex-Induced Reversal in Rat Phrenic Nerve Hemidiaphragm

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AP-02-1 (2026-0500)

Hydroxyethyl Starch and Acute Kidney Injury After Surgery: A Nationwide Cohort Study

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Background

Although hydroxyethyl starch(HES) solutions were suspended from Europe in 2022 based on renal harm observed in critically ill patients, it remain unresolved whether this toxicity extends to surgical patients receiving modern 6% HES 130/0.4 within its label. Randomized trials are underpowered for rare renal outcomes, and large observational studies predate the regulations. We examined the association between day-of-surgery HES administration and postoperative renal outcomes in a nationwide cohort.

Methods

Using Korean National Health Insurance Service claims, we identified all adult operations under general anesthesia from January 2022 to December 2023. Patients with pre-existing acute kidney injury(AKI, <30 days), end-stage renal disease, dialysis, or kidney transplantation(<1 year) were excluded. Exposure was defined as a pharmacy claim for 6% HES 130/0.4 on the day of surgery. Primary endpoints were in-hospital AKI and AKI requiring renal replacement therapy(RRT). Propensity scores including demographic, comorbidity, surgical, anesthetic, and fluid covariates with hospital fixed effects were estimated, and overlap weighting targeting the average treatment effect in the overlap population was applied; standard errors were clustered at the hospital level. Hospital fixed-effects models and dose-response analyses (per 500-mL increment, linear probability models) were performed.

Results

Among 2,212,106 operations, 163,268 (7.4%) involved HES administration. HES-exposed patients were older and underwent longer, complex operations. Unadjusted odds of AKI (odds ratio [OR], 3.18; 95% CI, 3.03-3.34) and AKI requiring RRT (OR, 6.32; 95% CI, 5.95-6.71) were higher with HES. After overlap weighting (effective sample size, 113,766 per group), all covariates were balanced, and HES was associated with lower odds of AKI (weighted incidence, 0.92% vs 1.22%; OR, 0.78; 95% CI, 0.68-0.90; risk difference, −2.9 per 1,000 operations) and AKI requiring RRT (0.46% vs 0.94%; OR, 0.55; 95% CI, 0.42-0.72; risk difference, −4.9 per 1,000 operations). Estimates were unchanged with hospital fixed effects. Each additional 500 mL of HES was associated with lower absolute risk of both outcomes (−1.6, −1.1 per 1,000 operations, respectively). These were consistent in noncardiac operations.

Conclusion

In this nationwide cohort of 2.21 million surgeries, day-of-surgery given 6% HES 130/0.4 was not associated with increased AKI or AKI requiring RRT in adults without pre-existing disease. Because the identifiable biases of this design act toward apparent harm, the absence of a harmful renal signal is a conservative finding. These results do not establish renal safety but provide no support, at the largest scale up to date, for extending to surgical patients the renal toxicity observed in critical illness.

AP-02-1 (2026-0500)

Figure & Table

Figure & Table 1.

Table 2. Association Between Perioperative Hydroxyethyl Starch Administration and Postoperative Renal Outcomes

Outcome and analysis	No HES†	HES†	Odds ratio (95% CI)	P value
Acute kidney injury				
Unadjusted	8,483 / 2,048,838 (0.41)	2,130 / 163,268 (1.30)	3.18 (3.03–3.34)	<0.001
Overlap weighted	1,382.9 / 113,766.3 (1.22)	1,047.4 / 113,766.3 (0.92)	0.78 (0.68–0.90)	<0.001
Overlap weighted + hospital fixed effects	—	—	0.78 (0.68–0.90)	<0.001
Renal replacement therapy				
Unadjusted	3,215 / 2,048,838 (0.16)	1,606 / 163,268 (0.98)	6.32 (5.95–6.71)	<0.001
Overlap weighted	1,070.3 / 113,766.3 (0.94)	517.6 / 113,766.3 (0.46)	0.55 (0.42–0.72)	<0.001
Overlap weighted + hospital fixed effects	—	—	0.55 (0.42–0.72)	<0.001

HES denotes administration of 6% hydroxyethyl starch 130/0.4 on the day of surgery; the comparator group received no hydroxyethyl starch. Unadjusted estimates are based on the propensity score analytic cohort (N = 2,265,665). Overlap-weighted estimates are from weighted logistic regression targeting the average treatment effect in the overlap population (ATO), with standard errors clustered at the hospital level; weighted event counts and percentages are shown with the overlap-weighted effective sample size (113,766.3 per group). The corresponding weighted risk differences were −2.9 (acute kidney injury) and −4.9 (renal replacement therapy) per 1,000 operations. Hospital fixed-effects models compare exposed and unexposed patients within the same hospital; hospitals without outcome variation do not contribute to these estimates (615 hospitals [450,474 patients] excluded for acute kidney injury; 782 hospitals [654,295 patients] for renal replacement therapy), and weighted event counts are therefore not shown. CI indicates confidence interval; HES, hydroxyethyl starch.

Figure & Table 2.

Table 3. Dose-Response Association Between Hydroxyethyl Starch Volume and Postoperative Renal Outcomes

Outcome	Risk difference per 500 mL of HES, per 1,000 operations (95% CI)	P value
AKI	−1.60 (−2.40 to −0.80)	<0.001
AKI requiring RRT	−1.10 (−1.90 to −0.40)	0.003

Estimates are from linear probability models with hospital fixed effects, fitted in the full eligible cohort (N = 2,696,359); hospitals without outcome variation do not contribute to the estimates. Hydroxyethyl starch volume was modeled as a continuous variable per 500-mL increment; coefficients therefore represent absolute risk differences per 1,000 operations for each additional 500 mL of 6% hydroxyethyl starch 130/0.4 administered on the day of surgery. Models were adjusted for demographic characteristics, comorbidities, surgical and anesthetic factors, and concomitant fluid volumes; full coefficient estimates are provided in the Supplement. Standard errors were clustered at the hospital level, accounting for the heteroskedasticity of the linear probability model. The linear specification assumes a constant risk difference per increment across the observed volume range. AKI, acute kidney injury; RRT, renal replacement therapy; CI indicates confidence interval; HES, hydroxyethyl starch.

ABSTRACT
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Presentation
E-Poster

Identifying a Candidate Post-Tetanic Count Range for Sugammadex 3 mg/kg: A First-Stage Exploratory Biased-Coin Up-and-Down Study

Sojin Kim[1], Byeonghwa Kim[2], Eunjin Song[1], Seongwook Jeong[1], Seongheon Lee[1*]

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2. Department Anesthesiology and Pain Medicine, Chonnam National University Hospital, Republic of Korea

Background
Sugammadex 4 mg/kg is recommended for reversal of deep neuromuscular block at a post-tetanic count (PTC) of 1–2, whereas 2 mg/kg is recommended after reappearance of the second train-of-four response. Although an intermediate dose of 3 mg/kg is often considered in clinical practice, the corresponding depth of neuromuscular block has not been established. This study aimed to identify the PTC range in which sugammadex 3 mg/kg could provide rapid and reliable reversal.

Methods
This was a first-stage exploratory dose-finding study designed to identify a candidate PTC range for a subsequent randomized non-inferiority trial comparing sugammadex 3 mg/kg with 4 mg/kg. The study was approved by the institutional review board, and written informed consent was obtained from all participants. A biased-coin up-and-down design was used. Adult patients undergoing general anesthesia with rocuronium-induced neuromuscular block were enrolled. At the end of surgery, sugammadex 3 mg/kg was administered when the allocated depth of neuromuscular block was reached. The tested strata were PTC 1–2, PTC 3–5, PTC 6–8, PTC 9–11, and PTC ≥12 with a train-of-four count of 0. Neuromuscular recovery was assessed using quantitative electromyography. Successful reversal was defined as recovery of the train-of-four ratio to ≥0.9 within 180 s after sugammadex administration without additional reversal medication. After failure, the next patient was allocated to a shallower block stratum; after success, the next allocation followed a biased-coin rule, mostly remaining at the same stratum with occasional allocation to a deeper stratum.

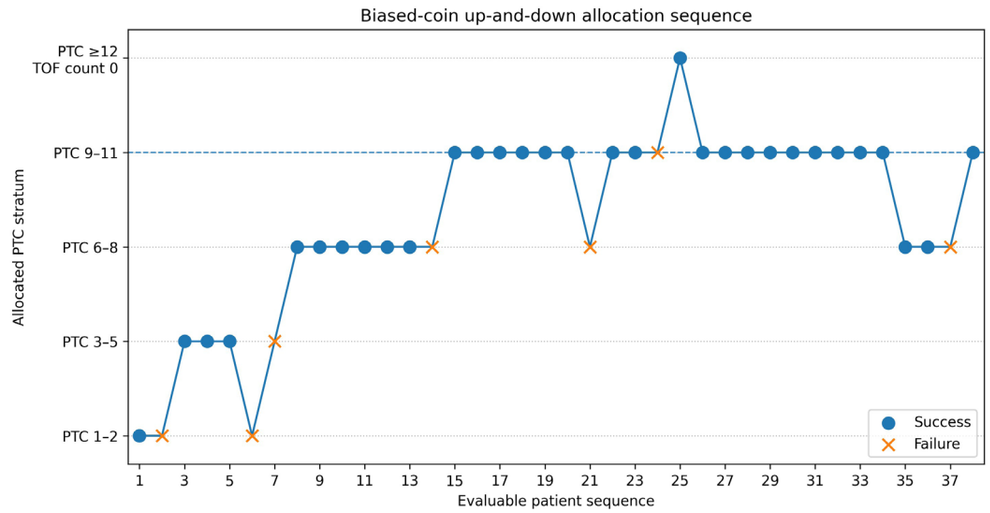
Results
Forty-seven patients were enrolled, and 38 were evaluable for the primary outcome. Successful reversal was observed in 31 of 38 evaluable patients (81.6%). The observed success rates were 33.3% at PTC 1–2 (1/3), 75.0% at PTC 3–5 (3/4), 72.7% at PTC 6–8 (8/11), 94.7% at PTC 9–11 (18/19), and 100% at PTC ≥12 with a train-of-four count of 0 (1/1). The allocation sequence generated six failure–success crossover pairs and clustered around PTC 9–11 (Figure 1). Among strata with adequate observations, PTC 9–11 was the only range showing a success rate above 90% and appeared to be the most plausible candidate window for subsequent randomized evaluation.

Conclusion
In this first-stage exploratory study, sugammadex 3 mg/kg showed a high probability of achieving recovery to a train-of-four ratio ≥0.9 within 180 s when administered at PTC 9–11. These findings support PTC 9–11 as a candidate target range for evaluating reduced-dose sugammadex in a subsequent randomized trial.

AP-02-2 (2026-0557)

Figure & Table

Figure & Table 1.



ABSTRACT
Competition
Presentation
E-Poster

The Effect of Intravenous Dextrose Administration on Postoperative Nausea and Vomiting: Systematic Review and Meta-Analysis with Trial Sequential Analysis

Hyun Kang[1*], Jae Hyuk Choi[1], Geun Joo Choi[1]

1. Anesthesiology and Pain Medicine, Chung-Ang University, Republic of Korea

Background

Intravenous dextrose administration is a potential nonpharmacological adjunct for pre-venting postoperative nausea and vomiting (PONV); however, its efficacy and optimal timing remain unclear. This systematic review and meta-analysis, including trial sequen-tial analysis (TSA), evaluated the antiemetic effects of perioperative dextrose administra-tion.

Methods

Electronic databases were searched for randomized controlled trials (RCTs) comparing dextrose-containing fluids with dextrose-free solutions under general anesthesia. The primary outcomes were the incidence of postoperative nausea (PON) and vomiting (POV), and PONV during the early (0–6 h), late (6–48 h), and overall (0–48 h) periods. The sec-ondary outcome was the use of rescue antiemetics. Subgroup analyses were performed according to the timing of administration (preoperative, intraoperative, or postoperative).

Results

Thirteen RCTs (15 sub-studies, 1,418 patients) were included. Postoperative dextrose infu-sion significantly reduced overall PON (relative risk(RR)=0.69; 95% confidence interval(CI): 0.54–0.88), early PON (RR=0.65; 95% CI: 0.46–0.90), overall PONV (RR=0.60; 95% CI: 0.40–0.91), and early PONV (RR=0.60; 95% CI: 0.40–0.91). Preoperative administration signifi-cantly reduced rescue antiemetic requirements (RR=0.42; 95% CI: 0.25–0.70). Conversely, the intraoperative administration showed no significant clinical benefits. The TSA con-firmed the robustness of these findings for overall PON, PONV, and rescue antiemetic use, although their efficacy was less consistent in morbidly obese populations.

Conclusion

Perioperative intravenous dextrose is an effective nonpharmacological adjunct for PONV prevention, with efficacy highly dependent on timing. Postoperative administration re-duces the incidence of PON and PONV, whereas preoperative administration minimizes the need for rescue antiemetics. Intraoperative administration is ineffective, likely because of the rapid metabolic consumption during surgery. Dextrose utility is optimized by aligning the administration timing with the surgical phases.

Figure & Table

Figure & Table 1.

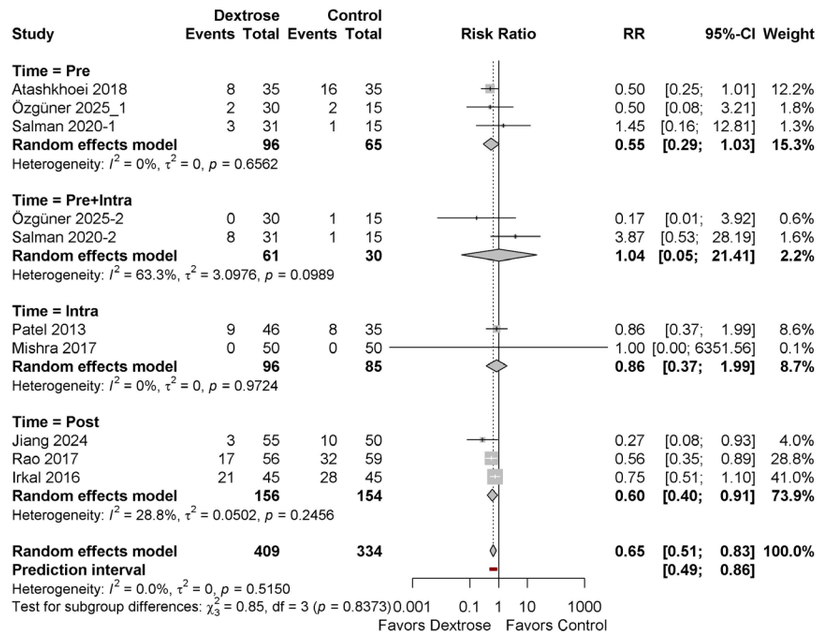
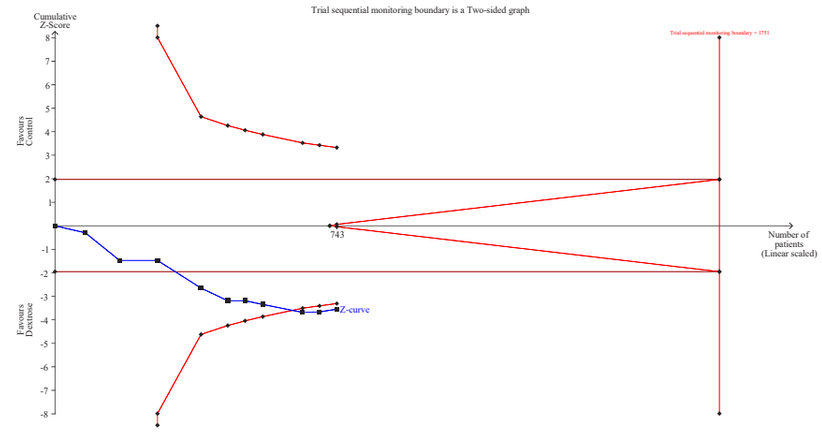


Figure & Table 2.



Recovery Beyond Emergence: Exposure-Dependent Durability of PACU Recovery After Remimazolam–Flumazenil Anesthesia

Eun Ji Park[1*], Boo-Young Hwang[1], Mingyu Kim[1], Siyun Moon[1]

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Background
Rapid awakening after flumazenil is often regarded as successful recovery after remimazolam anesthesia. However, whether recovery remains durable after transfer to the post-anesthesia care unit (PACU) is poorly characterized. We evaluated PACU rescue flumazenil as a medication-anchored marker of recovery beyond emergence.

Methods
This single-center retrospective cohort included consecutive adults who underwent remimazolam–remifentanil total intravenous anesthesia, intraoperative flumazenil reversal, operating-room extubation, and PACU observation between September 2024 and April 2026. The primary outcome was any additional flumazenil administered in the PACU. Multivariable logistic regression assessed cumulative remimazolam dose (mg/kg), adjusting for age, sex, body mass index, American Society of Anesthesiologists physical status, and surgical category. All rescue cases and 200 sampled non-rescue cases underwent chart validation.

Results
Among 5,750 cases, 301 (5.2%) received PACU rescue flumazenil. First rescue occurred within 5 minutes in 172 cases (57.1% of rescue cases) and within 30 minutes in 255 (84.7%); however, 46 cases (15.3%) first required rescue after 30 minutes. Repeated rescue occurred in 25 cases (8.3%). Rescue rates increased from 3.5% in the lowest cumulative-dose quartile to 7.0% in the highest. Each 1-mg/kg increase in cumulative dose was independently associated with PACU rescue (adjusted odds ratio, 1.17; 95% confidence interval, 1.09–1.25; P<0.001). Rescue rates were 3.4%, 5.7%, 7.3%, and 9.3% across strata combining age <70 or ≥70 years with lower or highest-quartile exposure. No rescue case required airway or ventilatory intervention, had recorded SpO_2 <90%, or underwent unplanned intensive care unit transfer. Chart review confirmed all 301 rescue cases and identified no missed rescue among sampled non-rescue cases.

Conclusion
PACU rescue flumazenil was required in approximately one in 19 patients despite successful operating-room emergence and increased with cumulative remimazolam exposure. Delayed and repeated rescue demonstrated that successful emergence did not uniformly translate into durable recovery. These findings indicate that emergence should not be regarded as the endpoint of recovery after remimazolam–flumazenil anesthesia; the durability of recovery after transfer is also clinically important.

AP-02-4 (2026-0325)

Figure & Table

Figure & Table 1.

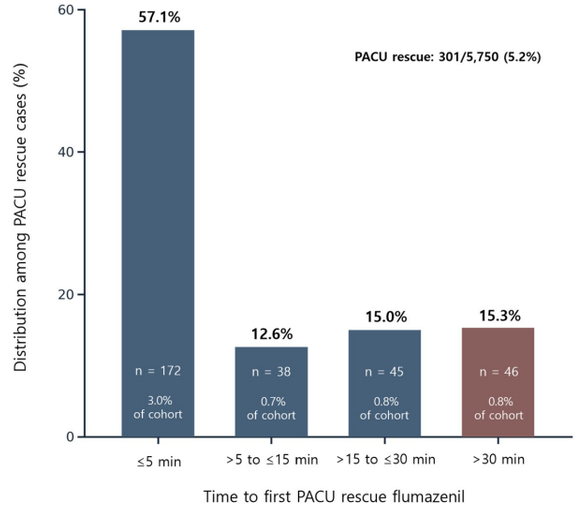


Figure 1. Timing of first PACU rescue flumazenil administration.
Bars show the distribution of first rescue timing among 301 rescue cases. Percentages above the bars are based on rescue cases, whereas values within the bars indicate event counts and percentages of the full cohort. Event-time distribution should not be interpreted as time-specific risk because the number of patients remaining under observation was unavailable. PACU, post-anesthesia care unit.

Figure & Table 2.

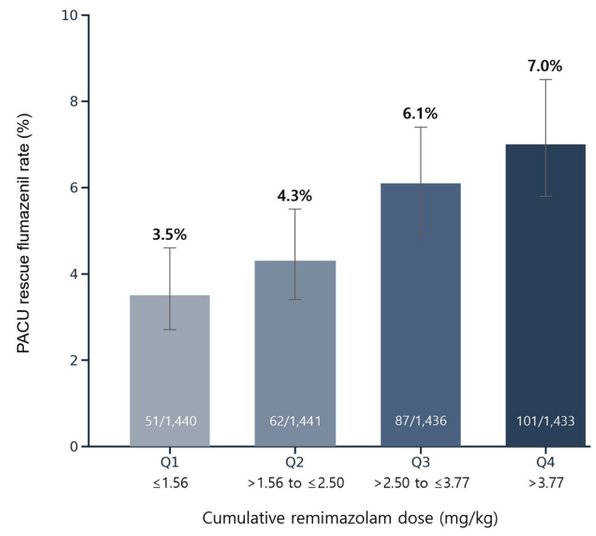


Figure 2. PACU rescue flumazenil rates by cumulative remimazolam dose quarti
Bars show unadjusted rescue rates with Wilson 95% confidence intervals. Numerators and denominators are shown within the bars. Quartile cutoffs were rounded for presentation. PACU, post-anesthesia care unit.

ABSTRACT
Competition
Presentation
E-Poster

Propofol-Based Total Intravenous Anesthesia vs. Sevoflurane Inhalational Anesthesia in Perioperative Natural Killer Cell Antitumor Activity after Hepatocellular Carcinoma Resection: A Prospective Randomized Pilot Study

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Background
Natural killer (NK) cells are key early effectors of antitumor immunity in hepatocellular carcinoma (HCC). Although preclinical studies have reported conflicting effects of propofol and volatile anesthetics on NK-cell function, recent clinical trials have found no meaningful difference in postoperative oncologic outcomes between these two anesthetic techniques. This translational study compared perioperative serum-mediated NK-cell antitumor activity between propofol-based total intravenous anesthesia (TIVA) and sevoflurane-based inhalational anesthesia in patients undergoing hepatectomy for HCC.

Methods
In this double-blind randomized pilot trial, patients undergoing elective HCC resection were assigned to propofol-based TIVA group (TIVA, n = 10) or sevoflurane-based inhalational anesthesia group (SEVO, n = 12). Blood samples were collected before anesthesia and on postoperative days (PODs) 1 and 5. Patient serum was co-cultured with healthy donor NK cells and HepG2 cells (human HCC cell line) to assess serum-mediated NK-cell cytotoxicity. The primary outcome was perioperative change in NK-cell cytotoxicity (Δ % lysis of HepG2 cells). The secondary outcomes were changes in CD107α expression, interferon-gamma (IFN-γ) production, and basic immune profiles. Longitudinal changes were analyzed using generalized estimating equations (GEE).

Results
Baseline and clinical characteristics where generally comparable between groups (Table 1). NK-cell cytotoxicity decreased significantly over time in both groups (time effect, P < 0.001), without a significant group-by-time interaction (P = 0.569). Perioperative changes in cytotoxicity, CD107α expression, and IFN-γ production did not differ between groups (Table 2). Basic immune profiles were also comparable. Exploratory analyses suggested that remifentanil exposure and surgical magnitude may contribute more strongly to perioperative NK-cell suppression than anesthetic types.

Conclusion
Serum-mediated NK-cell antitumor activity after HCC resection did not differ between propofol-based TIVA and sevoflurane anesthesia. These findings provide mechanistic support for recent clinical evidence showing no clear association between anesthetic technique and postoperative oncologic outcomes.

AP-02-6 (2026-0336)

Figure & Table

Figure & Table 1.

Table 1. Clinical characteristics of patients enrolled in the study.

	TIVA (*n* = 10)	SEVO (*n* = 12)	*P*
Age (years)	64 (7)	59 (11)	0.213
Male sex	7 (70)	8 (67)	1.000
Weight (kg)	67.4 (13.4)	68.9 (8.6)	0.767
Height (cm)	167 (9)	167 (8)	0.978
Body mass index ($kg \cdot m^{-2}$)	24.1 (4.0)	24.7 (2.6)	0.700
ASA 2 / 3	8 (80) / 2 (20)	11 (92) / 1 (8)	0.571
Concomitant disease			
Hypertension	2 (20)	4 (33)	0.646
Diabetes mellitus	2 (20)	1 (8)	0.571
Etiology			1.000
Alcoholic	1 (10)	1 (8)	-
HBV	8 (80)	10 (83)	-
HCV	1 (10)	1 (8)	-
Operation			
Laparoscopic	8 (80)	11 (92)	0.571
Open	2 (20)	1 (8)	0.571
Radical†	7 (70)	5 (42)	0.231
Total infused dose			
Propofol (mg)	1160 (895, 1670)	N/A	N/A
Remifentanil (mg)	0.84 (0.56)	0.38 (0.29)	**0.025**
Duration of anesthesia (min)	215 (68)	196 (22)	0.372
Duration of operation (min)	160 (61)	155 (23)	0.822
Duration of Pringle maneuver (min)	27 (16)	34 (22)	0.429

Data are presented as mean (SD), median (25th percentile, 75th percentile), or frequency (percentage). ASA, American society of anesthesiologists; HBV, hepatitis B virus; HCV, hepatitis C virus; TIVA, total intravenous anesthesia; SEVO, sevoflurane. †Radical resection was defined as hemihepatectomy or greater extent of hepatic resection.

ABSTRACT
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Figure & Table

Figure & Table 2.

Table 2. Primary and secondary outcomes.

	TIVA	SEVO	Between-group *P*	Time effect *P*	Group-by-time *P*
Δ % lysis of HepG2				<0.001	0.569
Pre → POD 1	-4.4 (1.5)	-3.8 (1.8)	0.812		
Pre → POD 5	-7.1 (1.1)	-4.7 (1.9)	0.292		
Δ % CD107α expression				0.026	0.950
Pre → POD 1	-2.2 (0.9)	-2.8 (1.4)	0.748		
Pre → POD 5	-1.5 (0.9)	-2.0 (1.6)	0.807		
Δ % IFN-γ production				0.063	0.272
Pre → POD 1	-2.3 (0.8)	-0.3 (0.9)	0.099		
Pre → POD 5	-1.0 (0.8)	0.4 (1.2)	0.352		

Data are presented as estimated mean difference (standard error) from generalized estimating equations (GEE) analysis with autoregressive working correlation structure, accounting for repeated experiments within each patient. Pre, preoperative; POD, postoperative day; TIVA, total intravenous anesthesia; SEVO, sevoflurane.

AP-02-7 (2026-0126)

Temporal Changes in Total and Unbound Remimazolam Concentrations During Cardiopulmonary Bypass With Hypothermic Circulatory Arrest: A Prospective Observational Study

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Background

Remimazolam (Anerem; Mundipharma K.K., Tokyo, Japan) is a novel short-acting benzodiazepine associated with a lesser degree of cardiovascular depression than propofol. Because of its favorable hemodynamic profile, remimazolam has been used in cardiovascular anesthesia[1], particularly for transcatheter cardiac procedures and off-pump coronary artery bypass grafting. However, its use during cardiopulmonary bypass (CPB) remains challenging because CPB substantially alters the pharmacokinetics of many intravenously administered anesthetic drugs, potentially resulting in marked fluctuations in anesthetic depth[2]. We recently reported the pharmacokinetics of remimazolam during CPB without hypothermic circulatory arrest (HCA)[3]. However, the applicability of these findings to CPB with HCA remains unknown. Therefore, we investigated the temporal changes in total and unbound remimazolam concentrations during CPB with HCA.

Methods

This single-center, prospective, observational study included adult patients (≥20 years, body weight ≤90 kg) undergoing elective cardiac surgery requiring CPB with HCA. Written informed consent was obtained from all participants before enrollment. Remimazolam was administered at 12 $mg \cdot kg^{-1} \cdot h^{-1}$ until loss of responsiveness to verbal stimuli and subsequently maintained at 1 $mg \cdot kg^{-1} \cdot h^{-1}$. The infusion was discontinued during HCA and resumed at 1 $mg \cdot kg^{-1} \cdot h^{-1}$ upon rewarming. Blood samples were collected at six distinct time points: at the end of anesthetic induction (T1, baseline), immediately after CPB initiation (T2), during hypothemic lower body circulatory arrest (T3), before CPB weaning (T4), after protamine administration (T5), and at the end of surgery (T6). Total and unbound remimazolam concentrations were quantified using ultra-high-performance liquid chromatography coupled with electrospray ionization tandem mass spectrometry. Concentrations at each time point were compared with baseline using the Wilcoxon signed-rank test.

Results

Of the 15 patients initially enrolled, 4 were excluded because blood samples were not collected during HCA (T3), leaving 11 patients in the final cohort. Total remimazolam concentrations were significantly lower at T2, T3, and T4 than at baseline (median: 825 vs. 580, 588, and 622 $ng \cdot mL^{-1}$, respectively; all $P < 0.05$). In contrast, unbound remimazolam concentrations were significantly higher at T2–T6 than at baseline (median: 5.5 vs. 22.5, 19.2, 12.5, 8.7, and 10.4 $ng \cdot mL^{-1}$, respectively; all $P < 0.05$).

Conclusion

Total remimazolam concentrations decreased during CPB, whereas unbound remimazolam concentrations increased markedly after CPB initiation and remained above baseline throughout surgery under our anesthetic protocol.

AP-02-7 (2026-0126)

Figure & Table

Figure & Table 1.

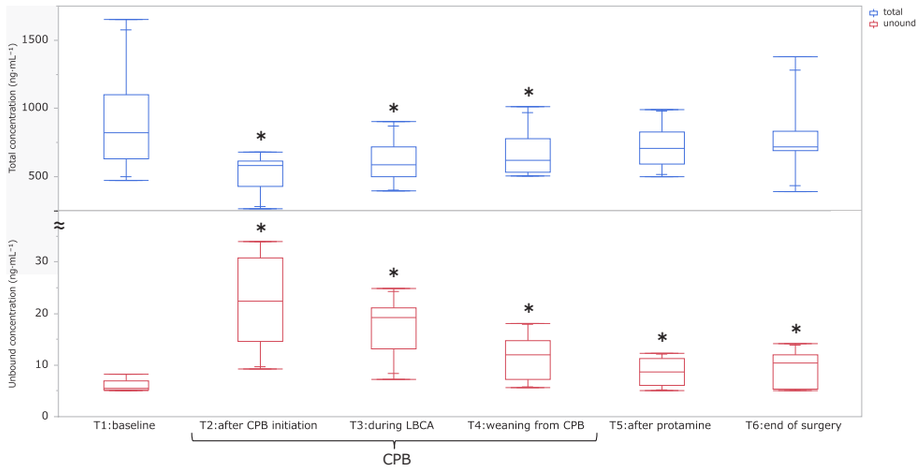


Figure. Total and unbound remimazolam concentrations during hypothermic cardiopulmonary bypass. Temporal changes in total and unbound remimazolam concentrations are shown as box-and-whisker plots. The lower and upper boundaries of each box represent the first and third quartiles, respectively, and the horizontal line within the box indicates the median. Whiskers represent the minimum and maximum values (n = 11). *$P < 0.05$ compared with baseline.
CPB, cardiopulmonary bypass. LBCA, lower body circulatory arrest.

AP-02-8 (2026-0224)

Effect of Different Bicarbonate Concentrations on Rocuronium-Induced Neuromuscular Blockade and Sugammadex-Induced Reversal in Rat Phrenic Nerve Hemidiaphragm

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Background
The bicarbonate system is important because it is the most abundant buffering system within the body and acts as an open buffer system. Bicarbonate concentration in the body can be changed by various body conditions. Respiratory acidosis and alkalosis are known to alter the action of rocuronium. This study utilized an ex-vivo model to examine the effect of environments of varying bicarbonate concentrations on rocuronium-induced neuromuscular blockade and sugammadex-induced recovery and to assess the relationship between train-of-four (TOF) ratio and the first twitch tension of TOF stimulation (T1).

Methods
After obtaining approval from the Asan Ethics Committee of the Laboratory of Animal Research, phrenic nerve-hemidiaphragm specimens were obtained from 50 adult Sprague-Dawley rats (SD rats). Thirty SD rats were randomly assigned to control, alkalosis, and acidosis groups, while twenty SD rats were randomly assigned to alkalosis and acidosis groups which were exposed to different CO2 loading (using different gas mixtures of 97.5% O2 + 2.5% CO2 or 91% O2 + 9% CO2). Each specimen was immersed in designated modified Krebs' solution continuously gassed with mixed O2 gas (95% O2 + 5% CO2), and stimulated with TOF pattern at 20-second intervals. Rocuronium loading and booster doses were administered every 10 minutes until >95% blockade T1 was achieved. Recovery was monitored using T1 and TOF ratios (TOFR) until T1 to >95% and the TOFR to >0.9. In the groups exposed to different CO2 loading, gas mixtures were switched randomly when the T1 was between 25% and 75%. The best-fitting equations for nonlinear regression were determined. The coefficients of each group were compared. Mean group values were compared using the Kruskal-Wallis test, Mann-Whitney U test, and Bonferroni correction for the post hoc test. Statistical significance was set at $p < 0.01$.

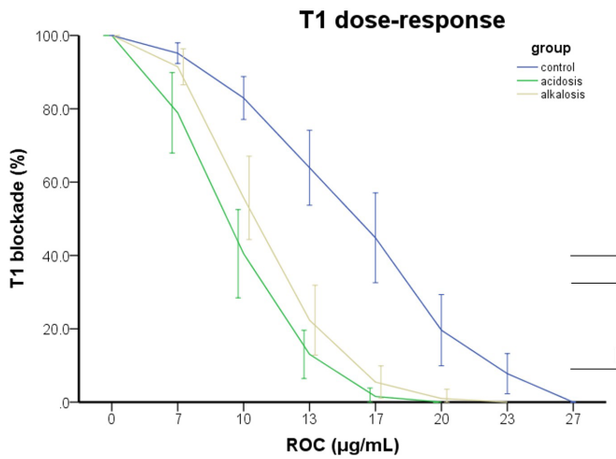
Results
Left shift of the dose-response curve of T1% and TOFR occurred in the acidosis and alkalosis group ($P<0.0001$). The recovery progression of T1 and TOFR differed significantly between the groups ($P = 0.000$). The total doses of rocuronium and sugammadex were different between the control and respiratory acidosis groups ($P = 0.003$), and between the acidosis and alkalosis groups ($P = 0.001$). Changes of gas mixtures also affected rocuronium-induced blocakde and sugammadex-induced recovery (Fig2). There was a tendency toward more pronounced changes in blockade and recovery progression under the condition of a 97.5% O2 + 2.5% CO2 gas mixture ($P=0.004$).

Conclusion
Acid-base alterations due to the bicarbonate buffer changes may influence rocuronium-induced neuromuscular blockade and sugammadex-induced reversal. However, despite some inter-group differences, statistically discrete results were not obtained across the experimental groups.

AP-02-8 (2026-0224)

Figure & Table

Figure & Table 1.

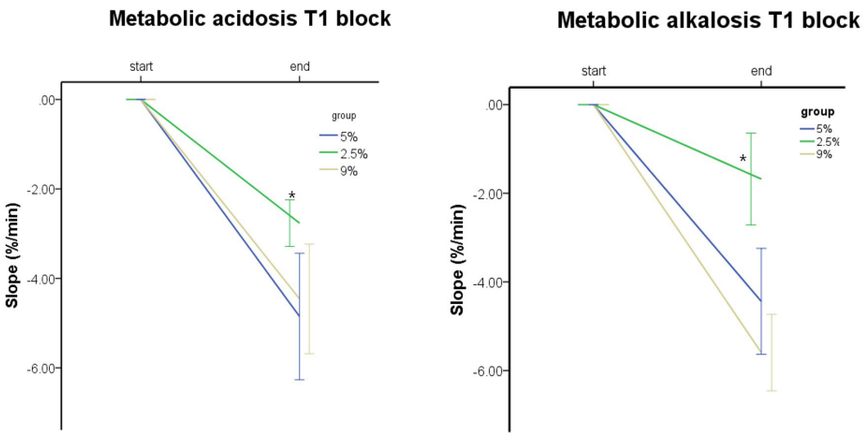


Regression curve equation;
$y=a_1x^2+100$

	control	MAC	MAL
a_1	-0.201* (-0.230 ~ -0.173)	-0.492† (-0.604 ~ -0.380)	-0.357 (-0.410 ~ -0.303)
R^2	0.958	0.901	0.914

*: P=0.000 vs MAC
P=0.011 vs MAL
†: P=0.032 vs MAL

Figure & Table 2.



Presentation

Abstract Presentation 3

Date / Time	Nov 5 (Thu), 11:00-12:30
Room	Room D *(Paradise City)*
Language	English
Chair(s)	Sung-Ae Cho *(Sungkyunkwan University, Republic of Korea)* Ahreum Cho *(Pusan National University, Republic of Korea)*

AP-03-1 2026-0425

Dual-Source Retrieval-Augmented Generation for Preoperative Anesthesia Planning

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AP-03-3 2026-0490

Impaired Microvascular Reactivity in Patients with End-Stage Renal Disease: A Retrospective Vascular Occlusion Test Study Using Near-Infrared Spectroscopy

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AP-03-4 2026-0132

Frontal EEG under TIVA, Sevoflurane, and Desflurane during Sustained Steep Trendelenburg in Robot-Assisted Radical Prostatectomy: A Depth-Matched Retrospective Observational Study

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AP-03-5 2026-0484

Dynamic Arterial Elastance in the Prone Position: A Prospective Validation Study of Arterial Pressure Responsiveness During Spine Surgery

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AP-03-6 2026-0515

Agreement between Artificial Intelligence-Assisted and Manual Gastric Ultrasound for Residual Gastric Volume Measurement

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AP-03-7 2026-0542

Diagnostic Accuracy of Machine Learning Models for Predicting Post-Induction Hypotension in General Anesthesia: A Systematic Review and Meta-Analysis

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AP-03-8 2026-0480

Determining the Clinical Performances of A Self-Modified Cannula Oxygen Insufflation Device For Emergency Front of Neck Airway Access: A Simulated Observational Study

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Dual-Source Retrieval-Augmented Generation for Preoperative Anesthesia Planning

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Background

Arterial line (A-line) placement, central venous catheter (CVC) placement, and postoperative intensive care unit (ICU) transfer are high-impact anesthesia planning decisions requiring patient-specific risk assessment and awareness of local practice. We developed a dual-source retrieval-augmented generation (RAG) workflow for preoperative anesthesia planning to predict these three targets from patient-specific EHRs.

Methods

Following recent perioperative RAG work [1], we retrospectively analyzed 80,777 anesthesia-linked surgery records (2020–2025) at Chungnam National University Hospital, a tertiary academic hospital in Korea. Records from 2020–2024 formed the development set and EHR similar-case bank; 2025 records were temporally held out for testing (n=11,934). Patient cards included clinician-ordered perioperative variables; unavailable or implausible values were omitted. A BAAI/bge-m3 retriever [3] retrieved passages from Miller's Anesthesia [2] and EHR similar cases. Qwen3-8B generated structured JSON predictions. We compared a patient card-only baseline, textbook-only, EHR case-only, and dual-source RAG using all-target accuracy, macro F1, and target-wise F1. Paired differences were assessed with 5,000 surgery-record-level bootstrap resamples, with 95% confidence intervals (CIs) and two-sided p values.

Results

Versus the patient card-only baseline, textbook-only RAG improved A-line F1 (0.607 vs. 0.256) but reduced all-target accuracy. EHR case-only RAG improved all-target accuracy from 0.709 to 0.840 (Δ=0.130, 95% CI 0.123–0.138; p<0.001) and macro F1 from 0.409 to 0.760 (Δ=0.351, 95% CI 0.335–0.366; p<0.001). Versus EHR case-only RAG, dual-source RAG did not significantly change all-target accuracy (0.838 vs. 0.840; Δ=−0.002, 95% CI −0.005 to 0.001; p=0.252) or macro F1 (0.763 vs. 0.760; Δ=0.003, 95% CI −0.002 to 0.008; p=0.239), but yielded higher ICU F1 (0.759 vs. 0.747; Δ=0.012, 95% CI 0.003–0.021; p=0.015).

Conclusion

Historical EHR similar-case retrieval was the main driver of aggregate performance; adding textbook evidence did not significantly improve aggregate performance over EHR case-only retrieval but yielded a small ICU-specific gain and inspectable domain context. A hospital EHR case bank can thus serve as inspectable clinical memory for large language models, supporting planning predictions while exposing retrieved evidence. Deployed on-premise, the workflow could help anesthesiologists flag complex cases and review retrieved rationale during pre-anesthesia assessment and operating-room planning. The temporal split was not patient-disjoint, and collaborative procedures could contribute multiple surgery records from one anesthesia episode; patient-disjoint, anesthesia-episode-level, and multicenter validation is needed.

Figure & Table

Figure & Table 1.

Table 1. Source ablation on the temporally held-out 2025 surgery-record test set (n=11,934).

Retrieval setting	Textbook KB	EHR case bank	All-target Accuracy	Macro F1	A-line F1	CVC F1	ICU F1
Patient card-only baseline	NO	NO	0.709	0.409	0.256	0.460	0.512
Textbook-only RAG	YES	NO	0.651	0.491	0.607	0.349	0.518
EHR case-only RAG	NO	YES	**0.840**	0.760	**0.814**	0.719	0.747
Dual-source RAG (ours)	YES	YES	0.838	**0.763**	0.809	**0.722**	**0.759**

Impaired Microvascular Reactivity in Patients with End-Stage Renal Disease: A Retrospective Vascular Occlusion Test Study Using Near-Infrared Spectroscopy

Hyeon Jeong Lee[1], Hyae Jin Kim[1*], Ah Reum Cho[1], Eun Ji Park[1], Un Ji Kim[1]

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Background

Patients with end-stage renal disease (ESRD) are thought to have impaired peripheral microvascular function, but whether this reflects reduced tissue oxygen consumption, reduced vascular reactivity, or both remains unclear. We compared tissue oxygen saturation (StO2) responses during a vascular occlusion test (VOT) between ESRD patients and healthy controls, before and after induction of general anesthesia.

Methods

In this retrospective, single-center study, we analyzed near-infrared spectroscopy (NIRS)–derived StO2 data collected during upper-arm tourniquet VOT in 130 adults (43 healthy controls, 87 ESRD patients) before and after anesthetic induction. Occlusion slope (rate of StO2 decline during ischemia) and recovery slope (rate of StO2 rise during reperfusion) were compared between groups using Welch's t-test or Mann-Whitney U test as appropriate. Point-wise StO2 time-courses were compared at each time point with Benjamini-Hochberg correction.

Results

The occlusion slope did not differ between groups after anesthesia (0.16 vs. 0.13 %/sec, p=0.403), while before anesthesia it was modestly lower in the ESRD group (0.14 vs. 0.21 %/sec, p<0.001). In contrast, the recovery slope was significantly lower in ESRD patients after anesthesia (2.27 vs. 3.59 %/sec, p<0.001), but not before anesthesia (2.81 vs. 2.85 %/sec, p=0.888). Point-wise comparison confirmed that StO2 recovery diverged significantly between groups during the early reperfusion window (30-210 sec after cuff release, all q<0.05), while the ischemic phase showed no consistent between-group difference.

Conclusion

The rate of tissue oxygen desaturation during ischemia was largely similar between groups, whereas reactive hyperemia after anesthesia induction was selectively blunted in patients with ESRD. This pattern points to impaired microvascular reactivity, rather than altered tissue metabolism, as the primary driver of the microcirculatory abnormality seen in ESRD, particularly once general anesthesia has been induced.

AP-03-3 (2026-0490)

Figure & Table

Figure & Table 1.

Microvascular parameter	Healthy	ESRD	Test	p-value
Occlusion slope, pre-anesthesia (%/sec)	0.21 [0.14–0.27]	0.14 [0.09–0.20]	MWU	<0.001
Occlusion slope, post-anesthesia (%/sec)	0.16 [0.11–0.19]	0.13 [0.09–0.20]	MWU	0.403
Recovery slope, pre-anesthesia (%/sec)	2.85 ± 1.09	2.81 ± 1.75	Welch t	0.888
Recovery slope, post-anesthesia (%/sec)	3.59 [2.62–4.21]	2.27 [1.42–3.53]	MWU	<0.001

Figure & Table 2.

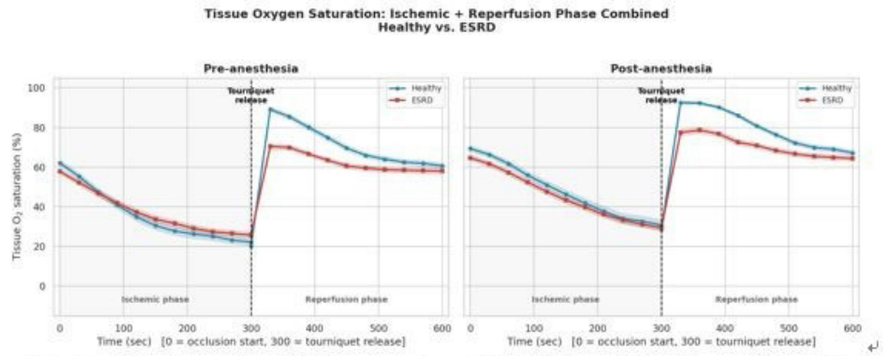


Figure 1. Combined ischemia-reperfusion StO2 time-course (mean ± SEM), Healthy vs. ESRD, before and after anesthesia. The dashed vertical line indicates tourniquet release.

ABSTRACT
Competition
Presentation
E-Poster

Frontal EEG under TIVA, Sevoflurane, and Desflurane during Sustained Steep Trendelenburg in Robot-Assisted Radical Prostatectomy: A Depth-Matched Retrospective Observational Study

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Background

Robot-assisted radical prostatectomy (RALP) requires 2–4 hours of steep Trendelenburg positioning with CO2 pneumoperitoneum, which raises intracranial pressure and reduces cerebral venous outflow, imposing a prolonged cerebral physiological load. The frontal EEG changes over this period, but it is not well described whether the maintenance anesthetic shapes these changes when the monitored depth of anesthesia is held comparable across agents, nor whether over-suppression actually occurs. We characterized, at matched depth, the occurrence of over-suppression on the SedLine monitor and the time course of the frontal spectrum during sustained Trendelenburg under propofol-based TIVA, sevoflurane, and desflurane.

Methods

We retrospectively analyzed SedLine frontal EEG recorded during RALP. Cases with Trendelenburg coverage ≥4/6 timepoints, ≥60 min of valid EEG, and four-channel raw EEG were included (n=23; TIVA 7, sevoflurane 9, desflurane 7). Raw EEG was resampled to 63 Hz, band-pass filtered, and analyzed by multitaper power spectral density. Monitored depth was compared across groups using the Patient State Index (PSI). Endpoints were the occurrence of over-suppression (peak suppression ratio ≥5%) and the within-Trendelenburg time course of spectral edge frequency (SEF95) and relative β power, modeled by linear mixed effects (LME). Prespecified sensitivity analyses excluded over-suppressed patients, adjusted for EtCO2 and mean arterial pressure (MAP), and restricted the cohort to natively 63-Hz recordings.

Results

Per-patient mean PSI during Trendelenburg was similar across groups (TIVA 31.8, sevoflurane 33.0, desflurane 32.6; Kruskal–Wallis p=0.79), indicating comparable monitored depth. Over-suppression occurred only under TIVA (3/7 vs 0/16 volatile; Fisher p=0.020). Because no volatile patient suppressed, the TIVA-only direction held across thresholds (1–10%), whereas the TIVA count was threshold-dependent, so the finding is described as a categorical difference rather than a precise event rate. SEF95 time courses differed between groups: the TIVA slope was slightly positive (+0.21 Hz/timepoint, p=0.009) while both volatile groups declined (sevoflurane −0.50, desflurane −0.46; both p<0.001). The volatile decline persisted after excluding over-suppressed patients (−0.38/−0.33), after EtCO2/MAP adjustment (−0.49/−0.45), on replication with relative β power, and within the 63-Hz-only subgroup, whereas the TIVA slope fell to +0.09 (p=0.42) after exclusion, consistent with it being driven by suppression and recovery.

Conclusion

At comparable monitored depth during sustained steep Trendelenburg, over-suppression was observed only under propofol-based TIVA, while both volatile agents showed a progressive narrowing of the frontal spectrum.

AP-03-4 (2026-0132)

Figure & Table

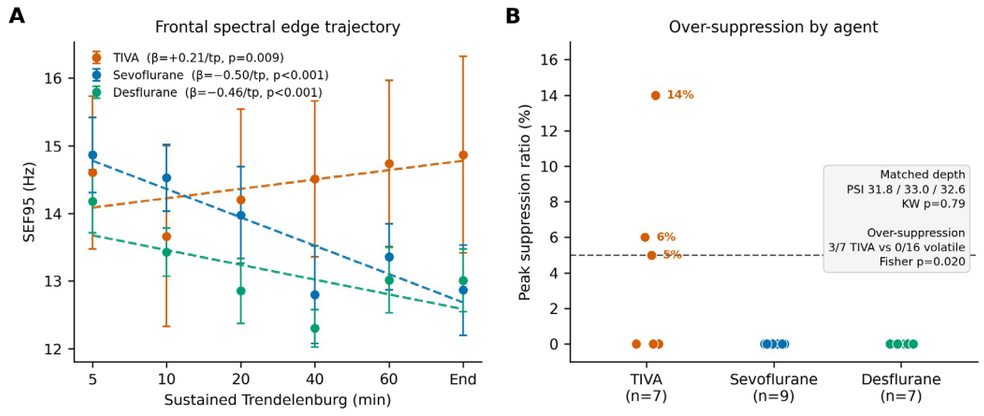
Figure & Table 1.

Table 1. Baseline and intraoperative characteristics by maintenance anesthetic

Variable	TIVA (n=7)	Sevoflurane (n=9)	Desflurane (n=7)	p
n	7	9	7	
Age (yr)	69.0 [69.0–72.0]	71.0 [70.0–75.0]	70.0 [62.0–78.0]	0.523
Sex, male	7 (100%)	9 (100%)	7 (100%)	
Height (cm)	170.0 [166.0–171.5]	165.0 [160.0–171.0]	162.0 [159.0–165.5]	0.114
Weight (kg)	71.0 [68.0–72.0]	63.0 [53.0–69.0]	66.0 [65.0–71.5]	0.282
BMI (kg/m2)	24.3 [23.8–24.9]	23.3 [21.5–25.9]	26.0 [24.2–26.5]	0.251
ASA I/II/III	0/2/5	2/3/4	0/3/4	0.429
Hypertension	3 (43%)	4 (44%)	2 (29%)	0.789
Diabetes	4 (57%)	4 (44%)	2 (29%)	0.558
Coronary artery disease	1 (14%)	1 (11%)	0 (0%)	0.604
Chronic kidney disease	0 (0%)	1 (11%)	1 (14%)	0.604
Trendelenburg duration (min)	194.0 [158.3–211.5]	102.4 [67.9–181.3]	199.9 [174.7–254.7]	0.082
Case duration (min)	316.6 [306.9–337.0]	293.5 [276.7–367.2]	326.0 [298.5–391.6]	0.573
PSI during Trendelenburg	31.8 [25.9–34.2]	33.0 [31.3–35.8]	32.6 [31.9–33.4]	0.777
EtCO2 during Trendelenburg (mmHg)	34.5 [33.2–39.5]	41.2 [39.2–45.9]	40.7 [38.6–42.2]	0.058
MAP during Trendelenburg (mmHg)	94.4 [90.1–107.6]	91.1 [87.7–92.2]	97.8 [96.1–103.3]	0.083
Over-suppression (peak SR ≥5%)	3 (43%)	0 (0%)	0 (0%)	**0.02**

Data are median [IQR] or n (%). Sex: all male (radical prostatectomy). BMI computed from height/weight.
p: Kruskal–Wallis (continuous) or chi-square (categorical); over-suppression by Fisher exact (TIVA vs pooled volatile).
PSI, EtCO2, MAP: per-patient mean over sustained Trendelenburg (T6–T11). ASA conflict in 2 cases (general Physical Status III used).

Figure & Table 2.



Dynamic Arterial Elastance in the Prone Position: A Prospective Validation Study of Arterial Pressure Responsiveness During Spine Surgery

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Background
Dynamic arterial elastance (Eadyn) has been proposed as a predictor of arterial pressure responsiveness following fluid loading. We evaluated the ability of Eadyn and conventional hemodynamic indices to predict arterial pressure responsiveness during prone spine surgery.

Methods
Thirty-eight adult patients undergoing elective spine surgery in the prone position received a 500-mL crystalloid fluid challenge when volume expansion was clinically indicated. Arterial pressure responders were defined by a ≥ 15% increase in mean arterial pressure (MAP). Baseline Eadyn, effective arterial elastance (Ea), arterial compliance (C), systemic vascular resistance (SVR), pulse pressure variation (PPV), and stroke volume variation (SVV) were compared between responders and non-responders. Receiver operating characteristic (ROC) curve analysis was performed.

Results
Ten patients were classified as responders and twenty-eight as non-responders. Baseline Eadyn, Ea, C, SVR, PPV, and SVV were comparable between groups. Stroke volume increased significantly after fluid loading in both groups, whereas MAP increased only in responders. None of the evaluated variables demonstrated clinically useful predictive performance, with AUCs ranging from 0.516 to 0.577.

Conclusion
Neither Eadyn nor conventional hemodynamic indices reliably predicted arterial pressure responsiveness following fluid loading during prone spine surgery. These findings suggest that preload-dependent variables alone are insufficient to predict arterial pressure response in this surgical setting, highlighting the need for more comprehensive hemodynamic assessment strategies.

AP-03-5 (2026-0484)

Figure & Table

Figure & Table 1.

Figure legends
Figure 1. Study flow
Figure 2. Individual changes in mean arterial pressure (MAP) following fluid loading in arterial pressure responders (n = 10) and non-responders(n = 28). Responders were defined as patients exhibiting a ≥15% increase in MAP after administration of 500 mL crystalloid.
Figure 3. Comparison of receiver operating characteristics(ROC) curves regarding the ability of studied arterial tone parameters to discriminate MAP responder patients(MAP increase ≥15%) and MAP non-responder patients after volume loading.

Table 1. Patient characteristics and intraoperative ventilatory variables.

	Responders (n = 10)	Non-responders (n=28)
Gender (Female/Male)	6/4	14/14
Age, years	60.4 ± 10.8	56.8 ± 8.2
Weight, kg	66.2 ± 13.5	67.7 ± 11.7
Ideal body weight, kg	52.5 ± 9.9	55.8 ± 10.1
Height, cm	158.2 ±8.6	161.3 ± 9.3
BMI	26.4 ± 4.2	26.1 ± 4.7
ASA PS (I/II/III)	2/4/4	10/10/8
Ventilator settings		
Tidal volume, ml/kg ideal body weight	449.6 ± 68.0	446.8 ± 50.5
Total PEEP, cmH_2O	15 ± 2	16 ± 2
FiO_2, %	60	60
SpO_2, %	99[98-100]	99[98-100]
Operation type, n		
Discectomy	4	18
Laminectomy	4	4
Posterior fusion	2	6

All data are presented as mean±SD, median [interquartile range] or number.
Abbreviations: ASA PS, American Society of anesthesiologists physical status; BMI, body mass index; PEEP, positive end-expiratory pressure; FiO2, fraction of inspired oxygen.

ABSTRACT
Competition
Presentation
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Figure & Table

Table 2. Changes in hemodynamic variables following fluid loading in arterial pressure responders and non-responders.

	Pre-loading	Post-loading	P-value	Mean diff.
Mean arterial pressure(mmHg)				
Responder	84.4±23.4	94.1±20.1	0.02295	9.7
Non-responder	89.0±14.7	86.8±15.7	0.11	-2.1
Intergroup P	0.5739	0.3172		
Heart rate, beats/min				
Responder	82.5±14.3	70.6±11.3	0.00017	-11.9
Non-responder	79.4±13.2	65.5±8.7	<0.0001	-13.9
Intergroup P	0.556	0.2187		
Pulse pressure, mmHg				
Responder	47.1±17.2	51.0±16.1	0.3061	3.9
Non-responder	44.2±12.5	43.2±11.4	0.5022	-1.1
Intergroup P	0.6388	0.1819		
Cardiac output, L/min				
Responder	3.8±0.9	3.6 ± 0.8	0.3746	-0.2
Non-responder	3.7±0.9	3.5 ± 0.8	0.09297	-0.2
Intergroup P	0.9569	0.8687		
Stroke volume(ml)				
Responder	46.2±11.6	52.0 ± 15.1	0.04322	5.8
Non-responder	47.5±10.7	54.5 ± 13.5	0.00019	7.0
Intergroup P	0.7536	0.6512		
Stroke volume Index(mL/m^2)				
Responder	27.8±4.8	30.2± 6.0	0.1225	2.4
Non-responder	28.5±7.7	32.4± 9.3	<0.0001	3.9
Intergroup P	0.7417	0.3989		
PPV (%)				
Responder	20.3±9.7	13.7 ± 10.6	0.006	-6.6
Non-responder	18.4±7.7	11.8 ± 7.4	<0.0001	-6.6
Intergroup P	0.5908	0.6137		
SVV (%)				
Responder	16.1±6.9	13.3± 8.2	0.05658	-2.8
Non-responder	15.2±5.8	12.6 ± 5.6	0.00012	-2.7
Intergroup P	0.7332	0.7986		

All data are presented as means ± standard deviations.
[a]P-value compared to non-responders using a t-test.
[b]P-value compared to the pre-loading phase using a paired t-test.
Abbreviations: MAP, mean arterial pressure; PPV, pulse pressure variation; SVV, stroke volume variation

AP-03-5 (2026-0484)

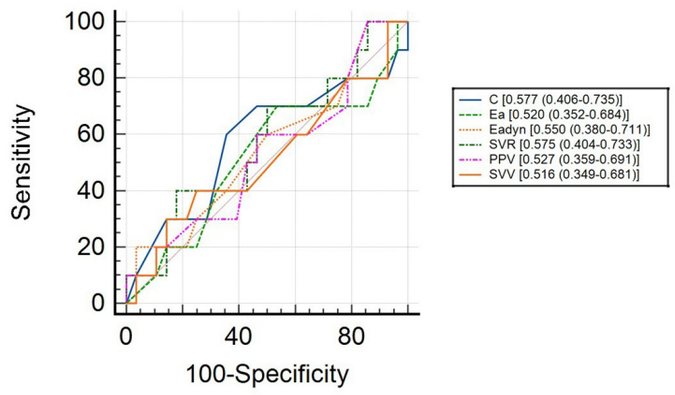
Figure & Table

Table 3. Changes in arterial tone–related parameters following fluid loading

Parameter	Pre-loading	Post-loading	P-value
Ea_{dyn}			
Responder	1.3 ± 0.3	1.1 ± 0.3	0.0414
Non-responder	1.2 ± 0.3	0.9 ± 0.4	0.0046
Intergroup P	0.5574	0.3825	
Ea, mmHg/ml			
Responder	2.3 ± 0.7	2.3 ± 0.4	0.8279
Non-responder	2.3 ± 0.6	2.0 ± 0.5	0.0002
Intergroup P	0.9983	0.0797	
C, ml/mmHg			
Responder	1.2 ± 0.6	1.1 ± 0.4	0.7241
Non-responder	1.1 ± 0.3	1.3 ± 0.3	0.0051
Intergroup P	0.9010	0.1472	
SVR, dyn s cm^{-5}			
Responder	1854.1 ± 586.9	2143.6 ± 440.4	0.0600
Non-responder	2022.0 ± 643.5	2057.4 ± 566.9	0.6282
Intergroup P	0.4594	0.6292	

All data are presented as means ± standard deviations.
[a]P-value compared to non-responders using a t-test.
[b]P-value compared to the pre-loading phase using a paired t-test.
Abbreviations: Ea_{dyn}, Dynamic arterial elastance; Ea, Effective arterial elastance = pulse pressure/ stroke volume; C, Net arterial compliance; SVR, systemic vascular resistance

Figure & Table 2.



AP-03-6 (2026-0515)

Agreement between Artificial Intelligence-Assisted and Manual Gastric Ultrasound for Residual Gastric Volume Measurement

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Background

Residual gastric volume (RGV) assessment using point-of-care gastric ultrasonography can support perioperative aspiration-risk assessment. Quantitative assessment uses gastric antral cross-sectional area (CSA), particularly in the right lateral decubitus (RLD) position, to estimate gastric volume.

However, bedside gastric ultrasound requires specific training and remains operator-dependent. AI-assisted ultrasound can automatically identify and measure the gastric antrum, potentially simplifying assessment and reducing measurement time.

OBJECTIVE: To evaluate agreement and intra-operator reproducibility of AI-assisted versus manual gastric ultrasound for estimated RGV, and compare RGV threshold classification and measurement time.

Methods

- Prospective method-comparison sub-study; n = 30 adolescents with Adolescent Idiopathic Scoliosis (AIS) participating in a carbohydrate-loading study.
- Parent study: randomised to 5 mL/kg Resource® (Nestlé) carbohydrate drink OR permitted sips of clear water up to 2 hours before surgery.
- Preoperative gastric ultrasound by a single operator in supine and RLD positions; 3 repeated CSA measurements using AI-assisted and manual techniques.
- Mean RLD CSA used to estimate RGV using the Spencer equation and normalised to body weight (mL/kg); gastric content assessed using Perlas grading.
- Statistics: ICC and Bland–Altman analysis; Cohen's κ for RGV threshold classification; Wilcoxon signed-rank test for paired measurement time. Statistical significance: $p < 0.05$.

Results

Among 30 participants, AI-assisted and manual RGV demonstrated good agreement (ICC 0.801, 95% CI 0.625–0.899; p<0.001), with a small positive bias of +0.035 mL/kg. Classification agreed in 28/30 participants (93.3%) at 1.25 mL/kg. AI-assisted measurement was significantly faster (median 4.0 vs 6.0 min; p<0.001), saving a median 2.0 minutes.

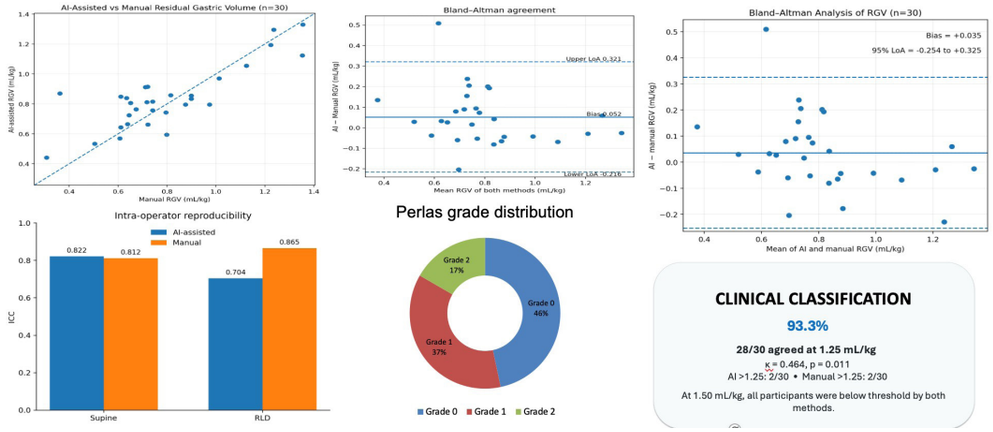
Conclusion

AI-assisted gastric ultrasound demonstrated good RGV agreement and improved measurement efficiency, supporting its role as an adjunct to operator assessment. Larger validation studies, particularly in patients with higher gastric volumes, are required before interchangeability can be established.

AP-03-6 (2026-0515)

Figure & Table

Figure & Table 1.



Diagnostic Accuracy of Machine Learning Models for Predicting Post-Induction Hypotension in General Anesthesia: A Systematic Review and Meta-Analysis

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Background

Post-induction hypotension (PIH) occurs in approximately 18% of anesthetic interventions and is associated with acute renal damage, myocardial injury, and increased mortality rates. Machine Learning (ML) models have shown the ability to predict PIH, although the evidence varies across population, definition, algorithm, and validation methods, with no prior research addressing the post-induction phase through diagnostic accuracy frameworks. This review, registered with PROSPERO, synthesizes the diagnostic efficacy of ML models in predicting PIH.

Methods

Following PRISMA-P/PRISMA-DTA guidance, we searched PubMed, Cochrane Library, Scopus, and ProQuest from inception to July 24th, 2026. Eligible studies developed or evaluated a ML model for predicting PIH in adults receiving general anesthesia induction, with a measurable sensitivity, specificity, or AUROC against a pre-specified hypotension threshold. Two reviewers conducted independent searches and assessed risk of bias using QUADAS-2 and PROBAST. Pooled estimates were derived using random-effects meta-analysis.

Results

Out of 113 records evaluated and 33 complete texts assessed, four studies are eligible (Table 1). Kendale et al. (2018) was excluded from pooling as its measurements showed cross-validated training-set results rather than held-out test-set efficacy. Random-effects pooling of the remaining three studies (Figure 1) results in a summary sensitivity of 76% (95% CI 66–84%), specificity of 79% (95% CI 69–86%), and AUROC of 0.85 (95% CI 0.75–0.90), exhibiting considerable heterogeneity (I^2=87–88%) due to varying definitions of PIH and diverse populations in the studies.

Conclusion

Machine learning models exhibit commendable discriminative efficacy in predicting PIH, generally on par compared to conventional logistic regression. Pooled estimates are derived from only three studies showing heterogeneity in the definitions of PIH, populations, and validation methods, requiring cautious interpretation. The results showed the clinical applicability of the ML-based predictions of PIH while highlighting the importance of uniforming the outcome criteria and external validation in future studies.

AP-03-7 (2026-0542)

Figure & Table

Figure & Table 1.

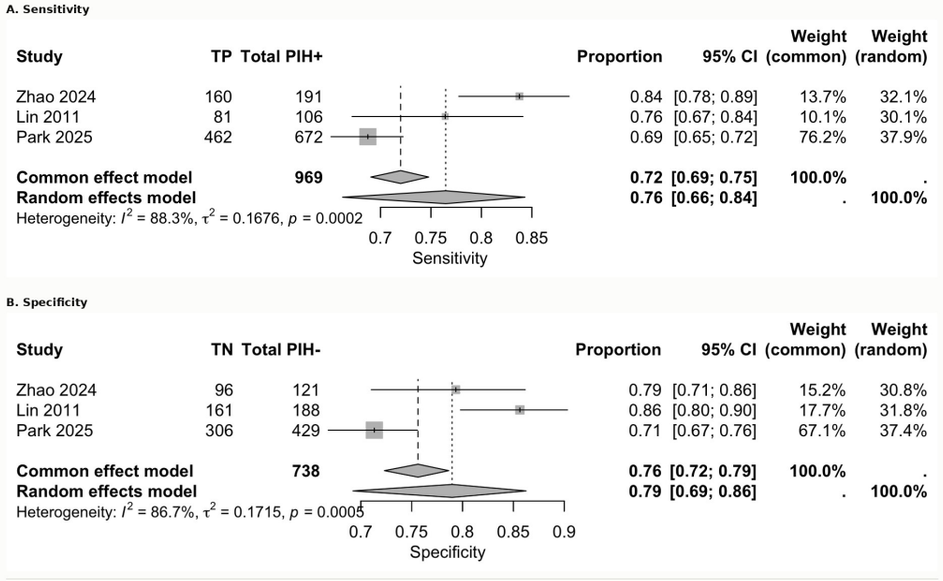
Table 1. Characteristics and diagnostic accuracy of included studies

n	Algorithm (best-performing)	PIH definition	Sensitivity	Specificity	AUROC	Validation basis	Pooled in MA?
9,326 (train) 3,997 (test)	Gradient Boosting Machine	MAP <55 mmHg within 10 min	70.0%*	64.0%*	0.74 (test set)	Cross-validation, training set only	No (excluded)
312	XGBoost	SBP <75 mmHg for >90% of 1-min window, or >30% relative decrease	84.0%	79.0%	0.85	LOOCV (pooled predictions)	Yes
294	Artificial Neural Network	SBP <90 mmHg or >30% decrease	76.4%	85.6%	0.893	External validation set	Yes
1,101	XGBoost	Sustained MAP <65 mmHg	68.8%	71.4%	0.772	Held-out test set	Yes

ty/specificity reflect cross-validated training-set performance only (not reported for the held-out test set); excluded from pooling for this reason.

Figure & Table 2.

Figure 1. Diagnostic accuracy of ML models for predicting post-induction hypotension
(random-effects pooling; n = 3 studies; Kendale 2018 excluded — see Table 1)



Pooled estimates (random-effects, logit transform): Sensitivity 76% (95% CI 66-84%), Specificity 79% (95% CI 69-86%). Heterogeneity: I^2 = 88.3% (sensitivity), 86.7% (specificity).

ABSTRACT
Competition
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Determining the Clinical Performances of A Self-Modified Cannula Oxygen Insufflation Device for Emergency Front of Neck Airway Access: A Simulated Observational Study

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Background
Emergency front-of-neck airway (eFONA) is the definitive rescue intervention for a cannot intubate, cannot oxygenate (CICO) event. Although scalpel cricothyrotomy is recommended, needle cricothyrotomy with oxygen insufflation remains a rescue oxygenation strategy where surgical expertise or specialised equipment is limited. We evaluated a self-modified cannula oxygen insufflation device (COID) assembled from commonly available airway components.

Methods
A simulated observational study used a mechanical test lung representing normal adult respiratory mechanics (compliance 50 mL/cmH_2O; resistance 5 cmH_2O/L/s). A 14-gauge cannula inserted into a simulated obstructed trachea was connected to the self-modified COID. Oxygen was insufflated at 6, 8, 10 and 12 L/min to achieve target tidal volumes of 500 and 1000 mL. Maximum insufflation pressure, peak airway pressure and maximum tidal volume were measured. Ten repeated measurements were obtained for each condition. Data are presented as median (interquartile range).

Results
Maximum insufflation pressure increased with oxygen flow at both target tidal volumes ($p < 0.001$). At 500 mL, median maximum insufflation pressure increased from 56.5 cmH_2O at 6 L/min to 78.5 at 8 L/min and 114.0 at 10 and 12 L/min. At 1000 mL, it increased from 56.5 cmH_2O at 6 L/min to 92.5 at 8 L/min and 114.0 at 10 and 12 L/min. Peak airway pressure also increased with flow ($p < 0.001$), from 19.5 to 44.5 cmH_2O at 500 mL and from 22.0 to 108.0 cmH_2O at 1000 mL. Maximum tidal volume did not differ significantly across flow rates at 500 mL (555, 530, 570 and 550 mL; $p = 0.250$), but differed at 1000 mL (1020, 1005, 1005 and 1070 mL; $p < 0.001$).

Conclusion
The self-modified COID demonstrated predictable flow-dependent increases in insufflation and peak airway pressures while generating tidal volumes close to intended targets under simulated conditions. Its simplicity and use of readily available components suggest potential as an accessible alternative to commercial oxygen insufflation devices, particularly in emergency or resource-limited settings. Further studies are required to establish its safety and clinical applicability.

Figure & Table

Figure & Table 1.

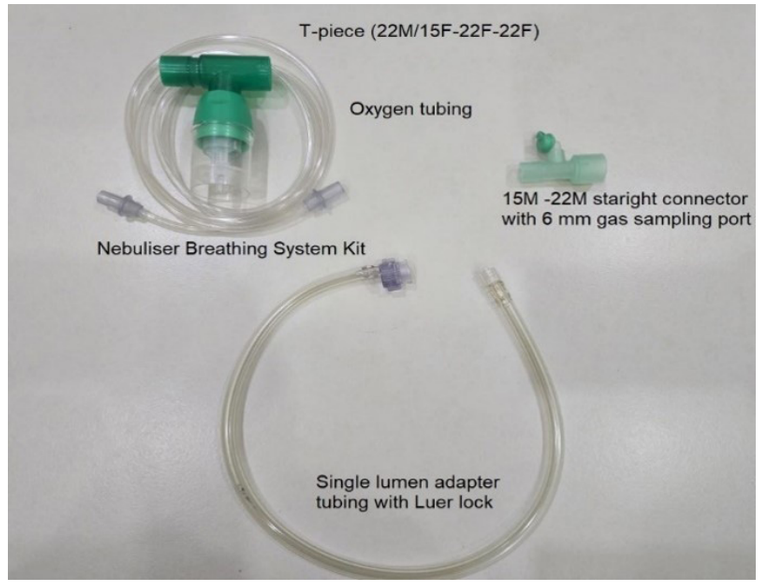
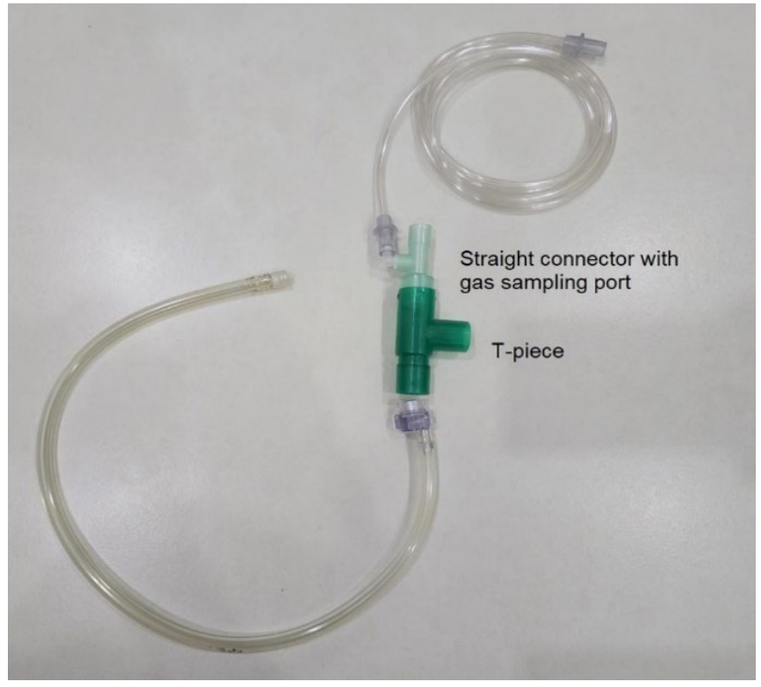


Figure & Table 2.



Presentation

Abstract Presentation 4

Date / Time	Nov 5 (Thu), 11:00-12:30
Room	Room E *(Hyatt Regency)*
Language	English
Chair(s)	Sung-Hoon Kim *(University of Ulsan, Republic of Korea)* Bon-Wook Koo *(Seoul National University, Republic of Korea)*

AP-04-1 2026-0023

Glycemic Gap and Postoperative Sepsis Risk in Adult Non-Diabetic Burn Patients Admitted to the Intensive Care Unit

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AP-04-2 2026-0636

Decompensation of Occult Diaphragmatic Vulnerability Following Transient Hemidiaphragmatic Paresis: A Case of Prolonged Hypoxemia

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AP-04-4 2026-0122

Outcomes and Predictors of Mortality on Prolonged Mechanical Ventilation in Critically Ill Patients: A Multicenter Retrospective Cohort Study

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AP-04-5 2026-0520

Prognostic Value of the Alveolar-Arterial Oxygen Gradient and Respiratory Index for Predicting Outcomes in Chest Trauma Patients Admitted to the Intensive Care Unit: A Retrospective Cohort Study

Kapildev Soni[1], Rushika Kowdipally[1*], Abhishek Singh[1], Sharmishtha Pathak[1], Riniki Sarma[1], Yudhyavir Singh[1], Richa Aggarwal[1], Chhavi Sawhney[1], Babita Gupta[1]

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AP-04-6 2026-0487

Overcoming Obesity and Obstructive Sleep Apnoea Burden in Transoral Robotic Surgery (TORS): Outcomes of a Standardised Opioid-Sparing Anaesthetic Protocol (A Single-Centre Malaysian Prospective Study)

Jeremy Tan Sin Hun[1], Siti Nadzrah Binti Yunus[1*]

1. Anaesthesiology, Faculty of Medicine, Universiti Malaya, Malaysia

AP-04-7 2026-0514

When Intubation Is Not the Safest Airway: Tubeless HFNO-Assisted TIVA for Critical Subglottic Stenosis—A Case Report

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AP-04-8 2026-0067

Not All Delayed Emergence Is Anaesthetic Related: Case of Acute Aluminium Encephalopathy Following Intravesical Alum Irrigation

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AP-04-1 (2026-0023)

Glycemic Gap and Postoperative Sepsis Risk in Adult Non-Diabetic Burn Patients Admitted to the Intensive Care Unit

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Background
Acute hyperglycemia frequently occurs after severe burn injury as a consequence of the systemic stress response, even in individuals without diabetes mellitus. The glycemic gap, representing the discrepancy between measured blood glucose and estimated average glucose derived from hemoglobin A1c (HbA1c), has emerged as a potential indicator of stress-induced dysglycemia. However, its prognostic significance in critically ill burn patients remains unclear. This study evaluated the association between preoperative glycemic gap and postoperative infectious outcomes in non-diabetic burn patients.

Methods
We retrospectively analyzed adult non-diabetic patients admitted to a tertiary burn intensive care unit who underwent surgical treatment. The glycemic gap was calculated using preoperative blood glucose and HbA1c measurements. The primary outcome was the development of postoperative sepsis within 30 days after surgery. Secondary outcomes included 30-day postoperative pneumonia and all-cause mortality.

Results
A total of 434 non-diabetic adult burn patients were included, of whom 271 (62.4%) developed postoperative sepsis. After adjustment for potential confounders, glycemic gap remained an independent predictor of 30-day postoperative sepsis (odds ratio, 1.077; 95% confidence interval, 1.025–1.136; P = 0.005). The incidence of sepsis increased progressively across glycemic gap quartiles, ranging from 46% in the lowest quartile to 83% in the highest quartile. Restricted cubic spline analysis demonstrated a positive linear relationship between glycemic gap and the probability of postoperative sepsis. Higher glycemic gap quartiles were also associated with increased rates of postoperative pneumonia and mortality.

Conclusion
An elevated preoperative glycemic gap was independently associated with postoperative sepsis in critically ill non-diabetic burn patients. Glycemic gap may serve as a useful adjunctive marker for identifying patients at increased risk of adverse postoperative outcomes beyond established burn-related prognostic factors.

AP-04-2 (2026-0636)

Decompensation of Occult Diaphragmatic Vulnerability Following Transient Hemidiaphragmatic Paresis: A Case of Prolonged Hypoxemia

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Introduction
Transient hemidiaphragmatic paresis due to phrenic nerve involvement is a well-known complication of brachial plexus block (BPB), typically resolving without long-term sequelae. However, its clinical consequences in patients with unrecognized pre-existing diaphragmatic abnormalities are not well characterized.

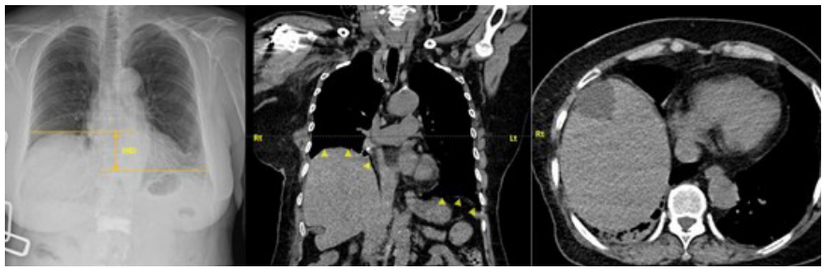
Case
A 78-year-old woman underwent humeral fracture surgery under supraclavicular brachial plexus block and superior trunk catheter placement with continuous perineural ropivacaine infusion. Preoperative chest radiography retrospectively revealed pre-existing, asymptomatic right hemidiaphragmatic elevation (interhemidiaphragmatic height difference: 40.56 mm). Six hours postoperatively, she developed acute severe dyspnea, diaphoresis, and paradoxical breathing with severe hypoxemia (PaO_2 53 mmHg, SaO_2 84.4%), which required high-flow nasal oxygen (60 L/min, FiO_2 0.60). Ultrasonography and chest CT revealed acute right hemidiaphragmatic paresis and extensive right middle and lower lobe atelectasis, prompting immediate discontinuation of the ropivacaine infusion. On postoperative day (POD) 4, repeat ultrasonography confirmed normal bilateral diaphragmatic excursion without residual paresis. Nevertheless, severe hypoxemia persisted on room air (PaO_2 42 mmHg on POD 6; 50 mmHg on POD 7), necessitating prolonged oxygen support and pulmonary rehabilitation for persistent atelectasis. Supplemental oxygen was successfully discontinued on POD 9, and the patient was discharged on POD 13.

Conclusion
Transient hemidiaphragmatic paresis can precipitate acute decompensation of an occult, pre-existing diaphragmatic vulnerability, leading to severe atelectasis and prolonged hypoxemia that outlasts the motor block. Preoperative evaluation should carefully screen for asymptomatic hemidiaphragmatic elevation when planning regional anesthesia involving the phrenic nerve.

AP-04-2 (2026-0636)

Figure & Table

Figure & Table 1.



AP-04-4 (2026-0122)

Outcomes and Predictors of Mortality on Prolonged Mechanical Ventilation in Critically Ill Patients: A Multicenter Retrospective Cohort Study

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Background

Care of patients requiring prolonged mechanical ventilation accounts for a substantial portion of the critical care clinician's time and resources. Mechanical ventilation (MV) is a life support technique that is routinely used in intensive care units (ICUs) for patients with life-threatening conditions. Mechanical ventilation is a cornerstone of critical care medicine, and prolonged dependence on mechanical ventilation after an acute episode of critical care is a hallmark of chronic critical illness and is regarded as a good proxy to identify this population. The goal of this study was to investigate the clinical outcomes and predict mortality of patients on prolonged mechanical ventilation in Dessie Comprehensive Specialized Hospital, Borumeda Hospital, and Akesta General Hospital from September 2019 to September 2024, Ethiopia.

Methods

A multicenter, retrospective cohort study was conducted in the ICUs of three hospitals. Of 163 patients who underwent prolonged mechanical ventilation, 106 with complete records (65.03% response rate) were included using consecutive sampling. The primary outcome was mortality, and predictors included diagnosis at admission, use of vasopressors, complications, and relevant clinical and demographic factors. Descriptive statistics summarized patient characteristics. Survival was assessed using Kaplan–Meier curves and the log-rank test, and variables with $p < 0.20$ in bivariable analysis were included in a multivariable Cox proportional hazards regression model. Statistical significance was set at $p < 0.05$, with hazard ratios and 95% confidence intervals reported.

Results

A total of 106 patients on prolonged mechanical ventilation were included in the study. The incidence rate of mortality was 0.95 deaths per 100 person-days. Kaplan–Meier analysis showed declining survival probability over time, with survival of 94.1% at 15 days, 73.3% at 30 days, and 42.9% at 60 days. In multivariable Cox regression analysis, tracheostomy (AHR = 9.41, 95% CI: 1.20–73.62) and higher age category (AHR = 1.69, 95% CI: 1.01–2.84) were significant predictors of mortality, while other variables including MAP, pulse rate, vasopressor use, and VAP were not statistically significant.

Conclusion

Mortality among patients receiving prolonged mechanical ventilation was considerable and survival declined with longer ventilation duration. Age and tracheostomy status were significant predictors of mortality. These findings highlight the importance of early risk identification and strategies to facilitate timely liberation from mechanical ventilation.

AP-04-4 (2026-0122)

Figure & Table

Figure & Table 1.

Figure 2: Kaplan–Meier Survival Curve for Time to Mortality Among Patients on Prolonged Mechanical Ventilation in the Intensive Care Unit at Dessie Comprehensive Specialized Hospital, Ethiopia, 2026 (n = 106). Horizontal axis (X): shows time of analysis in (days)

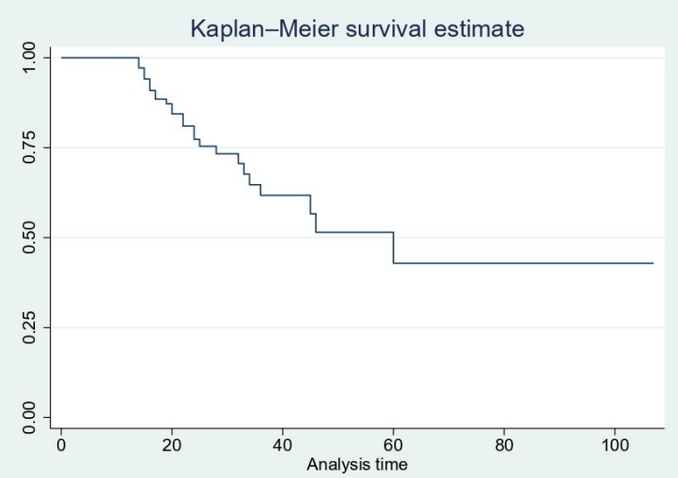


Figure & Table 2.

106). Horizontal axis (X): shows time of analysis in (days)

Table 5: Cox Regression Analysis of Predictors of Mortality among Critically Ill Patients on Mechanical Ventilation

Predictors	Category	CHR (95% CI)	AHR (95% CI)	P-value
Tracheostomy	Yes	11.882 (1.563–90.357)	9.406 (1.202–73.617)	0.033
	No (Ref)	1	1	—
Age category	—	1.507 (0.937–2.425)	1.691 (1.006–2.842)	0.047
MAP	Continuous	0.984 (0.964–1.004)	0.981 (0.957–1.006)	0.137
Vasopressor use	Yes	0.355 (0.122–1.032)	0.824 (0.182–3.724)	0.802
	No (Ref)	1	1	—
VAP	Yes	4.492 (1.057–19.086)	3.576 (0.824–15.527)	0.089
	No (Ref)	1	1	—
Pulse rate	Continuous	**0.993**(0.**983** - **1.003**)	1.007 (0.986–1.028)	0.520

AP-04-5 (2026-0520)

Prognostic Value of the Alveolar-Arterial Oxygen Gradient and Respiratory Index for Predicting Outcomes in Chest Trauma Patients Admitted to the Intensive Care Unit: A Retrospective Cohort Study

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Background
Early bedside markers that can predict the respiratory trajectory of patients with chest trauma remain limited. We evaluated whether the alveolar-arterial (A–a) oxygen gradient and Respiratory Index (RI), measured within 24 hours of intensive care unit (ICU) admission, predict the duration of mechanical ventilation and assessed which index has greater prognostic value.

Methods
We analysed data from a prospectively maintained ICU trauma registry at a tertiary apex trauma centre in India. Adults admitted with chest trauma between July 2022 and June 2025 were included. The A–a oxygen gradient and RI were calculated from arterial blood gas (ABG) measurements obtained within 24 hours of ICU admission. Among 361 adults with chest trauma admitted to the ICU who underwent ABG assessment within 24 hours, the primary analysis included the 240 patients who received invasive mechanical ventilation. The A–a gradient and RI were calculated using the ABG values associated with the worst oxygenation. The primary outcome was duration of mechanical ventilation (days), analysed using negative binomial regression, with each index expressed per 1 standard deviation and adjusted for age, Injury Severity Score (ISS), and Glasgow Coma Scale (GCS) score. Secondary outcomes—including the need for invasive mechanical ventilation, prolonged ventilation (>7 days), acute respiratory distress syndrome (ARDS), and in-hospital mortality—were assessed in the overall cohort using area under the receiver operating characteristic curve (AUC) analysis.

Results
Among the 361 screened patients, 85.6% were male and 90.9% had sustained blunt trauma; the median ISS was 22 (IQR, 16–29). Invasive mechanical ventilation was required in 240 patients, with a median duration of 4 days (IQR, 1–11). For each 1-standard-deviation increase in the index, both indices independently predicted a longer duration of mechanical ventilation: adjusted incidence rate ratio (IRR) 1.22 (95% CI, 1.07–1.40; p=0.004) for RI and 1.16 (95% CI, 1.01–1.33; p=0.04) for the A–a oxygen gradient. The association was stronger and more robust for RI. In the overall cohort, however, the A–a oxygen gradient demonstrated better discrimination than RI for the need for invasive mechanical ventilation (AUC, 0.75 vs 0.65) and in-hospital mortality (AUC, 0.74 vs 0.70), with significant differences by DeLong's test (p<0.001 and p=0.004, respectively).

Conclusion
In mechanically ventilated patients with chest trauma, both the early A–a oxygen gradient and RI independently predict the duration of mechanical ventilation, with RI demonstrating the stronger association. In the overall cohort, the A–a oxygen gradient provides superior discrimination for the need for invasive ventilation and in-hospital mortality. These readily available bedside indices provide complementary prognostic information and warrant prospective, multi centre validation.

AP-04-6 (2026-0487)

Overcoming Obesity and Obstructive Sleep Apnoea Burden in Transoral Robotic Surgery (TORS): Outcomes of a Standardised Opioid-Sparing Anaesthetic Protocol (A Single-Centre Malaysian Prospective Study)

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Background
Transoral Robotic Surgery (TORS) presents distinct peri-operative airway challenges involving shared, potentially difficult airway patients. In Malaysia with a high baseline prevalence of obesity and obstructive sleep apnoea (OSA), this further compounds the peri-operative risk in this surgical population. Clinical practice often assumes that OSA severity and Body Mass Index (BMI) mandate escalated postoperative monitoring with higher risk of delayed extubation or reintubation yet data on standardised peri-operative protocols and prospective evidence specific to TORS in Southeast Asian populations remain scarce with existing regional evidence links STOP-BANG and BMI to adverse respiratory events. Therefore, we aimed to characterise obesity and OSA burden in a Malaysian TORS population and identify predictors of delayed extubation, reintubation and post-anaesthetic care unit (PACU) escalation under a standardised, opioid-sparing anaesthetic protocol.

Methods
In this prospective, single-centre cohort study at a quaternary hospital, 56 consecutive adults undergoing TORS (Feb 2025-Aug 2026) were enrolled with all cases performed by the same anaesthetist and surgeon to minimise practice-pattern variability. The protocol comprised opioid-sparing multimodal analgesia (dexmedetomidine, lignocaine and ketamine infusions, paracetamol, NSAIDs and a lesser palatine nerve block) and sugammadex as reversal agent. Insertion of nasopharyngeal airway after extubation was a standard practice with an airway exchange catheter employed in 1 patient as part of the staged extubation strategy. Stratification was based on Asian-specific cutoffs for BMI and STOP-BANG score followed by polysomnographic severity grading for OSA risk. Post-operative PACU-level care was pre-booked according to the preoperative risk profile. Primary outcomes were extubation timing, reintubation rate and PACU admission by risk profile. Institutional ethics approval was obtained.

Results
82.1% (n=46) met Asian obesity criteria, 69.6% (n=39) had intermediate-to-high STOP-BANG risk and 50.9% (n=28) had severe OSA (grade 4). Immediate extubation was achieved in 94.6% (n=53); delayed extubation (n=3) and reintubation (n=2) were associated with longer surgical duration (p=0.014 and p=0.039 respectively) and increased length of stay (p=0.004) but not BMI or STOP-BANG category (p>0.5). Of patients pre-booked for PACU-level care (64%, n=36), only 16.7% (n=6) ultimately required it; unplanned admission among non-booked patients was rare (n=1), independent of STOP-BANG (p=0.9) or BMI (p=0.8). Median length of stay was 3 days with 30-day readmission rate of 20%.

Conclusion
Despite a high obesity and severe OSA burden, this standardised opioid-sparing anaesthetic protocol was associated with high immediate extubation rates and routine ward-level recovery for most patients. Surgical duration,not baseline OSA/BMI, was the dominant predictor of delayed extubation and reintubation, likely reflecting oedema risk from extensive tissue debulking rather than baseline risk scores. Larger, adequately powered multi-centre studies are needed to confirm these findings.

AP-04-7 (2026-0514)

When Intubation Is Not the Safest Airway: Tubeless HFNO-Assisted TIVA for Critical Subglottic Stenosis—A Case Report

Izac Franz Madrilejo[1*], Lucille Lim[1], Nelson Maglinao[1], Agnes Phoebe Calimag[1], Ma. Angelica Christine Libas[1]

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Introduction
Critical subglottic stenosis with bilateral vocal fold immobility creates an airway in which conventional tracheal intubation may not provide the usual margin of safety. Even the smallest laser-resistant tube may further narrow the residual lumen, traumatize the stenotic segment, impede surgical access, and introduce combustible material into the laser field. However, a tubeless technique carries distinct risks, including apnea, hypercapnia, aspiration, and delayed rescue ventilation.
No single guideline covered all the competing risks in this case. We therefore integrated four complementary guidance and evidence domains—difficult-airway planning, HFNO with preserved spontaneous ventilation, laser-fire prevention, and anesthesia–otolaryngology shared-airway planning—into a patient-specific perioperative safety strategy. We report the application of this integrated strategy to CO_2 laser surgery in a patient with traumatic bilateral vocal fold immobility and approximately 90% subglottic stenosis.

Case
A 19-year-old woman developed progressive dyspnea and biphasic stridor approximately two months after a clothesline-type neck injury. Flexible laryngoscopy demonstrated bilateral vocal fold immobility and circumferential subglottic fibrosis with approximately 90% reduction of the airway lumen. She underwent microlaryngoscopic carbon dioxide laser excision and balloon dilation using high-flow nasal oxygen (HFNO)-assisted tubeless total intravenous anesthesia with deliberately preserved spontaneous ventilation. We administered propofol and remifentanil by effect-site target-controlled infusion, avoided neuromuscular blockade, and reduced HFNO to FiO_2 ≤0.30 before laser activation. HFNO made nasal capnography unreliable, so we monitored ventilation clinically by observing respiratory rate, chest excursion, glottic movement, visible misting, and hemodynamic changes. She continued to breathe spontaneously throughout the procedure, which lasted about one hour; SpO_2 never fell below 98%, and no airway rescue or airway fire occurred.

Conclusion
No single guideline covered every risk in this case, so our plan drew on four areas: difficult airway management, STRIVE Hi–consistent TIVA using effect-site TCI with HFNO, laser-fire precautions, and a rescue plan agreed with the otolaryngology team. The patient breathed spontaneously throughout; intubation and rescue were not required.

AP-04-7 (2026-0514)

Figure & Table

Figure & Table 1.

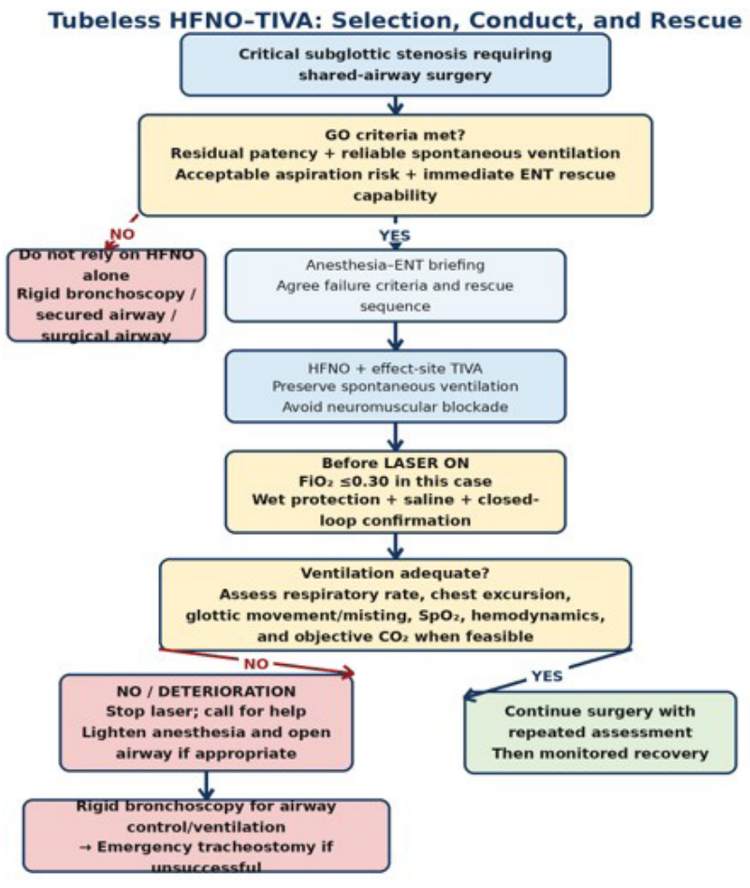
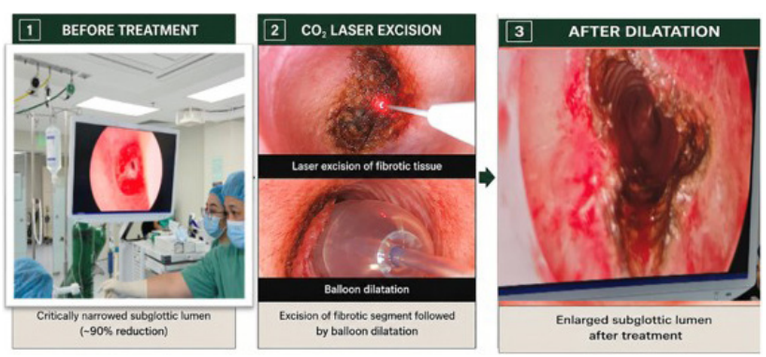


Figure & Table 2.



AP-04-8 (2026-0067)

Not All Delayed Emergence Is Anaesthetic Related: Case of Acute Aluminium Encephalopathy Following Intravesical Alum Irrigation

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Introduction

Haemorrhagic cystitis is a serious urological condition that can result from chemotherapy, radiotherapy or infection. Intravesical alum (aluminium potassium sulphate) irrigation is a well-established treatment for refractory haematuria due to its haemostatic properties. Aluminium is a systemic toxin exerting its most potent effects in central nervous system causing encephalopathy, seizures and coma. Although the occurrence is rare, judicious use of alum irrigation and clinician awareness are crucial. This report highlights a rare case of alum toxicity and discusses the safety considerations.

Case

A 37-year-old woman with chronic haemorrhagic cystitis presented with persistent haematuria and suprapubic pain. She had no known medical comorbidities. Computed tomography of the bladder demonstrated an intravesical clot and she was commenced on intravesical 1% alum irrigation for refractory haematuria, received a cumulative alum exposure of approximately 1,140 g over 15 days. She subsequently underwent cystoscopy, cystodiathermy and suprapubic catheter change on the day 15.

General anaesthesia was induced with intravenous fentanyl 100 µg and propofol 120 mg followed by insertion of a supraglottic airway device. The intraoperative course was uneventful with stable haemodynamics and no significant blood loss. She was extubated and transferred to the recovery unit. Fifteen minutes later, she was notably unresponsive with glascow coma scale of 3, bilateral eye roving movements and eyelids twitching. Electrolytes and arterial blood gas analysis were unremarkable. She was reintubated for airway protection and transferred to intensive care unit.

During her ICU stay, sedation was withheld to allow neurological assessment. She remained haemodynamically stable with preserved renal function and adequate urine output. Electrocardiogram showed normal sinus rhythm. Brain computed tomography and electroencephalography revealed no alternative cause for her neurological deterioration. Toxicology consultation supported the diagnosis of aluminium toxicity secondary to prolonged intravesical alum irrigation. Given her preserved renal function and improving neurological status, supportive management alone was recommended, neither haemodialysis nor chelation therapy was initiated.

Neurological symptoms gradually improved and she was successfully extubated after 48 hours without residual neurological deficits The diagnosis of acute aluminium encephalopathy was confirmed by markedly elevated serum aluminium level at 0.37 µg/mL , approximately 17 times the upper limit of normal (reference range: 0.014–0.022 µg/mL), while the urine aluminium concentration was also increased at 0.38 µg/mL (reference range: 0.004–0.031 µg/mL) , consistent with significant aluminium accumulation.

Conclusion

Although intravesical alum irrigation is an effective treatment for refractory haemorrhagic cystitis, systemic aluminium toxicity remains a rare but potentially life-threatening complication. This case highlights the importance of considering aluminium encephalopathy in patients with unexplained postoperative neurological deterioration following prolonged alum irrigation even in the presence of preserved renal function. Given the limited clinical guidelines available on safe dosing duration and monitoring for alum irrigation, this case contributes to the growing literature that calls for increased clinical vigilance and standardized safety protocols.

Presentation

Abstract Presentation 5

Date / Time	Nov 5 (Thu), 11:00-12:30
Room	Room F *(Hyatt Regency)*
Language	English
Chair(s)	Geunjoo Choi *(Chung-Ang University, Republic of Korea)* Young Sung Kim *(Korea University, Republic of Korea)*

AP-05-1 2026-0188

Privacy-Preserving Classification of Postoperative Pain Severity from Facial Video Using Homomorphic Encryption: A Prospective Feasibility Study

Donghee Lee[1], Garam Lee[2], Hwa-Young Jang[1], Minchan Shin[1], Sang-Wook Lee[1*]

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AP-05-2 2026-0561

Perioperative Increase in Ventilated-Lung B-line Score During One-Lung Ventilation for Thoracic Surgery: A Prospective Pilot Study Using Three-Point BLUE-Protocol Lung Ultrasound

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AP-05-3 2026-0176

Optimal Insertion Depth of an Esophageal Stethoscope for Core Temperature Monitoring: Agreement and a Safe-Zone Window Referenced to the Maximal Heart-Sound Position

Jongho Shin[1], Young Joon Ki Ki[1], Ki Tae Jung[1*]

1. Anesthesiology and Pain Medicine, Chosun University, Republic of Korea

AP-05-4 2026-0232

Effect of Analgesia Nociception Index Monitoring during Remimazolam–Remifentanil Anesthesia for Lower Gastrointestinal Surgery: A Randomized Controlled Trial.

Sunghaeng Kim[1], Seungcheol Lee[1], Soron Choi[1], Minah Kim[1], Seokhyun Ma[1], Sangyoong Park[1*]

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AP-05-5 2026-0041

Development and Clinical Implementation of a Low-Cost Cloud-Based Electronic Veterinary Anesthesia Record

Cho Young-Gwang[1], Jihyun Kim[1], Nahyun Kim[1], Seonbin Oh[1], Seolhee Lee[1], Seongwon Lee[1], Hwanhoon Park[1], Inhyung Lee[1], Son Won-Gyun[1*]

1. Department of Clinical Veterinary Science (Anesthesiology and Pain Medicine), College of Veterinary Medicine, Seoul National University, Republic of Korea

AP-05-6 2026-0417

Postoperative Clinical Outcomes with Hypotension Prediction Index–Guided Haemodynamic Management in Non-Cardiac Surgery: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Jamie Wen Yen Tan[1], Nadhirah Abd Halim[2,4], Mohammad Nizam Mokhtar[2], Saw Kian Cheah[2], Mohd Fitry Zainal Abidin[1], Syarifah Noor Nazihah Sayed Masri[3*]

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2. Anaesthesiology and Critical Care, Universiti Kebangsaan Malaysia, Malaysia
3. Anaesthesiology and Critical Care, Hospital Canselor Tuanku Muhriz, Malaysia
4. Anesthesiology and Intensive Care, Institut Jantung Negara, Malaysia

AP-05-7 2026-0510

Artificial Intelligence-Based Pain Assessment in Non-Communicative Adult Intensive Care Unit Patients: A Systematic Review and Meta-Analysis

Ihsan Hamdani[1*], Djayanti Sari[1], Mahmud Mahmud[1], Akhmad Yun Jufan[1]

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AP-05-8 2026-0211

Smartpilot® View Guided Versus Standard Care Sevoflurane-Based General Anesthesia in Patients Undergoing Laparoscopic Donor Nephrectomy: A Retrospective Single-Center Study

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2. Anesthesiology, National Kidney and Transplant Institute, Philippines

AP-05-1 (2026-0188)

Privacy-Preserving Classification of Postoperative Pain Severity from Facial Video Using Homomorphic Encryption: A Prospective Feasibility Study

Donghee Lee[1], Garam Lee[2], Hwa-Young Jang[1], Minchan Shin[1], Sang-Wook Lee[1*]

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2. Business Division, AI Agent Team, CryptoLab Inc., Republic of Korea

Background

Postoperative pain in the post-anesthesia care unit (PACU) is assessed intermittently by self-report, which is subjective and exhibits limited reproducibility. Although facial-expression based analysis has emerged as an objective alternative, facial-video–based assessment raises privacy concerns because facial images are identifying biometric data. We evaluated the feasibility of three-tier pain classification on homomorphically encrypted facial-video–derived features, with raw video and feature extraction confined to the hospital trust boundary.

Methods

In this prospective feasibility study, 134 of 141 adults undergoing elective robot-assisted abdominal surgery formed the analytic cohort (499 videos) after quality control. At up to four time points, 3- to 5-minute facial videos were recorded with paired Numerical Rating Scale (NRS) scores. Per video, 64 confidence-ranked frames were encoded by four frozen encoders into a 3,611-dimensional, per-stream L2-normalized, baseline-corrected representation. A three-class logistic-regression classifier (Mild, NRS 0–3; Moderate, 4–6; Severe, 7–10) was evaluated on encrypted feature vectors by frame-randomized 5-fold cross-validation (30 seeds); frame-level folds yield internal, within-cohort estimates.

Results

The encrypted classifier achieved a video-level macro AUROC of 0.966 (95% CI 0.955–0.977); the more clinically representative postoperative-only analysis yielded 0.932 (0.908–0.954). Discrimination fell as frames were removed (video, 0.966; frame, 0.953; single image, 0.790), confirming multi-frame benefit. Encrypted inference reproduced the plaintext model exactly (maximum absolute deviation 3×10^{-8}) at a median of 251 ms per video. Per-stream L2 normalization was a numerical prerequisite for stable encrypted computation.

Conclusion

Three-tier postoperative pain classification is feasible using encrypted facial-video features without exposing identifiable patient data, with negligible latency and no loss of accuracy. These findings establish internal feasibility, not clinical performance; patient-grouped internal validation, calibration, and external validation are required before clinical use.

AP-05-1 (2026-0188)

Figure & Table

Figure & Table 1.

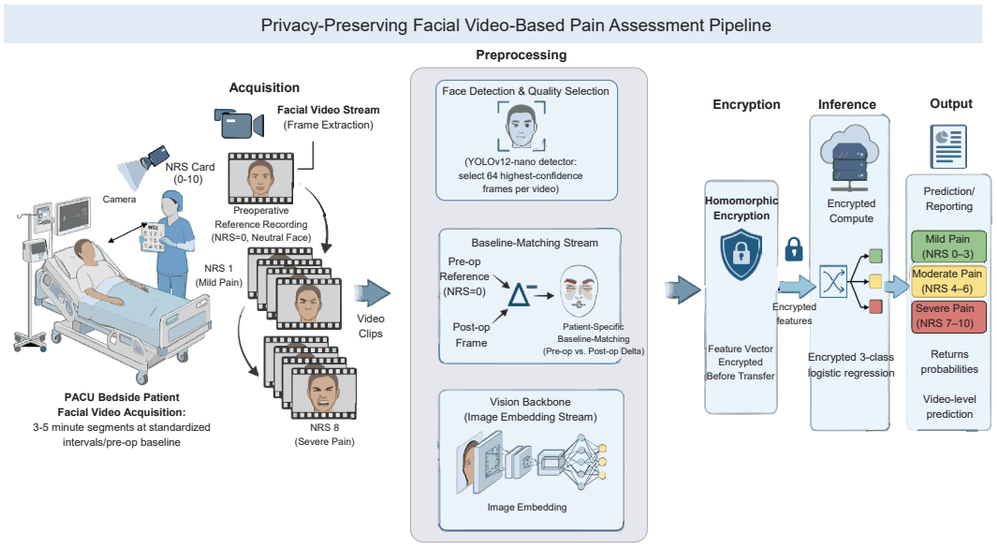
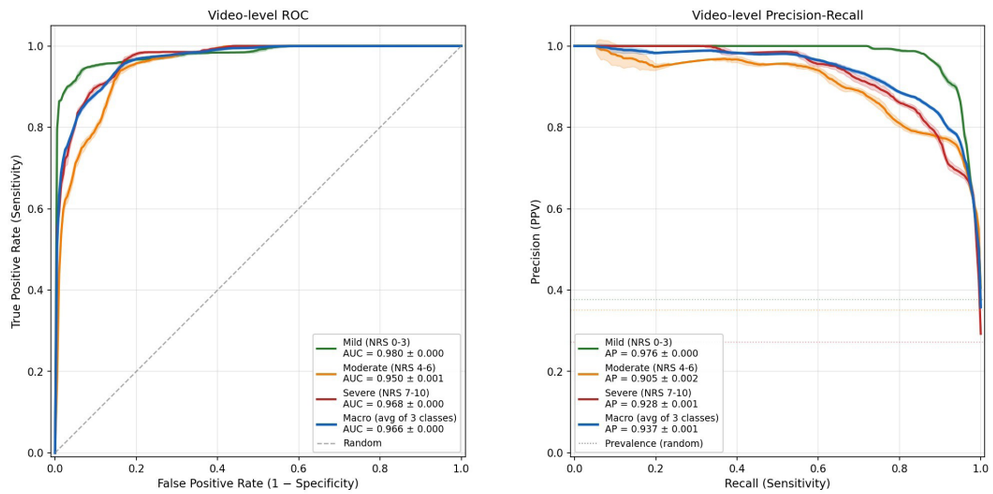


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

AP-05-2 (2026-0561)

Perioperative Increase in Ventilated-Lung B-line Score During One-Lung Ventilation for Thoracic Surgery: A Prospective Pilot Study Using Three-Point BLUE-Protocol Lung Ultrasound

Jaeuk Na[1], Dongyul Lee[1], Ji Wook Kim[1*]

1. Anesthesiology and Pain Medicine, Kosin University Gospel Hospital, Republic of Korea

Background
One-lung ventilation (OLV) and lateral decubitus positioning during thoracic surgery promote loss of aeration and possible extravascular lung water accumulation in the ventilated (dependent) lung, detectable as an increasing B-line score on lung ultrasound (LUS).[1] Whether a simplified, three-point BLUE-protocol assessment can reliably capture this perioperative change, and how large it is, has not been well characterized across the range of OLV thoracic procedures. As a first step toward a prognostic cohort, we conducted a pilot study to establish feasibility and to quantify the perioperative change in ventilated-lung B-line score, providing effect-size and variance estimates for future sample-size calculation.

Methods
In this single-center prospective observational pilot study, adults of ASA physical status II undergoing elective thoracic surgery requiring OLV were enrolled. A restrictive intraoperative fluid strategy was applied in all cases to standardize fluid loading. Focused LUS of the ventilated (dependent) hemithorax was performed at three BLUE-protocol points (upper BLUE, lower BLUE, PLAPS), each scored 0–3 for B-line severity (0: A-lines/<3 B-lines; 1: ≥3 B-lines; 2: coalescent; 3: consolidation; total 0–9).[2] All scans were performed supine by a single operator at two timepoints: after anesthetic induction before positioning (T1) and at the end of surgery after return to supine, before emergence (T2). Primary endpoints were feasibility (success rate, acquisition time) and the change in dependent B-line score (ΔT1–T2). Exploratory analyses assessed associations with OLV duration and procedure type, and rates of postoperative pulmonary complications (PPC) and ICU admission.[3]

Results
Twenty-one operations were analyzed (lobectomy 8, wedge resection 7, others 6; VATS 18, robotic 3). LUS was obtained in all cases at both timepoints (mean ~1 min). The total score was near-zero at baseline (T1 0.05) and rose at end of surgery (T2 2.10 ± 1.79; median 2 [IQR 1–3]; range 0–6); ΔT1–T2 was 2.05 ± 1.75 (dz ≈ 1.2), with any increase in 17/21 (81%). In a post hoc regional analysis, the change was heterogeneous, being greatest at PLAPS (Δ 1.05 ± 0.67; increased in 17/21, 81%) versus the upper (0.52 ± 0.68; 9/21, 43%) and lower (0.48 ± 0.68; 8/21, 38%) points (Friedman p=0.0002); every operation with any increase involved PLAPS, in isolation in 8, and no region reached a score of 3. Median intraoperative fluid volume was 300 mL [IQR 200–550], and the increase did not correlate with OLV duration (ρ=−0.01). PPC were infrequent (atelectasis 1/21); single-day ICU admission (10/21), mostly after lobectomy or robotic surgery, was consistent with planned admission.

Conclusion
A three-point BLUE-protocol lung ultrasound was rapid and feasible in all cases and detected a consistent perioperative increase in ventilated-lung B-line score (Δ 2.05 ± 1.75) after OLV thoracic surgery. The increase was concentrated at the most dependent (PLAPS) region, a hypothesis-generating observation requiring prospective confirmation. These pilot data provide the feasibility, effect-size, and variance estimates needed to power a future cohort; because PPC were rare and ICU admission largely planned in this low-risk ASA II population, outcome-linked studies will require larger, higher-risk, preferably multicenter sampling with prespecified pulmonary and oxygenation endpoints.

AP-05-3 (2026-0176)

Optimal Insertion Depth of an Esophageal Stethoscope for Core Temperature Monitoring: Agreement and a Safe-Zone Window Referenced to the Maximal Heart-Sound Position

Jongho Shin[1], Young Joon Ki Ki[1], Ki Tae Jung[1*]

1. Anesthesiology and Pain Medicine, Chosun University, Republic of Korea

Background
An esophageal temperature probe reads core temperature accurately only within a limited depth window; too shallow and inspired-gas cooling lowers the reading, too deep and it may pass beyond the cardiac great vessels. Absolute insertion distance from the incisors varies with oral-cavity length, so a patient-specific anatomical landmark may define the correct depth more robustly. We assessed the agreement of esophageal temperature with core temperature across insertion depth, located the depth that best matches core, and expressed a practical safe-zone window relative to the position of maximal heart sounds (MHS) audible through the esophageal stethoscope.

Methods
Thirty-eight adults undergoing elective surgery under general anesthesia in the supine position were studied. An esophageal stethoscope with an integrated thermistor was inserted to 45 cm from the incisors and withdrawn 2 cm every 5 min to 27 cm, giving ten sequential depths. At each depth the esophageal temperature was recorded, with tympanic-membrane (TM) temperature as the core reference; the MHS depth was determined by auscultation. The core-matching depth was found per patient by zero-crossing of the esophageal-minus-TM difference. Agreement was assessed by Bland–Altman analysis, and the proportion of individual readings within ±0.5 °C of core as a function of offset from MHS was modeled with a repeated-measures mixed-effects model.

Results
The esophageal-minus-TM difference crossed zero at depths T03–T04 (≈37–39 cm from the incisors). At the per-patient core-matching depth, agreement with core was excellent (bias −0.02 °C; 95% limits of agreement −0.15 to +0.12 °C; r = 0.981; 38/38 [100%] within ±0.5 °C). The core-matching depth lay 1.98 cm deeper than the MHS position (p = 0.001). In the mixed-effects model (total SD 0.271 °C), 93% of individual readings were within ±0.5 °C of core at the MHS position; ≥90% agreement was maintained across MHS −1 to +4 cm and ≥85% across −2.5 to +6 cm. The window was asymmetric, tolerating deeper more than shallower placement, because withdrawing toward the airway introduced respiratory-gas cooling. The MHS position correlated with the clavicle-to-cricoid distance (r = 0.47, p = 0.003) and with height.

Conclusion
Placing an esophageal stethoscope at the maximal heart-sound position gives accurate core temperature, and the true core-matching point lies about 2 cm deeper. Keeping the tip within MHS −1 to +4 cm keeps roughly 90% of readings within ±0.5 °C of core; when depth is uncertain, advancing is safer than withdrawing. An MHS-relative window is preferable to an absolute incisor distance, which is confounded by oral-cavity length.

AP-05-3 (2026-0176)

Figure & Table

Figure & Table 1.

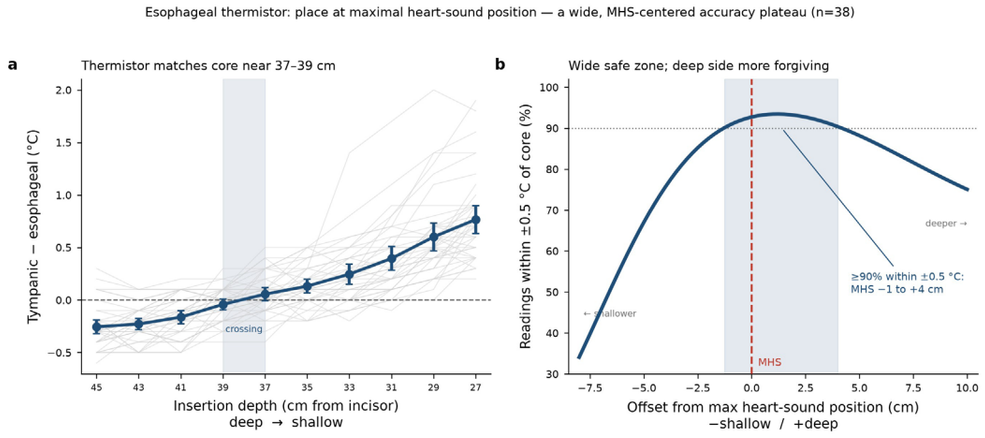
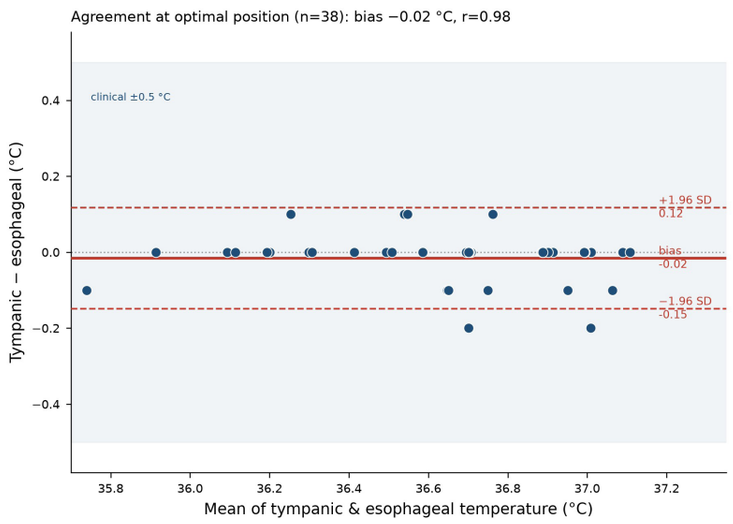


Figure & Table 2.



AP-05-4 (2026-0232)

Effect of Analgesia Nociception Index Monitoring during Remimazolam–Remifentanil Anesthesia for Lower Gastrointestinal Surgery: A Randomized Controlled Trial.

Sunghaeng Kim[1], Seungcheol Lee[1], Soron Choi[1], Minah Kim[1], Seokhyun Ma[1], Sangyoong Park[1*]

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Background

Opioid-sparing strategies are increasingly emphasized to prevent opioid overuse during general anesthesia. The Analgesia Nociception Index (ANI) provides a real-time autonomic surrogate of the nociception–antinociception balance and may support goal-directed analgesic titration. This study evaluated the effect of ANI-guided remifentanil titration on intraoperative remifentanil consumption and postoperative outcomes during remimazolam-remifentanil general anesthesia for lower gastrointestinal surgery.

Methods

Patients undergoing lower gastrointestinal surgery were randomly assigned to the ANI-guided or standard care group. In the ANI group, remifentanil effect-site concentration was adjusted every 5 minutes to maintain an ANI of 50–70. In the standard group, remifentanil was adjusted according to clinical judgment based on arterial blood pressure and heart rate. The primary outcome was total intraoperative remifentanil consumption. Secondary outcomes included postoperative visual analog scale pain scores, rescue analgesic requirements, postoperative nausea and vomiting, and Korean Quality of Recovery-15 scores on postoperative day 1.

Results

Seventy-four patients were randomized; 66 (33 per group) were analyzed. Remifentanil consumption was significantly lower in the ANI group than in the standard group (1149.1 μg vs. 1536.1 μg, P = 0.007). After adjustment for body mass index, ANI guidance remained independently associated with lower remifentanil consumption (adjusted mean difference, −326.7 μg; P = 0.013). Adjusted analyses showed no significant between-group differences in systolic blood pressure or heart rate. Postoperative outcomes did not differ significantly between groups.

Conclusion

ANI-guided analgesia reduced intraoperative remifentanil consumption during remimazolam-based general anesthesia while maintaining comparable intraoperative hemodynamics and postoperative recovery outcomes.

AP-05-4 (2026-0232)

Figure & Table

Figure & Table 1.

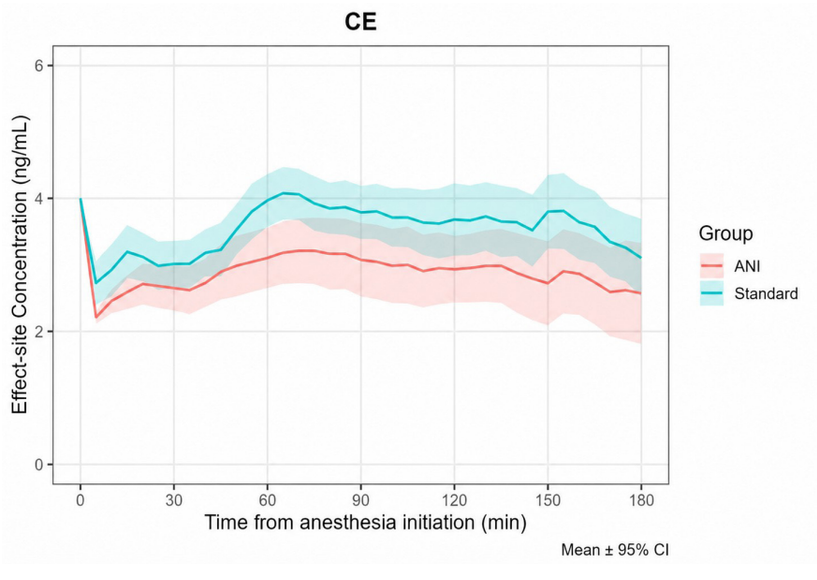
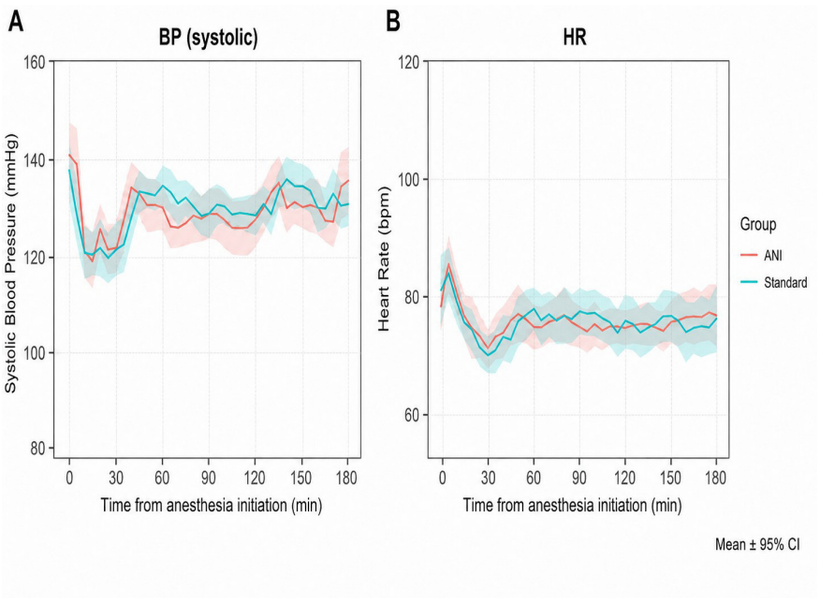


Figure & Table 2.



AP-05-5 (2026-0041)

Development and Clinical Implementation of a Low-Cost Cloud-Based Electronic Veterinary Anesthesia Record

Cho Young-Gwang[1], Jihyun Kim[1], Nahyun Kim[1], Seonbin Oh[1], Seolhee Lee[1], Seongwon Lee[1], Hwanhoon Park[1], Inhyung Lee[1], Son Won-Gyun[1*]

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Background

Accurate and standardized anesthesia documentation is essential for patient safety, clinical decision-making, audit, and retrospective research. However, veterinary anesthesia records remain commonly paper-based, leading to incomplete entries, inconsistent terminology, transcription errors, and limited usability as searchable data. Although commercial anesthesia information management systems can improve documentation quality, their cost and technical complexity limit widespread adoption. To address these limitations, we developed the Electronic Veterinary Anesthesia Record (EVAR), a low-cost, cloud-based system using Google Sheets, Google Forms, and Google Calendar.

Methods

This pre–post implementation study was conducted at Seoul National University Veterinary Medical Teaching Hospital. Registry data from April–December 2024, representing the paper-based workflow, were compared with April–December 2025 data after EVAR implementation. EVAR integrated anesthesia requests, scheduling, informed consent, structured anesthetic charting, and post-case registry summarization into a single cloud-based workflow. Structured fields, dropdown menus, protected ranges, and linked data transfer were used to standardize entry and reduce free-text variability. Documentation completeness was assessed at the departmental registry level using 13 comparable variables. Medication fields were excluded because blank paper entries could not distinguish non-use from non-documentation, whereas EVAR explicitly captured non-use.

Results

A total of 984 anesthetic episodes were included: 489 paper-based and 495 EVAR cases. EVAR was routinely used without technical failure or data loss. Overall registry-level documentation completeness increased from 85.7% to 95.6% after implementation. Notable improvements were observed in diagnosis documentation (83.0% to 99.8%), ASA physical status (83.8% to 97.0%), endotracheal tube documentation (36.0% to 96.2%), and fluid documentation (34.4% to 93.5%). These changes were most evident in workflow-sensitive variables prone to omission, while procedure documentation remained high in both periods. Cardiac murmur and anesthesia duration documentation decreased, likely due to differences in EVAR data-generation logic rather than true clinical omission. Overall, EVAR improved registry-level documentability rather than altering clinical practice itself.

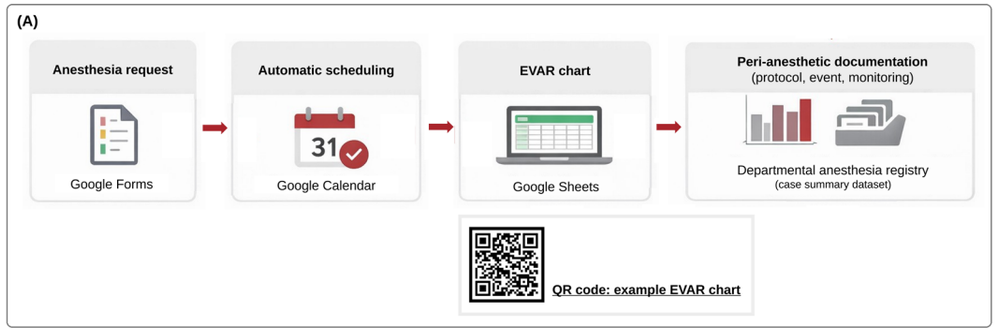
Conclusion

EVAR improved registry-level completeness of peri-anesthetic documentation compared with the previous paper-based workflow. By integrating request submission, scheduling, charting, consent documentation, and post-case summarization, EVAR reduced manual transcription and improved the documentability, consistency, and searchability of anesthesia-related data. Although it requires manual physiologic entry and lacks automatic monitor-data import, EVAR may serve as a feasible model for veterinary anesthesia documentation and a foundation for Health Level Seven Fast Healthcare Interoperability Resources (HL7 FHIR) mapping, multi-institutional datasets, and larger-scale research.

AP-05-5 (2026-0041)

Figure & Table

Figure & Table 1.



AP-05-6 (2026-0417)

Postoperative Clinical Outcomes with Hypotension Prediction Index–Guided Haemodynamic Management in Non-Cardiac Surgery: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Jamie Wen Yen Tan[1], Nadhirah Abd Halim[2,4], Mohammad Nizam Mokhtar[2], Saw Kian Cheah[2], Mohd Fitry Zainal Abidin[1], Syarifah Noor Nazihah Sayed Masri[3*]

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Background
The Hypotension Prediction Index (HPI) enables proactive treatment of impending intraoperative hypotension, but whether HPI-guided haemodynamic management improves postoperative clinical outcomes remains uncertain. We evaluated postoperative morbidity, mortality, and hospital length of stay following HPI-guided management in adults undergoing non-cardiac surgery.

Methods
PubMed, Ovid MEDLINE, Scopus, and Web of Science were searched from inception to 8 March 2026 for randomized controlled trials comparing HPI-guided haemodynamic management with non-HPI management in adult non-cardiac surgery. Postoperative complications, short-term mortality, and hospital length of stay were extracted. Risk ratios (RR) for dichotomous outcomes and mean differences (MD) for continuous outcomes were pooled using random-effects models. Mortality at 28 and 30 days was considered short-term mortality. Sensitivity analyses assessed alternative outcome definitions and potentially skewed length-of-stay data.

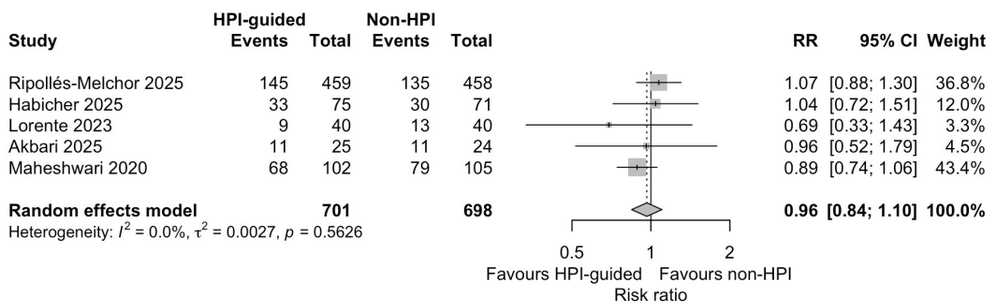
Results
Seventeen randomized trials comprising 2,194 participants were included. HPI-guided management did not reduce overall postoperative morbidity or complications (5 studies; RR 0.96, 95% CI 0.84–1.10; I^2=0%; p=0.56 Figure 1) or acute kidney injury (8 studies; RR 0.87, 95% CI 0.71–1.07; I^2=0%; p=0.93). Composite cardiac complications were numerically lower with HPI guidance (RR 0.57, 95% CI 0.33–1.00; I^2=0%, p=0.78). Composite pulmonary complications were reduced in the primary analysis (RR 0.79, 95% CI 0.64–0.98; I^2=34%; p=0.19), although statistical significance was not consistently maintained in leave-one-out analyses. There were no significant differences in short-term mortality (7 studies; RR 1.02, 95% CI 0.38–2.75; I^2=0%; p=0.82) or hospital length of stay (13 studies; MD −0.02 days, 95% CI −0.29 to 0.24; I^2=0%; p=0.60). Sensitivity analyses did not materially alter the overall morbidity, acute kidney injury, mortality, or length-of-stay findings.

Conclusion
HPI-guided haemodynamic management was not associated with reductions in overall postoperative morbidity, acute kidney injury, short-term mortality, or hospital length of stay. Signals toward fewer cardiac and pulmonary complications warrant further investigation, but current randomized evidence does not demonstrate a consistent improvement in postoperative clinical outcomes.

AP-05-6 (2026-0417)

Figure & Table

Figure & Table 1.



AP-05-7 (2026-0510)

Artificial Intelligence-Based Pain Assessment in Non-Communicative Adult Intensive Care Unit Patients: A Systematic Review and Meta-Analysis

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Background

Pain is highly prevalent among critically ill patients admitted to the intensive care unit (ICU). Accurate pain assessment remains particularly challenging in non-communicative patients who cannot self-report due to mechanical ventilation, deep sedation, or altered consciousness. Current clinical practice relies on behavioral instruments, such as the Critical-Care Pain Observation Tool (CPOT) and Behavioral Pain Scale (BPS), whose accuracy depends on observer experience and inter-rater reliability. Artificial intelligence (AI) technologies have emerged to improve objectivity and facilitate continuous bedside monitoring. This study aims to evaluate the diagnostic performance of AI-based pain assessment tools.

Methods

We searched PubMed, Scopus, Web of Science, and Embase from inception to July 2026. A systematic review and meta-analysis was conducted targeting original studies evaluating AI-based algorithms for pain detection against reference standards (CPOT/BPS) in non-communicative adult ICU patients. Methodological quality and risk of bias were critically evaluated using QUADAS-AI for diagnostic accuracy studies and PROBAST-AI for prediction models. Studies utilizing visual facial analysis were synthesized qualitatively, while quantitative meta-analysis utilizing a bivariate random-effects model was performed on studies utilizing continuous physiological signals. Protocol registered at PROSPERO [CRD420261439269].

Results

Four studies involving 11,677 patients were included. Qualitative synthesis identified two distinct AI modalities: facial-analysis models (which evaluate pain objectively through automated computer-vision tracking of micro-expressions and facial action units) and physiological-signal models (which predict pain probabilities using continuous time-series vital signs, and RASS sedation score). Risk of bias was high or unclear in all included studies, mainly because of patient selection, flow and timing, and analysis domains. Quantitative meta-analysis of physiological-signal models demonstrated that pooled sensitivity and specificity were 73.3% (95% CI: 72.1–74.4%) and 89.4% (95% CI: 67.9-97.1%), respectively.

Conclusion

AI-based assessment systems offer promising potential as objective adjuncts for continuous pain monitoring in non-communicative ICU patients; however, existing methodological limitations and analytical biases preclude firm conclusions regarding their clinical utility, demanding rigorous prospective validation before broad clinical implementation.

Figure & Table

Figure & Table 1.

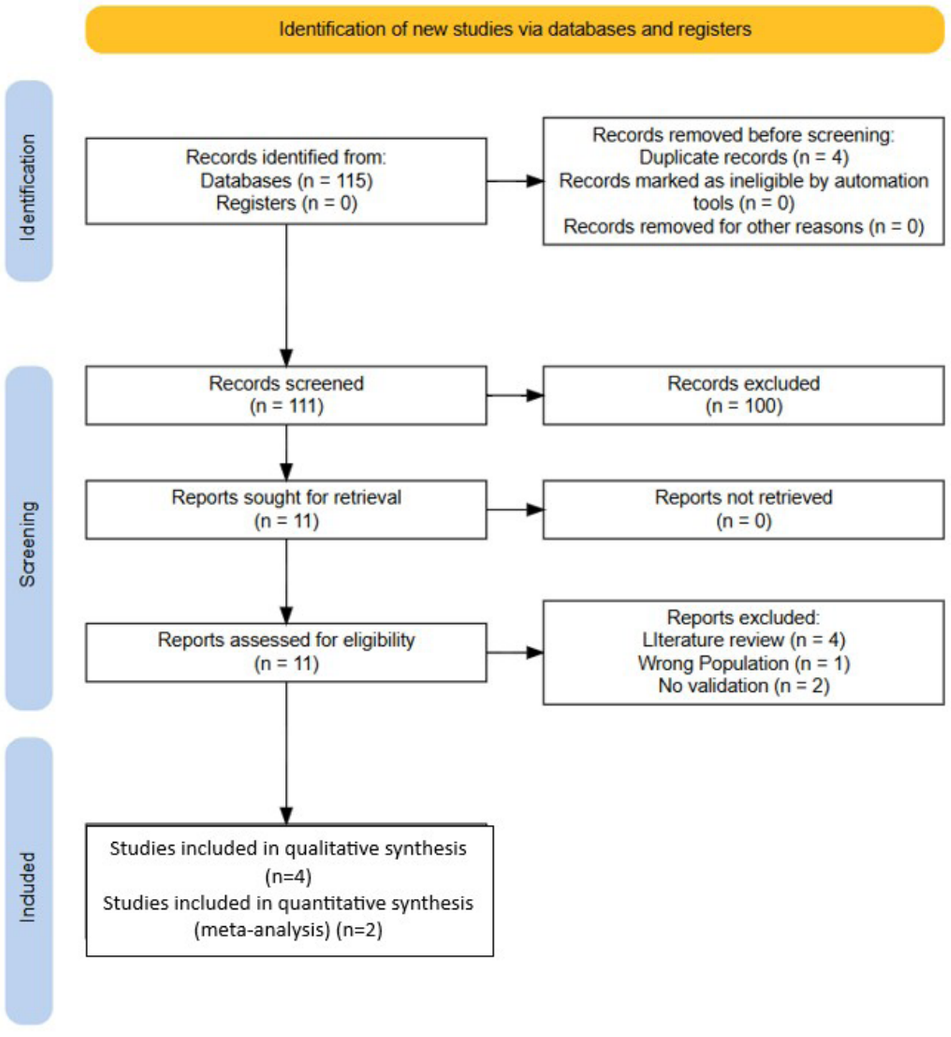


Figure & Table

Figure & Table 2.

Characteristics of Included Studies

Study & Year	Study Design	Sample & Patient Characteristics	Intervention / Index Test (AI Model)	Reference Standard (Gold Standard)	Main Outcomes
Kobayashi et al. (2021)	Retrospective observational	N = 11,507 ICU patients (median age 65 years; 58.0% male).	Random Forest (RF), Support Vector Machine (SVM), and Logistic Regression (LR) using continuous vital sign data & RASS.	CPOT (Critical-Care Pain Observation Tool).	Prediction of pain ≥ 3 points during CPOT evaluation (RF AUROC: 0.853).
Kobayashi et al. (2023)	Retrospective observational (single-center)	N = 10,299 patients (derivation/validation) and N = 326 patients (fentanyl response test).	Random Forest based on deviations of patient vital signs from baseline & RASS.	CPOT.	Improved pain visualization accuracy (AUROC 0.902) & correlation with fentanyl bolus.
Guven et al. (2026)	Prospective (facial image analysis)	N = 120 ICU patients (aged 18–65 years; 55.8% male; 636 facial images).	Deep Learning (DenseNet-169) with feature extraction and classification using SVM, KNN, and RF.	Multidisciplinary Panel (Intensivist, Algologist, Nurse) using VAS.	Pain intensity classification (mild, moderate, severe) based on micro-facial expressions.
Bellal et al. / NEVVA (2024)	Prospective pilot study	N = 30 medical ICU patients under deep sedation (RASS ≤ −4).	NEVVA device using iPhone and Smart Motion Tracking System (FACS 3D mesh).	Behavioral Pain Scale (BPS) recorded hourly by nurses.	Calibration of continuous pain detection device from facial expressions (AUC 0.792).

AP-05-8 (2026-0211)

Smartpilot® View Guided Versus Standard Care Sevoflurane-Based General Anesthesia in Patients Undergoing Laparoscopic Donor Nephrectomy: A Retrospective Single-Center Study

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2. Anesthesiology, National Kidney and Transplant Institute, Philippines

Background
Laparoscopic donor nephrectomy (LDN) requires general anesthesia. The anesthetic depth influences hemodynamic stability, critical for adequate kidney perfusion. The SmartPilot® View (SPV) system offers a reliable monitoring and anesthetic-titration by predicting Noxious Stimulation Response Index. The insights gained from this research can refine anesthesia protocols, optimize patient care, and improve outcomes for laparoscopic kidney donation. This study evaluated the impact of SPV®-guided versus standard care sevoflurane-based general anesthesia on postoperative kidney function, perioperative parameters, and recovery outcome among patients who had LDN.

Methods
A 1-year, single-center, retrospective study reviewed the records of patients who underwent living donor LDN from July 1, 2023 to June 30, 2024. This study was conducted following approval from the National Kidney and Transplant Institute Research Ethics Committee. Data were collected via chart review.

Results
A total of 128 patients were included in the study, 59 of whom were included in the SmartPilot® View (SPV) group, while 69 belonged to the standard care (SC) group. The demographic and clinical characteristics of living donors at baseline were comparable between the two groups. Significant increases in serum creatinine and estimated glomerular filtration rate were observed within both groups, but postoperative levels were comparable. Sevoflurane consumption was significantly lower in the SPV group (35.0±8.2ml vs. 38.4±8.0ml, p=0.019). Hemodynamic parameters at different time points were not significantly different. However, 39% in the SPV group required vasopressor administration compared to 63.8% in the SC group (p=0.005). The total ephedrine dosage was reduced in the SPV group (5.7±9.1mg vs. 10.0±10.4mg, p=0.015). Additionally, recovery outcome was significantly improved with the SPV group based on shorter extubation time (6.7±3.6minutes vs. 8.6±4.5minutes, p=0.015), faster time of eye opening (11.6±5.4minutes vs 16.4±5.4minutes, p=0.001), and improved Richmond agitation-sedation scores (-0.4±0.7 vs. -0.9±0.9, p=0.001).

Conclusion
The integration of SmartPilot® View system into sevoflurane-based general anesthesia for LDN offers notable improvements in recovery outcomes and anesthetic efficiency without negative impact on the postoperative renal function or intraoperative hemodynamic stability.

AP-05-8 (2026-0211)

Figure & Table

Figure & Table 1.

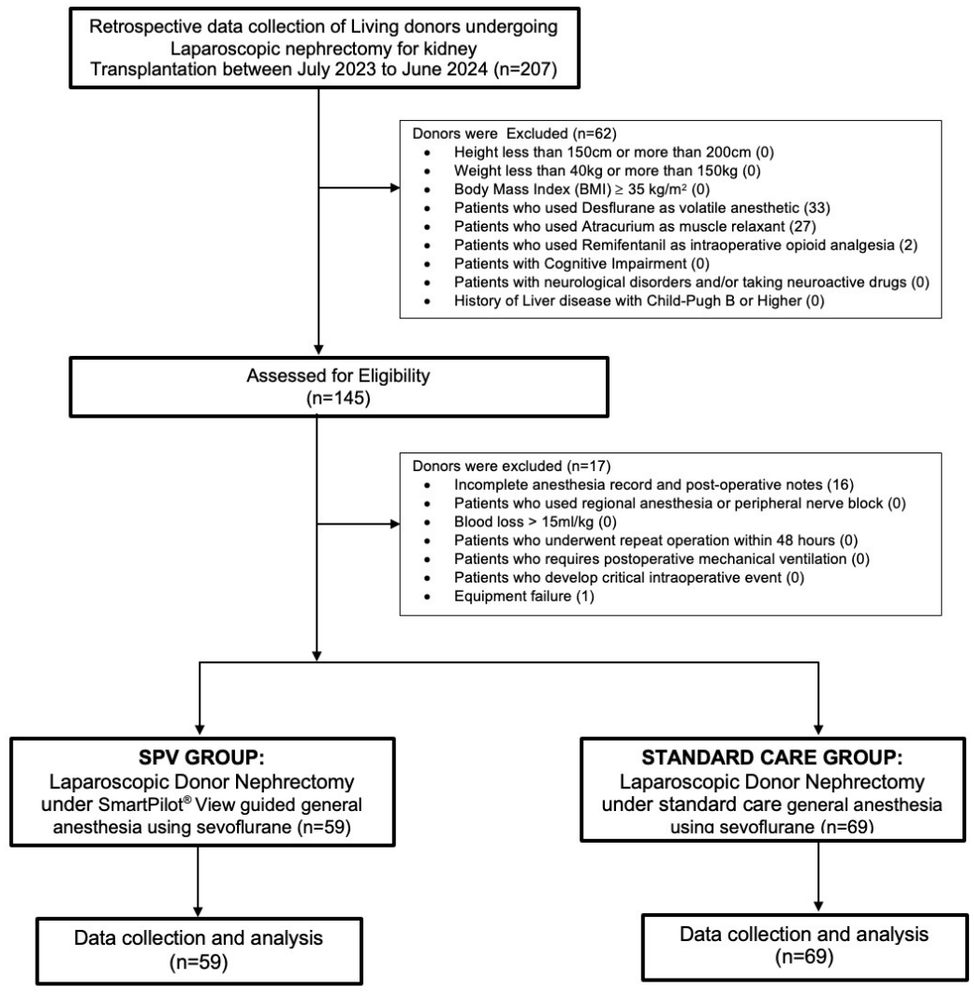


Figure 1. Study Flow Diagram.

ABSTRACT
Competition
Presentation
E-Poster

AP-05-8 (2026-0211)

Figure & Table

Figure & Table 2.

Table I. Perioperative Clinical Parameters and Anesthetic Requirement. Data presented as Mean (standard deviation) and frequency (%).

VARIABLES	SPV GROUP (n=59)	SC GROUP (n=69)	P-value
Postoperative Day 1, Hgb (g/dl)	127.3±15	129±13.9	0.612⁺
Estimated Blood Loss (ml)	91.0±61.9	94.1±75.7	0.637⁺
Need for blood transfusion (%)	0 (0.0)	0 (0.0)	n/a
Total intraoperative Fluid (ml)	2018 (435)	1962 (391)	0.471
Total urine output (ml)	668.1±394.1	605.5±347.1	0.745
Intraoperative hourly urine output (ml/kg/h)	3.9±2.53	3.4±2.1	0.255
Surgery duration (minutes)	159.4 (31.9)	164.3 (34.6)	0.178
Duration of Anesthesia (minutes)	190.2 (33.8)	194.5 (37.6)	0.579
Duration of Pneumoperitoneum, (minutes)	130.4±29.8	131.4±3.5	0.122⁺
Warm Ischemia Time (minutes)	5.0±1.8	4.9±1.7	0.325⁺
Conversion to open (%)	0 (0.0)	0 (0.0)	n/a
Intraoperative complications (%)	0 (0.0)	0 (0.0)	n/a
General Anesthesia (GA) Technique GA via Endotracheal tube (%) GA via Supraglottic airway (%)	 49 (83.1) 10 (16.9)	 57 (82.6) 12 (17.4)	 0.947‡
Fentanyl consumed (mcg)	127.3±36.4	131.5±33.5	0.501
Median sevoflurane concentration (MAC)	0.9 (0.1)	1.0 (0.1)	0.725
Sevoflurane Total consumption (ml)	35.0±8.2	38.4±8.0	0.019⁺*
Patients Requiring Vasopressors (%) Ephedrine total dose (mg)	23 (39.0) 5.7±9.1	44 (63.8) 10.0±10.4	0.005⁺* 0.015⁺*
Postoperative complications (%)‡ Fever Pneumonia Urinary Tract Infection	 2 (3.4) 1 (1.7) 0 (0.0)	 4 (5.8) 0 (0.0) 1 (1.5)	 0.521 n/a 1.000
Length of Hospital stay (days)	5.8±1.0	5.9±1.0	0.989

n/a, not applicable; ⁺*Independent samples t-test*; ‡*Chi-square test*; *Significant at 5%

Presentation

Abstract Presentation 6

Date / Time	Nov 5 (Thu), 13:30-15:00
Room	Room B *(Paradise City)*
Language	English
Chair(s)	Chang-Hoon Koo *(Seoul National University, Republic of Korea)* Woosuk Chung *(Chungnam National University, Republic of Korea)*

AP-06-2
2026-0225

Effect of Intraoperative Nitrous Oxide on Postoperative Depression in Patients Receiving Mastectomy: An Interim Analysis of a Randomized Controlled Trial

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AP-06-3
2026-0249

Association Between Postoperative Day 1 C-Reactive Protein and Subjective Sleep Quality During the First Postoperative Night: An Exploratory Secondary Analysis

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2. Anesthesiology, Nara Medical University, Japan

AP-06-4
2026-0439

Neuroworsening in Acute Brain Injury: Diagnostic Accuracy and Trajectories of Quantitative Pupillometry (NEURO-PUPIL)—A Prospective Cohort Study

Simon Li Loong Sii[1], Saw Kian Cheah[1*]

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AP-06-5
2026-0367

Impact of Extubation Timing on Postoperative Hypertension Following Craniotomy for Brain Tumor Resection

Ngarmsom Taengutai[1], Thitikan Kunapaisal[1*], Maliwan Oofuvong[1], Nalinee Kovitwanawong[1], Chin Taweesomboonyat[2]

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AP-06-6
2026-0582

Rescue Transesophageal Echocardiography for Rapid Diagnosis of Acute Cardiac Tamponade During Ventriculoperitoneal Shunt Placement: A Case Report

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1. Department of Anesthesiology and Pain Medicine, Chungnam National University Hospital, Republic of Korea

AP-06-8
2026-0177

When a Simple Intubation Turns into a Nightmare: Successful Conservative Management of Iatrogenic Tracheoesophageal Injury in a Resource-Limited Setting

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Effect of Intraoperative Nitrous Oxide on Postoperative Depression in Patients Receiving Mastectomy: An Interim Analysis of a Randomized Controlled Trial

Hyunjik Song[1], Sanjeong Seo[1], Soong June Bae[2], Jooyoung Oh[3], Young Song[1*]

1. Department of Anesthesiology and Pain Medicine, Anesthesia and Pain Research Institute, Yonsei University College of Medicine, Republic of Korea
2. Department of Surgery, Institute for Breast Cancer Precision Medicine, Yonsei University College of Medicine, Republic of Korea
3. Department of Psychiatry, Institute of Behavioral Sciences in Medicine, Yonsei University College of Medicine, Republic of Korea

Background

Postoperative depression is common after breast cancer surgery and may impair recovery and quality of life. Nitrous oxide (N_2O) is an N-methyl-D-aspartate (NMDA) receptor antagonist, similar in mechanism to ketamine, and has shown rapid antidepressant effects in treatment-resistant depression. We investigated whether intraoperative N_2O reduces postoperative depressive symptom after breast cancer surgery.

Methods

In this ongoing double-blind randomized controlled trial, patients undergoing breast cancer surgery were recruited between January 2026 and June 2026. Participants were randomized to intraoperative N_2O (1 hour of 50% N_2O/50% O_2 during maintenance, background 50% O_2/Air) or control (50% O_2/Air throughout). Depression (Hamilton Depression Rating Scale (HDRS), Montgomery-Asberg Depression Rating Scale (MADRS), Patient Health Questionnaire-9 (PHQ-9)) and anxiety (Hamilton Anxiety Rating Scale (HAM-A)) were assessed preoperatively, on postoperative day (POD) 1, and POD14. Primary endpoint was POD1 HDRS score. This interim analysis includes 128 of a planned 144 patients (63 N_2O, 65 control). Between-group comparisons used the Mann-Whitney U test; data are presented as median (IQR).

Results

Baseline characteristics and depression/anxiety scores were well balanced between groups. Overall, POD1 HDRS did not differ between groups (N_2O 2.0 [1.0-4.0] vs control 1.0 [1.0-5.0], p=0.918), nor did secondary depression/anxiety measures at POD1 or POD14 (all p>0.05). In the exploratory subgroup analysis according to clinically meaningful baseline depressive symptoms, POD1 HDRS showed a trend of lower scores in the N_2O group (3.0 [2.0-5.5] vs 6.0 [3.0-10.0], p=0.143). Postoperative MADRS and HAM-A also showed a trend toward lower scores in the N_2O group at both POD1 and POD14 (Table 2). This pattern was not seen in the low-baseline-depression subgroup.

Conclusion

In this interim analysis, intraoperative N_2O did not significantly reduce postoperative depression or anxiety in the overall population. However, a consistent numerical trend favoring N_2O was observed among patients with pre-existing depressive symptoms — the population most likely to benefit.

AP-06-2 (2026-0225)

Figure & Table

Figure & Table 1.

Table 1. Baseline Characteristics

Variable	N_2O group	Control group	p-value
Age, yr	51.0 (45.5-59.0) (n=63)	51.0 (45.0-58.0) (n=65)	0.828
Baseline HDRS	5.0 (1.8-8.2) (n=60)	4.0 (2.0-6.0) (n=64)	0.507
Baseline MADRS	2.0 (0.0-7.5) (n=62)	2.0 (0.0-6.0) (n=65)	0.491
Baseline PHQ-9	9.0 (9.0-10.0) (n=62)	9.0 (9.0-10.0) (n=65)	0.576
Baseline HAM-A	2.5 (0.8-5.0) (n=56)	2.5 (1.0-4.0) (n=64)	0.501
Surgery type, PM/TM, n	39 / 24	41 / 24	0.167

Values are median (IQR) or n. HDRS, Hamilton Depression Rating Scale; MADRS, Montgomery-Asberg Depression Rating Scale; PHQ-9, Patient Health Questionnaire-9; HAM-A, Hamilton Anxiety Rating Scale; PM, Partial Mastectomy; TM, Total Mastectomy.

Figure & Table 2.

Table 2. Postoperative Depression and Anxiety

Outcome	N_2O group	Control group	p-value
Overall (N_2O n=63, Control n=65)			
POD1 HDRS	2.0 (1.0-4.0) (n=55)	1.0 (1.0-5.0) (n=61)	0.918
POD14 HDRS	1.0 (1.0-3.0) (n=45)	1.0 (1.0-3.0) (n=52)	0.590
POD1 MADRS	0.0 (0.0-2.0) (n=57)	0.0 (0.0-2.0) (n=63)	0.885
POD14 MADRS	1.0 (0.0-2.0) (n=44)	2.0 (0.0-2.0) (n=52)	0.702
POD1 PHQ-9	9.0 (9.0-9.0) (n=57)	9.0 (9.0-10.0) (n=63)	0.409
POD14 PHQ-9	9.0 (9.0-9.0) (n=44)	9.0 (9.0-9.0) (n=52)	0.409
POD1 HAM-A	0.5 (0.0-2.0) (n=56)	1.0 (0.0-2.5) (n=63)	0.479
POD14 HAM-A	0.0 (0.0-1.0) (n=45)	0.0 (0.0-2.2) (n=52)	0.435
Subgroup: High baseline depression (N_2O n=17, Control n=12)			
POD1 HDRS	3.0 (2.0-5.5) (n=15)	6.0 (3.0-10.0) (n=12)	0.143
POD14 HDRS	2.0 (1.0-5.0) (n=14)	4.0 (1.0-10.0) (n=9)	0.645
POD1 MADRS	0.0 (0.0-3.0) (n=15)	3.0 (0.0-8.0) (n=12)	0.259
POD14 MADRS	0.0 (0.0-2.0) (n=14)	2.0 (2.0-6.0) (n=9)	0.135
POD1 PHQ-9	9.0 (9.0-10.5) (n=15)	10.0 (9.0-11.2) (n=12)	0.403
POD14 PHQ-9	9.0 (9.0-10.0) (n=13)	10.0 (9.0-10.0) (n=9)	0.429
POD1 HAM-A	1.0 (0.0-2.0) (n=15)	2.5 (0.8-5.0) (n=12)	0.209
POD14 HAM-A	1.0 (0.0-3.0) (n=14)	3.0 (0.0-4.0) (n=9)	0.494
Subgroup: Low baseline depression (N_2O n=46, Control n=53)			
POD1 HDRS	1.0 (1.0-4.0) (n=40)	1.0 (1.0-4.0) (n=49)	0.840
POD14 HDRS	1.0 (1.0-2.0) (n=31)	1.0 (1.0-2.0) (n=43)	0.667
POD1 MADRS	0.0 (0.0-2.0) (n=42)	0.0 (0.0-2.0) (n=51)	0.702
POD14 MADRS	2.0 (0.0-2.0) (n=30)	0.0 (0.0-2.0) (n=43)	0.727
POD1 PHQ-9	9.0 (9.0-9.0) (n=42)	9.0 (9.0-9.0) (n=51)	0.373
POD14 PHQ-9	9.0 (9.0-9.0) (n=31)	9.0 (9.0-9.0) (n=43)	0.381
POD1 HAM-A	0.0 (0.0-2.0) (n=41)	0.0 (0.0-2.0) (n=51)	0.895
POD14 HAM-A	0.0 (0.0-1.0) (n=31)	0.0 (0.0-2.0) (n=43)	0.310

Values are median (IQR), evaluable n. HDRS = primary endpoint; MADRS, PHQ-9, HAM-A = secondary endpoints. High/low baseline depression subgroups split at Pre-HDRS ≥8 / <8 (standard HDRS-17 cutoff for mild depression or greater). HDRS, Hamilton Depression Rating Scale; MADRS, Montgomery-Asberg Depression Rating Scale; PHQ-9, Patient Health Questionnaire-9; HAM-A, Hamilton Anxiety Rating Scale.

ABSTRACT
Competition
Presentation
E-Poster

AP-06-3 (2026-0249)

Association Between Postoperative Day 1 C-Reactive Protein and Subjective Sleep Quality During the First Postoperative Night: An Exploratory Secondary Analysis

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Background
Postoperative sleep disturbance is common after surgery, but its relationship with postoperative inflammation has not been sufficiently evaluated. This study investigated the association between C-reactive protein (CRP) levels measured on the morning of postoperative day 1 (POD1) and subjective sleep quality during the first postoperative night in a heterogeneous surgical population.

Methods
This exploratory secondary analysis used data from a single-center prospective observational study conducted from October 6 to November 13, 2025. The study included inpatients aged 18 years or older undergoing elective surgery under general anesthesia. Patients scheduled for postoperative intensive care unit admission or transferred to the general ward while intubated or sedated were excluded. Sleep quality during the first postoperative night was assessed on the morning of POD1 using the Richards-Campbell Sleep Questionnaire (RCSQ; range, 0–100, with higher scores indicating better sleep). CRP levels were measured in blood samples collected on the morning of POD1. Among 178 patients with available POD1 CRP measurements, mean RCSQ scores were compared across CRP quartiles. Multivariable linear regression was performed with the mean RCSQ score as the dependent variable and POD1 CRP level as the primary explanatory variable, adjusting for age, sex, body mass index, Charlson Comorbidity Index, postoperative pain score, postoperative nausea and vomiting, Operative Stress Score, Surgical Apgar score, surgical duration, time of day of surgery, and patient-controlled analgesia modality.

Results
Among the 178 patients, the mean age was 61.5 ± 17.8 years, and 82 (46.1%) were male. Mean RCSQ scores were 43.9 ± 29.3 in Q1 (CRP, 0.018–0.570 mg/dL), 36.7 ± 26.2 in Q2 (0.591–1.388 mg/dL), 36.3 ± 27.9 in Q3 (1.446–4.153 mg/dL), and 34.8 ± 30.3 in Q4 (4.180–22.454 mg/dL), with no significant difference among quartiles (P = 0.439). In the multivariable analysis, POD1 CRP level was not associated with the mean RCSQ score (β = 0.13 points per mg/dL; 95% confidence interval [CI], -1.20 to 1.46; P = 0.845). Higher postoperative pain scores were associated with lower RCSQ scores (β = -2.43; 95% CI, -4.86 to -0.001; P = 0.0499), whereas higher Surgical Apgar scores were associated with higher RCSQ scores (β = 5.18; 95% CI, 0.41 to 9.95; P = 0.034).

Conclusion
CRP measured on the morning of POD1 was not independently associated with subjective sleep quality during the first postoperative night. Postoperative pain scores and Surgical Apgar scores showed exploratory associations with sleep quality.

AP-06-4 (2026-0439)

Neuroworsening in Acute Brain Injury: Diagnostic Accuracy and Trajectories of Quantitative Pupillometry (NEURO-PUPIL)—A Prospective Cohort Study

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Background
Subjective pupillary light reflex assessment suffers from high inter-observer variability in neurocritical care. While automated quantitative pupillometry provides objective measurements, the clinical performance of composite scalar scores versus raw kinetic parameters remains debated. This study evaluated the prevalence of secondary neuroworsening and compared the diagnostic performance and acute trajectory dynamics across 72 hours of the automated Neurological Pupil Index (NPi) against raw Constriction Velocity (CV) and inter-eye asymmetry (Max NPi Diff) in acute brain injury (ABI).

Methods
In this single-center prospective cohort study, 45 mechanically ventilated ABI patients (23 traumatic, 22 non-traumatic) underwent hourly quantitative pupillometry for up to 72 hours. Primary diagnostic accuracy for objective neuroworsening (n=7; SIBICC criteria) was evaluated via Receiver Operating Characteristic (ROC) analysis for minimum NPi (< 3.0), minimum CV (< 0.8 mm/s), and inter-eye delta (Max NPi Diff ≥ 0.7). Longitudinal trajectories across 24h (Day 1), 48h (Day 2), and 72h (Day 3) epochs were analyzed using mixed-design repeated-measures ANOVA. Secondary outcomes included ICU length of stay (LOS) and discharge Glasgow Outcome Scale-Extended (GOS-E).

Results
Secondary neuroworsening occurred in 15.56% of patients (n = 7/45). Minimum NPi < 3.0 achieved superior diagnostic discrimination (AUC 0.892, 95% CI: 0.781–1.000) with 100.0% sensitivity, 76.32% specificity, and 100.0% negative predictive value (NPV). Conversely, minimum CV < 0.8 mm/s (AUC=0.495; 2.63% specificity) and Max NPi Diff ≥ 0.7 (AUC=0.521; 23.68% specificity) lacked clinical specificity. Serial NPi trajectories demonstrated significant slope divergence between neuroworsening (3.15 ± 0.82 → 2.20 ± 1.14 → 1.85 ± 1.35) and stable cohorts (3.82 ± 0.45 → 4.01 ± 0.38 → 4.22 ± 0.32; time-by-group interaction p < 0.001) (Figure 1). An abnormal NPi profile correlated with significantly longer median ICU LOS (15.0 vs. 8.0 median days, p = 0.002) and lower median discharge GOS-E (3.0 vs. 4.0, p = 0.028).

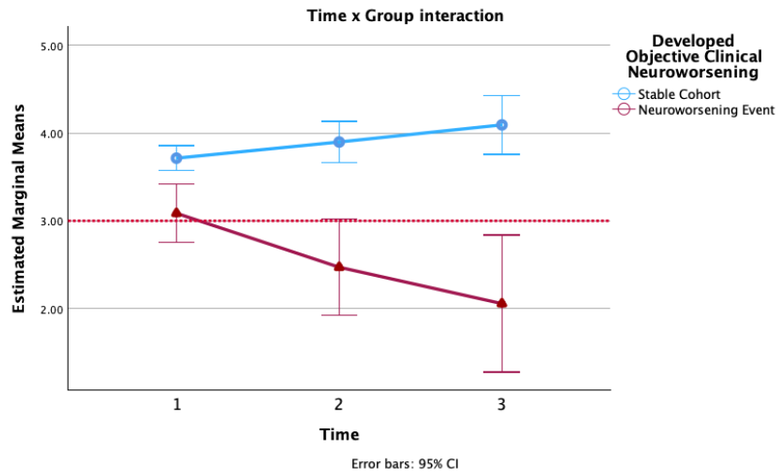
Conclusion
Automated NPi < 3.0 is a highly reliable screening tool (100.0% NPV) for ruling out secondary neuroworsening. Raw kinetic velocity and inter-eye asymmetry lack specificity in sedated neuro-ICU patients, whereas serial NPi trajectory tracking provides actionable early warning prior to macroscopic clinical collapse.

AP-06-4 (2026-0439)

Figure & Table

Figure & Table 1.

Figure 1: Serial 72-hour longitudinal Neurological Pupil Index (NPi) trajectories comparing stable controls against patients developing objective clinical neuroworsening (N = 45).



Data points represent estimated marginal means derived from mixed-design repeated-measures ANOVA across the 24-hour (Time 1), 48-hour (Time 2), and 72-hour (Time 3) monitoring epochs, with error bars representing 95% confidence intervals (CI). The blue line with circular markers depicts the stable cohort (n = 38), demonstrating progressive recovery in mean NPi (3.82 → 4.01 → 4.22). The maroon line with triangular markers depicts the neuroworsening cohort (n = 7), exhibiting progressive decay (3.15 → 2.20 → 1.85). The horizontal red dotted line denotes the clinical threshold for abnormal pupillary reactivity (NPi = 3.0). The time-by-group interaction effect confirms statistically significant trajectory slope divergence between the two cohorts ($p < 0.001$).

Abbreviations: ANOVA: analysis of variance; **CI**: confidence interval; **NPi:** Neurological Pupil Index.

AP-06-5 (2026-0367)

Impact of Extubation Timing on Postoperative Hypertension Following Craniotomy for Brain Tumor Resection

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Background
Postoperative hypertension (PHT) is a frequent complication following craniotomy for brain tumor resection, with reported incidence 21–91%. Uncontrolled PHT may precipitate intracranial hemorrhage and cerebral edema. Although extubation timing is a modifiable anesthetic factor, evidence regarding its impact on PHT remains limited.

Methods
To determine the impact of extubation timing (early in operating room vs. delayed within 24 hours) on PHT incidence among patients undergoing craniotomy for brain tumor resection.
Retrospective cohort study at Songklanagarind Hospital, January 2019 to December 2023. Adult patients (≥ 18 years) undergoing elective craniotomy for brain tumor resection under general endotracheal anesthesia were included. Emergency surgery, chronic hypertension on antihypertensive therapy, and incomplete records were excluded. PHT was defined as SBP ≥ 140 mmHg and/or MAP ≥ 100 mmHg within 24 hours after surgery. A multivariable logistic regression model was fitted entering all six candidate predictors (selected by univariate screening at $p < 0.2$ with removal of collinear variables). A sensitivity analysis used a stricter PHT definition (SBP ≥ 160 or DBP ≥ 100).

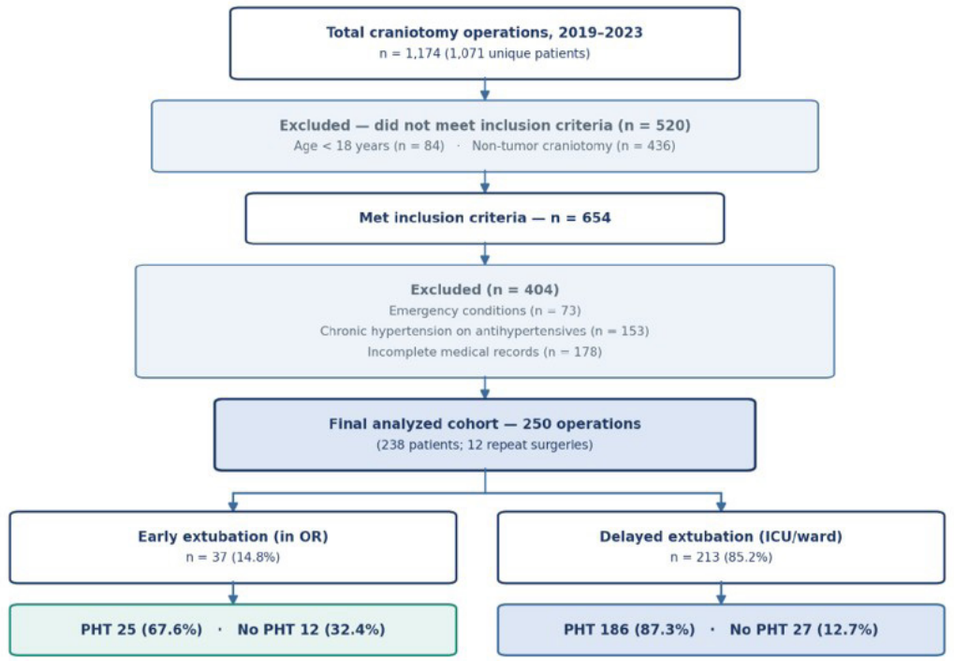
Results
Among 250 surgical episodes from 238 patients, 37 (14.8%) underwent early extubation and 213 (85.2%) delayed extubation. PHT occurred in 211/250 (84.4%). In the multivariable model, baseline SBP was the only independent predictor of PHT (aOR 1.13/mmHg, 95% CI 1.07–1.19, $p < 0.001$). Extubation timing was not significantly associated with PHT after full adjustment (aOR 0.45, 95% CI 0.12–1.72, $p = 0.242$), and this null result was unchanged under the stricter PHT definition (aOR 0.28, 95% CI 0.07–1.13, $p = 0.074$). Postoperative antihypertensive treatment was administered in only 20.8% of patients, substantially less than the PHT incidence, supporting that most PHT episodes were transient.

Conclusion
After full multivariable adjustment, extubation timing was not significantly associated with postoperative hypertension (aOR 0.45, $p = 0.242$), a result that remained non-significant under a stricter outcome definition. Baseline systolic blood pressure was the only independent predictor; the higher crude PHT incidence among delayed-extubation patients appears explained by confounding. Baseline SBP may serve as a practical preoperative marker of PHT risk.

Figure & Table

Figure & Table 1.

Figure 1. Patient Selection Flow
Retrospective cohort, Songklanagarind Hospital, January 2019 – December 2023



PHT = postoperative hypertension, defined as systolic blood pressure ≥ 140 mmHg and/or mean arterial pressure ≥ 100 mmHg within 24 hours after surgery. Counts are at the operation level; the 250 analyzed operations were contributed by 238 unique patients, of whom 12 underwent two operations during the study period.

Table 1. Baseline Characteristics
Comparison between patients who did and did not develop postoperative hypertension (N = 250)
PHT = postoperative hypertension; SBP = systolic blood pressure; DBP = diastolic blood pressure; MAP = mean arterial pressure; ICP = intracranial pressure; BMI = body mass index; IQR = interquartile range. Crude odds ratios are from univariable logistic regression. Bold red P values indicate p < 0.05. Anesthetic technique: balanced anesthesia 240 (96.0%), total intravenous anesthesia 10 (4.0%). Volatile agent: sevoflurane 230 (92.0%), desflurane ± sevoflurane 10 (4.0%), no volatile agent 10 (4.0%).

Variable	No PHT (n=39)	PHT (n=211)	Total (n=250)	Test	P value	Crude OR (95% CI)
DEMOGRAPHICS						
Age (years), Median (IQR)	42.0 (35.0, 51.5)	48.0 (42.5, 55.5)	48.0 (41.0, 54.0)	Wilcoxon	**0.011**	1.04 (1.01–1.07)
Gender — Female, n (%)	29 (74.4%)	137 (64.9%)	166 (66.4%)	χ^2	0.337	0.64 (0.29–1.38)
Body weight (kg), Median (IQR)	57.0 (51.0, 64.9)	63.0 (54.8, 71.0)	61.7 (54.0, 70.0)	Wilcoxon	**0.003**	1.53 (1.12–2.10) /10kg
BMI (kg/m^2), Median (IQR)	22.4 (20.4, 24.6)	24.1 (21.8, 27.1)	24.0 (21.5, 26.8)	Wilcoxon	**0.010**	1.11 (1.01–1.22)

Figure & Table

Variable	No PHT (n=39)	PHT (n=211)	Total (n=250)	Test	P value	Crude OR (95% CI)
PREOPERATIVE						
Baseline SBP (mmHg), Mean (SD)	111.3 (8.6)	124.8 (12.0)	122.7 (12.5)	t-test	**< 0.001**	1.14 (1.09–1.19) / 1 mmHg
Baseline DBP (mmHg), Mean (SD)	68.7 (5.8)	76.0 (7.7)	74.9 (7.9)	t-test	**< 0.001**	1.16 (1.09–1.23) /1 mmHg
Baseline MAP (mmHg), Mean (SD)	82.9 (6.3)	92.3 (8.5)	90.8 (8.9)	t-test	**< 0.001**	1.18 (1.11–1.25) / 1 mmHg
PRE-EXISTING NEUROLOGICAL CONDITION						
Recurrent tumor	8 (20.5%)	44 (20.9%)	52 (20.8%)	χ^2	1.000	1.02 (0.44–2.38)
Previous brain surgery	8 (20.5%)	46 (21.8%)	54 (21.6%)	χ^2	1.000	1.08 (0.46–2.51)
Epilepsy / Hx seizure	6 (15.4%)	35 (16.6%)	41 (16.4%)	χ^2	1.000	1.09 (0.43–2.81)
Neurological deficit	22 (56.4%)	123 (58.3%)	145 (58.0%)	χ^2	0.966	1.08 (0.54–2.15)
Raised ICP	12 (30.8%)	74 (35.1%)	86 (34.4%)	χ^2	0.737	1.22 (0.58–2.54)
COMORBIDITIES						
Diabetes mellitus	4 (10.3%)	10 (4.7%)	14 (5.6%)	Fisher	0.244	0.44 (0.13–1.47)
Dyslipidemia	2 (5.1%)	10 (4.7%)	12 (4.8%)	Fisher	1.000	0.92 (0.19–4.37)
INTRAOPERATIVE						
Supratentorial craniotomy	39 (100.0%)	203 (96.2%)	242 (96.8%)	Fisher	0.614	—
Op time (hr), Median (IQR)	5.8 (4.7, 7.2)	6.2 (5.0, 8.3)	6.1 (5.0, 8.1)	Wilcoxon	0.283	1.08 (0.94–1.24) / hr
Anesthetic technique				Fisher	1.000	—
Volatile agent				χ^2 (LR)	0.750	—
MUSCLE RELAXANTS & REVERSAL						
Cisatracurium	4 (10.3%)	25 (11.8%)	29 (11.6%)	Fisher	1.000	1.18 (0.39–3.59)
Rocuronium	35 (89.7%)	187 (88.6%)	222 (88.8%)	Fisher	1.000	0.89 (0.29–2.72)
Neostigmine + Atropine	16 (41.0%)	37 (17.5%)	53 (21.2%)	χ^2	**0.002**	0.31 (0.15–0.63)
INTRAOPERATIVE AEDs						
Phenytoin	15 (38.5%)	68 (32.2%)	83 (33.2%)	χ^2	0.566	0.76 (0.38–1.54)
Levetiracetam	2 (5.1%)	24 (11.4%)	26 (10.4%)	Fisher	0.390	2.37 (0.54–10.48)
INTRAOPERATIVE ANTIHYPERTENSIVE						
Nicardipine	1 (2.6%)	7 (3.3%)	8 (3.2%)	Fisher	1.000	—
INTRAOPERATIVE COMPLICATIONS						
Hypotension	26 (66.7%)	103 (48.8%)	129 (51.6%)	χ^2	0.061	0.48 (0.23–0.98)
Blood transfusion	15 (38.5%)	103 (48.8%)	118 (47.2%)	χ^2	0.310	1.53 (0.76–3.07)

Figure & Table

Figure & Table 2.

Table 2. Postoperative Outcomes

Comparison between delayed and early extubation groups (N = 250)

SBP = systolic blood pressure; DBP = diastolic blood pressure; MAP = mean arterial pressure; ICU = intensive care unit; IQR = interquartile range. Bold red P values indicate p < 0.05. Pain score was available in 119/250 (47.6%) of episodes and is shown descriptively only.

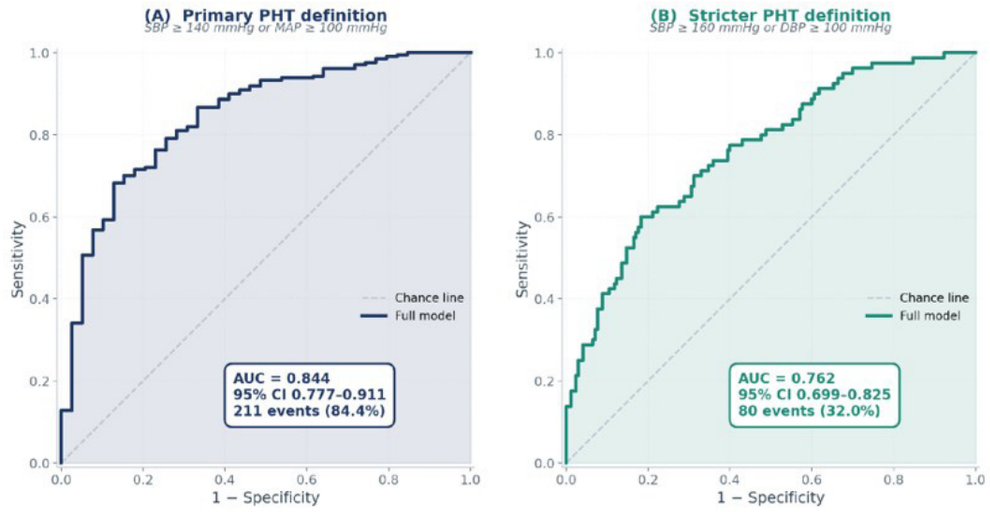
Outcome	Delayed (n=213)	Early (n=37)	Total (n=250)	Test	P value
PRIMARY OUTCOME					
Postoperative hypertension (Yes)	186 (87.3%)	25 (67.6%)	211 (84.4%)	χ^2	0.005
MAXIMUM BP WITHIN 24 HOURS AFTER SURGERY					
Maximum SBP (mmHg), Mean (SD)	154.7 (16.7)	141.8 (15.4)	152.8 (17.1)	t-test	< 0.001
Maximum DBP (mmHg), Mean (SD)	85.0 (8.8)	79.0 (7.9)	84.1 (9.0)	t-test	< 0.001
Maximum MAP (mmHg), Mean (SD)	108.3 (10.2)	99.9 (9.3)	107.0 (10.4)	t-test	< 0.001
POSTOPERATIVE PAIN (DESCRIPTIVE†)					
Pain score at max BP, Median (IQR)†	0.5 (0.0, 5.0) [n=86]	3.0 (0.0, 5.0) [n=33]	2.0 (0.0, 5.0) [n=119]	Wilcoxon	0.372
POSTOPERATIVE ANTIHYPERTENSIVE USE					
Nicardipine	44 (20.7%)	3 (8.1%)	47 (18.8%)	Fisher	0.108
Labetalol	7 (3.3%)	0 (0.0%)	7 (2.8%)	Fisher	0.598
Hypertensive emergency	0 (0.0%)	0 (0.0%)	0 (0.0%)	—	
NEUROLOGICAL COMPLICATIONS					
Brain edema (within 72 hrs)	7 (3.3%)	1 (2.7%)	8 (3.2%)	Fisher	1.000
CSF leakage (within 72 hrs)	13 (6.1%)	3 (8.1%)	16 (6.4%)	Fisher	0.713
New neurological deficit (within 72 hrs)	21 (9.9%)	5 (13.5%)	26 (10.4%)	Fisher	0.558
Seizure (within 7 days)	17 (8.0%)	1 (2.7%)	18 (7.2%)	Fisher	0.487
RESPIRATORY & REOPERATION					
Reintubation (within 24 hrs)	2 (0.9%)	0 (0.0%)	2 (0.8%)	Fisher	1.000
Hospital-acquired pneumonia (3 days)	1 (0.5%)	0 (0.0%)	1 (0.4%)	Fisher	1.000
Reoperation (within 3 days)	1 (0.5%)	0 (0.0%)	1 (0.4%)	Fisher	1.000
LENGTH OF STAY & MORTALITY					
ICU stay (days), Median (IQR)	0.8 (0.7, 1.0)	0.8 (0.2, 0.8)	0.8 (0.4, 1.0)	Wilcoxon	0.006
Hospital stay (days), Median (IQR)	10.0 (9.0, 13.0)	9.0 (8.0, 11.0)	10.0 (9.0, 13.0)	Wilcoxon	0.015
30-day mortality	2 (0.9%)	0 (0.0%)	2 (0.8%)	Fisher	1.000

AP-06-5 (2026-0367)

Figure & Table

Figure 2. Receiver Operating Characteristic Curves

Full multivariable model under both postoperative hypertension definitions



Panel and outcome definition	Events	AUC (95% CI)	Extubation aOR (95% CI); P
(A) SBP ≥ 140 mmHg and/ or MAP ≥ 100 mmHg	211 (84.4%)	0.844 (0.777–0.911)	0.45 (0.12–1.72); P = 0.242
(B) SBP ≥ 160 mmHg or DBP ≥ 100 mmHg	80 (32.0%)	0.762 (0.699–0.825)	0.28 (0.07–1.13); P = 0.074

Extubation timing was not statistically significant under either outcome definition; baseline SBP remained an independent predictor in both.

AUC = area under the receiver operating characteristic curve; aOR = adjusted odds ratio; SBP = systolic blood pressure; DBP = diastolic blood pressure; MAP = mean arterial pressure. 95% confidence intervals for the AUC were estimated by the DeLong method. The full model included extubation timing, baseline SBP, age, BMI, neostigmine + atropine reversal, and intraoperative hypotension. Panel A: Hosmer–Lemeshow P = 0.857; Nagelkerke R^2 = 0.35.

Rescue Transesophageal Echocardiography for Rapid Diagnosis of Acute Cardiac Tamponade During Ventriculoperitoneal Shunt Placement: A Case Report

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Introduction

Cardiac tamponade is a rare but life-threatening cause of intraoperative circulatory collapse during ventriculoperitoneal (VP) shunt placement. We report a case in which rescue transesophageal echocardiography (TEE) enabled rapid diagnosis and treatment.

Case

An 82-year-old woman with hydrocephalus after subarachnoid hemorrhage underwent elective VP shunt placement under general anesthesia. Initial hemodynamic monitoring was non-invasive. Approximately 20 minutes before completion, NIBP measurements became unreliable and the radial pulse became barely palpable. A right brachial arterial catheter was inserted and revealed severe hypotension (approximately 50/40 mmHg) with an almost absent pulse pressure. Because catheter damping or a site-specific vascular problem could not be excluded, a femoral arterial catheter was subsequently inserted and showed the same finding, confirming profound circulatory compromise. Despite escalating vasoactive support, hypotension persisted. Oxygen saturation remained 92–100%, end-tidal carbon dioxide 36–38 mmHg, peak airway pressure was unchanged, and no significant surgical bleeding was observed. Rescue TEE demonstrated localized hemopericardium with hematoma around the cardiac base and pericardial effusion, strongly suggesting acute cardiac tamponade. Emergency pericardiocentesis was performed via a subxiphoid approach after ultrasonographic localization. Approximately 50 mL of bloody fluid was aspirated, resulting in prompt restoration of arterial pressure and pulse pressure; central venous pressure decreased from 18 to 14 mmHg. Postoperative neck and chest CT showed air bubbles along the cervical tunneling tract and residual hematoma surrounding the cardiac base. A possible venous injury during subcutaneous tunneling was considered the most likely mechanism, although the exact injured vessel was not identified. Follow-up CT showed further reduction of the pericardial effusion, and the pericardial drainage catheter was removed without complications. The patient remained stable and was subsequently discharged.

Conclusion

Rescue TEE can rapidly identify a reversible cardiovascular cause when profound intraoperative hemodynamic collapse remains unexplained. During VP shunt placement, acute cardiac tamponade should be considered when collapse occurs during or after subcutaneous tunneling.

AP-06-6 (2026-0582)

Figure & Table

Figure & Table 1.

Figure 1. (A) Intraoperative transesophageal echocardiography demonstrating localized hemopericardium surrounding the cardiac base, consistent with acute cardiac tamponade; (B) transesophageal echocardiography after pericardial drainage demonstrating decreased pericardial fluid collection.

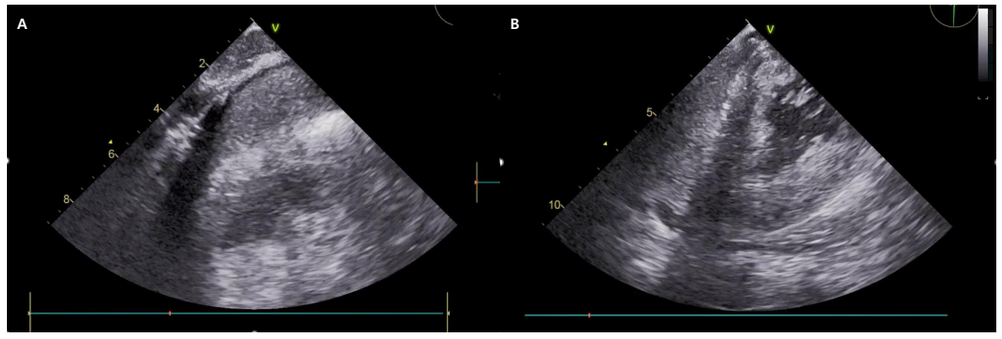
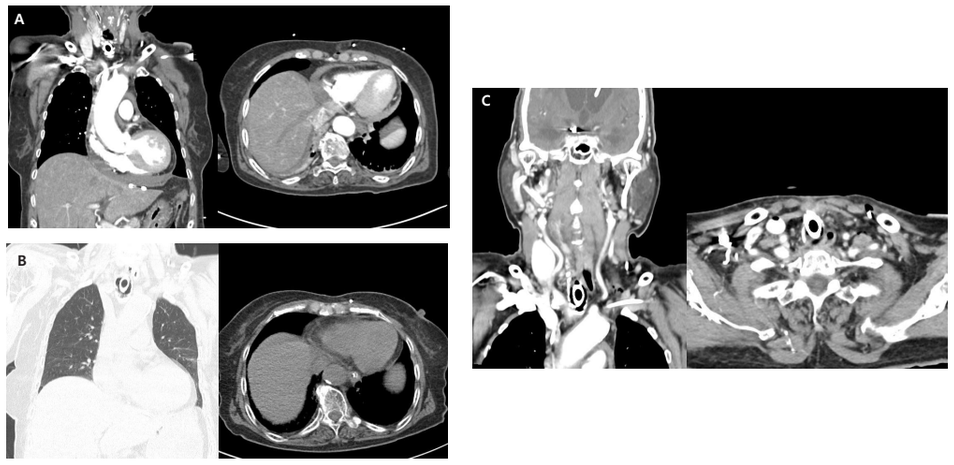


Figure & Table 2.

Figure 2. (A) Postoperative chest computed tomography demonstrating residual hematoma surrounding the cardiac base; (B) follow-up chest computed tomography demonstrating near-complete resolution of the pericardial effusion before removal of the pericardial drainage catheter; and (C) postoperative neck computed tomography demonstrating air bubbles along the cervical tunneling tract.



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AP-06-8 (2026-0177)

When a Simple Intubation Turns into a Nightmare: Successful Conservative Management of Iatrogenic Tracheoesophageal Injury in a Resource-Limited Setting

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Introduction
Endotracheal intubation is a routine procedure, yet it can become life-threatening if an iatrogenic tracheoesophageal injury occurs. Concomitant perforation of the trachea and esophagus is an extremely rare and catastrophic complication, and is traditionally managed through immediate thoracic surgical intervention. This report highlights the successful conservative and multidisciplinary management of a tracheoesophageal lesion in a setting where diagnostic gold standards were unavailable

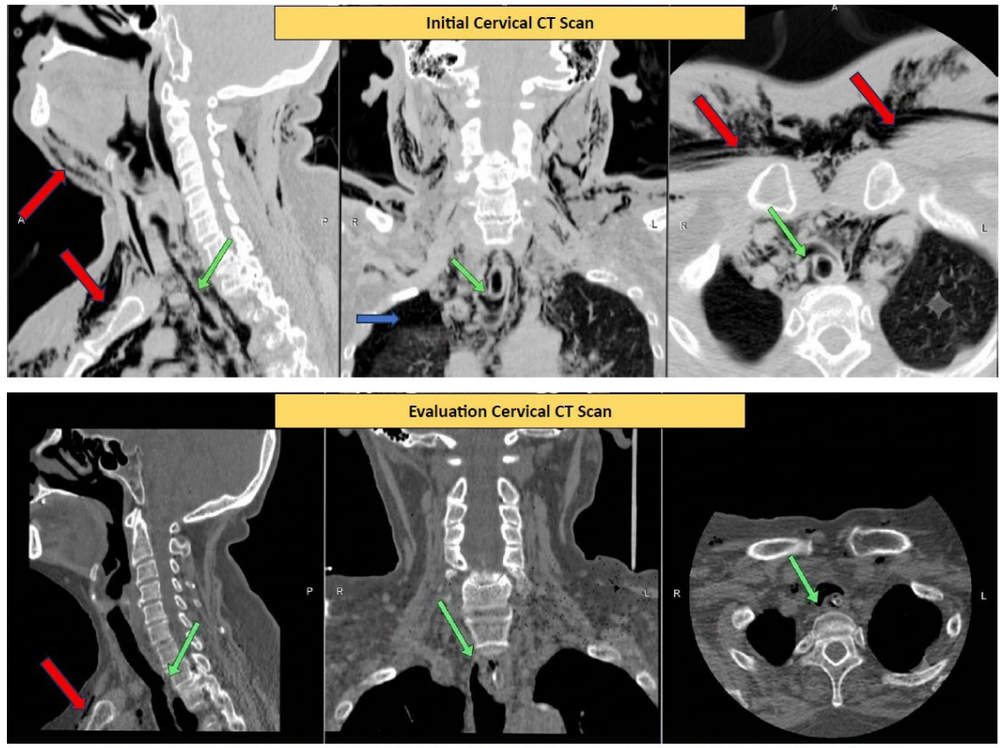
Case
A 62-year-old woman underwent an elective left humeral open reduction internal fixation (ORIF). Following an uneventful intubation using a non-kinking oral endotracheal tube, she was positioned in the right lateral decubitus. Postoperatively, a deep extubation was performed, during which an unusual, excessive air was noted upon cuff deflation. Four hours later in the ward, the patient developed acute distress: coughing up fresh blood, a nasal voice, progressive dyspnea, and massive facial and neck swelling, causing severe anxiety.
Suspecting an airway injury, immediate multidisciplinary consultations with general surgery, ENT, and pulmonology were initiated. Due to facility limitations, confirmatory bronchoscopy and endoscopy could not be performed. Instead, a non-contrast cervical computed tomography (CT) scan was utilized, revealing a 0.62 cm tracheal rupture at the VT1 level with a visible tissue flap extending toward the esophagus at the right posterior tracheal wall, accompanied by extensive subcutaneous emphysema, pneumothorax, pneumomediastinum, and pneumopericardium.
The patient was monitored closely in the ICU. A chest tube with continuous water-sealed drainage (WSD) suction was inserted, and subcutaneous emphysema was decompressed using an angiocath. Management remained strictly conservative: nasal cannula oxygen, empirical antibiotics (escalated on day 9 guided by serial hematology), antitussives, corticosteroids, tranexamic acid, and chest physiotherapy. Total enteral nutrition was administered via a nasogastric tube (NGT) specifically to rest both the airway and the esophagus, preventing chemical mediastinitis and encouraging spontaneous healing of the flap. After 7 days of stability without signs of sepsis or mediastinitis progression, she was transferred to the ward with the WSD continuous suction maintained. The WSD was removed on day 13 and she was discharged on day 16. A follow-up cervical CT on post-operative day 26 confirmed complete anatomical resolution of the tracheoesophageal lesion. The NGT was safely removed, and she made a full recovery without any long-term sequelae.

Conclusion
High clinical suspicion and prompt recognition of post-extubation complications are vital for survival. In a resource-limited settings, a non-contrast cervical CT scan serves as an excellent diagnostic and monitoring tool when endoscopy is inaccessible. For relatively small, stable lesions, a well-coordinated multidisciplinary conservative strategy that prioritizes airway and esophageal rest is safe, effective, and yields excellent clinical outcomes

AP-06-8 (2026-0177)

Figure & Table

Figure & Table 1.



Green arrow: Tracheoesophageal injury | Red arrow: subcutaneous emphysema | Blue arrow: Pneumothorax

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Abstract Presentation 7

Date / Time	Nov 5 (Thu), 13:30-15:00
Room	Room C *(Paradise City)*
Language	English
Chair(s)	Seok Kyeong Oh *(Korea University, Republic of Korea)* Hyung Gon Lee *(Chonnam National University, Republic of Korea)*

AP-07-1
2026-0448

The Pilot Study of Throat Packs Soaked in Gengigel Spray Versus Normal Saline in Patients Undergoing Elective Surgery Under General Anaesthesia

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AP-07-2
2026-0281

A Novel Artificial Intelligence (AI) Module to Enhance Junior Anaesthesia Doctors' Consultations at the Pre-Anaesthesia Clinic (PAC)

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AP-07-3
2026-0253

Current Status and Future Challenges of the Cardiothoracic Anesthesiologists Workforce in Korea

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AP-07-4
2026-0060

Factors Influencing Job Embeddedness among Anesthesia Nurses

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AP-07-5
2026-0501

AI, Faculty, and Standardized Patients: Evaluating Resident Empathy in Anesthesiology Simulation Using the CARE Measure

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AP-07-6
2026-0571

Heart Sound–Derived Acoustic Variability Index Predicts Fluid Responsiveness Across Open and Laparoscopic Hepatopancreatobiliary Surgery: A Prospective Confirmative Study

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2. Big Data Research Center, Asan Institute for Life Science, Republic of Korea
3. AI Research Team, Signal House, Co., Ltd., Republic of Korea

The Pilot Study of Throat Packs Soaked in Gengigel Spray Versus Normal Saline in Patients Undergoing Elective Surgery Under General Anaesthesia

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2. Anaesthesia, KPJ Selangor, Malaysia

Background
Postoperative sore throat (POST) is frequent (between 30% to 70%) following endotracheal intubation. Although throat packs are useful in protecting the field during surgery and preventing aspiration, they have been identified to cause POST as well as its associated discomforts. The use of traditional packs with saline soaking has less protection, which is why it was considered to investigate alternatives that would have a therapeutic effect. Gengigel is an anti-inflammatory and wound-healing formulation composed of hyaluronic acid, which can be a promising option for promoting patient recovery.
This research project is intended to compare the efficiency of Gengigel-soaked throat packs versus saline-soaked throat packs in decreasing the incidence and severity of POST, as well as the effect of these two types of throat packs on cough, hoarseness, pain, and satisfaction of the patients.

Methods
A randomized controlled trial was done as a double-blind trial with 60 patients (30 patients each arm), who were scheduled to undergo elective surgeries under general anesthesia using endotracheal intubation. Patients were randomly allocated to the Gengigel-soaked or saline-soaked throat pack group. The outcomes were evaluated at 1 hour and 24 hours of extubation, including POST incidence and severity (Harding and McVey score), hoarseness, cough, mucosal status, pain, as well as patient satisfaction.

Results
At 1 hour, POST was reported in 83.3% of the saline group versus 40% of the Gengigel group($p < 0.001$) and at 24 hours, the incidence remained significantly higher in the saline group (93.3%) compared to 10% in the Gengigel group ($p < 0.001$). Gengigel was also associated with significant reductions in cough ($p = 0.002$ at 1 hour; $p = 0.002$ at 24 hours) and hoarseness ($p = 0.005$ at 1 hour; $p = 0.001$ at 24 hours). Patient satisfaction was notably higher in the Gengigel group, with 63.3% reporting high satisfaction compared to 36.7% in the saline group($p < 0.001$). Pain scores were lower at 1 hour in the Gengigel group, though by 24 hours, both groups had only minimal pain. No adverse reactions were observed.

Conclusion
Throat packs soaked in Gengigel spray significantly reduced the incidence and severity of postoperative sore throat, hoarseness, and cough compared to saline-soaked packs. Patients in the Gengigel group also reported higher satisfaction scores, reflecting improved comfort and recovery experience. These findings suggest that Gengigel, owing to its anti-inflammatory and mucosal healing properties, is a safe and effective adjunct for minimizing airway-related morbidity following general anaesthesia. Its incorporation into perioperative airway management may contribute to enhanced recovery and patient-centred care.

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Figure & Table

Figure & Table 1.

Table 4.1: Demographic Characteristics by Study Group

Variables	Group, n (%)	Group, n (%)	X^2	df	p-value
	Gengigel	Saline			
Gender			0.000	1	**1.000**
Male	16(53.3)	16(53.3)			
Female	14(46.7)	14(46.7)			
Age			0.150	3	0.985
25 and below	8(26.7)	9(30.0)			
26 to 39 years old	6(20.0)	5(16.7)			
40 to 59 years old	10(33.3)	10(33.3)			
60 and above	6(20.0)	6(20.0)			
Ethnicity			5.722	3	**0.126**
Malay	8(26.7)	10(33.3)			
Chinese	9(30.0)	15(30.0)			
Indian	12(40.0)	4(13.3)			
Others	1(3.3)	1(3.3)			
BMI			0.829	3	**0.842**
Underweight	1(3.3)	1(3.3)			
Normal	12(40.0)	10(33.3)			
Overweight	11(36.7)	10(33.3)			
Obesity	6(20.0)	9(20.0)			
Smoking status			0.741	1	**0.389**
Yes	4(13.3)	2(6.7)			
No	26(86.7)	28(93.3)			
Size of ETT			0.300	1	**0.584**
Size 7	9(30.0)	11(36.7)			
Size 7.5	21(70.0)	19(63.3)			
Duration of surgery			2.857	2	**0.936**
Less than 1 hour	3(10.0)	3(10.0)			
1 to 2 hours	23(76.7)	22(73.3)			
More than 2 hours	4(13.3)	5(16.7)			
Cuff pressure			0.133	1	**0.136**
25 and below	10(33.3)	5(16.7)			
More than 25	20(66.7)	25(83.3)			
Number of intubation attempt	30(100%)	30(100%)	-	-	-

Table 4.2: Incidence of POST between groups at 2 time points

Time Point	Group	With POST n (%)	Without POST n (%)
1 hour -	Saline	25 (83.3)	5 (16.7)
	Gengigel	12 (40.0)	18 (60)
24 hours -	Saline	28 (93.3)	2(6.7)
	Gengigel	3 (10.0)	27 (90.0)

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Table 4.3: Comparison between standard saline and gengigel in incidence of POST at 2 time points

Time point	Median (IQR)	Median (IQR)	Mann-Whitney U	P value
	Saline	Gengigel		
1 hour	2.00 (2)	0.00 (1)	225.50	0.001*
24 hours	1.00 (0)	0.00 (0)	72.00	0.001*

* Statistical significance is indicated at $p < 0.05$

Table 4.4: Severity of POST

Variables	Soaked throat packs, n (%)	Soaked throat packs, n (%)	p-value
	Saline	Gengigel	
POST 1 hour			**0.174**
Minimal	18 (72.0)	11(91.7)	
Moderate	7 (28.0)	1 (8.3)	
POST 24 hours			**0.632**
Minimal	26 (92.9)	11(93.5)	
Moderate	7 (7.1)	1 (6.5)	
Cough 1 hour			**0.002**
No cough	15 (50.0)	26 (86.7)	
Minimal	15 (50.0)	4 (13.3)	
Cough 24 hours			**0.002**
No cough	13 (43.3)	29 (96.7)	
Minimal	17 (56.7)	1 (3.3)	
Hoarseness 1 hour			**0.005**
No hoarseness since operation	19 (63.3)	29 (96.7)	
No hoarseness at interview	10 (33.3)	1 (3.3)	
Hoarseness noted by patient only	1 (3.3)	0 (0.0)	
Hoarseness 24 hours			**0.001**
No hoarseness since operation	18 (60.0)	30 (100.0)	
No hoarseness at interview	11 (36.7)	0 (0.0)	
Hoarseness noted by patient only	1 (3.3)	0 (0.0)	
Patient satisfaction			**0.001**
Satisfied	19 (63.3)	5 (16.7)	
Highly satisfied	11 (36.7)	25 (83.3)	

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Figure & Table

Figure & Table 2.

Figure 4.1: Incidence of POST in Saline Vs Gengigel Group

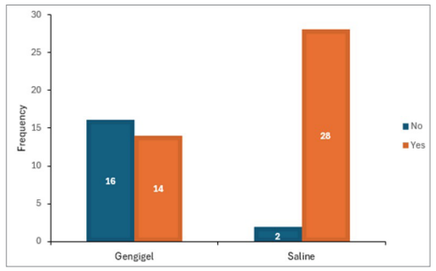


Figure 4.2: Incidence of POST by Gender

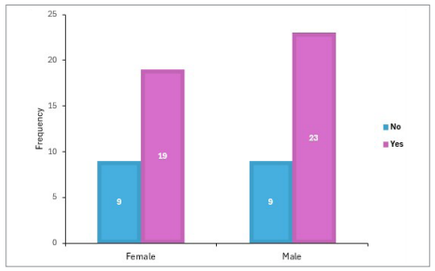


Figure 4.3: Incidence of POST by Age Group

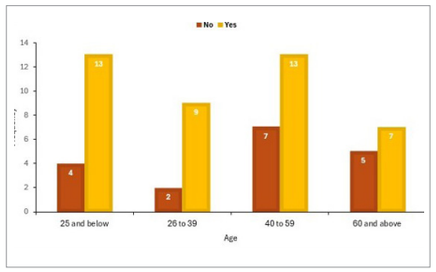


Figure 4.4: Incidence of POST by BMI

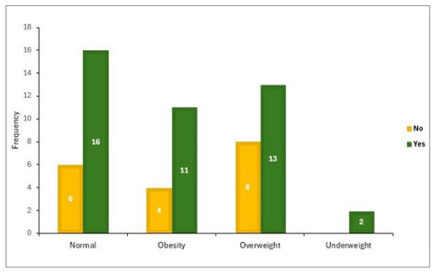


Figure 4.5: Incidence of POST by Ethnicity

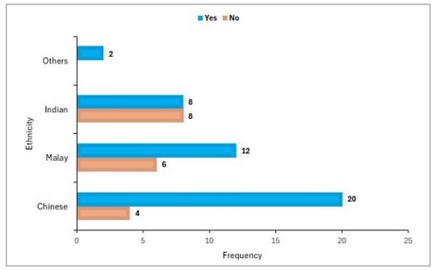


Figure 4.6: Incidence of POST by Smoking Status

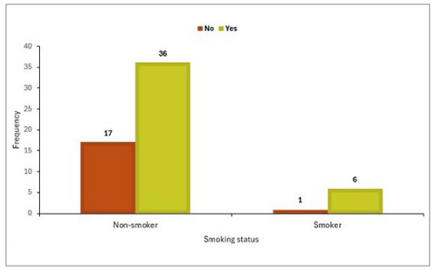


Figure 4.7: Incidence of POST by Duration

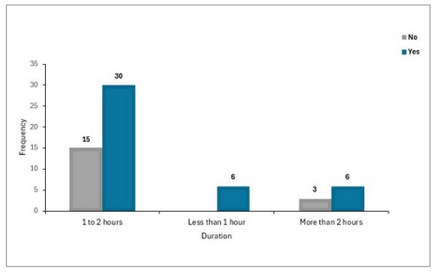
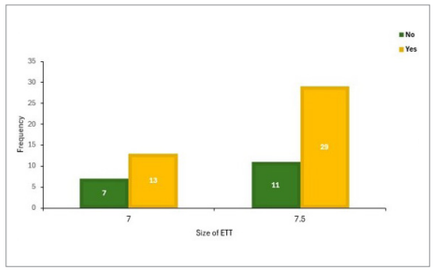


Figure 4.8: Incidence of POST at Different Size of ETT



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Figure & Table

Figure 4.9: Incidence of POST at Different Cuff Pressures

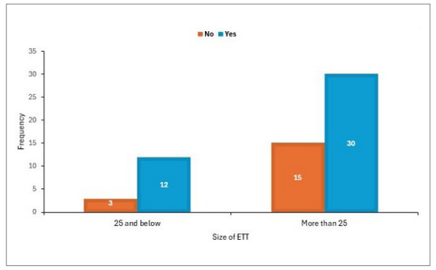


Figure 4.10: Severity of POST at 1 Hour and 24 Hours in Saline Vs Gengigel Groups

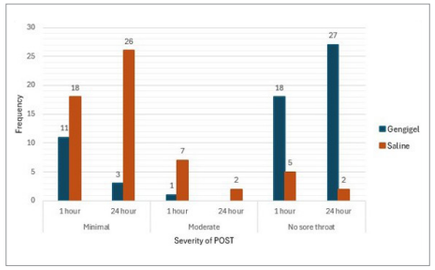


Figure 4.11: Severity of Cough at 1 Hour and 24 Hours in Saline Vs Gengigel Groups

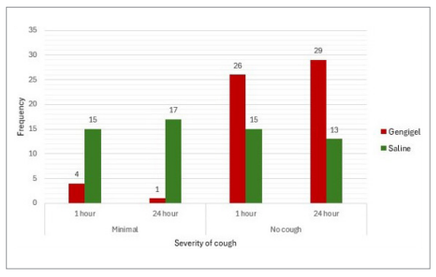


Figure 4.12: Severity of Hoarseness at 1 Hour and 24 Hours in Saline Vs Gengigel Groups

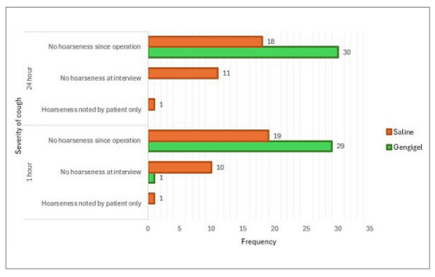
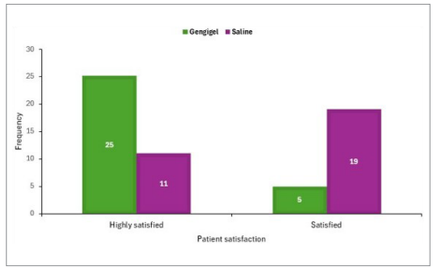


Figure 4.13: Patient satisfaction by Groups



AP-07-2 (2026-0281)

A Novel Artificial Intelligence (AI) Module to Enhance Junior Anaesthesia Doctors' Consultations at the Pre-Anaesthesia Clinic (PAC)

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Background

The Pre-Anaesthesia clinic (PAC) serves as an integral aspect of a patient's hospital journey prior to surgery. At PAC, patients are assessed and counselled regarding anaesthetic options tailored to their underlying conditions. Junior doctors face challenges in PAC in acquiring a comprehensive history and formulating a perioperative plan to coordinate care with healthcare providers (1). Teaching methods for conducting a PAC consult are also not robust and can potentially be improved with simulation (2). AI has seeped into clinical practice and education, enhancing operational efficiency and educational value. This study involved piloting a novel PAC AI module to enhance junior anaesthesia doctors' confidence in conducting a PAC consult.

Methods

Our PAC AI module was designated as a teaching tool for new junior doctors at the Khoo Teck Puat Hospital Anaesthesia department. It was piloted on nine doctors (all having < 2 months anaesthesia/PAC experience). The module was curated on a platform with a tailored script crafted by a content expert to mimic an actual PAC consult. The case involved an elective surgery - encapsulating discussions around optimising medical issues and risk counselling on anaesthesia techniques. After completion of the module, participants could access their conversation transcripts, AI coaching feedback and a tabulated score with clear annotation of the points they missed. Subsequently, participants voluntarily provided both qualitative and quantitative feedback through a survey. The survey was a routine means of assessing feedback of new teaching tools within the department. Consent was implied with the return of a completed anonymised survey. 5-point Likert scale responses from 1(Strongly Disagree) to 5 (Strongly Agree) were statistically analysed through their means and modes.

Results

8 out of 9 junior doctors completed the module and survey. The 9th doctor faced technical difficulties. The mean score was 4.625/5 with a modal score of 5 when participants were asked if the module would be beneficial to future new anaesthesia doctors. This correlated with the qualitative feedback obtained whereby a large majority of the respondents mentioned that the module would be useful for junior doctors prior to PAC exposure. Participants also rated the question of whether the module was reflective of the workflow and decision making in an actual PAC as 4.25/5. A strength of the module was that the AI was able to respond accurately to verbal input. However, one of the limitations was that the voice pickup of the AI was occasionally inaccurate due to external noise interference leading to mis-transcription.

Conclusion

Our PAC AI module appears to provide junior anaesthesia doctors with more confidence in managing a realistic PAC consult. It is able to incorporate clinical guidelines, anaesthesia counselling and assess professional communication in a safe space for junior doctors. The survey results support the utility of this module as a learning tool. In future, the module can potentially be enhanced with a wider range of clinical cases and more grading domains.

Current Status and Future Challenges of the Cardiothoracic Anesthesiologists Workforce in Korea

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Background

The global anesthesiology workforce faces a growing shortage, with cardiothoracic anesthesiology particularly affected due to its high entry barriers, including transesophageal echocardiography expertise and fellowship-level training. This study investigated the age distribution, gender composition, and workforce trends among Korean cardiothoracic anesthesiologists and analyzed factors associated with subspecialty avoidance.

Methods

A telephone survey was conducted between April and May 2026 among cardiothoracic anesthesiology specialists at 68 training hospitals affiliated with medical schools performing cardiac surgery in Korea. The questionnaire, adapted from a global Society of Cardiovascular Anesthesia (SCA) survey, covered staff distribution, workload, fellowship status, and perceived need for subspecialty certification.

Results

Twenty-two hospitals (32.4%) were located in Seoul. The number of anesthesiologists and cardiothoracic specialists increased with hospital size ($p < 0.001$ and $p = 0.004$). Female specialists outnumbered males in hospitals with 500–700 and ≥900 beds ($p = 0.015$ and $p = 0.032$). Hospitals with ≤500 beds had no cardiothoracic anesthesiologists in their 30s or 40s ($p = 0.014$). Only three reported having fellowship applicants for cardiothoracic anesthesiology, and of these, only two were able to fill their allocated positions. The leading reasons for avoiding this subspecialty were high patient acuity and workload (85.3%), poor work-life balance (48.5%), and inadequate compensation (36.8%).

Conclusion

Korean cardiothoracic anesthesiology faces an aging, unevenly distributed workforce with low fellowship uptake, driven primarily by workload and work-life balance concerns rather than training difficulty. These findings highlight the importance of establishing long-term policies for healthcare workforce composition and the delineation of roles and responsibilities among healthcare professionals.

AP-07-3 (2026-0253)

Figure & Table

Figure & Table 1.

Table 1. Number of specialists and sex distribution by hospital scale

Numbers	Scales of Hospitals (beds counts)				p
	≤500	500–700	700–900	≥900	
Specialists	7 (-5.7 – 19.7) n = 2	10.9 (8.9 – 13.0) n = 13	11.3 (9.6 – 13.0) n = 30	22.8 (15.3 – 30.3) n = 23	<0.001
Female specialists	2.5 (-3.9 – 8.9) n = 2	6.4 (3.6 – 9.1) n = 13	4.9 (3.3 – 6.4) n = 30	11.7 (7.1 – 16.2) n = 23	0.015
Cardiothoracic specialists	1 (1.0 – 1.0) n = 1	2.7 (1.4 – 4.0) n = 13	2.4 (1.9 – 2.9) n = 29	4.6 (3.1 – 6.2) n = 21	0.004
Female cardiothoracic specialists	0 (0.0 – 0.0) n = 1	1.5 (0.3 – 2.6) n = 13	0.8 (0.5 – 1.1) n = 29	2.4 (1.4 – 3.5) n = 21	0.032

Data are presented as mean (95% Confidence Interval).

Figure & Table 2.

Table 2. Age distribution of the youngest cardiothoracic anesthesiologists at each center

Age group (year old)	Scales of Hospitals (beds counts)				Total
	≤500	500–700	700–900	≥900	
30s (30–39)	0	4 (5.9)	8 (11.8)	14 (20.6)	26 (38.2)
40s (40–49)	0	5 (7.4)	16 (23.5)	7 (10.3)	28 (41.2)
≥50	2 (2.9)	4 (5.9)	6 (8.8)	2 (2.9)	14 (20.6)
Total	2 (2.9)	13 (19.1)	30 (44.1)	23 (33.8)	68

Data are expressed as number of respondents (%). $p = 0.014$

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Factors Influencing Job Embeddedness among Anesthesia Nurses

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Background
PeriAnesthesia care is a high-risk specialty requiring rapid clinical judgment and multidisciplinary collaboration due to acute patient status changes. In this high-tension environment, retaining experienced perianesthesia nurses is critical for patient safety and healthcare quality. While prior turnover research focused on general ward nurses' emotional aspects, studies on job embeddedness—the relational and environmental factors driving organizational retention—remain limited.

Methods
This descriptive correlational study investigated factors influencing job embeddedness among perianesthesia nurses. Participants included 142 perianesthesia nurses with at least one year of experience from South Korean hospitals, exceeding the minimum sample of 139 via G*Power 3.1.9.7 (effect size=.15, alpha=.05, power=.80). Following IRB approval (No. 2025-07-160), online survey data were collected from July 26 to August 31, 2025. Variables were measured using validated instruments for Clinical Self-Efficacy (alpha=.90), Positive Nursing Organizational Culture (alpha=.95), Nurse-Physician Collaboration (alpha=.92), and Job Embeddedness (alpha=.88). Data were analyzed using SPSS 27.0 via descriptive statistics, t-tests, ANOVA, Pearson's correlations, and multiple regression.

Results
Participants reported high clinical self-efficacy (4.05/5) and nurse-physician collaboration (4.34/5), but moderate positive nursing organizational culture (3.29/5) and job embeddedness (3.31/5). Job embeddedness correlated positively with clinical self-efficacy (r=.32, p<.001), positive nursing organizational culture (r=.56, p<.001), and nurse-physician collaboration (r=.20, p=.016). Multiple regression revealed that positive nursing organizational culture (beta=.40, p<.001) and job satisfaction (beta=.61, p<.001) were significant predictors, explaining 40.1% of variance (Adj. R2=.401, F=19.86, p<.001).

Conclusion
Fostering a positive organizational culture and enhancing job satisfaction are critical to improve job embeddedness and retain experienced perianesthesia nurses. While competence and collaboration are valued, systematic organizational support—such as fair compensation, transparent evaluation, and shared decision-making—more directly prevents turnover. Healthcare institutions must develop specialized retention programs featuring simulation-based safety training, structured multidisciplinary communication, and flexible scheduling to mitigate burnout.

AP-07-4 (2026-0060)

Figure & Table

Figure & Table 1.

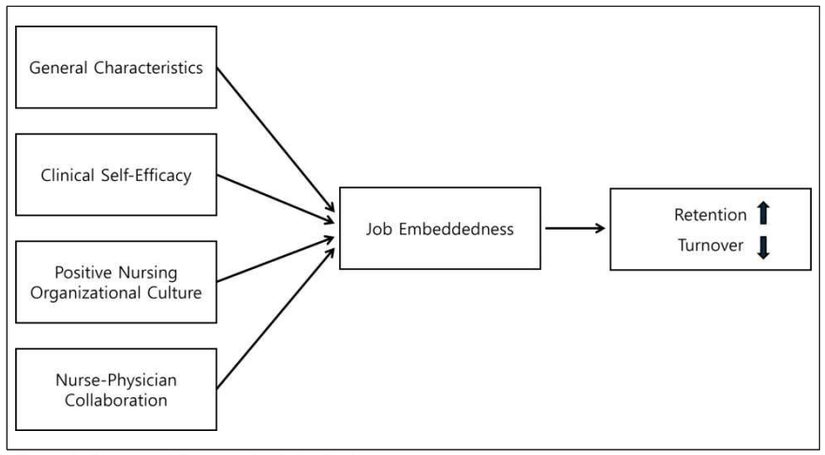


Figure 1. Conceptual Framework of the Study

ABSTRACT
Competition
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AI, Faculty, and Standardized Patients: Evaluating Resident Empathy in Anesthesiology Simulation Using the CARE Measure

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Background

Empathic communication is a core competency in anesthesiology training, traditionally assessed through standardized patient (SP) encounters or faculty observation, both resource-intensive. Large language models (LLMs) can now process clinical transcripts, raising interest in automated empathy scoring, but their performance against human raters in postgraduate medical education remains unclear. This study compared empathy scores of anesthesiology residents across faculty, SP, and AI assessment.

Methods

In this cross-sectional study, 34 anesthesiology residents (18 PGY-2, 16 PGY-3) completed an SP simulation on disclosing a major perioperative adverse event. Resident empathy was independently assessed by the SP and a faculty observer using the 10-item Thai-adapted CARE Measure (1–5 scale); items not observable during an encounter were recorded as not applicable rather than imputed. Audio recordings were transcribed, de-identified, and scored by Gemini 3.1 using the same criteria. Scores were compared using one-way repeated-measures ANOVA with Bonferroni-adjusted post-hoc tests; agreement was assessed using Pearson's correlation and single-measure, absolute-agreement ICC(A,1), internal consistency using Cronbach's alpha, and discriminant validity using independent t-tests.

Results

Mean total scores were SP 3.05±0.67, faculty 2.72±0.43, and AI 3.12±0.47 (1–5 scale); scores differed across the three assessment methods ($F(2,66)=9.44$, $p<0.001$, partial $\eta^2=0.22$; Table 1). Agreement between individual ratings was more limited: SP–faculty $r=0.57$ ($p<0.001$; ICC(A,1)=0.44), SP–AI $r=0.32$ ($p=0.064$; 95% CI −0.02 to 0.59; ICC(A,1)=0.31), and faculty–AI $r=0.51$ ($p=0.002$; ICC(A,1)=0.37). Internal consistency was high for SP (alpha=0.88) and faculty (alpha=0.89) but lower for AI (alpha=0.72). Item-level scores and between-rater correlations are shown in Figure 1. No rater discriminated PGY-2 from PGY-3 (all $p>0.10$).

Conclusion

AI mean empathy scores were comparable to SP ratings, but agreement at the individual resident level was limited, and this study was powered for between-method score comparison rather than agreement. A single text-based LLM is not yet a substitute for SP-based empathy assessment in residency training.

Figure & Table

Figure & Table 1.

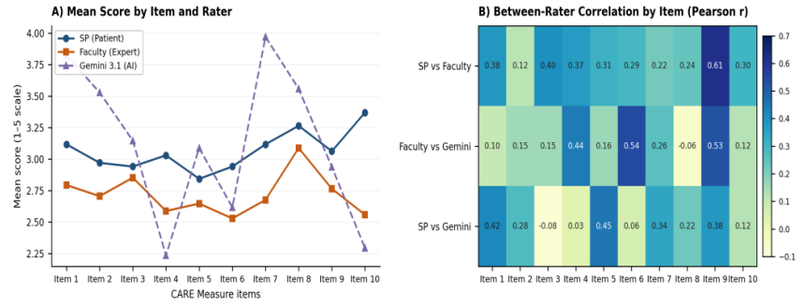
Table 1. Pairwise differences in empathy scores between assessment methods (n=34)

Comparison	Mean difference	95% CI	p-value
Faculty − SP	−0.33	−0.52 to −0.13	0.005
AI (Gemini 3.1) − SP	+0.07	−0.17 to +0.32	1.000
AI (Gemini 3.1) − Faculty	+0.40	+0.25 to +0.56	<0.001

Pairwise p-values Bonferroni-adjusted.

Figure & Table 2.

Figure 1. Mean item-level CARE Measure scores and between-rater correlations by item (n=34).



AP-07-6 (2026-0571)

Heart Sound–Derived Acoustic Variability Index Predicts Fluid Responsiveness Across Open and Laparoscopic Hepatopancreatobiliary Surgery: A Prospective Confirmative Study

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Background
Dynamic indices are widely used to guide intraoperative fluid therapy, but their accuracy can be affected by pneumoperitoneum, and some require arterial catheterization. The acoustic variability index (AVI) measures respiratory-cycle variation in heart-sound features obtained continuously through an esophageal probe. We assessed AVI for predicting fluid responsiveness in open and laparoscopic hepatopancreatobiliary surgery and compared it with pulse pressure variation (PPV), stroke volume variation (SVV), and pleth variability index (PVI).

Methods
In this prospective, single-center observational study, adults undergoing elective hepatic, pancreatic, or biliary resection by an open or laparoscopic/robot-assisted approach under mechanical ventilation received a standardized 500-mL crystalloid challenge over 20–30 minutes. AVI, PPV, SVV, PVI, and cardiac output (CO) derived from uncalibrated pulse contour analysis were averaged during 3-minute periods before and after fluid loading. Responders were defined as patients with a ≥10% increase in CO. Areas under the receiver operating characteristic curve (AUCs) were compared using DeLong's test, and index-by-approach interactions were evaluated using logistic regression with adjustment for surgical phase and vasoactive exposure.

Results
Of 122 enrolled patients, 118 were analyzed, and 55 (46.6%) were responders. In the entire cohort, AVI achieved the highest AUC (0.839), followed by PPV (0.756), SVV (0.739), and PVI (0.624). AVI did not differ significantly from PPV (P=0.102), but exceeded SVV (P=0.040) and PVI (P<0.001). An AVI cutoff of 10.3% yielded 85.5% sensitivity and 81.0% specificity. In open surgery, AVI, SVV, and PPV showed no significant difference in discrimination, with AUCs of 0.809, 0.801, and 0.708, respectively. In laparoscopic surgery, AVI (0.833) and PPV (0.761) maintained discrimination, whereas SVV decreased to 0.591 and PVI remained poor at 0.605. Surgical approach significantly modified SVV performance (interaction P=0.001; adjusted P=0.005), but not AVI, PPV, or PVI (all P>0.5).

Conclusion
AVI predicted fluid responsiveness with performance not significantly different from PPV across open and laparoscopic hepatopancreatobiliary surgery. Its discrimination was preserved under pneumoperitoneum, unlike SVV, while PVI had limited utility. AVI may therefore provide an arterial catheter–free option for intraoperative assessment of fluid responsiveness, although validation in larger multicenter cohorts is warranted.

AP-07-6 (2026-0571)

Figure & Table

Figure & Table 1.

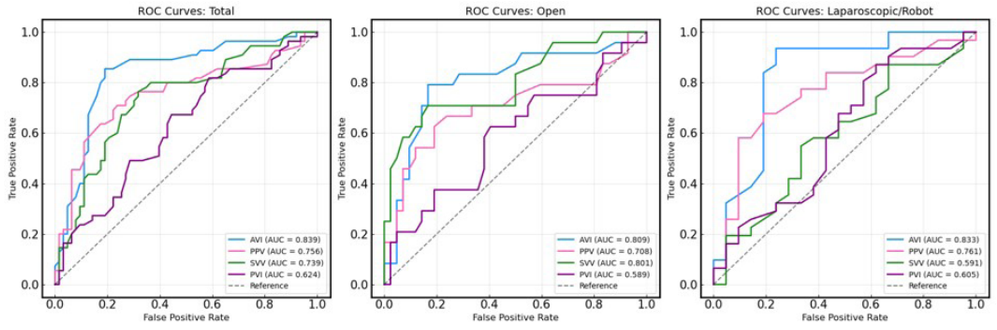


Figure & Table 2.

Table. Pairwise comparison of areas under the curve by DeLong's test, in the total cohort and by surgical approach

Cohort	Comparison	AUC1	AUC2	AUC difference (95% CI)	p-value
Total	AVI vs PPV	0.839	0.756	+0.084 [-0.017, +0.184]	0.102
	AVI vs SVV	0.839	0.739	+0.100 [+0.004, +0.196]	0.040
	AVI vs PVI	0.839	0.624	+0.216 [+0.103, +0.328]	<0.001
	PPV vs SVV	0.756	0.739	+0.016 [-0.050, +0.083]	0.627
	PPV vs PVI	0.756	0.624	+0.132 [+0.035, +0.229]	0.008
	SVV vs PVI	0.739	0.624	+0.116 [+0.023, +0.208]	0.014
Open	AVI vs PPV	0.809	0.708	+0.100 [-0.076, +0.276]	0.265
	AVI vs SVV	0.809	0.801	+0.008 [-0.132, +0.148]	0.911
	AVI vs PVI	0.809	0.589	+0.219 [+0.045, +0.394]	0.014
	PPV vs SVV	0.708	0.801	-0.092 [-0.195, +0.011]	0.079
	PPV vs PVI	0.708	0.589	+0.119 [-0.033, +0.271]	0.124
	SVV vs PVI	0.801	0.589	+0.211 [+0.082, +0.341]	0.001
Laparoscopic/Robotic	AVI vs PPV	0.833	0.761	+0.072 [-0.089, +0.234]	0.381
	AVI vs SVV	0.833	0.591	+0.243 [+0.068, +0.418]	0.007
	AVI vs PVI	0.833	0.605	+0.228 [+0.034, +0.423]	0.021
	PPV vs SVV	0.761	0.591	+0.171 [+0.063, +0.278]	0.002
	PPV vs PVI	0.761	0.605	+0.156 [-0.003, +0.314]	0.054
	SVV vs PVI	0.591	0.605	-0.015 [-0.158, +0.128]	0.841

The table presents pairwise comparisons of the Area Under the Receiver Operating Characteristic curve (AUC) among the four indices (AVI, PPV, SVV, and PVI) using DeLong's test. The AUC differences with 95% confidence intervals (CI) and P-values are reported for the Total cohort, Open surgery subgroup, and Laparoscopic/Robot surgery subgroup.

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Abstract Presentation 8

Date / Time	Nov 5 (Thu), 13:30-15:00
Room	Room D *(Paradise City)*
Language	English
Chair(s)	Sujin Baek *(Chungnam National University, Republic of Korea)* Sung-Ae Cho *(Sungkyunkwan University, Republic of Korea)*

AP-08-1 2026-0371

Operating Room Optimization and Workforce Stabilization in a Secondary-Care Teaching Hospital: A Quality Improvement Initiative

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AP-08-2 2026-0190

From Recognition to Rescue: Development, Implementation and Evaluation of a High-Fidelity Crisis Care Simulation Programme for Perioperative Nursing Team Training

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AP-08-3 2026-0292

Lavage and Recharge: Reducing Battery Waste through Repurposing in the Operating Theatre

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AP-08-4 2026-0210

Comparing Verbal and Visual Explanations for General Anesthesia Comprehension in the Elderly: A Pilot Randomized Trial

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AP-08-5 2026-0531

Prevalence and Factors Associated with Burnout among Anaesthesiology and Critical Care Postgraduate Trainees in Teaching Hospitals in Malaysia: A Multicentre Cross-Sectional Study

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AP-08-6 2026-0064

Ethical Readiness and Trust in AI-Assisted Anaesthesia: A Cross-Sectional Survey Study Among Anaesthesia Professionals in a Developing country

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AP-08-7 2026-0124

Alpha Dropout on the Density Spectral Array as a Real-Time pEEG Guide for Intraoperative Analgesia Titration: A Case Report

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AP-08-8 2026-0335

Intraoperative Density Spectral Array Changes Suspicious for Ictal Activity during Sevoflurane Anesthesia

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AP-08-1 (2026-0371)

Operating Room Optimization and Workforce Stabilization in a Secondary-Care Teaching Hospital: A Quality Improvement Initiative

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Background
Secondary-care teaching hospitals may have limited staffing reserves, rendering them vulnerable to abrupt anesthesia workforce shortages. Following the departure of all anesthesiology residents and 3 of 10 faculty members during South Korea's 2024 healthcare disruption, our institution faced threats to perioperative continuity. This quality improvement initiative aimed to restore the anesthesia workforce and preserve operating room (OR) capacity.

Methods
(1) Workflow redesign. Room-based tasks were separated from next-patient preparation. While OR cleaning and anesthesia workstation turnover proceeded in the OR, a designated nurse in the preoperative holding area concurrently received the next patient, completed pre-procedure verification and nursing handoff, and arranged transport through a shorter route. (2) Private offices. Shared workspaces were replaced with individual faculty offices. (3) Compensation. Faculty salaries were increased by 20% to match national benchmarks. (4) Peer recognition. A "Compliment Board" was introduced to support team morale. (5) Local Hi-Pass. Anesthesiology preapproval was removed for eligible local-anesthesia procedures.
Operational metrics and staff surveys were compared one month before and after implementation. Recruitment activity during the three months after office allocation was compared with the same period in the preceding year. Procedure volumes, faculty counts, and OR capacity were also assessed.

Results
Mean anesthesia-based turnover time decreased from 22 to 17 minutes (23%), and the proportion of shifts with overtime decreased from 68% to 32% (53% relative reduction). Favorable work-life balance ratings increased from 37.7% to 83.3%, positive job satisfaction from 46.6% to 86.7%, and positive workspace assessment from 20.0% to 100%. Faculty applications doubled from 3 to 6. Local-anesthesia procedures increased from 225 to 263 (16.9%), while total monthly procedure volume increased from 1,083 to 1,112 (2.7%). Following three resignations and one planned overseas fellowship, five new faculty members were recruited, increasing the active faculty count from 10 to 11 and expanding general-anesthesia OR capacity by one room.

Conclusion
Workflow redesign and structural staff support were associated with reduced turnover time and overtime while improving staff experience. Most importantly, the initiative successfully recruited five anesthesiology faculty members, produced a net increase in active faculty, and enabled operation of one additional general-anesthesia OR. These measures may offer an adaptable approach to restoring perioperative capacity in resource-constrained secondary-care settings.

AP-08-1 (2026-0371)

Figure & Table

Figure & Table 1.

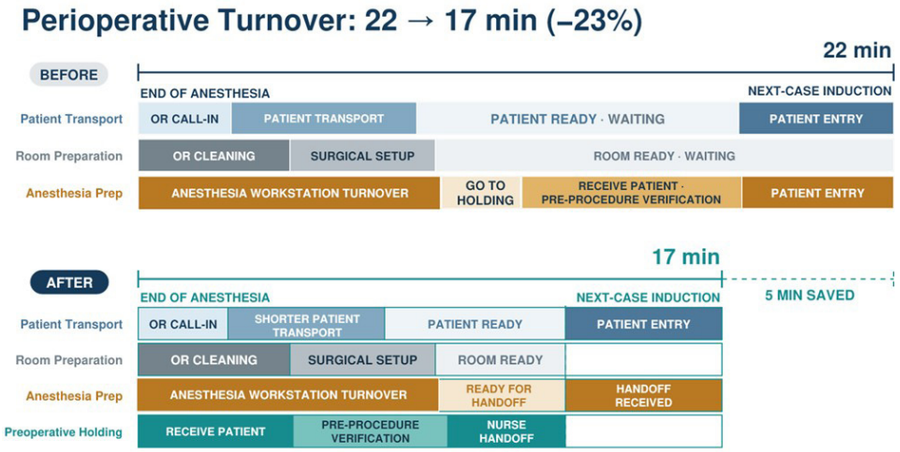
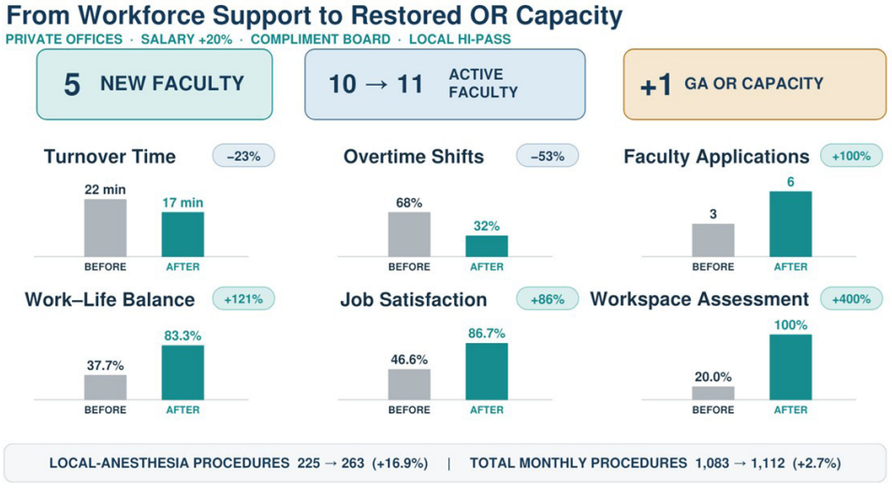


Figure & Table 2.



ABSTRACT
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AP-08-2 (2026-0190)

From Recognition to Rescue: Development, Implementation and Evaluation of a High-Fidelity Crisis Care Simulation Programme for Perioperative Nursing Team Training

Chaminda Godage[1*], Simone Misquita[1], Namisha Goyal[2], Zhang Yuan[3], Menakha Gopaladhas[3], Ashokka Balakrishnan[1]

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2. Department of Anesthesia, Alexandra Hospital Singapore (NUHS), Singapore
3. Department of Nursing, National University of Singapore (NUHS), Singapore

Background
High-impact, low-frequency (HILF) perioperative emergencies require rapid recognition, escalation, coordinated teamwork and timely intervention, yet opportunities for perioperative nurses to rehearse these rare events are limited in routine clinical practice. We developed a high-fidelity Crisis Care Simulation Programme to enhance perioperative nurses' preparedness as a team for recognising and managing life-threatening perioperative emergencies through structured simulation and debriefing.

Methods
This single-centre educational quality improvement programme was conducted through five workshops between April 2024 and May 2026. The programme initially comprised two PACU-focused crisis scenarios (airway obstruction and anaphylaxis) before expanding to a four-scenario perioperative curriculum with the addition of malignant hyperthermia and local anaesthetic systemic toxicity. High-fidelity simulation using a HAL S3201 (Gaumard) manikin was combined with structured facilitator-led debriefing. Programme evaluation was performed using anonymous post-workshop questionnaires, and participant feedback guided iterative curriculum refinement, including scenario development, facilitator standardisation, equipment checklists and educational resources.

Results
Five workshops involving 75 perioperative nurses (Anaesthesia & PACU) were completed. Participant evaluations demonstrated high educational value. Overall, 100% of respondents reported the programme was useful and 100% agreed they were confident applying the learning in clinical practice. Simulation scenarios were considered clinically appropriate by 91.7% of respondents, while 91.7% felt the workshop duration was adequate. Qualitative feedback consistently highlighted improvements in crisis recognition, early escalation, communication, teamwork, leadership, role allocation, and familiarity with emergency equipment and medications. Participant feedback informed progressive programme refinement throughout implementation.

Conclusion
A high-fidelity Crisis Care Simulation Programme for perioperative nurses was successfully developed, implemented and refined through continuous quality improvement. The programme provides a practical, reproducible framework for preparing perioperative nurses to recognise and respond to low-frequency, high-acuity perioperative emergencies and may support wider implementation of multidisciplinary perioperative crisis simulation.

AP-08-2 (2026-0190)

Figure & Table

Figure & Table 1.

Figure 1. Evolution of the High-Fidelity Crisis Care Simulation Programme for Perioperative Nursing Team Training

Phase	Programme Development
Pilot Phase (2024)	2 programme runs (MCOT, KRW) 31 perioperative nurses (PACU) 2 crisis scenarios: • Airway Obstruction • Anaphylaxis
Expanded Programme (2025–2026)	3 programme runs (KRW, MCOT, MBOT) 44 perioperative nurses (Anaesthesia Unit & PACU) Expanded to 4 crisis scenarios with: • Malignant Hyperthermia • Local Anaesthetic Systemic Toxicity
Continuous Quality Improvement	• Anonymous participant feedback • Structured facilitator debriefing • Scenario refinement • Facilitator standardisation • Equipment checklists • Educational resource development

Summary: 5 programme runs • 75 perioperative nurses • Curriculum evolved from 2 PACU scenarios to 4 perioperative crisis scenarios through continuous quality improvement.

ABSTRACT
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Lavage and Recharge: Reducing Battery Waste through Repurposing in the Operating Theatre

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Background
Single-use pulsed lavage (Pulsavac®) systems used in surgery contain 8 AA batteries and are often discarded after brief use (<5 mins). This contributes to unnecessary battery wastage despite many batteries retaining most of their charge. We aimed to reduce AA battery waste and cost by creating a workflow to repurpose batteries from Pulsavac® systems for use in low-risk hospital devices.

Methods
Over 6 months, used Pulsavac® sets were collected in the OT. Batteries were sorted by usage duration and tested using voltmeters and PCA pump indicators. Batteries from short-use sets were repurposed for PCA pumps and other hospital equipment. Remaining components were recycled. Data on battery performance, cost savings, and environmental impact were tracked.

Results
4,294 batteries were collected and redistributed. 90% of batteries used <5 mins showed full or near-full charge. Reused batteries functioned reliably in PCA pumps, lasting up to 4.5 days. Approximate cost savings were $4,148. Environmental savings included 90.6 kg of reduced waste and 171.1 kg CO_2 avoided.

Conclusion
Repurposing batteries from short-use surgical devices is a feasible, cost-saving, and environmentally sustainable strategy. A structured workflow enables safe reuse with minimal disruption. This initiative can be scaled across departments and institutions.

AP-08-3 (2026-0292)

Figure & Table

Figure & Table 1.



ABSTRACT
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Comparing Verbal and Visual Explanations for General Anesthesia Comprehension in the Elderly: A Pilot Randomized Trial

Sangwoo Kim[1], Young Suk Kwon[1*]

1. Department of Anesthesiology and Pain Medicine, Hallym University Chuncheon Sacred Heart Hospital, Republic of Korea

Background
Old age adults are rapidly increasing in the present, and effective methods that medical providers explain and educate for them are necessary. This pilot study compared explanations between based on images and based on text

Methods
This study was conducted as a randomized, stratified and controlled trial. In this study, elderly patients aged ≥70 years, who were scheduled for general anesthesia in elective surgery, were screened. This study included a total of 30 patients and divide 2 groups, Group I (using image and verbal) and Group T (text and verbal). The description of general anesthesia includes definition, process and risk of general anesthesia, recovery of general anesthesia, and other information for general anesthesia. Group T received an explanation for general anesthesia with a verbal based on explanation note. Group I received an explanation with verbal based on images. We assessed patients with ten questions within 20 minutes after explanation for general anesthesia.

Results
There was no statistically significant difference in total scores between the Group T and Group I (weighted mean = 7.31 vs 7.98) in the survey-weighted t-test (p = 0.204). However, there were significant differences in total scores among the three age groups (p = 0.016), especially, between 70–74 and 80+ age groups (p = 0.002).

Conclusion
This pilot study shows that although there are age-specific differences in the understanding of general anesthesia in older patients, differences in methods based on image and text do not affect.

Figure & Table

Figure & Table 1.

Table S1. Verbal Explanation based on text of General Anesthesia

Korean (Original)	English
전신 마취에 대한 구두 설명문 안녕하세요. 저는 여러분의 수술 동안 마취의와 함께 마취를 담당할 간호사입니다. 수술 전에 전신 마취에 대해 설명드리고, 질문이 있으시면 언제든지 물어보시길 바랍니다. **1. 전신 마취란 무엇인가요?** 전신 마취는 여러분을 깊은 잠에 빠지게 하여, 수술 동안 통증을 전혀 느끼지 않도록 하는 것입니다. 여러분은 전신 마취 상태에서 아무것도 기억하지 못하며, 수술이 끝난 후 깨어나게 됩니다. **2. 전신 마취의 과정은 어떻게 되나요?** 전신 마취는 다음과 같은 단계로 진행됩니다: ● 준비: 수술 전 건강 상태를 평가하고, 마취에 필요한 준비를 합니다. 과거 병력이나 특이 체질이 있으시면 말씀해 주십시오. ○ 알레르기 ○ 고.저혈압, ○ 당뇨병, ○ 심장병, ○ 출혈소인, ○ 투약사고, ○ 마취사고, ○ 특이체질, ○ 흡연여부, ○ 기타 항혈전제 (아스피린, 와파린 등) 복용 하나요? ○ 마취시 흡인의 위험으로 수술 전날 밤부터 음식이나 음료를 임의로 섭취해서는 안됩니다. ● 유도: 마취 약물을 주사하거나 흡입하게 합니다. 몇 분 내에 깊은 잠에 빠지게 됩니다. ● 기관삽관: 수술 중 인공 호흡을 위하여 후두경으로 입을 통하여 관을	Hello, I am the nurse who will assist the anesthesiologist in managing your anesthesia during the surgery. Before the procedure, I would like to explain general anesthesia to you. If you have any questions, please feel free to ask at any time. **1. What is General Anesthesia?** General anesthesia is a process that puts you into a deep sleep so that you do not feel any pain during surgery. While under general anesthesia, you will not remember anything, and you will wake up after the procedure is complete. **2. What is the Process of General Anesthesia?** General anesthesia typically involves the following steps: **Preparation**: ● We will evaluate your health condition before the surgery and prepare accordingly. ● Please inform us of any medical history or specific conditions, such as: ○ Allergies ○ High or low blood pressure ○ Diabetes ○ Heart disease ○ Bleeding tendencies

Figure & Table

삽입하거나 후두마스크를 삽입합니다.

- 유지: 수술 동안 지속적으로 마취 상태를 유지합니다. 필요에 따라 추가 약물을 투여합니다.
- 회복: 수술이 끝나면 마취 약물의 투여를 중단하고, 여러분은 서서히 깨어납니다.

3. 전신 마취의 위험성은 무엇인가요?

전신 마취는 일반적으로 안전하지만, 몇 가지 위험이 있을 수 있습니다:

- 전신마취의 합병증으로 호흡기 계통으로 경미한 구강내 손상부터 무기폐, 폐흡입, 기도폐쇄, 폐렴 같은 심각한 합병증과 아주 드물지만 사망으로 이어질 수 있는 경우도 발생할 수 있습니다.
- 순환계통으로: 저혈압, 심근허혈, 심근경색, 아주 드물지만 사망의 위험이 있을 수 있습니다.
- 그 외에도 감뇨증, 급성신부전, 고체온(악성고열증), 과민 반응, 치아 손상이 일어 날 수 있습니다.
- 위와 같은 합병증에 대해서는 지속적으로 감시하면서 즉각적으로 처치하지만, 불가항력적인 경우가 발생할 수 있습니다.
- 마취로부터 깨어난 후에는 일시적인 혼란이나 기억 상실: 깨어난 후 몇 시간 동안 혼란스러울 수 있습니다.
- 메스꺼움과 구토: 마취 후 흔히 나타나는 증상입니다.
- 호흡 문제: 드물게 호흡 곤란이 발생할 수 있습니다. 기관이나 후두 마스크가 삽입되어 있었기 때문에 목이 아플 수 있습니다.
- 알레르기 반응: 특정 약물에 대한 알레르기 반응이 있을 수 있습니다.
- 기타 합병증: 고령 환자나 특정 건강 상태를 가진 환자에게는 추가적인

  - Previous medication or anesthesia reactions
  - Specific physical conditions
  - Smoking habits, etc.
- Are you taking any blood-thinning medications like aspirin or warfarin?
- To reduce the risk of aspiration during anesthesia, you must avoid eating or drinking after midnight the day before surgery.

Induction:

- Anesthesia is administered either through an injection or inhalation, putting you into a deep sleep within minutes.

Intubation:

- For artificial ventilation during surgery, a tube will be inserted through your mouth using a laryngoscope, or a laryngeal mask will be used.

Maintenance:

- Anesthesia is maintained throughout the surgery with continuous monitoring, and additional medication is given as needed.

Recovery:

- Once the surgery is over, the administration of anesthetic drugs will be stopped, and you will gradually wake up.

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3. What are the Risks of General Anesthesia?

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Figure & Table

위험이 있을 수 있습니다.

4. 전신 마취 후 회복은 어떻게 되나요?

수술이 끝난 후 회복실로 옮겨져 30분에서 60분 정도 마취에서 회복될 때까지 감시 (모니터링)을 받습니다. 환자의 상태에 따라 회복실에 머무는 시간이 길어질 수 있습니다. 깨어난 후에는 약간의 혼란이나 메스꺼움이 있을 수 있지만, 대부분 시간이 지나면 회복됩니다. 통증에 대해서는 자가조절진통법이나 추가적인 진통제가 투여됩니다. 수술 후 중환자실 입실이 예정된 경우에는 회복실을 경유하지 않고 바로 중환자실로 이동합니다.

5. 마취 관리를 위한 기타 사항

환자의 수술 전, 중, 후 전신상태 또는 수술의 종류에 따라 침습적인 혈압감시, 중심정맥압 감시, 폐동맥압 감시등이 시행될 수 있습니다. 수혈이 필요할 수도 있습니다. 환자의 상태에 따라 회복실에서 중환자실로 이동하여 집중관리가 행해질 수 있습니다.

주의사항

복용 중인 약물이 있다면, 마취과 의사나 간호사에게 미리 알려주세요. 마취 후에는 일정 시간 동안 운전이나 중요한 결정을 피하는 것이 좋습니다. 이 설명이 여러분께 전신 마취에 대해 이해하는 데 도움이 되었길 바랍니다. 궁금한 점이 있으시면 지금 질문해 주세요. 여러분의 안전과 편안함이 가장 중요합니다. 감사합니다.

General anesthesia is generally safe, but it does carry some risks, including:

Respiratory complications:

- From minor oral injuries to serious issues such as atelectasis, aspiration, airway obstruction, or pneumonia. Rarely, life-threatening complications may occur.

Cardiovascular complications:

- Hypotension, myocardial ischemia, or myocardial infarction. In extremely rare cases, there may be a risk of death.

Other complications:

- Reduced urine output, acute kidney injury, hyperthermia (malignant hyperthermia), allergic reactions, or dental injuries.

We continuously monitor for such complications and respond immediately, but some situations may be unavoidable.

Post-anesthesia effects:

- Temporary confusion or memory loss: You may feel disoriented for a few hours after waking up.
- Nausea and vomiting: These are common after anesthesia.
- Breathing problems: Rarely, difficulty in breathing may occur. You may also have a sore throat due to the tube or mask insertion.
- Allergic reactions: There may be rare allergic responses to specific

Figure & Table

	medications. • Other complications: Older patients or those with specific health conditions may have additional risks. **4. How Does Recovery from General Anesthesia Work?** After surgery, you will be moved to the recovery room, where you will be monitored for 30 to 60 minutes as you wake up from anesthesia. The length of your stay in the recovery room may vary depending on your condition. After waking up, you may feel slightly disoriented or nauseous, but these symptoms typically subside over time. Pain management is provided through patient-controlled analgesia or additional pain relievers. If you are scheduled to be admitted to the intensive care unit (ICU), you will be transferred there directly without passing through the recovery room. **5. Additional Considerations for Anesthesia Management** Depending on your overall condition and the type of surgery, invasive blood pressure monitoring, central venous pressure monitoring, or pulmonary artery pressure monitoring may be performed. Blood transfusions might also be necessary. In some cases, patients may require intensive monitoring in the ICU after the recovery room.

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	Important Notes: • Please inform the anesthesiologist or nurse if you are taking any medications. • Avoid driving or making significant decisions for a certain period after anesthesia. I hope this explanation helps you better understand general anesthesia. If you have any questions, please do not hesitate to ask. Your safety and comfort are our top priorities. Thank you.

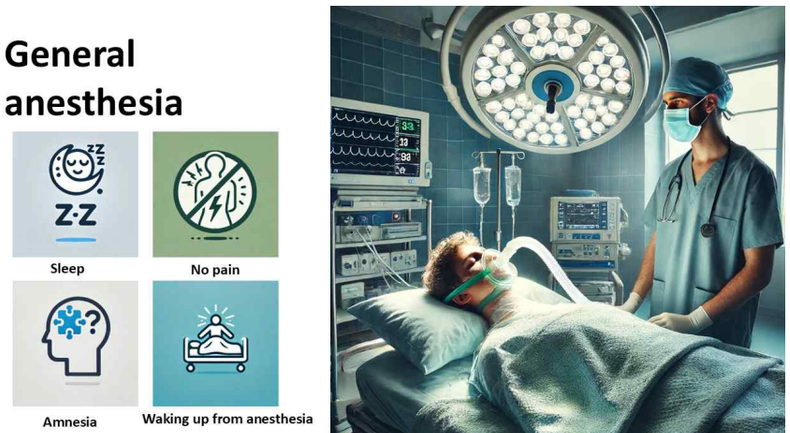
Figure & Table

Figure & Table 2.

Figure S1. Images for explanation. Original Korean text in the image has been replaced with similar-meaning English expressions.

(A) What is General Anesthesia?

General anesthesia is a process that puts you into a deep sleep so that you do not feel any pain during surgery. While under general anesthesia, you will not remember anything, and you will wake up after the procedure is complete.



(B) What is the Process of General Anesthesia? General anesthesia typically involves the following steps:



Figure & Table

(C) Fasting

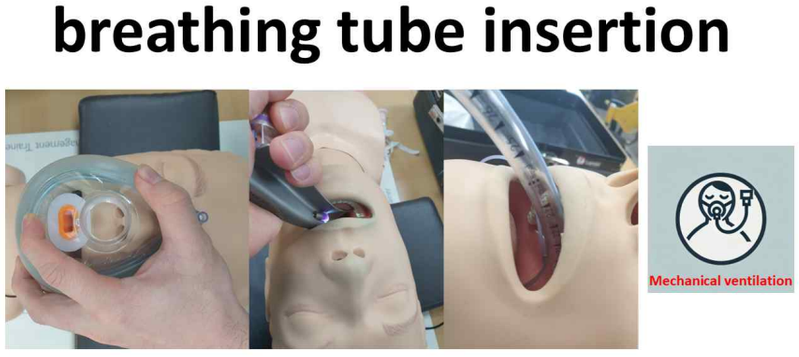


(D) Anesthesia induction



(E) Endotracheal intubation

Figure & Table



(F) Maintenance



(G) Recovery

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Figure & Table



(H) Respiratory and pulmonary complications



(I) Cardiovascular complications

Figure & Table



(J) Acute kidney disease, oliguria, malignant hyperthermia and allergic reaction



(K) Temporrary confusion, postoperative nausea and vomiting, and dyspnea

Figure & Table



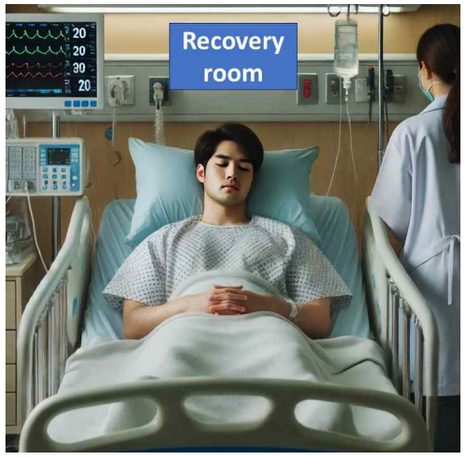
(L) Sore throat, tooth injury



(M) Recovery

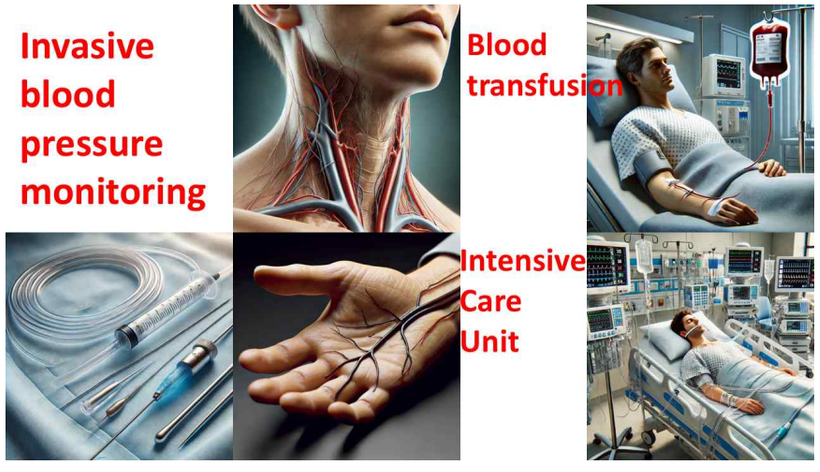
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Figure & Table





(N) Invasive blood pressure monitoring, blood transfusion and intensive care unit



AP-08-5 (2026-0531)

Prevalence and Factors Associated with Burnout among Anaesthesiology and Critical Care Postgraduate Trainees in Teaching Hospitals in Malaysia: A Multicentre Cross-Sectional Study

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Background
Burnout is common in postgraduate medical training and may adversely affect trainees' well-being and patient care. However, evidence among Malaysian anaesthesiology and critical care trainees remains limited. This study aimed to determine the prevalence of high risk of burnout and burnout syndrome and to identify independently associated factors.

Methods
This multicentre cross-sectional study received approval from the research ethics committees of all participating institutions. It was conducted from March 2025 to March 2026 and included anaesthesiology and critical care postgraduate trainees undertaking the in-campus phase of training at teaching hospitals affiliated with six Malaysian universities. Participants provided electronic informed consent before completing an anonymous online questionnaire comprising the Maslach Burnout Inventory–Human Services Survey for Medical Personnel, the Postgraduate Stressors Questionnaire, and items on demographic, academic, occupational, and lifestyle characteristics. High risk of burnout was defined as high emotional exhaustion and/or high depersonalisation; burnout syndrome required concurrent high emotional exhaustion, high depersonalisation, and reduced personal accomplishment. Multivariable logistic regression was used to identify factors independently associated with each outcome.

Results
Of 215 eligible trainees, 185 responded and 181 were analysed. High risk of burnout was present in 53.6% (95% CI 46.3–60.8), and 23.8% (95% CI 18.1–30.5) met the criteria for burnout syndrome. High risk of burnout was independently associated with a final examination within six months (adjusted odds ratio [aOR] 2.44, 95% CI 1.05–5.67), perceived fatigue or lack of sleep as a contributor to work-related errors (aOR 2.49, 95% CI 1.20–5.14), and greater performance pressure (aOR 2.77, 95% CI 1.73–4.44), whereas greater satisfaction with workplace support was protective (aOR 0.38, 95% CI 0.22–0.66). Burnout syndrome was associated with more frequent thoughts of leaving the programme (aOR 2.24, 95% CI 1.36–3.69) and poorer job prospects (aOR 2.84, 95% CI 1.44–5.59), whereas the presence of personal emotional support outside the workplace (aOR 0.18, 95% CI 0.04–0.78) and greater satisfaction with academic workload (aOR 0.34, 95% CI 0.17–0.66) were protective.

Conclusion
Burnout was common among Malaysian anaesthesiology and critical care trainees, with distinct factors independently associated with high risk of burnout and burnout syndrome. These findings support a multifaceted approach encompassing academic and training-related measures addressing workload and performance pressures; workplace interventions to mitigate fatigue and strengthen support; and personal and career-related measures to enhance emotional support and career guidance.

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Figure & Table

Figure & Table 1.

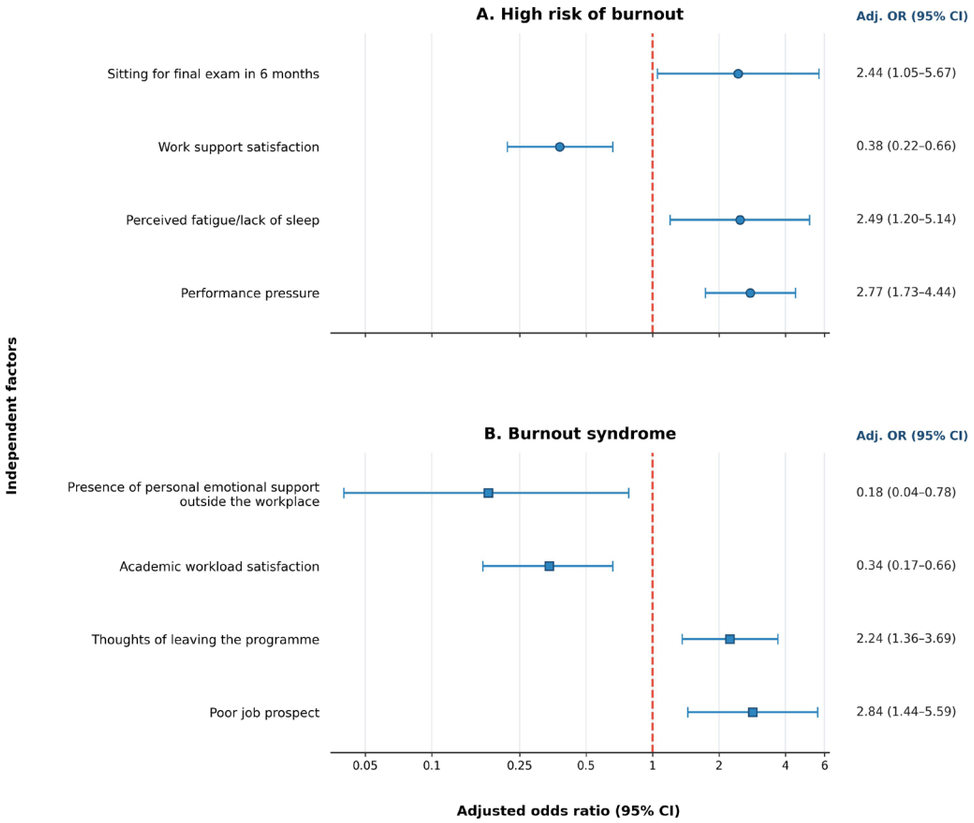


Figure 1. Factors independently associated with high risk of burnout and burnout syndrome.

AP-08-6 (2026-0064)

Ethical Readiness and Trust in AI-Assisted Anaesthesia: A Cross-Sectional Survey Study Among Anaesthesia Professionals in a Developing country

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Background

Artificial intelligence (AI)–based decision-support systems are increasingly being integrated into perioperative anaesthesia. However, limited explainability and shared accountability raise concerns regarding patient autonomy, informed consent, and clinician oversight. While optimism toward AI adoption exists, safe implementation requires ethical readiness and trust in addition to technical validation. This study assessed ethical readiness and trust toward AI integration among anaesthesia professionals.

Methods

This questionnaire-based survey included anaesthesia professionals from government, private, and corporate hospitals across India. A validated self-administered tool assessed five domains: Knowledge (K), Utility & Trust (UT), Ethical Readiness (ER), Transparency & Control (TC), and Institutional Support (IS). A composite score, the AI Ethical Trust & Readiness Index (AETRI), was derived. Group differences were analysed using the Mann–Whitney U and Kruskal–Wallis tests. Associations were examined using Spearman's rank correlation, and multiple linear regression identified predictors of AETRI.

Results

Of the 255 respondents (mean age 31.4 ± 6.3 years; 53.7% female), the cohort comprised 44.7% junior residents, 36.9% senior residents, 11.0% consultants, and 7.4% faculty. The mean composite AETRI was 57.2 ± 9.43, demonstrating moderate overall readiness. Domain-specific analysis revealed moderate-to-high scores for ethical readiness (3.62 ± 0.61) and transparency/control (3.66 ± 0.64), but critically low scores for institutional support (1.86 ± 0.58). Baseline AI knowledge differed significantly by designation ($p = 0.029$), with higher scores observed among faculty and consultants. Crucially, multivariable regression ($R^2 = 0.52$) revealed that Ethical Readiness ($\beta = 0.44$, $p < 0.001$) and Transparency & Control ($\beta = 0.31$, $p = 0.004$) were the only significant independent predictors of overall AI readiness, while prior exposure and technical knowledge were not predictive.

Conclusion

Anaesthesia professionals express cautious optimism and moderate trust in AI, yet face severe structural and institutional deficits. Clinician preparedness for AI integration is fundamentally driven by trust frameworks, explainability, and override capabilities rather than technical knowledge alone. Developing national ethics-focused guidelines and robust governance frameworks is paramount for safe adoption.

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Figure & Table

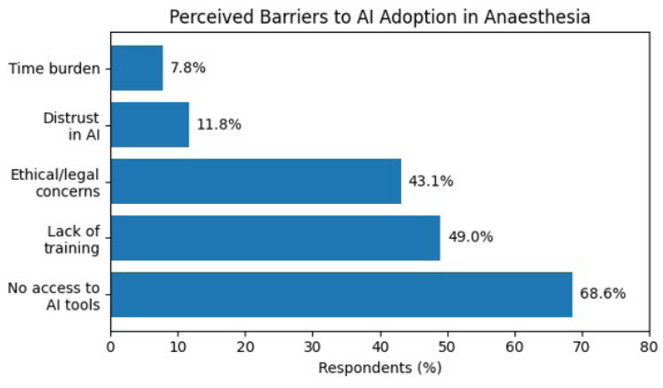
Figure & Table 1.

Table 1. Multivariable regression model predicting AETRI

Predictor Variable	β (Standardized)	p-value
Ethical Readiness	0.44	<0.001
Transparency & Control	0.31	0.004
Utility & Trust	0.12	0.132
Knowledge	0.09	0.218
Institutional Support	0.07	0.266
Model summary: $R^2 = 0.52$, $p < 0.001$		

β denotes standardized regression coefficients. Multicollinearity was assessed prior to model fitting and was within acceptable limits. Model fit is expressed as R^2. All tests were two-tailed, with $p < 0.05$ considered statistically significant.

Figure 1. Perceived barriers to AI adoption among anesthesia professionals.



AP-08-7 (2026-0124)

Alpha Dropout on the Density Spectral Array as a Real-Time pEEG Guide for Intraoperative Analgesia Titration: A Case Report

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2. Anaesthesia, Ng Teng Fong General Hospital Singapore, Singapore

Introduction

Propofol enhances GABAergic inhibition, hyperpolarising thalamic relay neurones into a burst-firing mode that generates synchronised thalamocortical oscillations visible as a steady-state alpha rhythm (8–12 Hz) on the density spectral array (DSA). In animal models, ascending signals from inadequately blocked noxious stimulation depolarise the thalamus into continuous tonic firing, producing an episodic loss of alpha power, termed alpha dropout, on the DSA. Opioids reverse this by restoring thalamic hyperpolarisation. We present a case in which serial episodes of alpha dropout coincided with discrete noxious stimuli and resolved with remifentanil uptitration, illustrating its potential as a clinical EEG guide for intraoperative analgesia.

Case

A 29-year-old woman with no significant medical history underwent bilateral breast lump excision under propofol–remifentanil total intravenous anaesthesia (TIVA) using target-controlled infusion (effect-site targeting; Fresenius Kabi Injectomat TIVA Agilia). Standard ASA monitors were applied, and continuous EEG monitoring was performed using Masimo Sedline with bilateral DSA display. Airway was secured via iGel #3 laryngeal mask airway.

Surgery commenced on the left. At skin incision, a transient dropout in the alpha band was noted on the DSA (Fig 1, point A), accompanied by tachycardia. A second, more prolonged and pronounced episode of alpha dropout occurred during deep dissection of the breast lump (Fig 1, point B), again associated with a concurrent tachycardia. On both occasions, uptitration of the remifentanil effect-site concentration resulted in prompt restoration of the alpha band signal and normalisation of heart rate. The propofol effect-site concentration was maintained unchanged throughout. Surgery subsequently proceeded on the right breast. A similar pattern of alpha dropout was observed at skin incision (Fig 1, point C) and during deep dissection of the right breast lump (Fig 1, point D), both again associated with tachycardia. As with the left-sided events, each episode resolved promptly following remifentanil uptitration.

At wound closure, bilateral bupivacaine 0.5% field infiltration was performed. Intravenous fentanyl 50 mcg was administered at remifentanil offset. The patient emerged smoothly with no pain, nausea, vomiting, or recall of intraoperative events, and was discharged home the same day.

Conclusion

This case demonstrates that alpha dropout on the DSA represents a nociception-induced EEG correlate of inadequate intraoperative analgesia, reversible with opioid uptitration. When alpha dropout occurs at established propofol depth, where thalamocortical alpha rhythm is already present, it reflects an analgesic gap rather than inadequate depth, and warrants opioid uptitration rather than escalation of amnestic agents. Failure to recognise this distinction risks analgesic underdosing and anaesthetic excess.

AP-08-7 (2026-0124)

Figure & Table

Figure & Table 1.

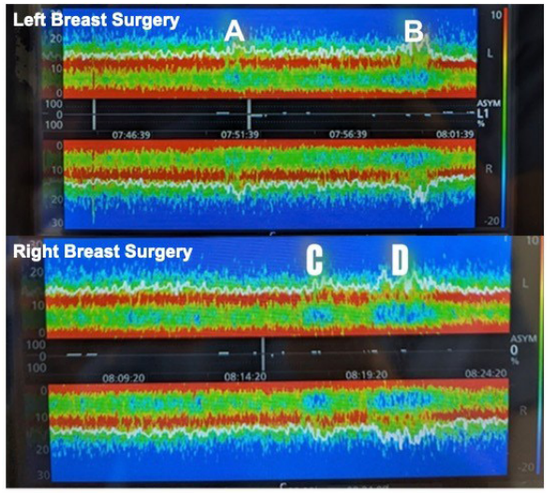


Figure 1. Masimo Sedline DSA recordings during left and right breast surgery. Points A and C mark transient alpha band dropout coinciding with skin incision; points B and D mark more prolonged dropout during deep dissection. Each episode was accompanied by tachycardia and resolved following remifentanil uptitration without adjustment to the propofol target.

AP-08-8 (2026-0335)

Intraoperative Density Spectral Array Changes Suspicious for Ictal Activity during Sevoflurane Anesthesia

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1. Anesthesiology and Pain Medicine, Buasn Paik Hospital, Republic of Korea

Introduction

Density spectral array (DSA) is a real-time, color-coded spectrogram that displays changes in EEG frequency and power, making it a useful tool for recognizing hidden neurophysiological abnormalities during surgery. Detecting intraoperative seizures is clinically challenging because general anesthetics and neuromuscular blocking agents mask the physical manifestations of seizures. Unrecognized subclinical seizures can increase cerebral metabolic demand and cause secondary brain injury in vulnerable patients, highlighting the importance of early recognition and prompt intervention.

Case

A 43-year-old man with a history of left hemispherectomy and daily generalized tonic-clonic seizures underwent a robot-assisted laparoscopic surgery for rectal cancer. General anesthesia was maintained with sevoflurane. Thirty-eight minutes into maintenance, the DSA displays showed recurrent bilateral broadband high-power excursions extending up to 20–25 Hz. Although vital signs and anesthetic depth indices remained stable, cerebral oximetry indicated a possible alteration in regional cerebral oxygen balance, with an increase in deoxyhemoglobin concentration. Suspecting seizure-like activity in a highly susceptible patient, sevoflurane is discontinued and converted to a total intravenous anethesia (TIVA) of propofol and remifentanil. Following the conversion to TIVA, the abnormal broadband DSA pattern resolved, and the surgery was completed without any clinical seizure activity or hypoxic events during emergence.

Conclusion

DSA cannot independently diagnose a true electrographic seizure due to its limited spatial sampling and inability to capture detailed temporal evolution or spike morphology. However, because sevoflurane has been associated with epileptiform EEG activity, switching to a propofol-based TIVA regimen is a biologically rational decision when abnormal, seizure-like spectral patterns appear. Ultimately, DSA serves as an effective early warning display that can guide timely clinical reasoning and safe anesthetic modification in neurologically high-risk patients.

AP-08-8 (2026-0335)

Figure & Table

Figure & Table 1.

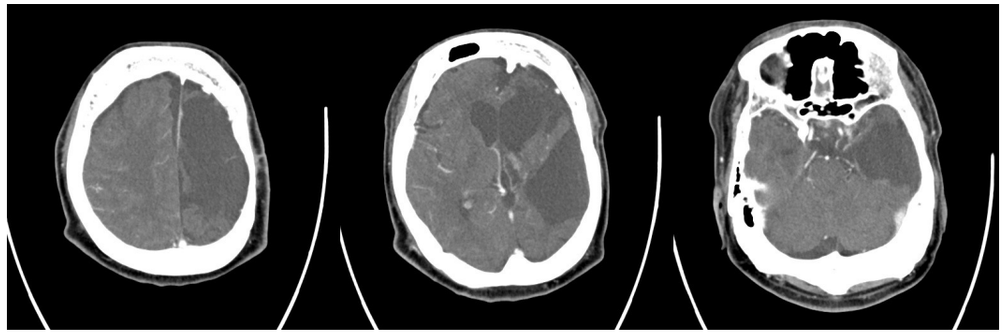
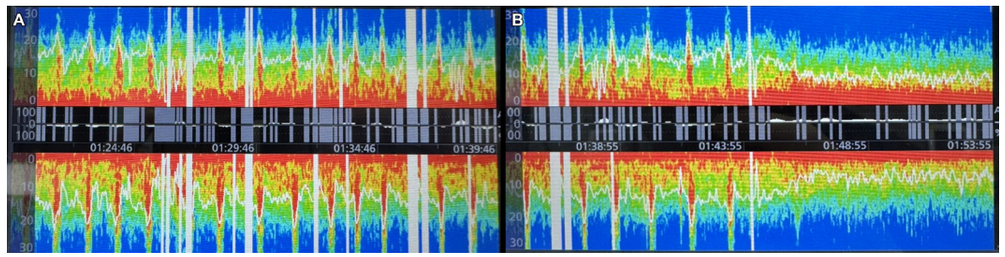


Figure & Table 2.



Presentation

Abstract Presentation 9

Date / Time	Nov 5 (Thu), 13:30-15:00
Room	Room E *(Hyatt Regency)*
Language	English
Chair(s)	Tae-Yun Sung *(Konyang University, Republic of Korea)* Hyewon Oh *(Ewha Womans University, Republic of Korea)*

AP-09-1
2026-0419

Discordance Between Frailty and Acute Illness Severity in Surgical Outcomes in Patients of Extreme Age, Binational Multicentre Cohort Study

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AP-09-2
2026-0285

Newly Diagnosed Postoperative Depression and Incident Dementia after Major Surgery: A Korean Nationwide Retrospective Cohort Study

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AP-09-3
2026-0241

Effect of Remimazolam and Propofol on Postoperative Delirium in Elderly Patients Undergoing Hip or Knee Surgery

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AP-09-4
2026-0420

Clinical Frailty and Postoperative Recovery After Total Joint Arthroplasty in Nonagenarians and Centenarians, Binational Multicentre Cohort Study

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AP-09-5
2026-0486

Computed Tomography-Derived Rectus Abdominis Muscle Measures Outperform Psoas Measures for Discriminating Hip Fracture Status in Older Adults

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AP-09-8
2026-0433

Factors Influencing Caregivers' Intention to Use a LINE-Integrated Web Application for Postoperative Cognitive Dysfunction Care

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Discordance Between Frailty and Acute Illness Severity in Surgical Outcomes in Patients of Extreme Age, Binational Multicentre Cohort Study

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Background
Frailty and acute illness severity represent distinct dimensions of risk in older surgical patients, but their combined prognostic significance is poorly understood. Frailty is commonly used to guide perioperative decision-making, although it may not accurately reflect immediate physiological risk when considered in isolation. We examined whether discordance between baseline frailty and acute illness severity identifies distinct short- and long-term mortality profiles in nonagenarian and centenarian patients admitted to intensive care after surgery.

Methods
We conducted a retrospective binational cohort study using the Australian and New Zealand Intensive Care Society Adult Patient Database. Nonagenarian and centenarian postoperative ICU patients admitted between 2018 and 2024 were included. Frailty was defined using the Clinical Frailty Scale as low (1–4) or high (5–8), while acute illness severity was dichotomised at the cohort median APACHE III score. Four frailty–severity phenotypes were examined, with low frailty/high severity as the reference group. Outcomes included ICU, hospital, and post-discharge mortality, as well as ICU and hospital length of stay. Multivariable Cox models adjusted for age, sex, comorbidities, surgical urgency, hospital classification, and residential geography. Sensitivity analyses used SOFA score to define illness severity. This study was approved by the Alfred Hospital Human Research Ethics Committee (chairperson Prof John J McNeil , on 30th April 2024, project number 253/24).

Results
Among 10,488 patients, marked differences in mortality were observed across frailty–severity phenotypes. Compared with patients with low frailty and high acute severity, those with high frailty but low acute severity had substantially lower ICU mortality (adjusted hazard ratio [HR] 0.21, 95% CI 0.11–0.39; P<0.001) and hospital mortality (HR 0.49, 95% CI 0.38–0.64; P<0.001). However, beyond 30 days after hospital discharge, this group had higher mortality (HR 1.14, 95% CI 1.03–1.26; P=0.009). Patients with both high frailty and high severity had the greatest long-term risk (HR 1.54, 95% CI 1.40–1.69; P<0.001), whereas those with low frailty and low severity had the most favourable survival (HR 0.76, 95% CI 0.69–0.85; P<0.001). Findings were consistent when SOFA was used to define acute illness severity. Patients with low acute severity also generally experienced shorter ICU and hospital stays, irrespective of frailty status.

Conclusion
Frailty and acute illness severity jointly define distinct, time-dependent risk profiles in very old surgical ICU patients. Acute physiological derangement appears to dominate early prognosis, whereas frailty becomes increasingly important for longer-term survival after discharge. Frailty should therefore not be interpreted as a stand-alone marker of prohibitive short-term risk. Combined assessment of frailty and acute severity may improve perioperative counselling, ICU triage, and identification of patients requiring targeted post-discharge support.

AP-09-1 (2026-0419)

Figure & Table

Figure & Table 1.

Table 1. Associations of frailty–severity phenotype, comorbidities, surgical factors, hospital characteristics, and geography with mortality

Variable	Unadjusted HR (95% CI)	p value	Adjusted HR (95% CI)	P value
ICU mortality				
High frailty + high APACHE III	1.497 (1.143–1.961)	0.003	1.403 (1.066–1.848)	0.016
High frailty + low APACHE III	0.177 (0.098–0.319)	<0.001	0.211 (0.114–0.391)	<0.001
Low frailty + low APACHE III	0.161 (0.080–0.322)	<0.001	0.197 (0.094–0.411)	<0.001
Age	0.985 (0.944-1.029)	0.506	0.983 (0.943-1.025)	0.432
Chronic cardiovascular disease	0.940 (0.705–1.255)	0.676	1.105 (0.808–1.512)	0.533
Chronic liver disease	1.500 (0.210–10.690)	0.686	1.952 (0.273–13.986)	0.505
Chronic kidney disease	0.774 (0.444–1.350)	0.367	0.670 (0.370–1.214)	0.187
Chronic respiratory disease	1.267 (0.867–1.850)	0.221	1.239 (0.836–1.836)	0.285
Elective surgery (vs emergency)	0.232 (0.172–0.313)	<0.001	0.428 (0.305–0.602)	<0.001
Metropolitan hospital (vs regional/rural)	1.135 (0.786–1.638)	0.499	1.029 (0.636–1.663)	0.908
Private hospital (vs regional/rural)	0.331 (0.222–0.494)	<0.001	0.631 (0.376–1.058)	0.081
Tertiary/teaching hospital (vs regional/rural)	1.723 (1.226–2.422)	0.002	1.489 (0.947–2.342)	0.085
Non-metropolitan residence (MMM 2–7 vs MMM 1)	0.863 (0.650–1.145)	0.306	0.900 (0.611–1.324)	0.591
Male sex (vs female)	1.104 (0.875–1.392)	0.404	1.109 (0.874–1.407)	0.393
Hospital mortality				
High frailty + high APACHE III	1.429 (1.207–1.691)	<0.001	1.382 (1.163–1.642)	<0.001
High frailty + low APACHE III	0.385 (0.300–0.494)	<0.001	0.494 (0.382–0.638)	<0.001
Low frailty + low APACHE III	0.216 (0.153–0.305)	<0.001	0.263 (0.184–0.378)	<0.001
Age	1.044 (1.020-1.069)	<0.001	1.036 (1.013-1.060)	0.002
Chronic cardiovascular disease	1.055 (0.895–1.242)	0.525	1.081 (0.906–1.290)	0.388
Chronic liver disease	1.748 (0.563–5.432)	0.334	1.994 (0.640–6.210)	0.234
Chronic kidney disease	1.313 (1.021–1.689)	0.034	1.129 (0.867–1.469)	0.367
Chronic respiratory disease	1.387 (1.107–1.738)	0.004	1.275 (1.010–1.609)	0.041
Elective surgery (vs emergency)	0.333 (0.287–0.386)	<0.001	0.563 (0.475–0.669)	<0.001
Metropolitan hospital (vs regional/rural)	0.898 (0.713–1.129)	0.356	0.835 (0.629–1.110)	0.214
Private hospital (vs regional/rural)	0.367 (0.295–0.456)	<0.001	0.577 (0.436–0.764)	<0.001
Tertiary/teaching hospital (vs regional/rural)	1.232 (0.994–1.527)	0.057	1.161 (0.886–1.520)	0.279
Non-metropolitan residence (MMM 2–7 vs MMM 1)	1.017 (0.856–1.207)	0.851	0.951 (0.764–1.184)	0.654
Male sex (vs female)	1.355 (1.183–1.552)	<0.001	1.313 (1.143–1.508)	<0.001
Post-discharge <30 days mortality				
High frailty + high APACHE III	1.571 (1.255–1.967)	<0.001	2.056 (1.565–2.701)	<0.001
High frailty + low APACHE III	0.759 (0.587–0.981)	0.035	1.142 (0.839–1.553)	0.398
Low frailty + low APACHE III	0.376 (0.273–0.518)	<0.001	0.549 (0.374–0.805)	0.002
Age	1.099 (1.071-1.129)	<0.001	1.093 (1.065-1.122)	<0.001
Chronic cardiovascular disease	0.740 (0.595–0.921)	0.007	0.856 (0.676–1.085)	0.200
Chronic liver disease	0.977 (0.137–6.948)	0.982	1.046 (0.147–7.454)	0.964
Chronic kidney disease	1.008 (0.702–1.448)	0.966	0.996 (0.674–1.473)	0.985
Chronic respiratory disease	1.085 (0.795–1.481)	0.606	1.161 (0.839–1.606)	0.369

ABSTRACT
Competition
Presentation
E-Poster

AP-09-1 (2026-0419)

Figure & Table

Variable	Unadjusted HR (95% CI)	p value	Adjusted HR (95% CI)	P value
Elective surgery (vs emergency)	0.391 (0.330–0.462)	<0.001	0.585 (0.469–0.730)	<0.001
Metropolitan hospital (vs regional/rural)	0.977 (0.747–1.277)	0.863	0.662 (0.454–0.964)	0.032
Private hospital (vs regional/rural)	0.315 (0.245–0.405)	<0.001	0.502 (0.351–0.720)	<0.001
Tertiary/teaching hospital (vs regional/rural)	1.018 (0.783–1.322)	0.895	0.720 (0.499–1.038)	0.079
Non-metropolitan residence (MMM 2–7 vs MMM 1)	1.088 (0.877–1.349)	0.445	0.855 (0.643–1.137)	0.281
Male sex (vs female)	1.062 (0.901–1.253)	0.473	1.085 (0.901–1.306)	0.388
Post-discharge >30 days mortality				
High frailty + high APACHE III	1.541 (1.402–1.693)	<0.001	1.538 (1.398–1.692)	<0.001
High frailty + low APACHE III	1.059 (0.962–1.166)	0.239	1.140 (1.034–1.257)	0.009
Low frailty + low APACHE III	0.712 (0.642–0.789)	<0.001	0.764 (0.689–0.848)	<0.001
Age	1.072 (1.061-1.084)	<0.001	1.071 (1.060-1.085)	<0.001
Chronic cardiovascular disease	1.156 (1.073–1.244)	<0.001	1.056 (0.977–1.141)	0.170
Chronic liver disease	1.064 (0.553–2.046)	0.853	0.902 (0.468–1.738)	0.759
Chronic kidney disease	1.441 (1.274–1.630)	<0.001	1.264 (1.113–1.435)	<0.001
Chronic respiratory disease	1.374 (1.229–1.536)	<0.001	1.234 (1.100–1.385)	<0.001
Elective surgery (vs emergency)	0.731 (0.686–0.780)	<0.001	0.842 (0.779–0.909)	<0.001
Metropolitan hospital (vs regional/rural)	0.994 (0.874–1.131)	0.932	0.981 (0.847–1.137)	0.801
Private hospital (vs regional/rural)	0.767 (0.690–0.854)	<0.001	0.932 (0.816–1.064)	0.294
Tertiary/teaching hospital (vs regional/rural)	0.964 (0.849–1.096)	0.579	0.992 (0.859–1.146)	0.914
Non-metropolitan residence (MMM 2–7 vs MMM 1)	1.030 (0.955–1.110)	0.450	1.010 (0.924–1.105)	0.822
Male sex (vs female)	1.279 (1.201–1.362)	<0.001	1.329 (1.247–1.416)	<0.001

Hazard ratios were estimated with Cox proportional hazards regression. Unadjusted models included each covariate individually. Adjusted models included frailty–severity phenotype, age, sex, comorbidities, surgical urgency, hospital type, and residential geography. The reference category for frailty–severity phenotype was low frailty with high APACHE III score. Post-discharge mortality analyses were restricted to patients who survived to hospital discharge, with follow-up split into fewer than 30 days and more than 30 days after discharge. Proportional hazards assumptions were assessed with Schoenfeld residuals and were not materially violated.

AP-09-2 (2026-0285)

Newly Diagnosed Postoperative Depression and Incident Dementia after Major Surgery: A Korean Nationwide Retrospective Cohort Study

Hyeong Kyeong Choi[1], Jeayoun Kim[2], Eun Jin Kwon[1], Jin Hee Ahn[1], Eun A Cho[1], Jae-Geum Shim[1], Eun Jung Oh[1*]

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Background

Depression is an established modifiable risk factor for dementia in general populations. Whether newly diagnosed postoperative depression is associated with subsequent incident dementia, and whether this association varies across patient subgroups, has rarely been evaluated in large surgical populations.

Methods

This nationwide, population-based retrospective cohort study used longitudinal data from the Korean National Health Insurance Service and included adults undergoing major cardiac or gastrointestinal surgery between 2002 and 2022, excluding those with depression or dementia in the preceding 5 years. Postoperative depression was defined as a new ICD-10 depressive disorder diagnosis with at least one antidepressant prescription within 1 year after surgery. Incident dementia was ascertained during postoperative years 1–6; a sensitivity analysis restricted ascertainment to years 3–6 to reduce bias from prodromal dementia present at surgery. After 1:3 propensity score matching on age, sex, and income, associations were estimated using Cox regression with hierarchical adjustment.

Results

Among 424,637 eligible surgical cohort, postoperative depression developed in 7,633 patients (1.8%). After propensity score matching, the analytic cohort comprised 30,532 patients: 7,633 with postoperative depression and 22,899 without. During follow-up, 786 incident dementia cases occurred. Postoperative depression was associated with incident dementia in the fully adjusted model (HR 1.59, 95% CI 1.38–1.85; P<0.001, Table 1). The association was stronger in patients aged <65 years (HR 2.88, 95% CI 1.81–4.58) than in those aged ≥65 years (HR 1.56, 95% CI 1.34–1.82; P for interaction=0.005) (Table 1). The association was consistent when dementia was ascertained during postoperative years 3 to 6, excluding the prodromal phase (Dementia 2: HR 1.57, 95% CI 1.29–1.92; P<0.001), and remained robust after excluding depression diagnosed within 90 days after surgery (HR 1.59, 95% CI 1.33–1.88; P<0.001) (Figure 1).

Conclusion

Newly diagnosed postoperative depression was associated with an increased risk of incident dementia, particularly among patients aged <65 years. These findings support prospective evaluation of postoperative depression as a potential indicator of long-term cognitive risk.

AP-09-2 (2026-0285)

Figure & Table

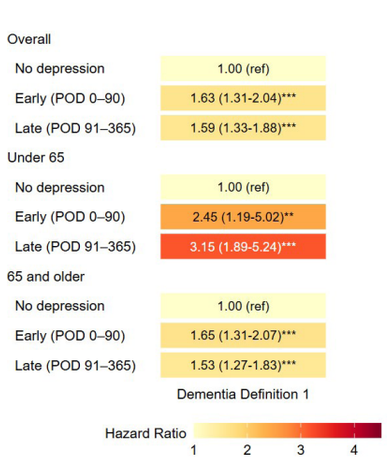
Figure & Table 1.

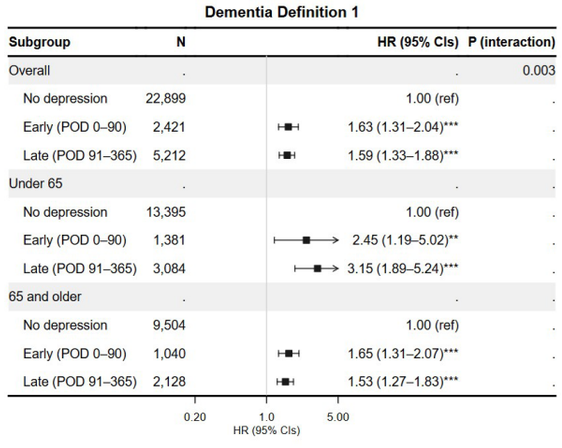
Table 1. Association between newly diagnosed postoperative depression and incident dementia, overall and by age group.

Outcome	No depression (n = 22,899)	Depression (n = 7,633)	Crude Model		Adjusted Model	
	Events / N	Events / N	HR (95% CI)	*p*-value	HR (95% CI)	*p*-value
Primary analysis						
Dementia 1 (Postop. 1 to 6 years)	503 / 22,899	283 / 7,633	1.79 (1.55-2.07)	<0.001	1.59 (1.38-1.85)	<0.001
Sensitivity analysis						
Dementia 2 (Postop. 3 to 6 years)	285 / 20,828	152 / 6,526	1.74 (1.43-2.11)	<0.001	1.57 (1.29-1.92)	<0.001
Subgroup analsys by Age (Dementia 1)						
Under 65 years	36 / 13,395	38 / 4,465	3.38 (2.14-5.33)	<0.001	2.88 (1.81-4.58)	<0.001
65 years and older	467 / 9,504	245 / 3,168	1.67 (1.43-1.95)	<0.001	1.56 (1.34-1.82)	<0.001

Adjusted for body mass index, disability type, Charlson comorbidity index, length of stay, and postoperative delirium. Age, sex, and income were balanced by 1:3 propensity score matching. Hazard ratios for the age subgroup analyses were estimated using the dementia 1 definition (dementia ascertained during postoperative years 1 to 6). HR, hazard ratio; CI, confidence interval.

Figure & Table 2.





AP-09-3 (2026-0241)

Effect of Remimazolam and Propofol on Postoperative Delirium in Elderly Patients Undergoing Hip or Knee Surgery

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Background

Postoperative delirium (POD) is associated with poor postoperative outcomes and delayed functional recovery. Remimazolam besylate (Byfavo®) is an ultra-short-acting benzodiazepine with efficacy and safety comparable to propofol. Although remimazolam provides favorable hemodynamic stability in elderly patients, evidence regarding its effects on POD and postoperative cognitive outcomes still remains controversial. This study aimed to evaluate POD after remimazolam or propofol based general anesthesia in elderly patients undergoing hip or knee surgery.

Methods

After IRB approval (SGPAIK 2022-03-002-002), written informed consent was obtained from all patients for this double blinded randomized controlled study. Total 77 patients aged over 65 undergoing general anesthesia were enrolled. Five patients were dropped out and 72 patients were analyzed (propofol group (group P) = 33, Remimazolam group (group R) = 39). Remimazolam was infused at 6 mg/kg/h until loss of consciousness, followed by 1 mg/kg/h for maintenance. The infusion rate was subsequently adjusted between 0.3 and 2 mg/kg/h according to the bispectral index and clinical condition. Propofol was administered using target-controlled infusion at an effect-site concentration of 1–5 μg/mL. One psychiatrist assessed all patients on the day before surgery with MMSE-KC, Confusion Assessment Method, and Delirium Rating Scale-98. POD was evaluated daily for 3 days postoperatively by a psychiatrist using DSM-V criteria. Cognitive and delirium assessments were repeated on postoperative day 3.

Results

The incidence of POD, the primary outcome, was not significantly different between the group P and group R (25.0% vs. 28.2%, respectively; P = 0.794). There were no significant differences between the two groups in preoperative demographics and perioperative parameters (dementia, preoperative delirium, years of education, and baseline Mini-Mental State Examination (MMSE)). Cognitive function and recovery outcomes (MMSE, Delirium Rating Scale–Revised-98 (DRS-R-98), and Quality of Recovery-15 (QoR-15)), assessed on postoperative day 3 were also comparable between the groups. The intraoperative phenylephrine requirement was significantly lower in the group R than in the group P (0 [0–145] μg vs. 200 [63–500] μg, respectively; P = 0.00002). Linear mixed-effects model analyses demonstrated no significant group-by-time interactions for MMSE, DRS-R-98, QoR-15, or numerical rating scale scores, indicating that the temporal trajectories of cognitive function, recovery quality, and pain were similar between the two groups.

Conclusion

In elderly patients, remimazolam was comparable to propofol with respect to postoperative delirium and early cognitive outcomes, while requiring less intraoperative phenylephrine.

AP-09-4 (2026-0420)

Clinical Frailty and Postoperative Recovery After Total Joint Arthroplasty in Nonagenarians and Centenarians, Binational Multicentre Cohort Study

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Background
Frailty is increasingly used for perioperative risk stratification, but its prognostic value in nonagenarians undergoing total joint arthroplasty remains uncertain. We examined the association between frailty, discharge destination, long-term mortality, postoperative complications, and length of stay in patients aged ≥90 years admitted to intensive care following total hip or knee arthroplasty.

Methods
We conducted a retrospective binational cohort study using the Australian and New Zealand Intensive Care Society Adult Patient Database, including patients aged ≥90 years admitted to ICU following total hip or knee arthroplasty between 2018 and 2024. The study was approved by the Alfred Hospital Human Research Ethics Committee (project 253/24), with informed consent waived because de-identified registry data were used. Frailty was assessed using the Clinical Frailty Scale (CFS) and categorised as lower (1–4) or higher (5–8). The primary outcome was non-home discharge among hospital survivors. Secondary outcomes included long-term mortality, ICU and hospital length of stay, delirium, acute renal failure, and ICU and hospital mortality. Multivariable regression adjusted for demographic characteristics, acute illness severity, comorbidities, and surgical urgency.

Results
Among 1,002 nonagenarians, 573 (57.2%) had higher frailty. Frail patients were less frequently discharged home (39.9% vs 53.3%) and experienced more delirium (8.7% vs 2.1%). Higher frailty independently increased the odds of non-home discharge (adjusted OR 1.54, 95% CI 1.18–2.01; P=0.002), including among patients admitted from home (OR 1.46, 95% CI 1.10–1.93; P=0.009). Frailty was associated with mortality within three years (adjusted HR 1.86, 95% CI 1.45–2.39; P<0.001), but not beyond three years (HR 1.32, 95% CI 0.84–2.08; P=0.224). Frailty was also associated with longer hospital stay (adjusted time ratio 1.12, 95% CI 1.03–1.22; P=0.009), but not ICU length of stay.

Conclusion
Frailty in nonagenarians undergoing hip or knee arthroplasty was associated with a longer and less direct recovery, including greater likelihood of non-home discharge, delirium, prolonged hospitalisation, and increased mortality within three years. The CFS may therefore be more useful for anticipating postoperative recovery and resource needs than for determining operative suitability in this population.

AP-09-4 (2026-0420)

Figure & Table

Figure & Table 1.

Table 1. Logistic regression for discharge outcome (non-home vs home)

Variable	Unadjusted OR (95% CI)	p value	Adjusted OR (95% CI)	p value
Frailty (5–8 vs 1–4)	1.65 (1.28–2.13)	<0.001	1.54 (1.18–2.01)	0.002
Age (per year)	1.01 (0.96–1.07)	0.711	0.99 (0.93–1.04)	0.595
Male sex (vs female)	0.85 (0.65–1.10)	0.218	0.85 (0.65–1.12)	0.243
APACHE III score (per unit)	1.02 (1.01–1.03)	0.001	1.01 (1.00–1.03)	0.048
SOFA score (per unit)	1.11 (1.04–1.19)	0.001	1.04 (0.95–1.14)	0.374
Chronic respiratory disease	1.07 (0.65–1.78)	0.789	1.03 (0.60–1.77)	0.917
Chronic cardiovascular disease	0.96 (0.71–1.29)	0.766	0.92 (0.66–1.28)	0.626
Chronic liver disease	0.22 (0.01–1.50)	0.177	0.28 (0.01–1.97)	0.262
Chronic renal disease	0.67 (0.39–1.16)	0.156	0.63 (0.35–1.11)	0.110
Elective surgery (vs non-elective)	0.62 (0.42–0.89)	0.012	0.74 (0.50–1.10)	0.145

Multivariable logistic regression adjusted for age, sex, APACHE III score, SOFA score, chronic comorbidities (respiratory, cardiovascular, liver, and renal disease), and surgical urgency. Frailty was categorised as Clinical Frailty Scale 1–4 vs 5–8, with 1–4 as the reference group. Odds ratios greater than 1 indicate higher odds of non home discharge.

ABSTRACT
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AP-09-4 (2026-0420)

Figure & Table

Figure & Table 2.

Table 2. Time split Cox regression for mortality

Variable	Unadjusted HR (95% CI)	p	Adjusted HR (95% CI)	p
<3 years				
Frailty (5–8 vs 1–4)	2.164 (1.700–2.760)	<0.001	1.860 (1.450–2.390)	<0.001
Age	1.150 (1.100–1.200)	<0.001	1.100 (1.060–1.150)	<0.001
Male sex	1.110 (0.888–1.400)	0.350	1.170 (0.925–1.480)	0.193
APACHE III score	1.030 (1.030–1.040)	<0.001	1.020 (1.010–1.030)	0.001
SOFA score	1.260 (1.200–1.320)	<0.001	1.090 (1.020–1.170)	0.017
Chronic respiratory disease	1.160 (0.768–1.740)	0.487	0.882 (0.573–1.360)	0.570
Chronic cardiovascular disease	1.340 (1.040–1.710)	0.022	1.120 (0.866–1.460)	0.377
Chronic liver disease	0.803 (0.200–3.230)	0.758	0.816 (0.202–3.300)	0.776
Chronic renal disease	1.890 (1.300–2.760)	0.001	1.210 (0.811–1.800)	0.355
Elective surgery	0.294 (0.231–0.375)	<0.001	0.443 (0.342–0.574)	<0.001
>3 years				
Frailty (5–8 vs 1–4)	1.250 (0.819–1.920)	0.297	1.320 (0.843–2.080)	0.224
Age	1.170 (1.060–1.290)	0.002	1.120 (1.010–1.250)	0.024
Male sex	1.970 (1.290–3.020)	0.002	1.790 (1.130–2.830)	0.013
APACHE III score	1.010 (0.988–1.030)	0.415	1.000 (0.978–1.030)	0.788
SOFA score	1.040 (0.922–1.180)	0.511	0.999 (0.855–1.170)	0.993
Chronic respiratory disease	0.749 (0.274–2.050)	0.573	0.764 (0.262–2.230)	0.622
Chronic cardiovascular disease	1.140 (0.668–1.940)	0.632	1.060 (0.589–1.900)	0.847
Chronic liver disease	0.000 (0.000–Inf)	0.992	0.000 (0.000–Inf)	0.992
Chronic renal disease	1.460 (0.593–3.620)	0.407	1.320 (0.509–3.410)	0.569
Elective surgery	0.542 (0.271–1.080)	0.083	0.654 (0.322–1.330)	0.241

Hazard ratios (HRs) were estimated using Cox proportional hazards models, with time split at 3 years to address non-proportional hazards. Adjusted models included age, sex, frailty (CFS 1–4 vs 5–8), APACHE III score, SOFA score, comorbidities, and elective surgery. Continuous variables were modelled per unit increase.
Proportional hazards assumptions were assessed using Schoenfeld residuals. Estimates for chronic liver disease in the >3-year model were unstable due to low event numbers and should be interpreted with caution.

AP-09-5 (2026-0486)

Computed Tomography-Derived Rectus Abdominis Muscle Measures Outperform Psoas Measures for Discriminating Hip Fracture Status in Older Adults

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Background
Hip fracture in older adults is associated with functional decline, mortality, and substantial socioeconomic burden. Bone mineral density alone does not fully explain fracture occurrence; sarcopenia and frailty may increase vulnerability through impaired balance and reduced protective responses. Opportunistic CT can assess muscle quantity and attenuation-based quality without additional imaging. The psoas is convenient but may not reflect generalized muscle loss or myosteatosis. We compared CT-derived psoas and rectus abdominis indices for discriminating hip fracture status in adults aged 65 years or older.

Methods
This single-center retrospective case-control study included 600 adults aged 65 years or older (302 controls and 298 surgically treated hip-fracture patients) imaged during 2020-2025. CT obtained within 3 days after fracture was analyzed. Psoas and rectus abdominis area and attenuation were measured at L4-L5 using mean bilateral values. Height-normalized area yielded PMI and RMI; IMAC was muscle attenuation divided by subcutaneous fat attenuation. Logistic models adjusted for sex, age, body mass index, diabetes, and hypertension. ROC AUCs were compared using DeLong tests.

Results
Patients with hip fracture were older, more often women, and had lower body mass index. PMI (2.83 ± 0.77 vs. 3.61 ± 0.85) and RMI (1.19 ± 0.42 vs. 2.06 ± 0.57) were lower in the fracture group (both P < 0.001). Rectus IMAC was higher, whereas psoas IMAC did not differ. In their respective adjusted models, PMI (odds ratio [OR], 0.56; 95% confidence interval [CI], 0.38-0.82; P = 0.003) and RMI (OR, 0.05; 95% CI, 0.03-0.11; P < 0.001) were inversely associated with fracture status. When PMI and RMI were entered together, only RMI remained significant. RMI had a higher AUC than PMI (0.898 vs. 0.755; P < 0.001), and rectus IMAC had a higher AUC than psoas IMAC (0.641 vs. 0.510; P < 0.001). The adjusted rectus and fully combined models both had an AUC of 0.951, showing no apparent gain from adding psoas measures.

Conclusion
RMI discriminated hip fracture status better than PMI and remained independently associated when both were included. Rectus IMAC outperformed psoas IMAC but was not independently associated after adjustment for RMI and covariates, indicating limited incremental value. Adding psoas measures did not improve AUC. Rectus abdominis muscle quantity at L4-L5 may therefore be a more informative CT marker. Because this single-center retrospective study used post-fracture CT, causality and prospective prediction cannot be inferred. Prospective external validation with standardized CT protocols is required.

Figure & Table

Figure & Table 1.

Table 4. Discriminative performance of muscle-based models for hip fracture status

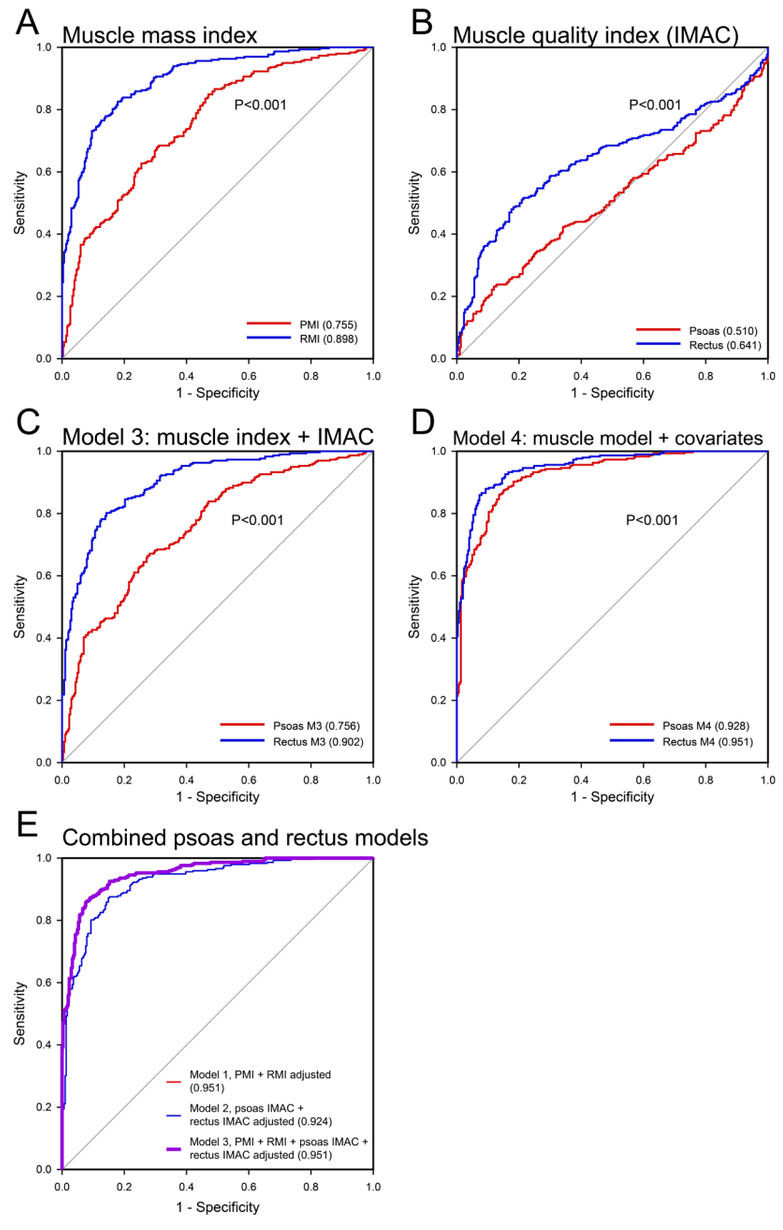
Muscle group	Model	Logit cutoff	Probability cutoff	AUC (95% CI)	Accuracy	Sensitivity	Specificity
Psoas	Model 1	-0.418	0.397	0.755 (0.716-0.793)	0.688	0.849	0.530
	Model 2	-0.014	0.497	0.510 (0.464-0.557)	0.558	0.232	0.881
	Model 3	0.117	0.529	0.756 (0.718-0.794)	0.695	0.671	0.719
	Model 4	-0.228	0.443	0.928 (0.908-0.948)	0.862	0.876	0.848
Rectus	Model 1	0.122	0.531	0.898 (0.873-0.922)	0.823	0.826	0.821
	Model 2	0.124	0.531	0.641 (0.595-0.687)	0.653	0.487	0.818
	Model 3	0.232	0.558	0.902 (0.878-0.926)	0.830	0.802	0.858
	Model 4	0.153	0.538	0.951 (0.935-0.967)	0.893	0.879	0.907
Psoas + rectus	Model 1	0.092	0.523	0.951 (0.935-0.967)	0.892	0.883	0.901
	Model 2	-0.227	0.444	0.924 (0.904-0.945)	0.862	0.876	0.848
	Model 3	0.227	0.557	0.951 (0.935-0.967)	0.892	0.872	0.911

Abbreviations: AUC, area under the curve; CI, confidence interval. Psoas and rectus Model 4 and all combined models were adjusted for sex, age, BMI, diabetes mellitus, and hypertension.

AP-09-5 (2026-0486)

Figure & Table

Figure & Table 2.



AP-09-8 (2026-0433)

Factors Influencing Caregivers' Intention to Use a LINE-Integrated Web Application for Postoperative Cognitive Dysfunction Care

Arunotai Siriussawakul[1], Thanwalai Pisalayon[2], Thitiya Ngowchieng[1*], Pattarapong Maneechot[1], Yanist Laopakdee[2], Chanya Mekasuwandumrong[3], Arisa Thurakij[3]

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3. Medical Student, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background

Postoperative cognitive dysfunction (POCD) is frequently underrecognized in older surgical patients, and continuity of cognitive follow-up remains limited. POCD Clinic Online is a LINE-integrated web application providing cognitive-risk screening, tailored educational videos, automated follow-up, and remote consultation. Following demonstration of technical feasibility in older adults, we aimed to identify factors influencing caregivers' intention to use the platform.

Methods

This quantitative survey included 350 caregivers of older surgical patients. Participants viewed a guided video demonstration, completed a 10-minute hands-on trial of POCD Clinic Online, and then completed an online questionnaire. The hypothesized model examined social influence, performance expectancy, trust, price, perceived usefulness, and perceived ease of use as determinants of intention to use, as well as the relationship between perceived ease of use and perceived usefulness. Confirmatory factor analysis (CFA) evaluated the measurement model, and structural equation modeling (SEM) with maximum-likelihood estimation tested the hypothesized paths.

Results

Participants were predominantly female (74.3%); 68.3% were aged 35–64 years. All constructs met recommended thresholds for composite reliability and convergent validity (CR=0.858–0.954; AVE=0.551–0.839). The model demonstrated an adequate fit (χ^2/df=3.145, CFI=0.903, TLI=0.892, RMSEA=0.078). Intention to use was significantly associated with perceived usefulness (β=0.417, p<0.001), price (β=0.191, p<0.001), perceived ease of use (β=0.188, p=0.007), and performance expectancy (β=0.160, p=0.031). Perceived ease of use was significantly associated with perceived usefulness (β=0.682, p<0.001). Social influence (β=0.048, p=0.459) and trust (β=−0.070, p=0.309) were not significantly associated with intention to use.

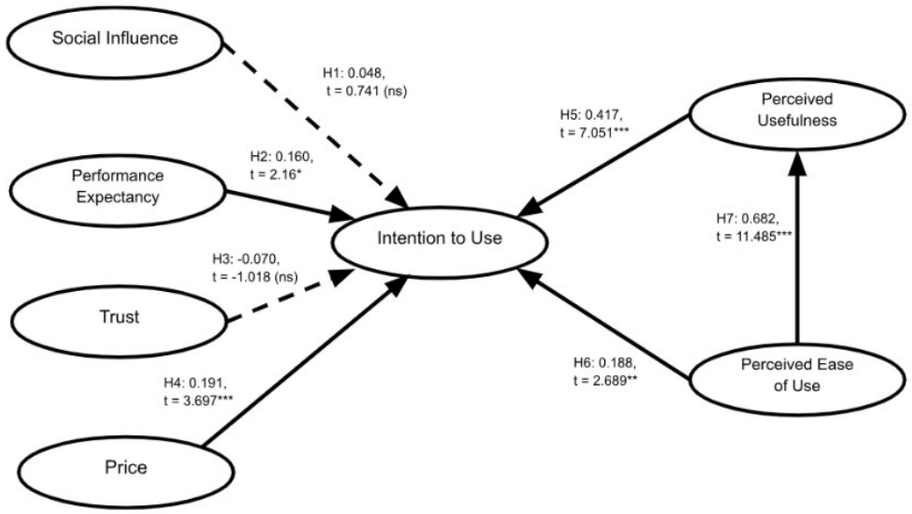
Conclusion

The findings suggest that caregivers' intention is more closely associated with practical value and user experience than with external endorsement. Implementation may therefore focus on making benefits apparent, functions effortless to navigate, and costs reasonable. Technical feasibility brings the clinic online; perceived value brings caregivers to it.

Figure & Table

Figure & Table 1.

Figure 1. Structural model of factors influencing caregivers' intention to use POCD Clinic Online. Solid arrows indicate significant paths; dashed arrows indicate nonsignificant paths.



Presentation

Abstract Presentation 10

Date / Time	Nov 5 (Thu), 13:30-15:00
Room	Room F *(Hyatt Regency)*
Language	English
Chair(s)	Eunsoo Kim *(Pusan National University, Republic of Korea)* Seong-Soo Choi *(University of Ulsan, Republic of Korea)*
AP-10-2 2026-0373	Opioid-Free Multistep Opiranserin Infusion Versus Fentanyl PCA after Breast-Conserving or Minimally Invasive Gynecologic Surgery Jiho Park[1*], Juyeon Kim[1] 1. Department of Anesthesiology and Pain Medicine, Chungnam National University Sejong Hospital, Republic of Korea
AP-10-3 2026-0175	Evaluation of Singapore's First Community-Based Pain Management Program Lydia Li[1,2,3*] 1. Anaesthesia, Changi General Hospital, Singapore Health Services, Singapore 2. Yong Loo Lin School of Medicine, National University of Singapore 3. Duke NUS Medical School, Singapore
AP-10-5 2026-0443	Association between Total Intraoperative Opioid and Rescue Analgesia Requirements in the Recovery Room with Postoperative PCA Opioid Consumption and Patient Satisfaction Athirah Ab Rashid[1], Ahmad Fariz Elias[1*] 1. Anaesthesiology and Critical Care, University Malaya Medical Centre, Malaysia
AP-10-6 2026-0556	Resolution of COVID Induced Autonomic Dysfunction Following Bilateral Stellate Ganglion Blocks Thomas Oh[1*], Jimmy Li[2], Harryison Yu[2], Jason Xin[3] 1. Anesthesiology, St. Louis University Hospital, USA 2. Psychiatry, St. Louis University Hospital, USA 3. Radiology, St. Louis University Hospital, USA
AP-10-7 2026-0406	Bilateral External Oblique Intercostal Plane Catheters for Rescue Analgesia Following Open Abdominal Aortic Aneurysm Repair through a Supraumbilical Transverse Incision: A Case Report Onn Kee Cheah[1*], Iskandar Khalid[1], Soon Heng Lee[1], Jian Hai Chai[1] 1. Anaesthesiology and Critical Care, The National University of Malaysia, Malaysia
AP-10-8 2026-0608	Beyond the Neuraxis- Lumbar Plexus Block for THR Keerthana Jayabalan[1], Sumathi Shankar[1], Gyanveer Singh[1*] 1. Anesthesia, Apollo Hospital Enterprises Limited, India

Opioid-Free Multistep Opiranserin Infusion Versus Fentanyl PCA after Breast-Conserving or Minimally Invasive Gynecologic Surgery

Jiho Park[1*], Juyeon Kim[1]

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Background
Women having breast or gynecologic surgery face high postoperative nausea and vomiting (PONV) risk that often prompts discontinuation of opioid patient-controlled analgesia (PCA); anticipated opioid use is itself an Apfel risk factor. Opiranserin (Unafra), a recently approved non-opioid analgesic, has been evaluated only as an adjunct to opioid PCA, never as a replacement.

Methods
In this retrospective single-center cohort, 154 women having breast-conserving or minimally invasive gynecologic surgery were grouped by regimen. The opiranserin group (n = 77) received a multistep infusion via a PCA pump with demand boluses disabled and no opioid in the reservoir; the fentanyl group (n = 77), demand-bolus PCA. The 10-h opiranserin infusion ended about 9 h after surgery, whereas fentanyl PCA ran throughout; rescue opioids stayed available to both. The primary outcome was resting numeric rating scale (NRS, 0-10) at 24 h, adjusted by covariance analysis and propensity weighting and referenced against a minimal clinically important difference (MCID) of 1 point; secondary outcomes were PACU and 6-h NRS, PONV, rescue medication, and early discontinuation.

Results
Resting NRS was indistinguishable during the infusion (PACU P = 0.986; 6 h P = 0.744), diverging only at 24 h, when the opiranserin group had been off study drug for roughly 15 h (Figure). The adjusted 24-h difference was +0.51 (95% CI +0.02 to +1.00), within the MCID and consistent across models, and nonsignificant after adjusting for non-opioid adjuncts (+0.49, -0.26 to +1.23). PONV, early discontinuation, and rescue analgesia were similar (Table). Rescue opioid was used by one fentanyl-group patient and none receiving opiranserin, whose postoperative opioid exposure was zero.

Conclusion
Postoperative opioid exposure could be removed entirely rather than reduced, at the cost of resting pain that stayed within the MCID of fentanyl PCA although coverage spanned under half the observation window. No PONV benefit followed, suggesting little gain from removing one Apfel risk factor where prophylaxis is already effective; the value lies in the avoided exposure itself. Prospective confirmation with standardized adjuncts and assessment inside the coverage window is needed.

AP-10-2 (2026-0373)

Figure & Table

Figure & Table 1.

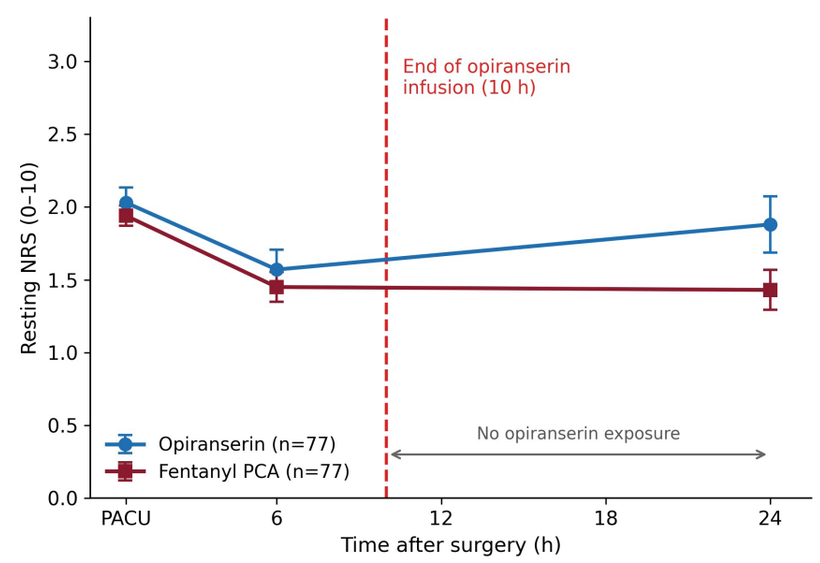


Figure & Table 2.

Outcome	Opiranserin (n = 77)	Fentanyl (n = 77)	P
Resting pain (NRS 0–10)			
PACU	2.0 ± 0.9	1.9 ± 0.6	0.986
6 h	1.6 ± 1.2	1.4 ± 0.9	0.744
24 h (primary outcome)	1.9 ± 1.7	1.4 ± 1.2	0.248
NRS ≥ 4 at 24 h, n (%)	15 (19.5)	6 (7.8)	0.058
Postoperative nausea and vomiting			
PONV, n (%)	7 (9.1)	8 (10.4)	1.000
Any rescue antiemetic, n (%)	2 (2.6)	2 (2.6)	1.000
Rescue analgesia			
Any rescue analgesic, n (%)	20 (26.0)	13 (16.9)	0.238
Ketorolac, n (%)	18 (23.4)	11 (14.3)	0.216
Opioid, n (%)	0 (0.0)	1 (1.3)	1.000
Patient-controlled analgesia			
Discontinued early, n (%)	8 (10.4)	11 (14.3)	0.625
Due to an adverse effect, n (%)	8 (10.4)	5 (6.5)	0.564

ABSTRACT
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Evaluation of Singapore's First Community-Based Pain Management Program

Lydia Li[1,2,3*]

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2. Yong Loo Lin School of Medicine, National University of Singapore
3. Duke NUS Medical School, Singapore

Background

Chronic pain is a disabling condition with far-reaching undesirable consequences. Our current model of care in Singapore is tertiary-based with poor access to quality pain care in the community. We established Singapore's first community-based pain management program, comprising nurse-led home visits with access to pain specialist teleconsultations. This study evaluated our program outcomes.

Methods

This was a prospective longitudinal observational study evaluating the effectiveness of a nurse-led community pain management program delivered in the community. Twenty-nine adults with chronic pain (frail elderly cohort with mean age of 80.9 years; mean clinical frailty scale score 5.2) were enrolled from a tertiary hospital pain clinic in Singapore from January 2024 to November 2025. Patients with drug-seeking behaviour were excluded. Structured nurse-led home visits were delivered to this cohort with support from pharmacists, physiotherapists and well-being coordinators. Interventions include reinforcement of personalised pain self-management education, medication management, physiotherapy reinforcement and social prescribing. Outcome measures were assessed at baseline, Week 2, Month 3, and Month 6.

Results

Significant improvements were observed across all Brief Pain Inventory domains including pain severity, activity and sleep interference. Pain Self-Efficacy Questionnaire scores increased significantly, indicating significant improved confidence in managing daily activities. Psychological distress (Patient Health Questionnaire-4) decreased reaching significance at Months 3 and 6. Health-related quality of life, measured by EQ-5D index scores and visual analogue scale scores, improved significantly from Week 2 onwards (all $p < 0.001$). Medication adherence remained high. Emergency department visits and inpatient admissions remained low throughout follow-up.

Conclusion

Our community-based pain management program was associated with improved pain control, function, self-efficacy, psychological well-being and quality of life. Larger controlled studies are needed to confirm effectiveness, sustainability and cost-effectiveness.

AP-10-3 (2026-0175)

Figure & Table

Figure & Table 1.

Table 1. Baseline Characteristics of Study Participants

Variable	Category / Measure	N	% / Mean ± SD	Min – Max
Age (years)	–	29	80.9 ± 8.4	62 – 96
Gender	Male	9	31%	–
	Female	20	69%	–
Race	Chinese	26	90%	–
	Malay	1	3%	–
	Indian	2	7%	–
Comorbidities	<3	2	7%	–
	3–5	9	31%	–
	>5	18	62%	–
Pain Diagnosis	Spine only	12	41%	–
	Multiple sites	10	34%	–
	Non-spine only	7	24%	–
CFS (frailty score)	–	29	5.2 ± 1.5	2 – 8
ED Visits (past period)	No Visits	21	72%	–
	1 Visit	6	21%	–
	2 Visits	1	3%	–
	3 Visits	1	3%	–
Inpatient Visits	No Visits	25	86%	–
	1 Visit	4	14%	–

Figure & Table 2.

Longitudinal Changes in PSEQ Outcomes

PSEQ Domain	Timepoint	Adjusted Mean Score (SE)	Mean Change from Baseline (β Coefficient)	95% CI for Change	P-value
PSEQ Total Score	Baseline	4.38 (0.62)	Reference	–	–
	Week 2	7.17 (0.62)	2.79	1.65 to 3.94	**<0.001**
	Month 3	7.51 (0.64)	3.13	1.94 to 4.32	**<0.001**
	Month 6	8.66 (0.65)	4.28	3.07 to 5.49	**<0.001**
Q1. Confidence in doing some form of work despite the pain	Baseline	2.10 (0.33)	Reference	–	–
	Week 2	3.45 (0.33)	1.34	0.70 to 1.99	**<0.001**
	Month 3	3.59 (0.34)	1.49	0.82 to 2.16	**<0.001**
	Month 6	4.32 (0.35)	2.22	1.54 to 2.90	**<0.001**
Q2. Live a normal lifestyle despite the pain	Baseline	2.28 (0.31)	Reference	–	–
	Week 2	3.72 (0.31)	1.45	0.87 to 2.03	**<0.001**
	Month 3	3.93 (0.32)	1.65	1.05 to 2.26	**<0.001**
	Month 6	4.35 (0.32)	2.07	1.46 to 2.68	**<0.001**

Significant improvements in pain self-efficacy were observed throughout the 6-month programme. Largest improvements were consistently observed at Month 6, with all changes from baseline reaching statistical significance (all $p < 0.001$).

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AP-10-5 (2026-0443)

Association between Total Intraoperative Opioid and Rescue Analgesia Requirements in the Recovery Room with Postoperative PCA Opioid Consumption and Patient Satisfaction

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Background

Early perioperative opioid requirement may reflect the intensity of surgical nociception and individual analgesic need, but its relationship with subsequent patient controlled analgesia (PCA) consumption and satisfaction is not clearly established.

Methods

A prospective observational cohort study was conducted among adult patients undergoing elective surgery under general anaesthesia with planned postoperative PCA at the University of Malaya Medical Centre. Opioid doses were converted to intravenous morphine equivalents and analysed in absolute and weight normalised units. Spearman correlation, Mann Whitney U tests, receiver operating characteristic analysis and an exploratory multiple linear regression were performed. Missing observations were left as missing and available cases were analysed without deleting participant records.

Results

Fifty five participants were included. Weight normalised intraoperative opioid exposure was positively correlated with 24 hour PCA opioid consumption (Spearman's rho = 0.354, p = 0.009), as was combined intraoperative and Recovery Room opioid exposure (rho = 0.366, p = 0.007). Recovery Room rescue opioid dose alone was not significantly correlated with PCA consumption (rho = 0.142, p = 0.311). Participants requiring Recovery Room rescue opioid reported lower satisfaction than those who did not, with median scores of 7.0 and 8.0, respectively (p = 0.027). Recovery Room pain scores were not significantly associated with PCA consumption or satisfaction. ROC discrimination was limited, with AUC values from 0.576 to 0.608, and the exploratory adjusted regression model was not statistically significant.

Conclusion

Greater weight normalised intraoperative and combined early opioid exposure were associated with higher subsequent PCA opioid consumption at the group level. However, early opioid exposure did not reliably predict high PCA use for individual patients. The need for Recovery Room rescue opioid was associated with slightly lower satisfaction and may identify patients who warrant closer postoperative pain review.

AP-10-5 (2026-0443)

Figure & Table

Figure & Table 1.

Table 4.1. Demographic, surgical and anaesthetic characteristics of study participants

Characteristic		Overall (N = 55)
Age, years		58 (40–72)
Sex		
	Male	20 (36.4)
Female		35 (63.6)
Weight, kg		62 (54–70)
ASA physical status		
	ASA I	6 (10.9)
	ASA II	49 (89.1)
	ASA III	0 (0.0)
Surgical specialty		
	Ear, nose and throat	1 (1.8)
	Obstetrics and gynaecology	12 (21.8)
	Orthopaedics	13 (23.6)
	General surgery	16 (29.1)
	Other specialties	13 (23.6)
	Duration of surgery, minutes	180 (112–300)
Anaesthesia technique		
	General anaesthesia only	47 (85.5)
	General anaesthesia with neuraxial adjunct	2 (3.6)
	General anaesthesia with other adjunct	6 (10.9)
Intraoperative adjuncts used		
	Paracetamol	53 (96.4)
	NSAID or COX-2 inhibitor	23 (41.8)
	Ketamine	8 (14.5)
	Dexmedetomidine	4 (7.3)
	Magnesium sulphate	25 (45.5)
	Gabapentinoid	1 (1.8)
	Local infiltration by surgeon	18 (32.7)
Total intraoperative opioid, IV morphine equivalent, mg		5.0 (4.0–5.0)
Total intraoperative opioid, IV morphine equivalent, mg/kg		0.09 ± 0.03
Duration of recovery room stay, minutes		66.6 ± 25.2
PCA opioid		
	Morphine	48 (88.9)
	Fentanyl	6 (11.1)
	PCA bolus dose	Morphine: 1.0 (0.5–1.0) mg Fentanyl: 10 (5–10) μg
	PCA lockout interval, minutes	5 (5–5)
	Background infusion used	0 (0.0)

Data are presented as n (%), mean ± SD, or median (IQR), according to variable type and distribution. Percentages for intraoperative adjuncts may exceed 100% because more than one adjunct may be recorded. Available-case denominators were used where data were missing.

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AP-10-5 (2026-0443)

Figure & Table

Figure & Table 1.

Table 4.3. Association of intraoperative and recovery room opioid exposure with 24-hour PCA opioid consumption

Predictor	Unit	Correlation coefficient[1]	95% CI	p value
Primary weight-normalised analysis				
Total intraoperative opioid	mg/kg IV morphine equivalent	0.354	0.085 to 0.576	0.009
Total recovery room rescue opioid[2]	mg/kg IV morphine equivalent	0.142	-0.142 to 0.404	0.311
Combined early opioid exposure[3]	mg/kg IV morphine equivalent	0.366	0.098 to 0.585	0.007
Sensitivity analysis using absolute dose				
Total intraoperative opioid	mg IV morphine equivalent	0.253	-0.027 to 0.496	0.067
Total recovery room rescue opioid[2]	mg IV morphine equivalent	0.161	-0.122 to 0.420	0.249
Combined early opioid exposure[3]	mg IV morphine equivalent	0.274	-0.004 to 0.513	0.047

Total opioid delivered by PCA during the first 24 hours, expressed in the same dose scale as the predictor. [1]Spearman's ρ is reported because the 24-hour PCA opioid consumption outcomes were not normally distributed. [2]Participants who did not receive a rescue opioid were coded as 0 for the dose analysis. [3]Combined early opioid exposure is the sum of intraoperative opioid and recovery room rescue opioid.

Table 4.4. Comparison of patient satisfaction according to the requirement for recovery room rescue opioid

Outcome	No rescue opioid	Rescue opioid	Difference or estimate	95% CI	Effect size	p value
APS-POQ-R Item 10 satisfaction score	8.0 (7.0–9.0)	7.0 (6.0–8.0)	1.0	0.0 to 2.0	r = 0.30	0.027
NRS pain score at 24 hours[1]	1.5 (1.0–2.0)	2.0 (1.75–2.0)	0.0	-1.0 to 0.0	r = 0.29	0.030

Values are median (IQR). Between-group estimates are Hodges–Lehmann median differences (no rescue opioid minus rescue opioid) with 95% CIs. Mann–Whitney U tests were used. Effect size r was calculated as $|Z|/\sqrt{N}$.

AP-10-6 (2026-0556)

Resolution of COVID Induced Autonomic Dysfunction Following Bilateral Stellate Ganglion Blocks

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Introduction

Post-acute sequelae of SARS-CoV-2 infection (PASC) has been increasingly linked to recovered COVID patients, however, the literature on pediatric patients has been sparse. While treatment remains largely supportive and symptomatic, stellate ganglion block (SGB) has emerged as a novel intervention with the potential to modulate sympathetic overactivity (1, 2, 3). We present the case of an adolescent female with disabling post-COVID dysautonomia who experienced significant and durable symptom relief after undergoing bilateral SGB.

Case

Informed consent was obtained, and this report is exempt from IRB review per Saint Louis University policy. An eighteen-year-old female developed persistent symptoms including postural tachycardia, exercise intolerance, chronic fatigue, brain fog, and sleep disturbance following a mild COVID-19 infection when she was thirteen. She underwent extensive workup including a tilt-table test and sleep studies, both of which were unrevealing. Despite treatment trials with nortriptyline, venlafaxine, Adderall, Concerta, steroids, and compression garments, her symptoms persisted. Given her refractory status, she was referred for bilateral SGB. In 2025, the patient received a right-sided SGB followed by a left-sided SGB the next day. Both blocks were performed under ultrasound guidance at the C6 level using bupivacaine with adjunctive dexamethasone. Following the bilateral SGBs, the patient reported complete resolution of her cognitive dysfunction, improved ability to tolerate physical activity, and a significant decrease in the frequency and severity of tachycardia episodes. Post-exertional fatigue, which previously necessitated days of bed rest, was significantly reduced in duration and severity. She also noted improvements in school performance, work productivity, and a reduction in chronic headaches. These improvements were sustained at follow-up.

Conclusion

This case highlights the potential role of SGB in treating persistent autonomic dysfunction in the post-COVID pediatric population. Adolescents are increasingly affected by similar dysautonomic symptoms with limited therapeutic options. The mechanism of SGB likely involves modulation of the cervical sympathetic chain, reducing norepinephrine spillover and resetting autonomic tone (4,5). The robust improvement in cognitive function and functional status in this case suggests that SGB may serve as a viable interventional option.

Bilateral External Oblique Intercostal Plane Catheters for Rescue Analgesia Following Open Abdominal Aortic Aneurysm Repair through a Supraumbilical Transverse Incision: A Case Report

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Introduction

Open repair of an infrarenal abdominal aortic aneurysm (AAA) is commonly performed through a midline laparotomy, although transverse laparotomy is an established alternative.1 A supraumbilical transverse incision extends across the upper anterior abdominal wall bilaterally, and may result in severe postoperative pain, potentially compromising pulmonary function and delaying recovery.2,3 Thoracic epidural analgesia is an established technique for open AAA repair but may be unsuitable when perioperative antithrombotic therapy or hemodynamic concerns complicate neuraxial management.2-4 The external oblique intercostal (EOI) plane block is an emerging fascial plane technique which targets the thoracoabdominal nerves supplying the anterolateral abdominal wall.5,6,7 We report the use of bilateral EOI plane catheters used as rescue analgesia following open AAA repair through this incision.

Case

A 78-year-old male with ASA physical status class IV, stage 4 chronic kidney disease and severe ischaemic heart disease following coronary artery bypass grafting underwent elective open infrarenal AAA repair via a supraumbilical transverse incision under general anaesthesia. Following extubation on postoperative day 1, the patient experienced severe, asymmetrical pain localised along the incision, predominantly in the left, despite parenteral opioid analgesia. Ultrasound-guided bilateral EOI plane catheters were placed and loaded differentially with 0.2% ropivacaine (35 mL on the left; 15 mL on the right), resulting in immediate bilateral relief of incisional pain. A continuous infusion of 0.2% ropivacaine at 5 mL/h was maintained through the left catheter, while the right catheter was reserved for intermittent rescue boluses. The patient maintained satisfactory analgesia with minimal systemic opioid requirements, without haemodynamic instability or observed block-related complications.

Conclusion

Bilateral EOI plane catheters provided effective, targeted, and safe somatic analgesia for the supraumbilical transverse incision used in this open AAA repair. This case illustrates the value of matching a fascial plane block to the location and orientation of the surgical incision, including differential catheter dosing for asymmetrical pain. Bilateral EOI plane catheters may be considered as part of a multimodal analgesia regimen when this surgical approach is used and neuraxial analgesia is unsuitable.

Figure & Table

Figure & Table 1.



Open AAA via Supraumbilical Transverse Incision

Figure & Table 2.



Bilateral EOI Plane Catheters for Rescue Analgesia Post AAA

AP-10-8 (2026-0608)

Beyond the Neuraxis- Lumbar Plexus Block for THR

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Introduction

Ankylosing spondylitis can present significant challenges to anesthesiologists because of restricted spinal mobility, altered vertebral anatomy, and potential difficulty with neuraxial anesthesia and airway management. In elderly patients with associated cardiac dysfunction, avoidance of significant hemodynamic fluctuations is particularly important. Lumbar plexus block may provide an alternative regional anesthetic technique for hip surgery when conventional neuraxial anesthesia is technically difficult or undesirable. We report a case of total hip replacement (THR) performed under lumbar plexus block in a 75-year-old patient with ankylosing spondylitis and reduced left ventricular ejection fraction.

Case

75 -year- old elderly patient was scheduled for elective total hip replacement .The patient was a known case of ankylosing spondylitis with marked restriction of spinal and cervical movements. Preoperative cardiovascular evaluation revealed an ejection fraction (EF) of 42%, suggestive of mildly reduced left ventricular systolic function. Routine hematological and biochemical investigations were acceptable for surgery.

In view of advanced age, ankylosing spondylitis with anticipated technical difficulty for conventional neuraxial anesthesia, and reduced cardiac reserve, a regional anesthesia technique was planned. After obtaining informed consent, standard monitoring including ECG, non-invasive blood pressure and pulse oximetry was instituted and intravenous access was secured.

The patient was positioned carefully with adequate padding to avoid excessive manipulation of the rigid spine. Under PNS guidance, a lumbar plexus block was performed and an indwelling catheter was placed through which 30 ml of local anesthetic agents 1% Lignocaine and 0.25 % Bupivacaine given over 3 mins.Adequate sensory and motor blockade was achieved. Supplemental oxygen and carefully titrated sedation were provided as required

Total hip replacement was subsequently performed under lumbar plexus block. Hemodynamic parameters remained stable throughout the procedure, with no significant hypotension, arrhythmia, respiratory compromise, or features of local anesthetic systemic toxicity.

Postoperatively, the patient was transferred to the recovery area in a stable condition. Pain was adequately controlled with 0.15% ropivacaine infusion@ 6 to 8 ml/hr. No immediate neurological, respiratory, or cardiovascular complications were noted. The patient recovered uneventfully and was mobilized.

Conclusion

Lumbar plexus block can be a useful regional anesthesia option for total hip replacement in selected elderly patients with ankylosing spondylitis, particularly when conventional neuraxial anesthesia may be technically challenging. In a patient with reduced cardiac reserve (EF 42%), this approach may help facilitate hemodynamic stability while providing effective surgical anesthesia and postoperative analgesia.

Presentation

Abstract Presentation 11

Date / Time	Nov 5 (Thu), 15:30-17:00
Room	Room B *(Paradise City)*
Language	English
Chair(s)	Chahyun Oh *(Chungnam National University, Republic of Korea)* Hee Young Kim *(Pusan National University, Republic of Korea)*

AP-11-1
2026-0257

Association between Postoperative Hemoglobin and Acute Kidney Disease after Valvular Heart Surgery: A Retrospective Cohort Study

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AP-11-2
2026-0411

Comparison of Ondansetron and Dexamethasone Combination Versus Ondansetron Alone for Prevention of Postoperative Nausea and Vomiting in Cardiac Surgery: An Interim Analysis of a Randomized Controlled Trial

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AP-11-3
2026-0098

Milrinone Improves Right Ventricular Longitudinal Strain and Ventriculo-Arterial Coupling During Cardiac Surgery: A Prospective Observational Study

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AP-11-4
2026-0025

Autonomic Vulnerability Amplifies Hypotension-Related Myocardial Injury After Noncardiac Surgery in Older Adults

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AP-11-5
2026-0095

Early Prediction Study of Postoperative Coagulation Status Using TEG6 10-Minute Markers in Cardiac Surgery

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AP-11-6
2026-0592

Targeted Prelocation vs Real-Time Ultrasound Guidance for Internal Jugular Vein Catheterization by Anesthesiology Residents: A Randomized Controlled Trial

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AP-11-7
2026-0151

Hydrogen Peroxide-Induced Venous Air Embolism in a Patient with Brugada Syndrome: An Under-recognized Perioperative Risk

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AP-11-8
2026-0074

Unmasking Dynamic LVOT Obstruction in a Trauma Patient with Intra-Operative Haemodynamic Instability

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Association between Postoperative Hemoglobin and Acute Kidney Disease after Valvular Heart Surgery: A Retrospective Cohort Study

Jin Sun Cho[1], Young Lan Kwak[1*], Soo Yeon Kim[1]

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Background

Postoperative anemia is common after cardiac surgery and associated with adverse renal outcomes. However, the prognostic significance of postoperative hemoglobin (Hb), particularly after AKI ascertainment, for subsequent kidney recovery and disease progression remains unknown. Because acute kidney disease (AKD) represents the transitional stage between AKI and chronic kidney disease (CKD), we investigated the associations of postoperative Hb before and after AKI ascertainment with AKD.

Methods

We retrospectively analyzed 4,230 patients undergoing valvular heart surgery, classified into four groups by KDIGO-defined AKI and AKD status: No AKI/No AKD, AKI only, AKD only, and AKI+AKD. Postoperative Hb was assessed on POD 0 (before AKI ascertainment) and on POD 7 (after AKI ascertainment); Hb trajectories were compared across groups over 6 months. Multinomial logistic regression assessed the association of POD 0 Hb with the four groups. Cox regression, with POD 7 as time zero, evaluated the associations of AKI status and POD 7 Hb with AKD development. Multistate modeling evaluated the association of POD 0 Hb with transition hazards from no AKI to AKI, no AKI to AKD, and AKI to AKD. Kaplan–Meier analysis compared CKD incidence and 1-year mortality across groups.

Results

Of 4,230 patients, 2,471 (58.4%) had no AKI/AKD, 412 (9.7%) had AKI only, 719 (17.0%) had AKD only, and 628 (14.8%) had AKI+AKD. Hb declined after surgery and gradually recovered in all groups, but the AKI+AKD group had the lowest Hb throughout follow-up. Lower POD 0 Hb was independently associated with all three AKI/AKD groups versus the No AKI/No AKD group, with the strongest association in the AKI+AKD group (adjusted ORs [95% CIs]: AKI only, 0.88 [0.82–0.94]; AKD only, 0.89 [0.84–0.94]; AKI+AKD, 0.77 [0.72–0.82]; all p<0.001). In the Cox analysis, AKI (adjusted HR 2.34, 95% CI 2.05–2.67, p<0.001) and lower POD 7 Hb (HR 0.94, 95% CI 0.89–0.99, p=0.023) were independently associated with AKD development. In the multistate model, POD 0 Hb was independently associated with transitions to AKI (HR 0.87, 95% CI 0.84–0.91, p<0.001) and AKD (HR 0.93, 95% CI 0.89–0.97, p<0.001), but not from AKI to AKD (HR 0.97, 95% CI 0.92–1.02, p=0.182). CKD incidence and 1-year mortality were highest in the AKI+AKD group (log-rank, all p<0.001).

Conclusion

Postoperative Hb showed distinct temporal associations with renal outcomes after valvular heart surgery. Immediate postoperative Hb was independently associated with AKI and AKD occurrence but not with progression from AKI to AKD, whereas lower Hb after AKI ascertainment remained independently associated with subsequent AKD. These findings highlight the time-dependent clinical significance of postoperative Hb and warrant further study of whether improving Hb recovery can reduce persistent kidney dysfunction.

Figure & Table

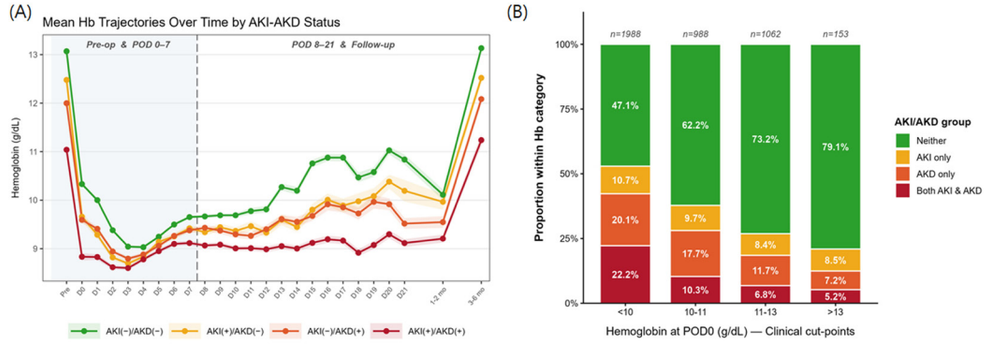
Figure & Table 1.

Table. Cox proportional hazards regression analysis for time-to-AKD

Variable	Univariable models			Multivariable model		
	HR	95% CI	P	HR	95% CI	P
Age	1.06	1.05-1.06	<0.001	1.03	1.02-1.03	<0.001
Congestive heart failure	1.79	1.59-2.01	<0.001	1.08	0.95-1.24	0.246
Cerebrovascular disease	1.77	1.55-2.03	<0.001	1.28	1.10-1.49	0.001
Myocardial infarction < 3months	2.41	1.88-3.08	<0.001	1.45	1.11-1.90	0.006
Diabetes mellitus	1.93	1.71-2.17	<0.001	1.18	1.03-1.36	0.016
Preoperative diuretics use	1.32	1.17-1.48	<0.001	0.86	0.74-0.99	0.032
Preoperative eGFR (per mL/min/1.73m^2)	0.96	0.96-0.96	<0.001	0.97	0.97-0.97	<0.001
Postoperative RBC transfusion, 0-48h (per unit)	1.12	1.11-1.13	<0.001	1.06	1.04-1.08	<0.001
AKI	3.86	3.47-4.30	<0.001	2.34	2.05-2.67	<0.001
Postoperative day 7 Hb (per g/dL)	0.81	0.77-0.85	<0.001	0.94	0.89-0.99	0.023

AKD, acute kidney disease; HR, hazard ratio; CI, confidence interval; eGFR, estimated glomerular filtration rate; RBC, red blood cell; AKI, acute kidney injury; Hb, hemoglobin

Figure & Table 2.



Comparison of Ondansetron and Dexamethasone Combination Versus Ondansetron Alone for Prevention of Postoperative Nausea and Vomiting in Cardiac Surgery: An Interim Analysis of a Randomized Controlled Trial

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Background
Postoperative nausea and vomiting (PONV) affects up to 70% of cardiac surgery patients. Effective prophylaxis remains underutilized. Current ERAS Cardiac Society guidelines recommend multimodal antiemetic prophylaxis for high risk of PONV. However, evidence regarding the incremental benefit of Dexamethasone combined with Ondansetron in cardiac surgery remains limited. This study evaluated whether adding Dexamethasone reduces PONV incidence compared with Ondansetron alone.

Methods
In this prospective, randomized, triple-blinded, placebo-controlled trial, adults aged 18-75 years undergoing elective cardiac surgery using cardiopulmonary bypass with two or more Apfel PONV risk factors were randomized in blocks of four to Dexamethasone 8 mg IV after induction plus Ondansetron 4 mg IV at the end of surgery (combination group) or placebo plus Ondansetron 4 mg IV (Ondansetron alone group). The primary outcome was PONV incidence within 24 hours postoperatively. Secondary outcomes included time to PONV onset, rescue antiemetic use, and blood glucose levels. This interim analysis reports the first 100 of 190 planned participants.

Results
100 participants were analyzed (45 in the combination group and 55 in the Ondansetron alone group). Baseline and intraoperative characteristics were well balanced between groups. PONV incidence was 40% and 45.5% in the combination and Ondansetron alone groups, respectively (OR 0.80, 95% CI 0.36-1.78; p=0.58), with the highest incidence occurring at 16 hours postoperatively in both groups. Time to PONV onset did not differ significantly (median 6 vs 8 hours, p=0.35), and rescue antiemetic use was similar. However, the combination group had significantly higher blood glucose at rewarming (188 vs 155 mg%, p=0.001), after protamine reversal (212 vs 178 mg%, p=0.002), and immediately postoperatively (172 vs 148 mg%, p=0.003). The combination group also required significantly more postoperative fentanyl at 2, 4, 14, and 16 hours (p<0.05), but had shorter time to extubation (median 5.0 vs 12.0 hours, p=0.009). No serious adverse events were observed.

Conclusion
In this interim analysis, combining Dexamethasone with Ondansetron did not significantly reduce PONV incidence after cardiac surgery. Dexamethasone was associated with higher intraoperative and early postoperative blood glucose levels. These findings support close perioperative glucose monitoring when dexamethasone is used for PONV prophylaxis in cardiac surgery.

AP-11-2 (2026-0411)

Figure & Table

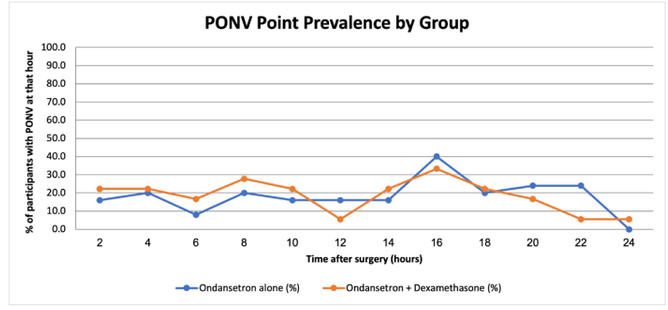
Figure & Table 1.

Table 1: Comparison of Outcomes Between Groups

Outcomes	Ondansetron + Dexamethasone (n=45)	Ondansetron alone (n=55)	p-value
PONV incidence	18 (40.0%)	25 (45.5%)	0.584
Time to PONV onset (hours)	6.0 (4.0–12.5)	8.0 (4.0–16.0)	0.351
Time to first rescue antiemetic (hours)	6.5 (4.0–12.8)	9.0 (4.0–16.0)	0.381
Single-agent rescue antiemetic, n (% of PONV cases)	5 (27.8%)	10 (40.0%)	0.407
Combined rescue antiemetic, n (% of PONV cases)	13 (72.2%)	15 (60.0%)	
Number of Ondansetron doses	1.0 (1.0–2.0)	1.0 (1.0–2.0)	0.802
Number of Metoclopramide doses	1.0 (1.0–1.0)	1.0 (0.0–2.0)	0.716
Blood glucose at rewarming (mg%)	187.5 (163.0–206.2)	155.0 (137.5–182.0)	0.001
Blood glucose after Protamine reversal (mg%)	212.0 (187.0–246.0)	178.0 (154.0–209.5)	0.002
Blood glucose immediate postoperative (mg%)	172.0 (150.0–194.0)	148.0 (135.0-171.0)	0.003
Time to extubation (hours)	5.0 (2.0–14.0)	12.0 (4.0–16.0)	0.009

Values are presented as median (IQR) or number (%).

Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

Milrinone Improves Right Ventricular Longitudinal Strain and Ventriculo-Arterial Coupling During Cardiac Surgery: A Prospective Observational Study

Chung-Sik Oh[1*], Heezoo Kim[2], Dong-Kyu Lee[3], André Denault[4], Seon-Ju Park[1], Tae-Yop Kim[1]

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4. Anesthesiology, Montreal Heart Institute, University of Montreal, Canada

Background
Intravenous milrinone is commonly used to support cardiac systolic performance and pulmonary vasodilation; however, its direct effect on intraoperative right ventricular (RV) contractile performance remains unclear.

Methods
In 41 adult patients undergoing elective isolated cardiac surgery, intravenous (IV) milrinone (50 μg/kg loading for 10 minutes followed by 0.5 μg/kg/min infusion) was administered after anesthesia induction and before sternotomy. RV free-wall longitudinal strain (FWLS), RV global longitudinal strain (GLS), RV fractional area change (FAC), left ventricular (LV) GLS, and LV ejection fraction (EF, end-systolic/end-diastolic volume, ESV/EDV) were measured at baseline (T0) and at 5 (T5), 10 (T10), and 15 minutes (T15) after milrinone loading. The primary outcome was the change in RV-FWLS. Secondary outcomes included changes in RV-GLS, LV-GLS, and ventricular-arterial (VA) couplings, including RV-FAC/systolic PAP and LV-ESV/(EDS–ESV). (figure 1)

Results
Milrinone improved RV-FWLS by 12.0 - 13.6% at T10 and T15 (–17.60 ± 4.65% and –17.85 ± 4.76%, respectively, compared to –15.71 ± 4.59% and –15.94 ± 4.48% at T0 and T5, respectively; all $P < 0.001$). It also improved RV-GLS by 17.6% at T15 and RV-FAC/systolic PAP by 16.6% at T10, it reduced mean PA, mean BP by 4.9 - 5.8 %, and pulmonary-to-systemic ratio (mean PAP/mean BP). However, it did not significantly affect LV-GLS or LV-EF. (figure 2)

Conclusion
IV-milrinone improved intraoperative RV systolic function in patients undergoing cardiac surgery. It also enhanced VA coupling, likely due to systemic and pulmonary vasodilatory effects, but it did not improve LV strain. Further study is warranted to clarify the impact of intraoperative changes in RV strain on clinical outcomes.

AP-11-3 (2026-0098)

Figure & Table

Figure & Table 1.

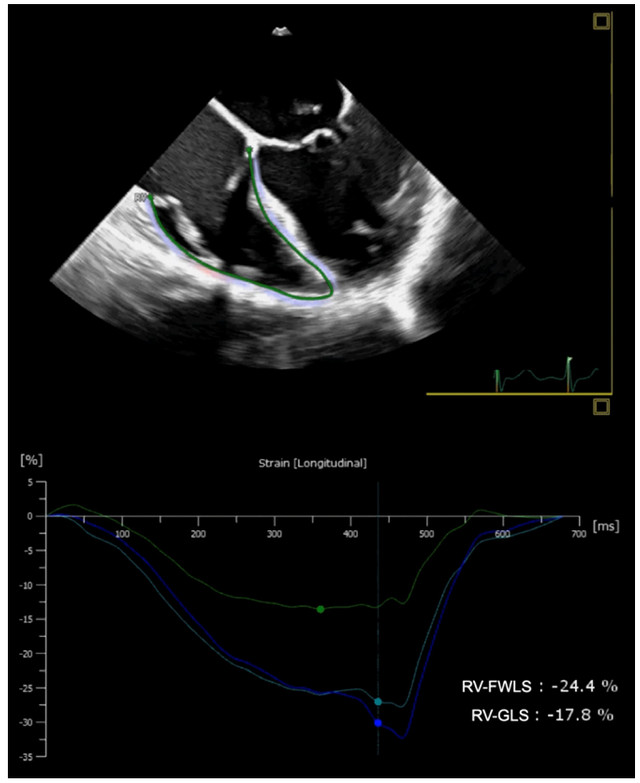
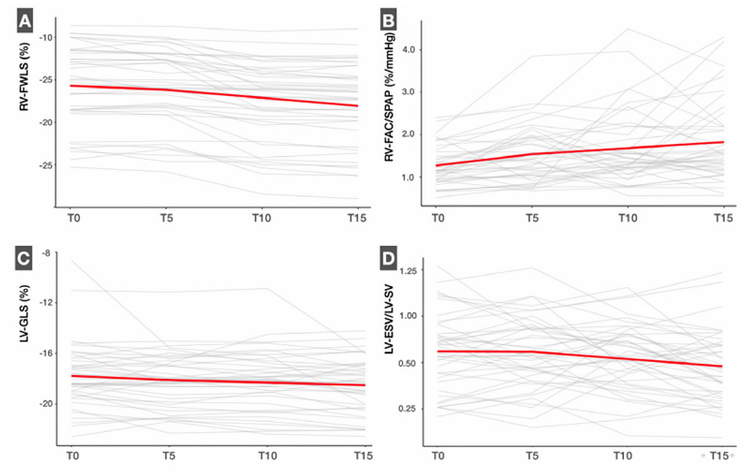


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

Autonomic Vulnerability Amplifies Hypotension-Related Myocardial Injury After Noncardiac Surgery in Older Adults

Cheol Lee[1*], Hansol Hong[1]

1. Department of Anesthesiology and Pain Medicine, Wonkwang University School of Medicine Hospital, Republic of Korea

Background

Myocardial injury after noncardiac surgery (MINS) is common, often clinically silent, and strongly associated with postoperative morbidity and mortality. Older adults with diabetes mellitus or hypertension may have impaired autonomic and chronotropic reserve, which could limit compensatory responses to anesthetic vasodilation, bleeding, and intraoperative hypotension. We hypothesized that a preoperatively identifiable autonomic vulnerability phenotype would be associated with adjudicated ischemic MINS after major noncardiac surgery, and that this association would be stronger at higher intraoperative hypotension burden

Methods

This single-center retrospective cohort study included patients aged 65 years or older who underwent major noncardiac surgery between January 2018 and December 2024 and had perioperative high-sensitivity cardiac troponin T surveillance. Autonomic vulnerability was defined as diabetes mellitus and/or hypertension plus at least one documented autonomic or chronotropic vulnerability indicator: neuropathy, orthostatic hypotension, syncope or presyncope, unexplained resting bradycardia, or chronotropic incompetence. Propensity score matching was performed in a 1:1 ratio to balance measured confounders. The primary outcome was adjudicated ischemic MINS. Intraoperative hypotension burden was quantified as the area under the mean arterial pressure threshold of 65 mm Hg, and effect modification by hypotension burden quartile was assessed.

Results

Among 2,184 eligible patients, 612 matched pairs were analyzed. Adjudicated ischemic MINS occurred more frequently in the autonomic vulnerability group than in the control group: 87 of 612 patients, 14.2%, versus 53 of 612 patients, 8.7% ; odds ratio, 1.75 ; 95% confidence interval, 1.23 to 2.49 ; P = 0.002. Postoperative high-sensitivity cardiac troponin T elevation was also more frequent in the autonomic vulnerability group: 27.1% versus 18.5% ; odds ratio, 1.63 ; 95% confidence interval, 1.28 to 2.07 ; P < 0.001. Autonomic vulnerability was associated with increased 30-day major adverse cardiac events: hazard ratio, 1.68 ; 95% confidence interval, 1.12 to 2.51 ; P = 0.012, and 1-year all-cause mortality: hazard ratio, 1.54 ; 95% confidence interval, 1.07 to 2.22 ; P = 0.020. Intraoperative hypotension burden significantly modified the association between autonomic vulnerability and MINS, with the strongest association observed in the highest hypotension burden quartile: odds ratio, 2.84 ; 95% confidence interval, 1.62 to 4.97 ; P < 0.001 ; P for interaction = 0.018.

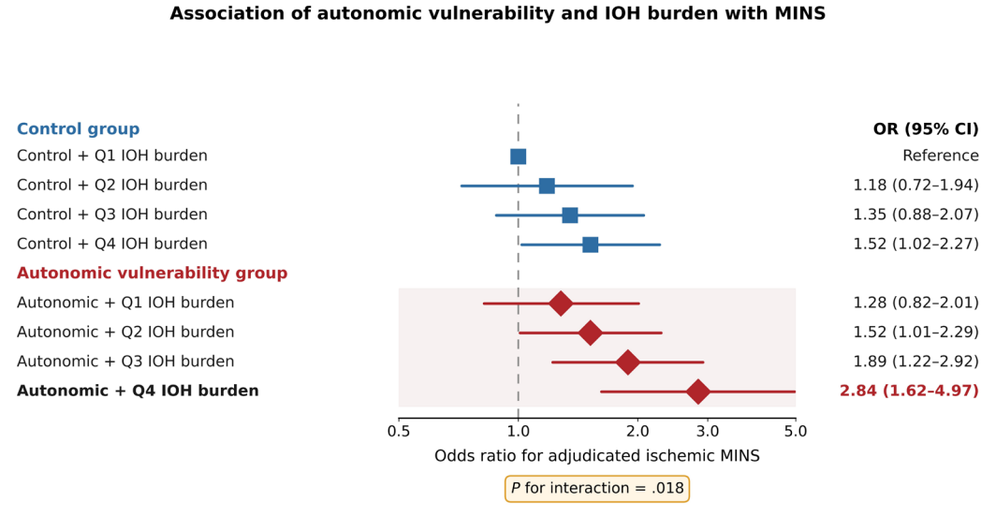
Conclusion

In older adults undergoing major noncardiac surgery, a preoperatively identifiable autonomic vulnerability phenotype was associated with higher risk of adjudicated ischemic MINS. This association was amplified at higher intraoperative hypotension burden, suggesting that autonomic vulnerability may identify patients who are particularly susceptible to hypotension-related perioperative myocardial injury. These findings support external validation and prospective evaluation of phenotype-guided hemodynamic surveillance and management.

AP-11-4 (2026-0025)

Figure & Table

Figure & Table 1.



ABSTRACT
Competition
Presentation
E-Poster

Early Prediction Study of Postoperative Coagulation Status Using TEG6 10-Minute Markers in Cardiac Surgery

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1. Anesthesiology and Pain Medicine, Korea University Anam Hospital, Republic of Korea

Background

Timely assessment of coagulation status is essential for blood management in cardiac surgery. Conventional thromboelastography requires substantial time to obtain maximal amplitude values, which may delay intraoperative decision-making. The new generation TEG6s provides 10-minute amplitude parameters that may allow earlier evaluation. This study investigated whether the 10-minute citrated rapid TEG amplitude (CRT-A10) could predict thrombocytopenia after cardiopulmonary bypass.

Methods

We retrospectively reviewed adult patients who underwent cardiac surgery with cardiopulmonary bypass at Korea University Anam Hospital between January and March 2026. After weaning from cardiopulmonary bypass and protamine administration, activated clotting time (ACT), complete blood count (CBC), and TEG6s were measured. Correlations between CRT parameters and platelet count were assessed after testing for normality. Receiver operating characteristic curve analyses were performed for platelet count thresholds of <100,000/μL, <120,000/μL, and <150,000/μL. Statistical significance was defined as P <0.05.

Results

Thirty patients were included. CRT parameters showed significant correlations with platelet count after cardiopulmonary bypass (Table 1). For prediction of platelet count <120,000/μL, the optimal cutoff values of CRT-MA and CRT-A10 were 57.2 mm and 45.33 mm, respectively (Table 2). CRT-A10 demonstrated an AUC of 0.808 (95% CI, 0.645–0.971; P <0.001), with a sensitivity of 0.750 and specificity of 0.786, whereas CRT-MA demonstrated an AUC of 0.786 (95% CI, 0.615–0.956; P =0.001), with a sensitivity of 0.938 and specificity of 0.571.

Conclusion

CRT-A10 obtained 10 minutes after test initiation may provide an early estimate of platelet count in patients undergoing cardiac surgery with cardiopulmonary bypass. A CRT-A10 value below 45.33 mm was associated with a platelet count <120,000/μL. These findings suggest that TEG6s 10-minute markers may support earlier coagulation assessment and transfusion decision-making, although larger prospective studies are needed.

AP-11-5 (2026-0095)

Figure & Table

Figure & Table 1.

Table 1. Correlation between Citrate-Reduced Thromboelastogram values and platelet counts.

	Shapiro		Pearson	
Comparison	p value	p value	r (95% CI)	p value
CRT-MA and Platelet counts	0.103	0.124	0.482 (0.147-0.717)	0.007
CRT-A10 and Platelet counts	0.566	0.124	0.523 (0.200-0.743)	0.003

CI, confidence interval; CRT, citrate-reduced thromboelastogram; MA, maximal amplitude; A10, 10-minute value

Figure & Table 2.

Table 2. Receiver operating characteristic curves and optimal cut-off of the Citrate-Reduced Thromboelastogram values associated to platelet counts.

Predictor	Outcome	AUC (95% CI)	p value	cutoff	sensitivity	specificity
CRT-MA	PLT < 100K	0.746 (0.564–0.928)	0.008	56.55	1	0.476
	PLT < 120K	0.786 (0.615–0.956)	0.001	57.20	0.938	0.571
	PLT < 150K	0.728 (0.498–0.957)	0.052	57.20	0.857	0.667
CRT-A10	PLT < 100K	0.767 (0.595–0.939)	0.002	46.70	1	0.524
	PLT < 120K	0.808 (0.645–0.971)	<.001	45.33	0.750	0.786
	PLT < 150K	0.735 (0.508–0.963)	0.042	48.55	0.905	0.667

AUC, area under the curve; CI, confidence interval; CRT, citrate-reduced thromboelastogram; MA, maximal amplitude; A10, 10-minute value; PLT, platelet

ABSTRACT
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Targeted Prelocation vs Real-Time Ultrasound Guidance for Internal Jugular Vein Catheterization by Anesthesiology Residents: A Randomized Controlled Trial

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Background

Internal jugular vein (IJV) catheterization is an essential procedure in patients undergoing cardiac and major vascular surgery [1,4]. Ultrasound-guided cannulation improves success and reduces complications compared with the anatomical landmark technique [1,2]. Among ultrasound-guided approaches, ultrasound-targeted prelocation (PL) and real-time ultrasound guidance (RT) are widely used. Although RT enables continuous needle visualization, it requires sterile probe preparation, which may increase cost and preparation time. In contrast, PL is performed before skin preparation and does not require sterile covers. However, evidence comparing these techniques remains limited, particularly in procedures performed by trainees [2,5]. We therefore compared first-attempt success of PL and RT for IJV catheterization performed by anesthesiology residents.

Methods

In this single-center randomized controlled trial, adults undergoing ultrasound-guided IJV cannulation were randomized to PL or RT. All procedures were performed by second- or third-year anesthesiology residents. The primary outcome was first-attempt success; secondary outcomes were success within three needle redirections, procedural times, and complications. Categorical outcomes were compared using Pearson's chi-square or Fisher's exact test and reported as risk ratios (RR) for RT relative to PL; procedural times were compared using median regression. A two-sided $P < 0.05$ was considered significant.

Results

A total of 156 IJV catheterization procedures were analyzed: 79 in the RT group and 77 in the PL group. First-attempt success did not differ significantly between the RT and PL groups (67.1% vs. 71.4%; RR 0.94; 95% CI, 0.76–1.16; P = 0.56). Success within three needle redirections was higher in the RT group (96.2% vs. 84.4%; RR 1.14; 95% CI, 1.03 - 1.26; P = 0.013). RT was associated with longer ultrasound scanning time (171.0 vs. 131.4 s; median difference, 26.99 s; 95% CI, 2.43–51.56; P = 0.031) and venous access time (57.3 vs. 25.2 s; median difference, 16.20 s; 95% CI, 3.59–28.80; P = 0.012). Guidewire insertion time did not differ significantly between groups (22.2 vs. 20.4 s; median difference, 1.80 s; 95% CI, −2.56 to 6.16; P = 0.417). Arterial puncture was the only complication observed, occurring in 1.3% and 5.2% of patients in the RT and PL groups, respectively (RR 0.24; 95% CI, 0.03–2.13; P = 0.16).

Conclusion

First-attempt success of IJV catheterization did not differ significantly between RT and PL among anesthesiology residents. RT achieved a higher success rate within three needle redirections, whereas PL required less scanning and venous access time. These findings support RT when maximizing procedural success is the priority, while PL may serve as a complementary technique in structured resident training.

AP-11-6 (2026-0592)

Figure & Table

Figure & Table 1.

Table 1. *Baseline characteristics of patients and anatomy by group*

Patient characteristics	RT (n = 79)	PL (n = 77)	P value
Operator, n (%)			0.24
Second-year resident	35 (44.30%)	27 (35.06%)	
Third-year resident	44 (55.70%)	50 (64.94%)	
Age, years	61.3 ± 14.5	63.1 ± 13.2	0.42
Sex, n (%)			0.65
Male	51 (64.56%)	47 (61.04%)	
Female	28 (35.44%)	30 (38.96%)	
BMI, kg/m²	23.4 ± 5.2	23.7 ± 5.2	0.65
ASA physical status, n (%)			0.16
Class II	0 (0.00%)	1 (1.30%)	
Class III	65 (82.28%)	69 (89.61%)	
Class IV	14 (17.72%)	7 (9.09%)	
Previous central venous puncture, n (%)			0.10
No	57 (72.15%)	64 (83.12%)	
Yes	22 (27.85%)	13 (16.88%)	
Anatomical characteristics	**RT (n = 79)**	**PL (n = 77)**	**P value**
Internal jugular vein diameter, cm			
Vertical	1.1 ± 0.3	1.2 ± 0.3	0.34
Horizontal	1.6 ± 0.4	1.6 ± 0.3	0.31
Carotid artery diameter, cm			
Vertical	0.7 ± 0.1	0.8 ± 0.1	0.27
Horizontal	0.8 ± 0.1	0.8 ± 0.1	0.59
Depth from skin to vein, cm	0.8 ± 0.3	0.8 ± 0.2	0.50
Cannulation side, n (%)			0.72
Right	74 (93.67%)	74 (96.10%)	
Left	5 (6.33%)	3 (3.90%)	
Anatomical relationship, n (%)			0.20
Vein medial to artery	5 (6.33%)	7 (9.09%)	
Vein lies over artery	12 (15.19%)	5 (6.49%)	
Vein lateral to artery	62 (78.48%)	65 (84.42%)	

Legends/Abbreviations: RT, real-time ultrasound guidance; PL, targeted prelocation. BMI, body mass index; ASA, American Society of Anesthesiologists. Continuous variables are mean ± SD.

Figure & Table 2.

Table 2. *Primary and secondary outcomes by group*

Outcome	RT (n = 79)	PL (n = 77)	Risk ratio (RR) (95% CI); P-value(P)
First-attempt success, n (%)	67.1%	71.4%	RR 0.94 (0.76–1.16); P = 0.56
Success within three needle redirections, n (%)	96.2%	84.4%	RR 1.14 (1.03–1.26); P = 0.013
Ultrasound scanning time, s	171	131.4	Δ 26.99 (2.43–51.56); P = 0.031
Venous access time, s	57.3	25.2	Δ 16.2 (3.59–28.80); P = 0.012
Guidewire insertion time, s	22.2	20.4	Δ 1.80 (−2.56–6.16); P = 0.417
Arterial puncture, n (%)	1.3%	5.2%	R 0.24 (0.027–2.131); P = 0.16

Abbreviations: RR, risk ratio and Risk ratios were calculated for RT relative to PL.; CI, confidence interval; Δ, median regression difference.

ABSTRACT
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AP-11-7 (2026-0151)

Hydrogen Peroxide-Induced Venous Air Embolism in a Patient with Brugada Syndrome: An Under-recognized Perioperative Risk

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Introduction
Hydrogen peroxide (H_2O_2) remains in use for surgical wound irrigation despite limited evidence of superiority over normal saline (NS) in preventing surgical site infection(1). Its risks include venous air embolism (VAE), cytotoxicity, and delayed wound healing(2). Rapid catalase-driven breakdown of H_2O_2 releases oxygen (O_2) that can cause VAE through venous gas entrainment(1). We report H_2O_2-induced VAE in a patient with Brugada syndrome, highlighting a rare complication with the potential to provoke malignant ventricular arrhythmias. Informed consent was obtained.

Case
A 52-year-old man with Brugada syndrome underwent open reduction and internal fixation of a proximal tibial fracture after conversion from planned external fixation. Preoperative TTE had excluded a patent foramen ovale. Anesthesia and fixation were uneventful until H_2O_2 irrigation of previous external fixation pin sites. Within minutes, end-tidal carbon dioxide ($ETCO_2$) fell abruptly from 37 to 15mmHg despite preserved blood pressure and a palpable carotid pulse. Point-of-care transthoracic echocardiography (TTE) demonstrated preserved left ventricular (LV) function, acute right ventricular (RV) dilatation with dysfunction, and a characteristic "snow flurry" appearance of intracardiac air within the RV, confirming VAE. H_2O_2 irrigation was stopped immediately, 100% O_2 administered, and positive end-expiratory pressure reduced from 5 to 0cmH_2O. Arterial blood gas showed hypercapnia ($PaCO_2$ 50mmHg) with preserved oxygenation (P/F ratio 300). The patient remained hemodynamically stable, with normalization of $ETCO_2$ and no ventricular arrhythmias. Repeat TTE 15minutes post-extubation demonstrated interval resolution of intracardiac air with stable RV function. He recovered without cardiac or neurological sequelae.

Conclusion
This case underscores the important yet under-recognized perioperative safety considerations of H_2O_2-induced VAE in patients with inherited cardiac channelopathies. H_2O_2 irrigation is a preventable cause of clinically significant VAE, with only small volumes generating sufficient O_2 to enter open venous channels(2). While H_2O_2-induced VAE has been reported, the literature describing patients with inherited arrhythmia syndromes remains limited. In Brugada syndrome, VAE may increase susceptibility to life-threatening ventricular arrhythmias through hypoxia, hemodynamic stress, RV strain and autonomic disturbance. In this case, prompt detection of a sudden $ETCO_2$ decline and point-of-care TTE enabled timely diagnosis and targeted intervention before cardiovascular compromise. This case illustrates the value of close capnography monitoring, early TTE and proactive multidisciplinary communication between anesthetists and surgeons regarding H_2O_2 use, particularly in patients with arrhythmogenic disorders. Greater awareness of the embolic risk of H_2O_2 and education of surgical teams may encourage adoption of irrigation alternatives such as NS, thereby improving perioperative patient safety.

AP-11-8 (2026-0074)

Unmasking Dynamic LVOT Obstruction in a Trauma Patient with Intra-Operative Haemodynamic Instability

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Introduction
Dynamic left ventricular outflow tract obstruction (LVOTO) is an important but often under-recognised cause of peri-operative haemodynamic instability. Clinicians can use Point of Care Ultrasound Trans-thoracic Echocardiogram (POCUS TTE) for timely recognition and appropriate haemodynamic management at bedside.

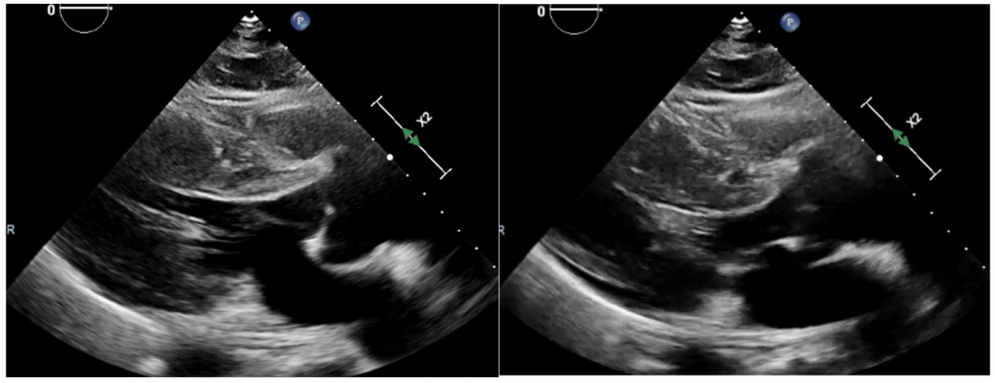
Case
A 64 year-old gentleman presented to the emergency department with bilateral lower limb open fractures. He was listed for surgical fixation of left femur, external fixation of right tibia, bilateral lower limb wound exploration and debridement. He has a past medical history of poorly controlled hypertension from poor compliance to treatment.
Pre-operatively, the patient was hypertensive and tachycardic. ECG showed severe left ventricular hypertrophy (LVH) changes. An intra-arterial line was inserted and operation proceeded under general anaesthesia with rapid sequence induction. Anaesthesia was maintained with Sevoflurane. Intra-operatively, he had significant haemodynamic instability with wide swings in his systolic blood pressure (SBP) ranging from 85 to 200 mmHg. Hypotension occurred with relatively small amount of blood loss and improved rapidly with phenylephrine and fluid bolus.
A POCUS TTE performed during the operation showed small and hyperdynamic LV with collapsible inferior vena cava. Further fluid resuscitation was provided, with reduction in haemodynamic swings. However, the patient remained on noradrenaline 0.15 mcg/kg/min with mixed acidosis and was kept intubated and sent to the intensive care unit (ICU).
A formal TTE in ICU confirmed severe concentric LVH with LV mass index of 176g/m2. Dynamic LVOT obstruction was confirmed by dagger-shaped tracing on continuous wave (CW) Doppler, with high peak gradient of 55mmHg. Fluid resuscitation was continued and noradrenaline was weaned off. He was also started on beta-blockers (bisoprolol) for rate control.

Conclusion
This case highlights dynamic LVOTO as a reversible cause of peri-operative haemodynamic instability. It should be suspected in patients with severe LVH who present with hypovolaemia, tachycardia, small LV cavity with hyperdynamic circulation, or stress cardiomyopathy.
Echocardiographic features suggestive of LVOTO include: increased basal septal wall thickness, systolic anterior motion of the mitral valve, dagger-shaped tracing on CW Doppler and a high peak gradient across the LVOT. POCUS TTE allows early recognition and targeted management: restoration of preload, maintenance of afterload, control of heart rate and avoidance of unnecessary inotropes.
POCUS TTE is still a relatively under-utilised tool in the peri-operative setting. However, with the increasing emphasis on basic POCUS training in anaesthesia, it is expected that budding anaesthesiologist will gain greater competency and confidence in using POCUS in their practice.

AP-11-8 (2026-0074)

Figure & Table

Figure & Table 1.



Severe concentric left ventricular hypertrophy and near-complete obliteration of the left ventricular cavity.

Presentation

Abstract Presentation 12

Date / Time	Nov 5 (Thu), 15:30-17:00
Room	Room C *(Paradise City)*
Language	English
Chair(s)	Seung Hyun Kim *(Yonsei University, Republic of Korea)* Young Sung Kim *(Korea University, Republic of Korea)*

AP-12-1
2026-0146

Development of a Prediction Model for Hypoxemia During One-Lung Ventilation Using Preoperative Factors: A Machine Learning Approach
Jung-Yeon Park[1], Sooah Cho[1], Soo-Hyuk Yoon[1*]

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AP-12-2
2026-0401

Comparison of Remifentanil- vs Sufentanil-Based Total Intravenous Anesthesia on Intraoperative Blood Pressure Variability During Video-Assisted Thoracic Surgery: A Randomized Controlled Trial
Seukyoung Hong[1], Ji Hyeon Lee[1*], Jiyoun Lee[1], Jin-Woo Park[1], Sung-Hee Han[1], Jin-Hee Kim[1]

1. Anesthesiology and Pain Medicine, SNUBH, Republic of Korea

AP-12-3
2026-0353

Quality of Recovery Following Oncological Thoracotomy: Continuous Erector Spinae Plane Block Versus Thoracic Epidural Analgesia—The CEPET Randomized Trial
Abhilasha Mishra[1], Surjyendu Ghosh[1*], Sushma Bhatnagar[1], Shweta Bhopale[2]

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AP-12-4
2026-0464

Comparison of Peri-Operative Pulmonary Outcomes in Pressure-Controlled Ventilation (PCV) Versus Volume-Controlled Ventilation (VCV) in Patients Undergoing Robot Assisted Urology Surgery in Trendelenburg Position – A Prospective Randomized Control Trial
Sujethram P[1], Chhavi Sawhney[1*], Rashmi Ramachandran[1], Vimi Rewari[1], Ravinder Pandey[1], Sharmishtha Pathak[1]

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AP-12-5
2026-0467

Veno-Venous Extracorporeal Membrane Oxygenation for Positional Ventilatory Collapse Caused by a Giant Intrathoracic Solitary Fibrous Tumor: A Case Report
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AP-12-6
2026-0523

Anaesthetic Management of a Benign Vascular Sternal Neoplasm Excision and Implant Placement: A Case Report
Keerthana Gajendran[1], Debesh Bhoi[1*], Shashi Dhruva[1]

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AP-12-7
2026-0154

Anesthesia for Tracheobronchial Stenting Using Flexible Bronchoscope in Children with Recurrent Airway Stenosis
Eva Komala Sari[1*], Yoga Pranata[1], Rori Alfath[1], Agung Bintartho[1]

1. Anesthesiology and Intensive Care, Harapan Kita Mother and Children Hospital, Indonesia

AP-12-8
2026-0185

Anaesthetic Management for Rigid Oesophagoscopy in Ehlers-Danlos Syndrome
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AP-12-1 (2026-0146)

Development of a Prediction Model for Hypoxemia During One-Lung Ventilation Using Preoperative Factors: A Machine Learning Approach

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1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Seoul, Republic of Korea

Background

Intraoperative hypoxemia during one-lung ventilation (OLV) remains a significant clinical concern. Although recent advances in machine learning (ML) have facilitated real-time intraoperative prediction models, utilizing these techniques for preoperative risk stratification of hypoxemia during OLV remains unexplored. This study aimed to develop a predictive model using comprehensive preoperative variables and to compare the performance and stability of multiple ML algorithms.

Methods

We retrospectively analyzed 4,603 adult patients who underwent elective lung resection under general anesthesia with OLV between January 2019 and December 2024. Intraoperative hypoxemia was strictly defined as SpO_2 < 90% for ≥ 3 consecutive minutes or PaO_2 < 60 mmHg on intraoperative arterial blood gas analysis. The cohort was split into model development and independent test sets (3:1 ratio). Feature selection from 24 candidate variables was performed exclusively on the development set using five complementary approaches: univariate analysis, penalized regression, Akaike information criterion-based selection, area under the curve-based stepwise selection, and tree-based feature importance. Four algorithms were subsequently developed and evaluated: logistic regression (LR), extreme gradient boosting (XGB), support vector machine (SVM), and random forest (RF). Model stability was rigorously assessed through 1,000 repeated random dataset resampling iterations.

Results

Intraoperative hypoxemia occurred in 139 cases (3.0%). Nine preoperative variables were selected: age, sex, body mass index, previous surgery on the ventilated lung, ratio of forced expiratory volume in 1 second to forced vital capacity, serum albumin concentration, preoperative hypoxemia, robot-assisted surgery, and surgical position (Figure 1). In the independent test set, the LR model achieved the highest area under the curve (AUC) of 0.805 (95% CI, 0.738-0.872), significantly outperforming a previously established reference model (P = .008) as well as the XGB, SVM, and RF algorithms (Figure 2). Across 1,000 data-splitting iterations, LR consistently maintained the highest mean AUC, demonstrating superior predictive stability. Clinically, intraoperative hypoxemia was significantly associated with a prolonged hospital stay and increased postoperative pulmonary complications.

Conclusion

LR models incorporating comprehensive preoperative variables, including newly identified risk factors like robot-assisted surgery and serum albumin concentration, can effectively stratify intraoperative hypoxemia risk during OLV. Although this model holds potential for preoperative risk assessment, future external validation and prospective trials are required to confirm its generalizability.

AP-12-1 (2026-0146)

Figure & Table

Figure & Table 1.

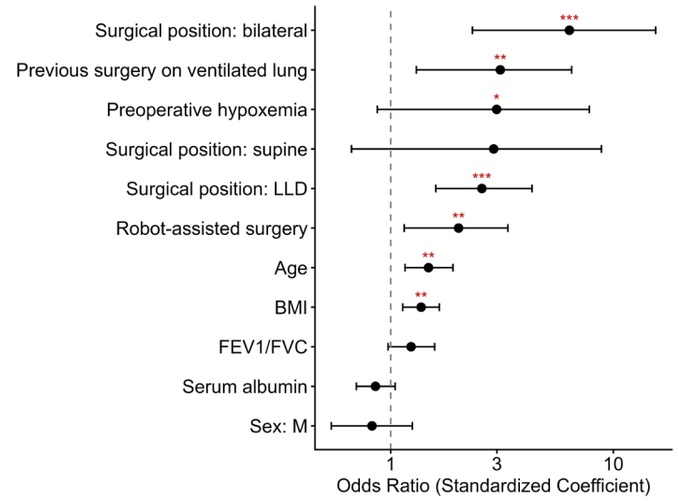
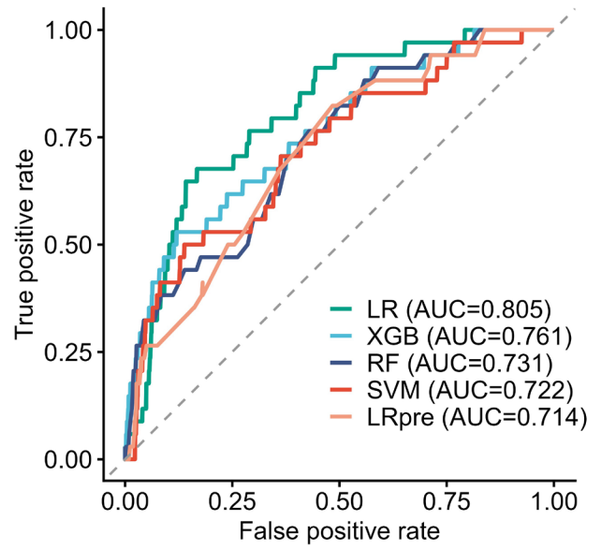


Figure & Table 2.



ABSTRACT
Competition
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Comparison of Remifentanil- vs Sufentanil-Based Total Intravenous Anesthesia on Intraoperative Blood Pressure Variability During Video-Assisted Thoracic Surgery: A Randomized Controlled Trial

Seukyoung Hong[1], Ji Hyeon Lee[1*], Jiyoun Lee[1], Jin-Woo Park[1], Sung-Hee Han[1], Jin-Hee Kim[1]

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Background

Older patients are vulnerable to postoperative neurocognitive disorders such as delirium. Beyond absolute hypotension, emerging observational evidence suggests that greater intraoperative mean arterial pressure (MAP) variability is associated with worse postoperative outcomes, including delirium, in geriatric populations. Video-assisted thoracic surgery (VATS) for lung cancer often involves lateral positioning, intrathoracic manipulation, and one-lung ventilation, all of which can provoke clinically relevant hemodynamic perturbations. Moreover, lung cancer surgery is frequently performed in older adults, making perioperative hemodynamic stability a key consideration. Propofol–opioid total intravenous anesthesia (TIVA) is widely used for VATS. Given different pharmacologic profiles, we hypothesized that sufentanil-based TIVA might reduce intraoperative BP lability and improve early postoperative analgesia compared with remifentanil.

Methods

This single-blind randomized controlled trial enrolled adults (ASA I–II) undergoing VATS lobectomy. Patients were randomized 1:1 to propofol plus remifentanil TCI or propofol plus sufentanil TCI under a standardized protocol including BIS- and ANI-guided titration and goal-directed fluid boluses using pleth variability index. The primary outcome was intraoperative mean BP (MBP) variability quantified by time-weighted average real variability (ARV) using 1-minute MBP data across the operation. Secondary outcomes included hypotension-related vasopressor use, cumulative MBP <60 mmHg duration, recovery metrics, postoperative pain and opioid consumption, antiemetic use, and pulmonary complications.

Results

Of 78 screened patients, 69 completed the study (remifentanil n=34; sufentanil n=35), with comparable baseline and operative characteristics. ARV was lower with sufentanil than remifentanil (median [IQR] 3.8 [3.0–5.0] vs 4.3 [3.9–5.8] mmHg/min; P=0.022). The number of hypotensive events, need for norepinephrine/dobutamine, and cumulative duration of MBP <60 mmHg were similar between groups. MBP at emergence was lower in the sufentanil group (P=0.002), whereas MBP at the other prespecified time points (baseline, endotracheal intubation, start of surgery) did not differ. Early postoperative analgesia favored sufentanil: PACU fentanyl consumption and 30-min pain scores were lower (both P<0.001). In multivariable analysis, sufentanil independently predicted lower ARV (B = −1.18; 95% CI −1.93 to −0.41; P=0.003); older age and longer one-lung ventilation time were also associated with higher ARV.

Conclusion

In VATS lobectomy under a standardized propofol-based TIVA protocol, sufentanil reduced intraoperative MBP variability compared with remifentanil and improved immediate postoperative analgesia, without increasing hypotension burden, vasopressor escalation, or respiratory complications. Whether reducing intraoperative MBP variability translates into improved patient-centered outcomes—particularly postoperative neurocognitive outcomes—should be evaluated in future studies.

AP-12-2 (2026-0401)

Figure & Table

Figure & Table 1.

Table. Key outcomes

Values are presented as mean [SD], median (IQR), or n (%), as reported.

Domain / Outcome	Remifentanil (n=34)	Sufentanil (n=35)	ASD or P-value ± Effect
Age (yr)	64.5 (10.5)	63.5 (10.5)	ASD=0.10
ASA class [1/2/3]	11/21/2	12/22/1	ASD=0.24
Male	20 (58.8%)	19 (54.3%)	ASD=0.09
Primary outcome: ARV (mmHg/min)	4.3 (3.9–5.8)	3.8 (3.0–5.0)	P=0.022; standardized difference −1.1 (−2.1 to −0.2)
Intraop hypotension events (0 / 1 / 2 / ≥3)	9 / 8 / 8 / 9	14 / 7 / 7 / 7	P=0.692
Continuous norepinephrine or dobutamine infusion	2 (5.9%)	1 (2.9%)	OR 0.47 (0.04–5.40); P=0.614
Duration of MBP <60 mmHg (min)	1.0 (0.0–2.0)	0.0 (0.0–3.0)	P=0.635; standardized difference −1.4 (−3.6 to 0.9)
Time from sugammadex to extubation (s)	186.0 (101.3–272.5)	225.0 (160.0–285.0)	P=0.151
MBP at emergence period (mmHg)	108.0 (11.4)	98.7 (11.9)	P=0.002
PACU stay time (min)	40.0 (33.0–50.0)	40.0 (28.5–50.5)	P=0.572
PACU fentanyl dose (mcg)	100.0 (75.0–125.0)	50.0 (0–87.5)	P<0.001
Ward rescue analgesic injections (0–6 h)	0.0 (0.0–1.0)	0.0 (0.0–1.0)	P=0.914
Ward rescue analgesic injections (0–24 h)	1.0 (0.0–1.0)	0.0 (0.0–1.0)	P=0.734
Pain score (30 min postop)	6.0 (5.0–7.0)	3.0(3.0–5.0)	P<0.001
Pain score (6 h postop)	7.0(4.0–8.0)	5.0(4.5–7.0)	P=0.372
Pain score (24 h postop)	4.5(2.0–6.0)	4.0(2.0–5.0)	P=0.231
Postop rescue antiemetics	9 (26.5%)	10 (28.6%)	OR 1.1 (0.4–3.2); P=0.845
Postoperative complications	2 (5.9%)	3 (8.6%)	OR 1.5 (0.2–9.6); P=1.000
Patient satisfaction about pain management (0–10)	7.0 (7.0–9.0)	8.0 (8.0–10.0)	P=0.033
Multivariable predictors of ARV: Sufentanil usage	—	B −1.17; Beta −0.48	95% CI −1.93 to −0.41; P=0.003
Multivariable predictors of ARV: Age (y)	—	B 0.04; Beta 0.23	P=0.020
Multivariable predictors of ARV: OLV time (min)	—	B 0.03; Beta 0.48	95% CI 0.02 to 0.04; P<0.001

Abbreviations: ASD, absolute standardized difference; ARV, average real variability; ASA, American Society of Anesthesiologists; MBP, mean blood pressure; OLV, one-lung ventilation; PACU, post-anesthesia care unit.

ABSTRACT
Competition
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Quality of Recovery Following Oncological Thoracotomy: Continuous Erector Spinae Plane Block Versus Thoracic Epidural Analgesia—The CEPET Randomized Trial

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Background
Thoracic epidural analgesia (TEA) is considered the standard analgesic technique for thoracotomy but may cause hypotension, urinary retention, neurological complications, or technical failure. The erector spinae plane block (ESPB) is a simpler and potentially safer alternative, although evidence regarding patient-centred recovery after open thoracotomy remains limited. We evaluated whether continuous ESPB was non-inferior to continuous TEA for postoperative quality of recovery in patients undergoing oncological lung resection through unilateral thoracotomy.

Methods
This prospective, randomized, open-label, single-centre non-inferiority trial enrolled adults aged 18-65 years with American Society of Anesthesiologists physical status I-II undergoing elective pneumonectomy, lobectomy, or bilobectomy. Patients were randomized 1:1 to continuous unilateral ESPB at T5-T6 or TEA at T7-T9. Both groups received ropivacaine 0.2% with fentanyl 2 micrograms/mL as a bolus followed by infusion at 5 mL/h for 48 h, together with standardized multimodal analgesia. The primary outcome was the Quality of Recovery-15 (QoR-15) score 24 h after surgery. Secondary outcomes included QoR-15 at other time points, numerical rating scale pain scores at rest and during spirometry, pulmonary function, incentive spirometry performance, sedation, and rescue fentanyl use. The updated minimal clinically important difference of 6 points was used as the non-inferiority margin.

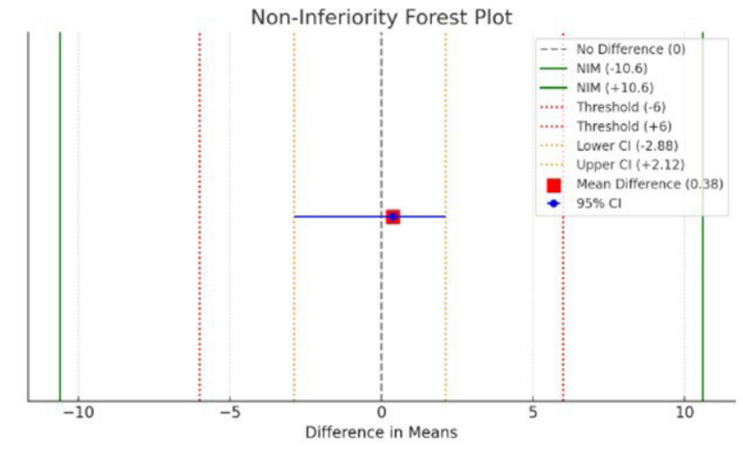
Results
Of 150 patients assessed, 116 were randomized and 80 were included in the analysis (ESPB, n=39; TEA, n=41). Mean QoR-15 scores at 24 h were 118.67 +/- 5.41 with ESPB and 119.05 +/- 5.82 with TEA. The between-group mean difference (ESPB minus TEA) was -0.38 points (95% confidence interval, -2.88 to 2.12); because the lower confidence limit exceeded -6, ESPB met the prespecified criterion for non-inferiority. QoR-15 did not differ between groups immediately after surgery, at 48 h, or at discharge. Pain scores at rest and during spirometry were generally comparable, with no significant group differences at 0 or 24 h. Both groups experienced significant postoperative reductions in forced expiratory volume in 1 second, forced vital capacity, FEV1/FVC ratio, and incentive spirometry performance, but the magnitude and temporal pattern of these changes did not differ between groups. Rescue fentanyl requirements and sedation scores were also comparable. No intervention-related serious complication was observed.

Conclusion
In adults undergoing oncological lung resection through unilateral thoracotomy, continuous ESPB was non-inferior to continuous TEA for quality of recovery at 24 h. ESPB provided comparable analgesia, pulmonary functional outcomes, sedation, and rescue opioid requirements. Continuous ESPB may therefore represent an effective alternative to TEA within multimodal analgesia pathways for open thoracic surgery.

AP-12-3 (2026-0353)

Figure & Table

Figure & Table 1.



ABSTRACT
Competition
Presentation
E-Poster

AP-12-4 (2026-0464)

Comparison of Peri-Operative Pulmonary Outcomes in Pressure-Controlled Ventilation (PCV) Versus Volume-Controlled Ventilation (VCV) in Patients Undergoing Robot Assisted Urology Surgery in Trendelenburg Position – A Prospective Randomized Control Trial

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Background
Robot-assisted surgery is increasing worldwide, yet there is no consensus on the optimal ventilatory strategy for it. We compared peri-operative pulmonary outcomes with PCV and VCV in robotic urology surgery in Trendelenburg position, hypothesizing that PCV offers better pulmonary outcomes, assessed objectively by ventilatory parameters, arterial blood gas (ABG) analysis and lung ultrasound score (LUS).

Methods
After ethics approval, 80 patients (40 per group) were prospectively randomized using sequentially numbered, opaque, sealed envelopes to receive either PCV or VCV ventilation; two were excluded intraoperatively due to protocol crossover. Both groups received tidal volume of 4-6 ml/kg ideal body weight, identical pressure limits and respiratory rate titrated to EtCO2 35–45 mmHg. Low-flow anaesthesia was maintained with 50% O2 and 50% N2O. Patients were placed in 30° Trendelenburg position with CO2 pneumoperitoneum (~12 mmHg). The primary outcome was lung aeration assessed by LUS at 30 minutes and 24 hours postoperatively. Secondary outcomes included airway pressures (Ppeak, Pplat, Pmean), static and dynamic compliance, and driving pressure — at baseline (T0), within 30 minutes of pneumoperitoneum (T1), within 30 minutes (T2) and 2 hours (T3) of Trendelenburg position, and after deflation (T4). ABG parameters (EtCO2, PaCO2, PaO2) were assessed at corresponding times. Alveolar dead space fraction (ADSF), PAO2, A–a gradient, a/A ratio, oxygenation factor and CO2 gradient were also compared.

Results
Seventy eight patients were analysed (PCV 40, VCV 38). Baseline demographics were comparable. LUS within 30 minutes was significantly lower in Group P than Group V (4.0±1.8 vs 4.7±1.5; p<0.001) but at 24 hours was significantly higher in Group P (1.6±1.3 vs 1.0±1.1; p<0.001). No patient required postoperative oxygen supplementation. Peak airway pressures were significantly lower with PCV at baseline, T1, T2 and T4. PCV was associated with significantly higher plateau and driving pressure at time T3. Dynamic compliance was significantly lower with PCV at baseline, T2 and T3. P(a-ET)CO2 gradient and AVDSF were comparable at baseline but significantly lower with PCV at T2, T3 and T4; PaCO2 was significantly lower with PCV at T2 and T4. (A–a)DO2 was comparable except at T3, where it was significantly lower with PCV, while P/F ratio was comparable at all intervals.

Conclusion
PCV provides better alveolar ventilation in patients undergoing robot assisted urology surgery in Trendelenburg position, however does not improve postoperative lung function

AP-12-5 (2026-0467)

Veno-Venous Extracorporeal Membrane Oxygenation for Positional Ventilatory Collapse Caused by a Giant Intrathoracic Solitary Fibrous Tumor: A Case Report

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Introduction
Giant intrathoracic solitary fibrous tumors may cause dynamic cardiopulmonary compression that worsens after anesthetic induction or changes in body position.

Case
A 60-year-old man with a giant solitary fibrous tumor occupying most of the right hemithorax underwent surgical resection. Under pressure-controlled two-lung ventilation in the supine position, tidal volume was approximately 210 mL. After placement in the left lateral decubitus position, tidal volume abruptly decreased to 70 mL and peripheral oxygen saturation decreased from 100% to 90% despite unchanged ventilator settings. Ventilation remained markedly impaired after return to the supine position but improved when the operating table was tilted to a semi-right lateral position. Arterial blood gas analysis showed severe hypercapnic respiratory acidosis, with a $PaCO_2$ of 92.6 mmHg. Because conventional ventilation could not maintain the position required for surgery, veno-venous extracorporeal membrane oxygenation was initiated. The patient was subsequently placed in the left lateral decubitus position, and one-lung ventilation was performed for tumor resection. At the start of surgery, tidal volume remained approximately 80 mL, whereas peripheral oxygen saturation was maintained at 100% with extracorporeal support. After tumor removal, tidal volume increased to approximately 410 mL. Veno-venous extracorporeal membrane oxygenation was discontinued on postoperative day 5, and the patient was discharged on postoperative day 27.

Conclusion
This case demonstrates an unusual sequence of position-dependent ventilatory collapse and suggests that veno-venous extracorporeal membrane oxygenation may serve as a rescue strategy when conventional ventilation cannot maintain gas exchange during surgical positioning.

AP-12-5 (2026-0467)

Figure & Table

Figure & Table 1.

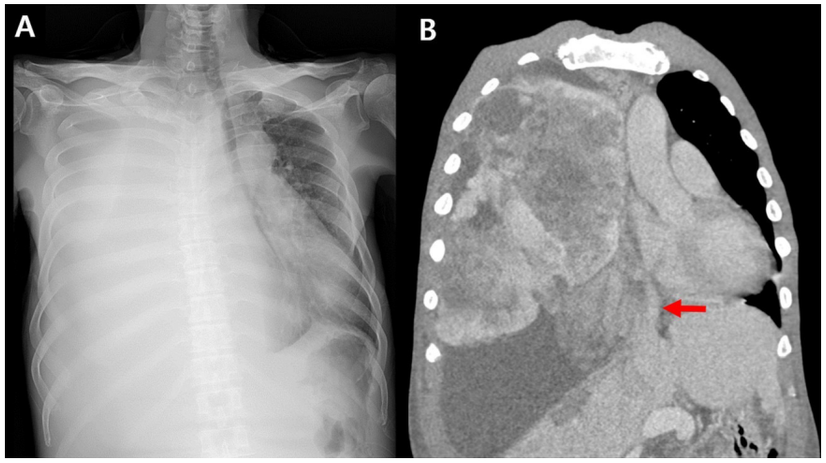
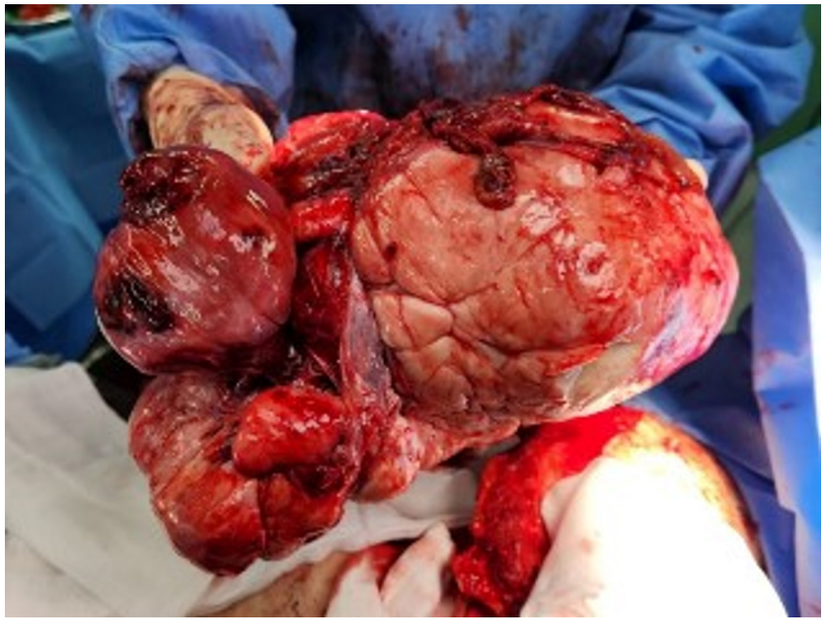


Figure & Table 2.



AP-12-6 (2026-0523)

Anaesthetic Management of a Benign Vascular Sternal Neoplasm Excision and Implant Placement: A Case Report

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Introduction

Sternal mass resection and chest wall reconstruction present significant perioperative anaesthetic challenges. These procedures involve risks of major mediastinal vessel injury, massive haemorrhage and postoperative pulmonary complications. This case report outlines the anaesthetic management of a 54-year-old male with multiple severe systemic comorbidities who underwent a prolonged surgery for sternal neoplasm excision followed by a 3D-printed titanium implant reconstruction.

Case

A 54-year-old male (77 kg,173 cm) with a history of triple-vessel coronary artery disease post-PCI, hypertension, diabetes mellitus, and obstructive sleep apnea (STOP-BANG 5/8, AHI 20) presented with a 6×6 cm sternal mass. Preoperative imaging (PET-CT) identified an 8×8.2×6 cm lytic lesion of the upper sternum compressing the left brachiocephalic vein and abutting the arch of aorta. Intraoperative ASA standard monitoring was supplemented with an arterial line in the left radial artery and a central venous catheter in the right internal jugular vein. Induction was accomplished using fentanyl, propofol, and atracurium, followed by endotracheal intubation. Anaesthesia was maintained with isoflurane, air, oxygen, a continuous fentanyl infusion, and intermittent neuromuscular blockade. Mechanical ventilation initially utilized a volume-controlled mode (tidal volume 7 ml/kg, RR 12 breaths/min, PEEP 7 cmH2O). The resection strategy demanded a combined approach-opening with video assisted thoracoscopic surgery (VATS) to inspect the mass from inside, alongside the open surgical resection. This dual approach caused simultaneous challenges. Upon opening the right pleural cavity, the tidal volume was temporarily reduced to 3 ml/kg with an increased respiratory rate of 20 breaths/min to mitigate tissue motion. A brief period of intraoperative apnea was maintained during the sternal resection to protect underlying structures. Following en-bloc mass removal, plastic surgeons reconstructed the defect using a mesh, a custom 3D-printed titanium implant secured with screws, and local flaps. Serial arterial blood gases, normocapnia and stable hemodynamics were maintained throughout the 10-hour procedure. The patient was shifted while intubated to the ICU in view of anticipated postoperative pulmonary complications due to the prolonged surgery and the need for mechanical ventilation. He was successfully extubated on postoperative day 1 and discharged home on day 10 without complications.

Conclusion

Meticulous preoperative planning, intraoperative ventilatory modulation-including low tidal volume ventilation with deliberate apnea and vigilant invasive monitoring are essential for successful anaesthetic outcomes in complex sternal resection and reconstruction surgeries.

AP-12-6 (2026-0523)

Figure & Table

Figure & Table 1.



AP-12-7 (2026-0154)

Anesthesia for Tracheobronchial Stenting Using Flexible Bronchoscope in Children with Recurrent Airway Stenosis

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Introduction

Airway management in children with airway obstruction caused by tracheobronchial stenosis poses a great challenge even more so when neurological problems and recent pulmonary infections are involved. Airway patency is a hallmark of a successful anesthesia, as failure to keep a patent airway leads to unwanted catastrophic events. Tracheal stenting, albeit unpopular, is one of the necessary alternatives for treating central airway obstruction in pediatric patients. Ensuring a patent airway in this kind of procedure brings challenge to the anesthesia provider. Moreover, airway stimulation and inadequate anesthesia depth will evoke events as laryngospasm and bronchospasm, making anesthesia management more difficult.

Case

A 4-year-old boy weighing 12 kgs presented with central airway obstruction due to tracheal stenosis and recurrent episodes of upper airway obstruction despite multiple laser ablation and balloon dilatation. His medical history was notable for left frontotemporoparietal encephalomalacia secondary to perinatal hypoxic injury, resulting in right-sided hemiparesis and left central facial nerve palsy. Additional chronic conditions included microcephaly and recurrent seizures, with the most episode occurring one month prior to admission.

He was admitted to the hospital due to pulmonary infection. After the infection subsided, he was scheduled for tracheal stenting using HANAROSTENT

On the day of the procedure, he was transferred to catheterization laboratory because fluoroscopic guidance was required. He received intravenous premedication with midazolam and ketamine. Open arrival in the operating room, continuous electrocardiogram and pulse oximetry monitoring was initiated, while non-invasive blood pressure was measured every 5 minutes.

Airway patency was initially maintained using tubeless anesthesia during diagnostic bronchoscopy followed by insertion of laryngeal mask airway (LMA) for tracheal stent placement. The patient was kept deeply anesthetized with intravenous propofol during tubeless anesthesia followed by inhaled sevoflurane after LMA insertion to minimize any unnecessary stimuli to the airway.

Following successful tracheal stent placement, the patient developed recurrent laryngospasm, necessitating endotracheal intubation to maintain airway patency during recovery in ICU.

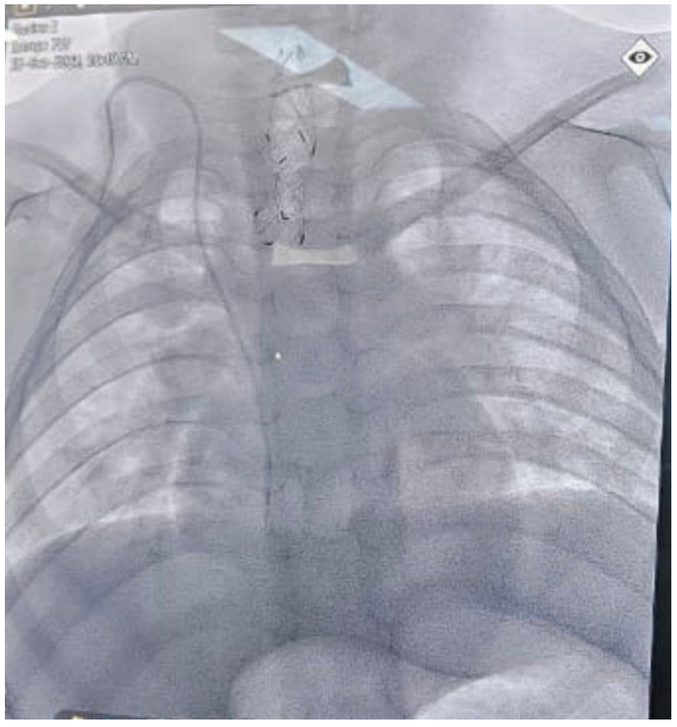
Conclusion

Ensuring airway patency and maintaining an adequate depth of anesthesia are crucial during tracheal stenting in pediatric patients. Tubeless anesthesia for the initial bronchoscopy followed by laryngeal mask insertion for the tracheal stent placement is a feasible and effective technique when combined with adequate anesthesia depth throughout the procedure

AP-12-7 (2026-0154)

Figure & Table

Figure & Table 1. **Figure 1.** Fluoroscopy image after tracheal stenting



AP-12-8 (2026-0185)

Anaesthetic Management for Rigid Oesophagoscopy in Ehlers-Danlos Syndrome

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Introduction

The anaesthetic management of patients with Ehlers-Danlos syndrome (EDS) is complex due to its multisystemic manifestations including joint hypermobility, friable tissues with risk of airway trauma, as well as autonomic dysfunction. EDS patients can also have multiple respiratory pathologies – these may be structural (pectus deformities, tracheobronchomalacia, obstructive sleep apnoea [OSA]), parenchymal (pulmonary hemorrhage, spontaneous pneumothorax) or inflammatory (non-allergic mast cell activation syndrome)1. We present a case of EDS with concurrent asthma and OSA presenting for emergency rigid oesophagoscopy under general anaesthesia.

Case

A 60 year old female with Ehlers-Danlos syndrome type 4 presented for emergency rigid oesophagoscopy for removal of a fishbone lodged in the proximal oesophagus. Her past medical history is significant for a previous episode of unprovoked pulmonary embolism requiring lifelong anticoagulation. She also has concurrent respiratory conditions of asthma and mild OSA, including one hospitalisation within the past year for infective exacerbation of asthma. There was otherwise no evidence of vascular abnormalities such as aortic aneurysms, and no known haemorrhagic manifestations.

Preoperatively, her oxygen saturations were 90-94% on room air, and an arterial blood gas showed hypoxaemia (arterial pO2 65mmHg on room air). She reported subjective breathlessness, however there were no signs or symptoms of active asthma exacerbation or acute respiratory infection. A chest radiograph showed no evidence of spontaneous pneumothorax.

Intraoperatively, she was pre-medicated with 2 puffs of salbutamol inhaler. General anaesthesia was induced with propofol, fentanyl and rocuronium, and maintained with inhaled sevoflurane in oxygen/air. Extreme care was taken with airway management including gentle laryngoscopy, down-sized endotracheal tube (6.5mm) and minimal neck manipulation. The surgeons were also advised to minimise neck extension for oesophagoscopy to avoid musculoskeletal injuries. Post-intubation, she had an episode of bronchospasm which resolved after intratracheal salbutamol was administered. After the bronchospasm episode, airway pressures were kept low to reduce the risk of pneumothorax. She remained haemodynamically stable with no suggestion of autonomic dysfunction; care was taken to avoid histamine-releasing drugs that can trigger mast cell degranulation. The rest of the procedure proceeded uneventfully, and she was extubated awake after sugammadex reversal. She was then transferred to the high dependency ward on face mask oxygen.

Conclusion

Patients with EDS are inherently high-risk candidates for general anaesthesia, and must be handled with utmost care to avoid musculoskeletal injuries. Preparation and vigilance are also essential to prevent and manage potential respiratory or cardiovascular complications. In this EDS patient with multiple respiratory comorbidities, important considerations included ruling out and preventing spontaneous pneumothorax, pulmonary haemorrhage, and spontaneous mast cell activation. Importantly, EDS type 4 patients are especially prone to vascular complications such as spontaneous arterial ruptures/dissections or spontaneous visceral rupture2, which necessitates close haemodynamic monitoring and tight blood pressure control. Good perioperative planning and multidisciplinary communication contributed to a good perioperative outcome.

Presentation

Abstract Presentation 13

Date / Time	Nov 5 (Thu), 15:30-17:00
Room	Room D *(Paradise City)*
Language	English
Chair(s)	Dong Kyu Lee *(Dongguk University, Republic of Korea)* Chung-Sik Oh *(Konkuk University, Republic of Korea)*

AP-13-1
2026-0392

Effect of Individualized Positive End-Expiratory Pressure on Driving Pressure and Mechanical Power during Laparoscopic Colorectal Surgery: A Randomized Controlled Trial

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AP-13-2
2026-0451

Development and Evaluation of a Machine Learning Model to Predict Dynamic Lung Compliance in Patients Undergoing Mechanical Ventilation under General Anesthesia

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1. Anesthesiology and Pain Medicine, Severance, Republic of Korea

AP-13-3
2026-0099

Predicting Postoperative Acute Kidney Injury in Thoracic Surgical Patients Using Cascade Machine Learning

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AP-13-4
2026-0156

Retrospective Observational Study of Lung Isolation Devices in Adult Elective Thoracic Surgeries over 10 Years in a Tertiary Cancer Care Hospital

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AP-13-5
2026-0305

Refractory Hypercapnia during Anesthesia for Rectal Cancer Robotic Surgery

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AP-13-6
2026-0273

Cystic Lungs and Silent Danger: Anesthetic Lessons from a Case of Lymphangioleiomyomatosis (LAM)

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AP-13-7
2026-0282

A Case Report of an Atypical Manifestation of Acute Pulmonary Embolism under General Anaesthesia

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AP-13-8
2026-0310

Closed-Loop Adaptive Support Ventilation (INTELLiVENT-ASV) in Severe ARDS Secondary to Lupus-Induced Diffuse Alveolar Hemorrhage

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1. Anaesthesiology and Intensive Care, National University of Malaysia, Malaysia

Effect of Individualized Positive End-Expiratory Pressure on Driving Pressure and Mechanical Power during Laparoscopic Colorectal Surgery: A Randomized Controlled Trial

Hyun Jeong Kwak[1], Youn Yi Jo[1], Jung Ju Choi[1], Ga Hee Kim[1], Chun Gon Park[1*]

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Background
Individualized positive end-expiratory pressure (PEEP) titration may improve respiratory mechanics during intraoperative ventilation, but its effects during prolonged pneumoperitoneum remain uncertain. We evaluated whether PEEP titration targeting the lowest driving pressure (DP) alters DP and mechanical power (MP) during laparoscopic colorectal surgery.

Methods
In this randomized controlled trial, 60 patients undergoing elective laparoscopic colorectal surgery were allocated to conventional lung-protective ventilation (LPV) or individualized PEEP titration targeting the lowest achievable DP (DPV). The primary outcome was intraoperative DP. Secondary outcomes included MP, respiratory compliance, gas exchange, dead-space ventilation, and postoperative pulmonary complications (PPCs). Repeated measures were analyzed using linear mixed-effects models.

Results
Fifty-eight patients were analyzed (29 per group). DP showed a significant group-by-time interaction (P=0.004) and was lower with DPV 15 min after pneumoperitoneum (mean difference, −2.45 cmH_2O; 95% confidence interval [CI], −3.64 to −1.26; adjusted P<0.001). In contrast, MP showed a significant group-by-time interaction (P<0.001) and was higher with DPV at 15 and 45 min after pneumoperitoneum and at the end of surgery (all adjusted P<0.001). Exploratory time-weighted mean DP during pneumoperitoneum was lower with DPV than with LPV (9.51 [2.90] vs 11.50 [2.24] cmH_2O; mean difference, −1.99; 95% CI, −3.36 to −0.63; P=0.005), whereas time-weighted mean MP was higher (7.39 [2.06] vs 5.54 [1.19] J min^{-1}; mean difference, 1.85; 95% CI, 0.97–2.74; P<0.001). Respiratory compliance and gas exchange did not differ between the groups. PPCs occurred in 5/29 (17.2%) patients with DPV and 2/29 (6.9%) with LPV (P=0.423).

Conclusion
Individualized PEEP titration targeting the lowest DP reduced DP but increased MP during laparoscopic colorectal surgery, without improving respiratory compliance or gas exchange. These findings indicate that PEEP titration based on minimizing DP alone may not reduce the overall mechanical burden of intraoperative ventilation.

AP-13-1 (2026-0392)

Figure & Table

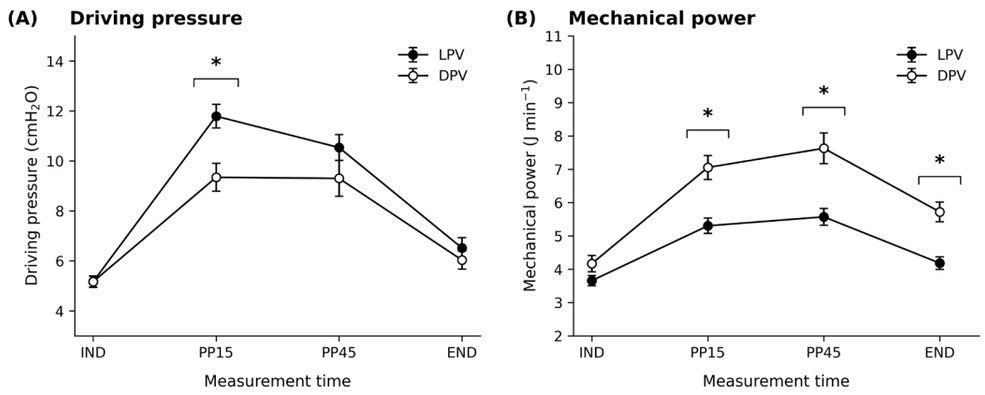
Figure & Table 1.

Table 1. Baseline demographic and perioperative characteristics

Variable	LPV (n=29)	DPV (n=29)
Age (yr)	55.5 (7.1)	53.2 (9.7)
Male sex, n (%)	15 (51.7)	17 (58.6)
Height (cm)	163.9 (8.0)	165.2 (10.7)
Weight (kg)	65.9 (9.6)	65.9 (13.4)
Body mass index (kg m^{-2})	24.5 (2.9)	24.1 (4.2)
Hypertension, n (%)	9 (31.0)	12 (41.4)
Diabetes mellitus, n (%)	7 (24.1)	5 (17.2)
Current smoker, n (%)	10 (34.5)	8 (27.6)
Anaesthesia time (min)	150 (45)	157 (50)
Duration of surgery (min)	110 (42)	114 (45)
Pneumoperitoneum duration (min)	70 (29)	71 (39)

Data are presented as mean (standard deviation) or number (%). LPV, conventional lung-protective ventilation; DPV, driving pressure-guided ventilation.

Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

AP-13-2 (2026-0451)

Development and Evaluation of a Machine Learning Model to Predict Dynamic Lung Compliance in Patients Undergoing Mechanical Ventilation under General Anesthesia

Sungmo Ahn[1], Hyojin Byon[1*], Namo Kim[1]

1. Anesthesiology and Pain Medicine, Severance, Republic of Korea

Background

Dynamic compliance (Cdyn) is an important indicator of respiratory mechanics during mechanical ventilation under general anesthesia, reflecting lung elasticity and expandability. However, the influence of demographic and clinical variables on Cdyn remains unclear, and no model has been developed to predict Cdyn from these variables. This study developed a machine learning model to predict Cdyn and evaluate the influence of these variables.

Methods

We retrospectively analyzed adult patients with American Society of Anesthesiologists (ASA) class 1–2 who underwent endotracheal intubation and mechanical ventilation under general anesthesia. Data were collected using a Dräger Primus ventilator and Vital Recorder software. Predictors included age, sex, ASA class, ventilator settings, body habitus, and surgery type. Five machine learning algorithms—random forest, extra trees, gradient boosting, extreme gradient boosting, and a neural network—were trained and evaluated on a held-out test set.

Results

We analyzed 5372 cases. Extreme gradient boosting showed the best performance among the five models, with a coefficient of determination (R^2) of 0.429 and a mean absolute error of 6.84 mL/cmH_2O. Predicted body weight, thoracic surgery, and sex were the most important predictors, while ASA class and most other surgery types contributed less.

Conclusion

A machine learning model, particularly extreme gradient boosting, predicted Cdyn using demographic and clinical variables, with predicted body weight, surgery type, sex, and BMI as the main predictors. Further refinement of this model may support more individualized ventilator management in clinical practice.

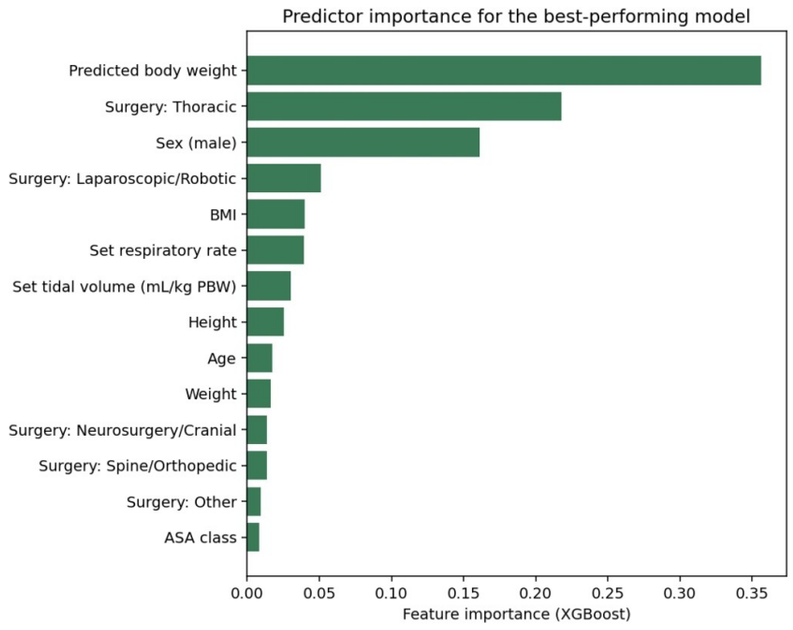
AP-13-2 (2026-0451)

Figure & Table

Figure & Table 1.

Model	R^2	MAE	RMSE
Random Forest	0.418	6.89	8.65
Extra Trees	0.402	7.03	8.76
Gradient Boosting	0.424	6.85	8.60
XGBoost	**0.429 (0.382–0.471)**	**6.84 (6.53–7.17)**	**8.56 (8.19–8.94)**
Neural Network (MLP)	0.383	7.11	8.90

Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

Predicting Postoperative Acute Kidney Injury in Thoracic Surgical Patients Using Cascade Machine Learning

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Background
Acute kidney injury (AKI) occurs in 5–15% of thoracic surgeries and is associated with increased ICU admission, longer hospital stay, and higher mortality. Early identification is important for prevention, yet single machine-learning models may not fully capture complex interactions among risk factors. Cascade machine-learning models may help address class imbalance and improve predictive performance. This study aimed to develop and evaluate cascade machine-learning models to improve AKI prediction in patients undergoing thoracic surgery.

Methods
In this retrospective cohort study, all patients aged 18 and above who underwent noncardiac thoracic surgery at a tertiary university hospital from 2012 to 2024 were included. AKI was diagnosed by Kidney Disease Improving Global Outcomes (KDIGO)-2012 serum creatinine criteria during the first 7 days after surgery. Multiple algorithms were integrated into a cascade framework, including logistic regression, support vector machine, extreme gradient boosting (XGBoost), light gradient boosting machine, and Random Forest. The cascade approach was used to improve the accuracy of predicting each stage of AKI (stages 1–3) in sequence.

Results
Of 1,907 patients, 305 patients (16.0%) developed AKI. Patients were categorized as stage 1 (183, 9.6%), stage 2 (98, 5.2%) and stage 3 (24, 1.3%), respectively. The XGBoost-based cascade model achieved the best predictive performance, with an average precision of 0.920 and an F1 score of 0.902, outperforming all other models in terms of discrimination and accuracy measures. Variables that were consistently most important for prediction across all models were age, body mass index, preoperative glomerular filtration rate, hemoglobin, albumin, neutrophil-to-lymphocyte ratio, intraoperative urine output and duration of surgery.

Conclusion
Cascade machine learning provides a strong and accurate way to predict each stage of AKI, adding value to traditional scoring tools. These models may assist anesthesiologists in taking earlier steps to help prevent and reduce postoperative AKI.

AP-13-3 (2026-0099)

Figure & Table

Figure & Table 1.

Table I. Patient Characteristic, Anesthesia and Surgical details

Variables	AKI (n = 305)	Non-AKI (N = 1602)	P-value
Age (years) mean ± SD	60.1±14.8	57.5±14.8	0.004
Male (n, %)	197 (64.6)	918 (57.6)	0.024
Body mass index (kg/m^2)	22.5±4.3	21.8±4.0	0.006
ASA PS classification (n, %)			0.001
ASA 1	19 (6.2)	212 (13.3)	
ASA 2	144 (47.2)	929 (58.3)	
ASA ≥ 3	142 (48.6)	452 (28.4)	
Comorbidities (n, %)			
Hypertension	128 (42)	575 (36.1)	0.053
Diabetes mellitus	57 (18.7)	223 (14.0)	0.033
Dyslipidemia	76 (25.0)	398 (24.9)	0.995
Chronic obstructive pulmonary disease	26 (8.5)	122 (7.0)	0.359
Coronary artery disease	12 (3.9)	35 (2.2)	0.074
Preoperative hemoglobin (g/dL) (median, P25-75)	11.5 (9.7-13.1)	12 (10.4-13.3)	<0.001
Preoperative creatinine (g/dL) (median, P25-75)	0.9 (0.7-1.1)	0.8 (0.7-1.0)	<0.001
Preoperative albumin (g/dL) (median, P25-75)	3.5 (2.7-4.1)	3.9 (3.2-4.3)	<0.001
Preoperative glomerular filtration rate (mL/min/1.73 m^2) (median, P25-75)	84.4 (59.9-103.5)	92.5 (75.3-106.6)	<0.001
Preoperative neutrophil-to-lymphocyte ratio (median, P25-75)	3.6 (2.2-7.0)	3.0 (1.9-5.5)	<0.001
Preoperative Medication (n, %)			
NSAIDs	30 (9.9)	140 (8.8)	0.548
ACE inhibitors	22 (7.2)	100 (6.3)	0.542
Angiotensin II receptor blockers	28 (9.2)	120 (7.5)	0.326
Video-assisted thoracoscopic surgery (n, %)	162 (53.1)	925 (58.1)	0.109
Type of surgical procedures (n, %)			<0.001
Wedge resection/ Segmentectomy	43 (14.1)	375 (23.4)	
Lobectomy	91 (29.8)	516 (32.2)	
Pneumonectomy	4 (1.3)	22 (1.4)	
Decortication	113 (37.0)	393 (24.5)	
Other procedures	54 (17.8)	296 (18.5)	
Duration of surgery (min) (median, P25-75)	180 (130-240)	180 (135-240)	0.955
Intraoperative fluid intake (ml) (median, P25-75)	800 (450-1300)	800 (500-1250)	0.838
Intraoperative urine output (ml) (median, P25-75)	190 (80-300)	220 (120-390)	<0.001
Intraoperative blood loss (ml) (median, P25-75)	200 (50-400)	100 (50-300)	<0.001
Intraoperative hypotension (n, %)	104 (34.1)	473 (29.7)	0.130

ABSTRACT
Competition
Presentation
E-Poster

AP-13-4 (2026-0156)

Retrospective Observational Study of Lung Isolation Devices in Adult Elective Thoracic Surgeries over 10 Years in a Tertiary Cancer Care Hospital

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Background
Lung isolation device(LID)practices have evolved over the years with varied devices being used based on their characteristics and the expertise available. The aim of the study was to understand the evolving practice of use of various LIDs.

Methods
This retrospective observational study was conducted in adult patients undergoing elective thoracic oncological surgeries at a tertiary care center from 2015 to 2024 after institutional ethics committee approval and waiver of consent. The trial was registered with the national trial registry

Results
2063 cases requiring LIDs were studied of which 1731 (84%) received double lumen tubes (DLT) and 16% receiving bronchial blockers (BB). Figure 1 shows the year wise distribution of LID. BBs were used more commonly in oesophageal (33.5%), mediastinal (18%), and chest wall surgeries (36%). Lung collapse scores and dislodgement rates were better with DLTs.A notable rise in BB utilization was observed after 2020, particularly in minimally invasive surgeries. This shift may be attributed to free availability of paediatric fiberoptic bronchoscopes, increased familiarity with BB in the anesthesiologists and growing acceptability in surgeons.

Conclusion
Over the past decade, DLTs were the preferred choice for lung isolation in thoracic surgeries in a tertiary care cancer centre, particularly for major lung resections. However, BB have seen increased usage and emerged as reliable and safe alternatives, especially in extra pulmonary surgeries requiring lung collapse for surgical exposure

AP-13-4 (2026-0156)

Figure & Table

Figure & Table 1.

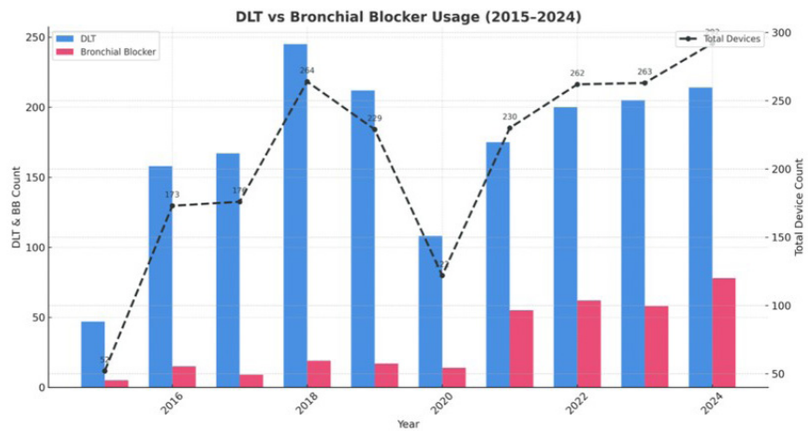


Fig 1: Graph of year wise distribution of number of DLTs and BBs used from 2015 to 2024

ABSTRACT
Competition
Presentation
E-Poster

Refractory Hypercapnia during Anesthesia for Rectal Cancer Robotic Surgery

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Introduction

Robot-assisted surgery requires prolonged CO2 pneumoperitoneum and steep Trendelenburg positioning. Both reduce lung compliance and raise airway pressure, and both promote CO2 absorption. These effects raise hypercapnia risk, especially with underlying airway disease.[1] We report refractory intraoperative hypercapnia during an 11.5-hour robotic pelvic operation. Ventilator adjustment alone did not resolve it. Lowering pneumoperitoneum pressure and Trendelenburg angle, with pharmacologic and surgical intervention, was required.

Case

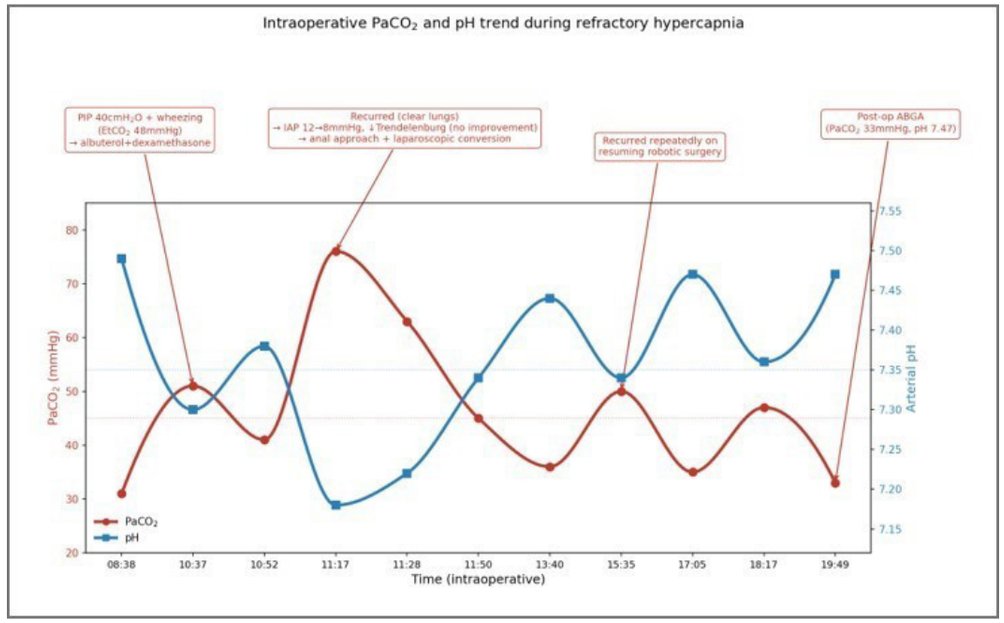
An 84-year-old woman (150 cm, 39.7 kg, ASA III) was scheduled for robotic abdominoperineal resection with vaginectomy. She had hypertension, long-term theophylline use, and rectal cancer with lung metastases invading the vagina. Preoperative spirometry showed a previously unrecognized moderate-to-severe obstructive pattern (FEV1 60% predicted, FEV1/FVC 34%). Preoperative arterial blood gas was normal, and pulmonology had cleared her for surgery. Anesthesia was induced with propofol, fentanyl, and rocuronium, and maintained with sevoflurane and remifentanil. Surgery proceeded under CO2 pneumoperitoneum in steep Trendelenburg position. About 2.5 hours after induction of anesthesia, peak inspiratory pressure rose to 40 cmH2O and end-tidal CO2 to 48 mmHg. Wheezing was heard on auscultation, suggesting bronchospasm. Inhaled albuterol and intravenous dexamethasone improved both values. Robotic surgery continued, but hypercapnia recurred despite clear breath sounds. Reducing pneumoperitoneum pressure from 12 to 8 mmHg and attenuating the Trendelenburg angle did not help. The approach was converted to an anal approach with conventional laparoscopy. Hypercapnia then recurred repeatedly whenever robotic surgery had to resume for essential steps. Arterial blood gas at its worst showed acute respiratory acidosis, with PaCO2 peaking near 76 mmHg and pH falling to about 7.18 (Figure 1). The operation finished after 11.5 hours. Given the prolonged course, the patient remained intubated and was transferred to intensive care. She was extubated uneventfully on postoperative day 1.

Conclusion

Refractory intraoperative hypercapnia during prolonged robotic surgery is often multifactorial. Contributing factors include sustained peritoneal CO2 absorption, reduced compliance from steep Trendelenburg positioning, and airway hyperreactivity from occult obstructive lung disease.[1] When hypercapnia does not respond to ventilator adjustment alone, prompt action is needed: reducing pneumoperitoneum pressure, attenuating the Trendelenburg angle, bronchodilator/corticosteroid therapy, and converting the surgical approach if necessary.

Figure & Table

Figure & Table 1.



AP-13-6 (2026-0273)

Cystic Lungs and Silent Danger: Anesthetic Lessons from a Case of Lymphangioleiomyomatosis (LAM)

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Introduction

Lymphangioleiomyomatosis (LAM) is a rare cystic lung disease with a high risk of recurrent spontaneous pneumothorax. During anesthesia, positive-pressure ventilation may precipitate cyst rupture and life-threatening barotrauma, making ventilation particularly challenging. We report the anesthetic management of a patient with suspected LAM undergoing video-assisted thoracoscopic surgery (VATS) using an ultra-protective one-lung ventilation strategy.

Case

A 51-year-old woman with recurrent pneumothoraces developed a large left pneumothorax following commercial air travel. Chest computed tomography revealed diffuse bilateral pulmonary cysts with hepatic and renal cysts, highly suggestive of lymphangioleiomyomatosis (LAM). She underwent VATS wedge resection, lung biopsy, and pleurodesis under general anesthesia. To minimize barotrauma, an ultra-protective OLV strategy was implemented: rapid-sequence induction without mask ventilation, direct placement of a 35-Fr left double-lumen tube, and pressure-controlled ventilation targeting PIP 17–19 cmH_2O, tidal volume 200–300 mL (≈3–4 mL/kg predicted body weight), PEEP 3 cmH_2O, respiratory rate 14 breaths/min, and FiO_2 0.6–0.8. Nitrous oxide, recruitment maneuvers, and unnecessary airway pressures were deliberately avoided throughout the procedure.

The 2-hour VATS procedure was completed uneventfully using the ultra-protective one-lung ventilation strategy. Adequate oxygenation and ventilation were maintained throughout without hypoxemia, hypercapnia, hemodynamic instability, or injurious airway pressures. The patient was extubated successfully in the operating room and recovered without recurrent pneumothorax, chylothorax, respiratory compromise, or other perioperative complications. Multimodal analgesia provided effective pain control without respiratory depression, resulting in an uncomplicated postoperative recovery.

Conclusion

When every positive-pressure breath carries risk, an ultra-protective one-lung ventilation strategy can make thoracic anesthesia both safe and feasible in patients with LAM. This case highlights that meticulous barotrauma avoidance, rather than simply maintaining oxygenation, should guide anesthetic management in patients with fragile cystic lung disease.

AP-13-6 (2026-0273)

Figure & Table

Figure & Table 1.

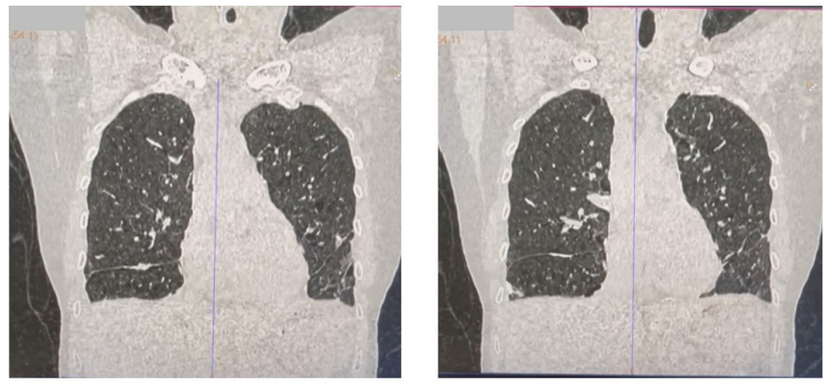


Figure 1. HRCT of chest showing multifocal pulmonary cyst with air space opacities

Figure & Table 2.



Figure 2. Video assisted thoracoscopic surgery wedge resection of blebs and bullae, lung biopsy and pleurodesis

ABSTRACT
Competition
Presentation
E-Poster

A Case Report of an Atypical Manifestation of Acute Pulmonary Embolism under General Anaesthesia

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Introduction

Pulmonary embolism (PE) in the peri-operative setting is a rare but life-threatening emergency (1) and can be contributed by surgical trauma and prolonged immobilisation. Diagnosis can be challenging because the classical symptoms can be masked by general anaesthesia (GA). A high index of suspicion needs to be considered when there is hypoxia, unexplained drop in ETCO2 as well as shock (2). This case report demonstrated other corroborative techniques of diagnosing a PE such as a discrepant diffusion of volatiles as well as use of POCUS.

Case

A 38 year male (BMI 34, 102kg) polytrauma patient with no prior medical history was planned for a surgical fixation of left tibia plateau and sacral fractures under GA on Day 4 of trauma. His injuries included a right femur fracture (surgically fixed on day of presentation), left tibia fracture, sacral fracture as well as a conservatively managed Schaefer III laryngeal trauma.

Induction of anaesthesia was performed with IV Propofol, midazolam, ketamine and remifentanil infusion with concomitant nasal prongs 15L/min oxygenation throughout. Post induction, bag mask ventilation (BMV) was commenced prior to paralysis with atracurium. Sevoflurane was also turned on to 4%. End-tidal CO2 (ETCO2) levels were noted to be low (10-15mmHg) despite adequate BMV. In addition, the end tidal sevoflurane was only 0.3%. The NIBP cycled showed a MAP > 70. The patient desaturated to 88% even with adequate BMV. Breath sounds were equal. Endotracheal intubation was secured with a video laryngoscope. Post intubation, saturations remained low at 90-91% on FiO2 1 despite a good ETCO2 waveform. On-table chest radiography excluded a pneumothorax and confirmed optimal ETT placement. Lung POCUS showed bilateral lung sliding with minimal B lines. Cardiac POCUS showed a possible enlarged RV on the parasternal short axis (PLSAX) view (Fig 1). ABG showed type 1 respiratory failure with a PF ratio 79. In view of high FiO2 requirements, the procedure was cancelled to facilitate an urgent CT pulmonary angiogram (CTPA).

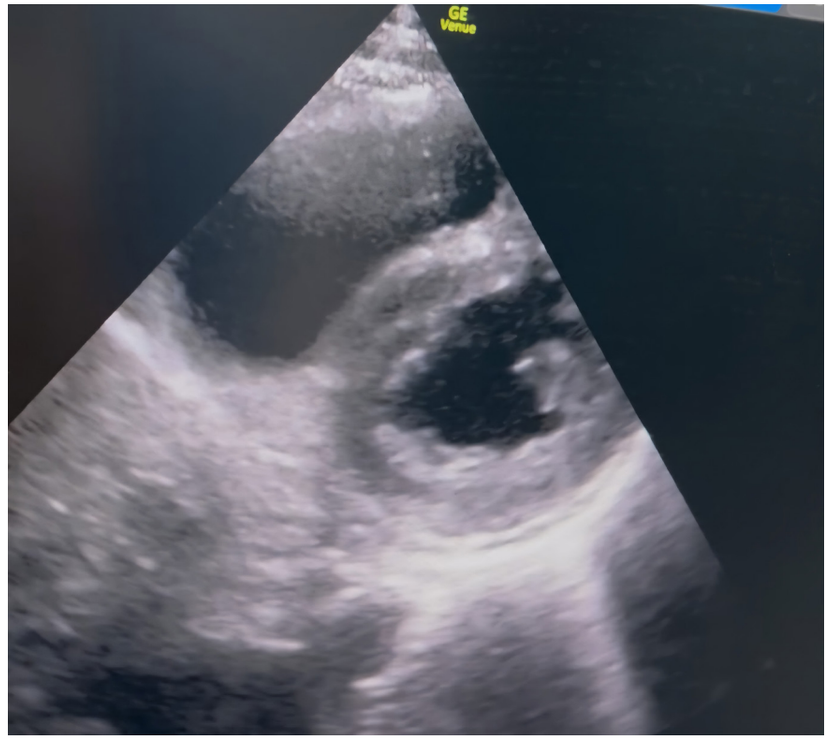
CTPA showed bilateral pulmonary emboli in the left lower lobe and right middle lobe pulmonary arteries. The patient was subsequently extubated in the ICU and started on therapeutic doses of clexane. Further imaging also showed a right superficial femoral vein partial thrombosis.

Conclusion

Pulmonary embolism has to be carefully considered in trauma patients, especially when there has been limb surgery or immobilisation. The classical presentation of a S1Q3T3 on the ECG or an unexplained sinus tachycardia may not always be present. In pulmonary embolism, there is a V/Q mismatch in the lung and this can lead to a drop in ETCO2 levels as the first presentation under anaesthesia. In normal perfusion states, a sudden drop in ETCO2 could signal the presence of a shunt. In this case, this was corroborated by the low end tidal sevoflurane concentration levels – signalling the pathology of reduced ETCO2 being at the lungs. Bedside POCUS also played a crucial role in confirming the suspicion of PE. Through a combination of clinical and point of care investigations, the diagnosis was quickly reached, surgery averted and treatment commenced.

Figure & Table

Figure & Table 1.



AP-13-8 (2026-0310)

Closed-Loop Adaptive Support Ventilation (INTELLiVENT-ASV) in Severe ARDS Secondary to Lupus-Induced Diffuse Alveolar Hemorrhage

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Introduction

Bleeding into the lungs (diffuse alveolar hemorrhage) in patients with systemic lupus erythematosus and end-stage kidney disease can quickly lead to severe acute respiratory distress syndrome (ARDS). Ventilating these patients is very challenging because lung mechanics change rapidly during dialysis, fluid overload is common, and patients often fight the ventilator (dyssynchrony). Adaptive Support Ventilation (INTELLiVENT-ASV) is an automated, closed-loop ventilator mode. It continuously measures lung stiffness and airway resistance breath-by-breath to adjust breathing rate and volume automatically, protecting the lungs and easing the patient's work of breathing.

Case

A 36-year-old woman with lupus and kidney failure on regular hemodialysis was admitted with severely elevated blood pressure and coughing up blood due to lung bleeding. Following intubation, she developed severe ARDS (PaO_2/FiO_2 ratio under 130, pH 7.15, pCO_2 60.6 mmHg) and experienced severe conflict with the standard ventilator settings, requiring muscle-paralyzing medication. On her fifth intensive care day, her ventilation mode was switched to INTELLiVENT-ASV. The automated system immediately enforced safe, lung-protective breathing (tidal volumes of 6 to 8 mL per kilogram of ideal body weight) and kept lung pressures safe (plateau pressure 27 cmH_2O or lower). As she underwent daily plasma exchange and fluid removal through dialysis, INTELLiVENT-ASV adjusted instantly to continuous changes in her lung mechanics. Her ventilator conflict stopped, allowing medical staff to discontinue muscle relaxants and reduce sedation. As her lung bleeding resolved, INTELLiVENT-ASV automatically decreased ventilator support (from 200% down to 70%, then 25%). She successfully passed a breathing trial and was removed from the ventilator (extubated) within 7 days.

Conclusion

In complex severe lung failure caused by autoimmune bleeding and rapid fluid shifts during dialysis, INTELLiVENT-ASV provides personalized, automated ventilation that protects fragile lungs, improves breathing synchrony, and accelerates recovery off the ventilator.

Presentation

Abstract Presentation 14

Date / Time	Nov 5 (Thu), 15:30-17:00
Room	Room E *(Hyatt Regency)*
Language	English
Chair(s)	Aeryoung Lee *(Jeju National University, Republic of Korea)* Yoon Ji Choi *(Korea University, Republic of Korea)*

AP-14-1
2026-0465

Regional Disparities in Inter-Hospital Transfer among Time-Critical Obstetric Emergencies: An 11- Year Nationwide Study of Access to Emergency and Operative Care in Korea

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AP-14-2
2026-0173

Impact of an Enhanced Recovery after Cesarean Delivery Program on Postoperative Pain and Recovery

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AP-14-3
2026-0579

Comparison of Impact of Intrathecal Morphine with Ultrasound-guided Transversus Abdominis Plane Block on Patient Reported Quality of Recovery Following Elective Caesarean Delivery: A Non-Inferiority Randomized Trial

Abhishek Jadhav[1], Anshul Singh[2*], Rashmi Ramachandran[3], Vimi Rewari[4], Nitin Choudhary[5], Aditi Suri[6], K Aparna Sharma[7]

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5. Anesthesiology, Pain Medicine and Critical Care, Assistant Professor, India
6. Anesthesiology, Pain Medicine and Critical Care, Assistant Professor, India
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AP-14-5
2026-0385

Navigating Pheochromocytoma in Advanced Pregnancy: A Four-Decade Review

Rashmi Ramachandran[1], Vimi Rewari[1], Lipika Soni[1], Kritika Sharma[1], Saundarya Monga[1*]

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AP-14-6
2026-0166

Post-Operative Pain and Associated Factors after Cesarean Section Performed under Spinal Anesthesia at a Tertiary Hospital in the Philippines

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AP-14-8
2026-0394

Assessment of Residual Gastric Volume in Pregnancy Using Point-of-care Ultrasonography: A Systematic Review and Meta-analysis

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AP-14-1 (2026-0465)

Regional Disparities in Inter-Hospital Transfer among Time-Critical Obstetric Emergencies: An 11- Year Nationwide Study of Access to Emergency and Operative Care in Korea

Jernghun Kim[1], Heeye Lim[1], Hye Sook Min[2], Ho Kyung Sung[2], Mijung Yun[1*]

1. Department of Anesthesiology and Pain Medicine, National Medical Center, Republic of Korea
2. Public Health Research Institute, National Medical Center, Republic of Korea

Background
Time-critical obstetric emergencies are uncommon and unpredictable, yet can rapidly cause severe maternal morbidity, fetal compromise, or death. Outcomes depend not only on clinical severity but also on whether obstetric, anesthetic, and operative care is available without delay at the presenting hospital. We evaluated temporal trends in birth-adjusted emergency presentation rates, regional variation in cesarean delivery and inter-hospital transfer, and the geographic distribution of patients and treating hospitals across Korea.

Methods
We conducted a retrospective descriptive study using the National Emergency Department Information System from 2015 through 2025. From all ICD-10 diagnosis fields, we identified emergency visits with the five conditions of highest cesarean urgency (Lucas category 1–2): placenta previa with hemorrhage, placental abruption, fetal distress, cord prolapse, and uterine rupture. Patients were classified by residence along a predefined infrastructure gradient: Seoul Capital Area (SCA), non-Seoul metropolitan area (MA), and non-Seoul non-metropolitan area (NMA). Annual presentation rates per 1,000 live births were calculated, and temporal trends were summarized as annual percentage changes (APC) from log-linear models. Age, triage score, cesarean delivery, intensive care unit (ICU) admission, and inter-hospital transfer were compared across regions. District-level patient residences, as well as the locations and case volumes of treating hospitals, were mapped.

Results
Among 5,962 visits (SCA: 2,410; MA: 1,208; NMA: 2,344), median age was 34 years across all regions. Overall, the birth-adjusted presentation rate was highest in NMA (SCA: 1.40, MA: 1.87, NMA: 2.43 per 1,000 live births), and rates increased at similar APCs in all regions (SCA: +7.4%, MA: +5.9%, NMA: +5.8%; overlapping 95% CIs; Figure 1). NMA had the highest inter-hospital transfer rate (SCA: 1.62%, MA: 0.75%, NMA: 2.09%) and ICU admission rate (SCA: 1.70%, MA: 2.90%, NMA: 3.16%), despite having the lowest proportion of high-acuity (triage level 1–2) patients (SCA: 14.3%, MA: 13.2%, NMA: 9.8%). The cesarean delivery rate was also lowest in NMA (SCA: 42.4%, MA: 44.0%, NMA: 38.5%). Patients came from 244 of 252 districts, with high-frequency districts in all three regions, but were treated at 130 hospitals, with the top 20 hospitals handling 57% of visits (Figure 2).

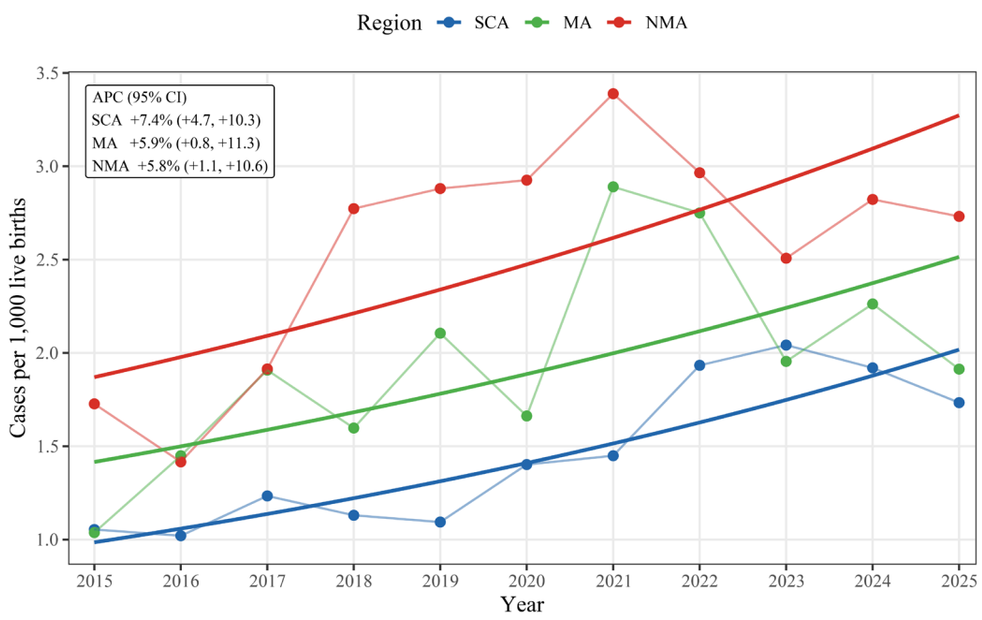
Conclusion
While obstetric emergencies occurred nationwide, definitive care was concentrated in a few hospitals. Regional disparities in transfer and intensive care use, unexplained by age or acuity, are more likely to reflect uneven access to such care. The regional distribution of obstetric, neonatal, and operative capacity, including readiness for emergency cesarean delivery, therefore warrants policy consideration.

AP-14-1 (2026-0465)

Figure & Table

Figure & Table 1.

Figure 1. Birth-adjusted presentation rate of time-critical obstetric emergencies by region, 2015–2025.



Annual counts of emergency department visits for the five target diagnoses were divided by the number of live births in the same region and year and expressed as cases per 1,000 live births. Points denote observed annual rates and solid lines the log-linear regression fits (log[rate] ~ year), from which the annual percent change (APC) was derived as (exp[β] − 1) × 100, with 95% confidence intervals obtained on the log scale and back-transformed. The inset lists each region's APC with its 95% confidence interval (SCA +7.4% [+4.7, +10.3]; MA +5.9% [+0.8, +11.3]; NMA +5.8% [+1.1, +10.6]). All three regional slopes were positive and statistically significant (SCA, $p < 0.001$; MA, $p = 0.028$; NMA, $p = 0.019$); these tests address change over time within each region and not differences between regions. The three confidence intervals overlapped: the level of the birth-adjusted rate was consistently highest in NMA, but the rate of increase over time was not statistically distinguishable among regions. The measure reflects the proportion of pregnancies presenting as an obstetric emergency — a product of the antenatal–emergency care pathway — rather than the true incidence of the underlying conditions.

Abbreviations: APC, annual percent change; CI, confidence interval; SCA, Seoul Capital Area; MA, non-Seoul metropolitan area; NMA, non-Seoul non-metropolitan area.

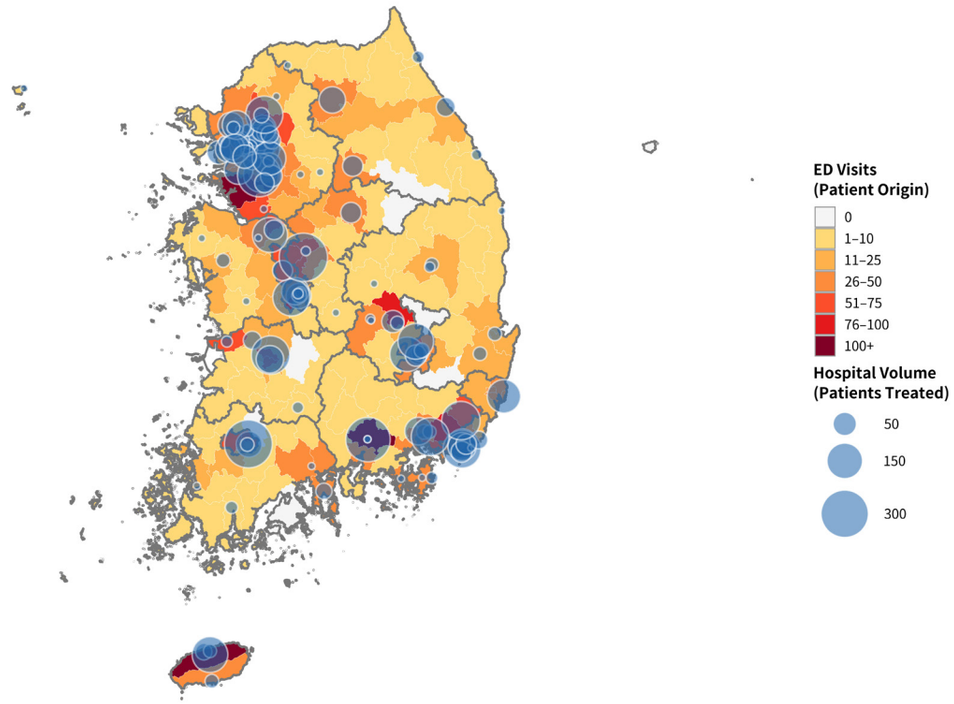
ABSTRACT
Competition
Presentation
E-Poster

AP-14-1 (2026-0465)

Figure & Table

Figure & Table 2.

Figure 2. Spatial mismatch between the residential origins of time-critical obstetric emergencies and the locations of treating hospitals, Korea, 2015–2025.



The choropleth shades each sigungu (municipal district) by the number of emergency visits originating from residents of that district (light grey = 0 to dark red = ≥100); overlaid blue circles mark treating emergency hospitals, with circle area proportional to the number of these patients each hospital handled. Emergencies occurred in 244 of 252 districts nationwide, whereas care was delivered at 130 hospitals, the 20 highest-volume of which handled 57% of visits. High-volume hospitals clustered in the Seoul Capital Area and non-Seoul metropolitan cities, whereas many high-frequency districts in the non-metropolitan periphery contained no high-volume hospital. Shading reflects district of residence rather than the hospital where care was received. This figure conveys the spatial pattern qualitatively and is not the basis for statistical testing; it provides a structural context for the regional differences in inter-hospital transfer reported in the Results.

Abbreviations: ED, emergency department.

AP-14-2 (2026-0173)

Impact of an Enhanced Recovery after Cesarean Delivery Program on Postoperative Pain and Recovery

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2. Department of Obstetrics and Gynecology, Wonju College of Medicine, Yonsei University, Republic of Korea

Background
Enhanced recovery after cesarean delivery (ERAC) incorporates shortened fasting, multimodal analgesia, early oral intake, and early ambulation but remains uncommon in the Republic of Korea. We evaluated whether a locally adapted ERAC pathway was associated with reduced postoperative pain and improved patient-reported recovery after cesarean delivery.

Methods
This single-center before-and-after cohort study compared conventional care with an ERAC pathway incorporating preoperative carbohydrate loading, intrathecal morphine, dual prophylaxis for postoperative nausea and vomiting, early feeding, and early ambulation. Pain assessed using a 100-mm visual analog scale, the Global Surgical Recovery Index (GSR-I), and the Korean Quality of Recovery-15 questionnaire (QoR-15K) were evaluated 24 h postoperatively. Rescue analgesic administrations were recorded until discharge. Propensity scores were estimated using age, American Society of Anesthesiologists physical status, spinal anesthesia, preterm delivery, and twin pregnancy. One-to-one nearest-neighbor matching was performed using a caliper of 0.2 standard deviations. Paired t tests or Wilcoxon signed-rank tests were used as appropriate. The 95% confidence intervals for median paired differences were estimated using 5,000 bootstrap samples. A two-sided P value < 0.05 indicated statistical significance.

Results
Of the 119 patients in the cohort (68 conventional care and 51 ERAC), 42 matched pairs were retained after propensity score matching. Covariate balance was adequate, with all absolute standardized mean differences < 0.1. Fasting time decreased significantly (Table). GSR-I increased, whereas pain scores and the number of rescue analgesic administrations decreased. QoR-15K did not differ significantly between groups.

Conclusion
The locally adapted ERAC pathway was associated with less pain, better recovery, and fewer rescue analgesic administrations after cesarean delivery. These findings support the feasibility of implementing ERAC and its potential benefits in the Korean healthcare setting.

AP-14-2 (2026-0173)

Figure & Table

Figure & Table 1.

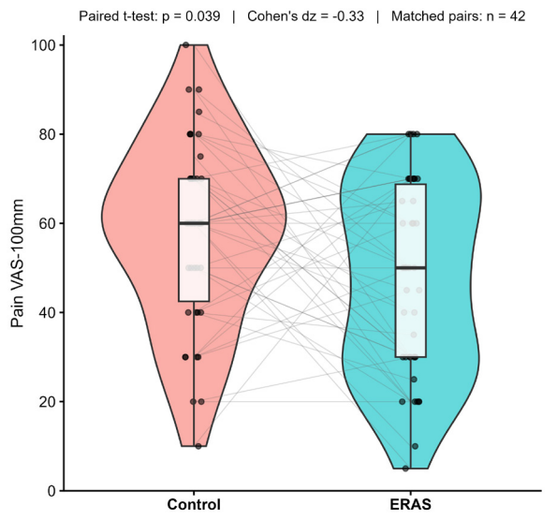


Figure & Table 2.

Variable	Control group (n = 42)	ERAC group (n = 42)	Group difference estimate (95% CI)	P value
Age, years	34 (32–36)	34 (32–36.75)	0 (0–0)	0.678
Preterm delivery, n (%)	4 (9.5)	4 (9.5)	NA	1.000
Twin pregnancy, n (%)	3 (7.1)	2 (4.8)	NA	1.000
ASA physical status classification, n (%)			NA	0.625
II	33 (78.6)	35 (83.3)		
III	9 (21.4)	7 (16.7)		
Duration of surgery, min	75.3 ± 18.2	79.4 ± 14.6	4.1 (-2.5–10.7)	0.215
Height, cm	160.2 ± 6.3	161.1 ± 5.1	0.9 (-1.5–3.3)	0.449
Weight, kg	75.5 ± 12.7	77.8 ± 14.3	2.3 (-2.7–7.3)	0.357
Body mass index, kg/m^2	29.4 ± 4.8	30.0 ± 5.8	0.6 (-1.5–2.7)	0.577
Spinal anesthesia, n (%)	36 (85.7)	37 (88.1)	NA	1.000
Intrathecal bupivacaine dose, mg	11.00 (10.00–12.00)	11.00 (10.00–11.75)	-0.5 (-1.0–0.0)	0.464
Intrathecal morphine dose, μg	none	50 (0–70)	NA	0.002
Intrathecal fentanyl administration, n (%)	17 (40.5)	2 (4.8)	NA	0.008
Fasting time, hours ***	32 (32–32)	18 (12.25–18)	14 (14–19)	<0.001
Length of stay, days	5 (5–5)	5 (5–5)	0 (0–0)	0.635
QoR-15K score	108.6 ± 21.4	110.0 ± 27.65	1.3 (-9.2–11.9)	0.799
Global Surgical Recovery Index **	60.0 (50.0–78.75)	70.0 (60.0–80.0)	10.0 (0.0–20.0)	0.001
Pain VAS-100mm *	57.7 ± 20.7	47.3 ± 21.5	10.4 (0.5–20.2)	0.039
Number of postoperative vomiting, n	0 (0–0)	0 (0–0)	0 (0–0)	0.096
Rescue analgesic administrations, n	2.5 ± 1.9	1.7 ± 1.8	0.9 (0.0–1.7)	0.045

* p<0.05, ** p<0.005, *** p<0.001. ASA, American Society of Anesthesiologists; CI, confidence interval; ERAC, enhanced recovery after cesarean section;

AP-14-3 (2026-0579)

Comparison of Impact of Intrathecal Morphine with Ultrasound-guided Transversus Abdominis Plane Block on Patient Reported Quality of Recovery Following Elective Caesarean Delivery: A Non-Inferiority Randomized Trial

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Background
Post-caesarean recovery is multidimensional and extends beyond pain relief alone. Intrathecal morphine (ITM) provides effective postoperative analgesia and is considered as a gold standard as a part of multimodal analgesia regime for postcesarean analgesia. Low dose ITM (50-100 micrograms) has been recommended by various guidelines as postoperative analgesia technique after CS, as a part of multimodal analgesia regimen.However it is associated with troublesome opioid-related adverse effects like pruritus and nausea-vomiting. Ultrasound-guided transversus abdominis plane (TAP) block provides an alternative to the opioid-sparing regional analgesic alternative due to its better side effect profile. Patient-reported outcome measures (PROM's) provide a holistic assessment of a patient's recovery, so are now recommended as the gold standard to assess functional postpartum recovery. Therefore within the multimodal analgesia framework, we aim to explore whether TAP leads to a non inferior overall quality of recovery.
Primary objective was to compare the quality of recovery at 24 hours post cesarean delivery, measured by the ObsQoR-11Hindi score, between patients randomized to receive ITM versus TAP block, within a non-inferiority framework.

Methods
This prospective, single-centre, double-blinded, randomized non-inferiority trial included 90 parturients undergoing elective caesarean delivery under spinal anaesthesia. Participants were randomized 1:1 using a computer-generated sequence with sequentially numbered, sealed, opaque envelopes. Both groups received 10–11 mg heavy bupivacaine with 20 μg fentanyl. The ITM group additionally received 100 μg preservative-free intrathecal morphine. The TAP group received no intrathecal morphine and underwent bilateral ultrasound-guided TAP block after surgical closure with 0.375% ropivacaine 1.5 mg/kg, maximum 20 mL per side. The patient as well as the outcome assessor were blinded. The primary outcome was ObsQoR-11H score at 24 hours, with a prespecified non-inferiority margin of 7 points. Secondary outcomes included recovery at 48 and 72 hours, postoperative pain, rescue tramadol, time to first rescue opioid, PONV and pruritus.

Results
At 24 hours, mean ObsQoR-11H score was 79.51 ± 8.88 in the ITM group and 78.60 ± 7.60 in the TAP group; mean difference was 0.91 (95% CI −2.55 to 4.37; p=0.602). The confidence interval remained within the prespecified 7-point non-inferiority margin, demonstrating non inferior patient-reported recovery in the TAP group, as compared to ITM group. Pain scores were comparable at 2 and 4 hours, but higher with TAP at 8 hours (p=0.0002) and 12 hours (p=0.0053); the difference was not statistically significant at 24 hours (p=0.1604). Rescue tramadol consumption was comparable (55.56 ± 16.01 mg vs 50 mg; p=0.371). Pruritus at 12 hours was more frequent with ITM (13.3% vs 0%; p=0.026). PONV at 24 hours was comparable (2.2% vs 4.4%; p=0.557).

Conclusion
TAP block, as a part of multimodal analgesia framework,is a clinically useful opioid-sparing alternative to ITM, as was evident by a non-inferior patient-reported quality of recovery at 24 hours following elective caesarean delivery. Although ITM provided better intermediate postoperative analgesia, its use was associated with a higher incidence of pruritus.

AP-14-5 (2026-0385)

Navigating Pheochromocytoma in Advanced Pregnancy: A Four-Decade Review

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Background
Pheochromocytoma and paraganglioma (PPGL) are rare but potentially catastrophic causes of secondary hypertension in pregnancy. Diagnosis may be delayed as symptoms such as hypertension, headache, palpitations and sweating can overlap with hypertensive disorders of pregnancy. When PPGL is diagnosed late in pregnancy, management is particularly challenging and requires coordinated medical, obstetric, anaesthetic and surgical planning.

Methods
A systematic literature review of PubMed and Scopus was conducted for reports published between 1983 and 2023. Cases of PPGL diagnosed during the third trimester with adequate information regarding diagnosis, medical optimization, delivery, anaesthesia, tumour resection and outcomes were included. Cases with insufficient perioperative or obstetric details were excluded. Clinical characteristics, adrenergic blockade, obstetric and anaesthetic management, timing of tumour resection, and maternal and foetal outcomes were descriptively analysed.

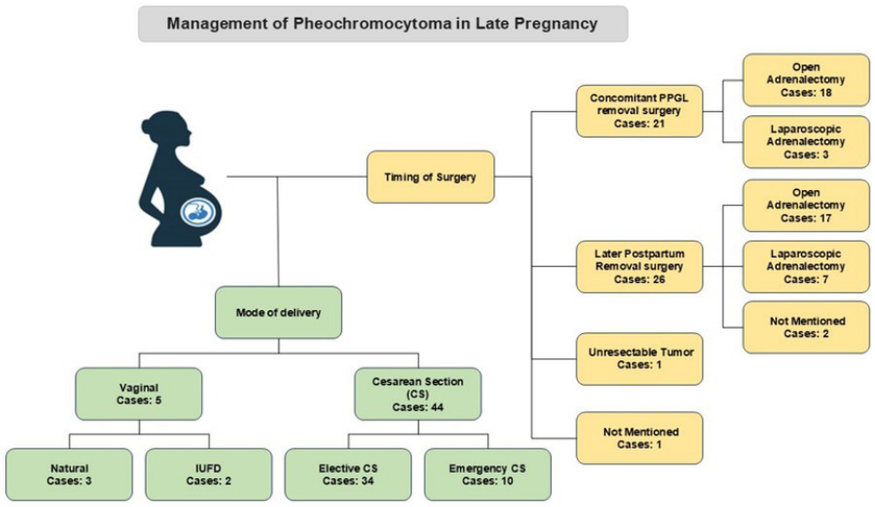
Results
Forty-nine cases from 43 publications met the inclusion criteria. Maternal age ranged from 15–41 years and gestational age at presentation from 24 weeks to term. Most tumours were adrenal pheochromocytomas (n=40), while seven were extra-adrenal paragangliomas. Metastatic disease was reported in three cases (6.1%), and 94% of tumours were biochemically functional. Alpha-adrenergic blockade, predominantly with phenoxybenzamine, was used in 93.9% of cases and formed the cornerstone of preoperative optimization. Beta-blockers were added in 40.8%, mainly for tachycardia, while calcium-channel blockers, magnesium sulphate and short-acting vasodilators were used when required for additional blood pressure control or intraoperative crises. Caesarean delivery was performed in 89.8% of cases. Tumour resection was performed concomitantly with delivery in 42.9% and electively postpartum in 44.9%. Vaginal delivery was attempted in four cases. General anaesthesia was the predominant anaesthetic technique. Maternal survival was 98.0%, with foetal outcome in 93.9% of pregnancies. Adverse outcomes were associated with delayed diagnosis, hypertensive crises and inadequate preoperative optimization.

Conclusion
PPGL diagnosed in advanced pregnancy remains a diagnostic and therapeutic challenge but can have favourable maternal and foetal outcomes with timely recognition and multidisciplinary management. A high index of suspicion is essential in pregnant patients with hypertension accompanied by headache, palpitations or sweating. Appropriate alpha-adrenergic blockade, individualized delivery planning and careful timing of tumour resection are central to optimizing outcomes. When diagnosis occurs late in gestation, maternal stabilization and foetal maturation followed by planned delivery and, when appropriate, postpartum tumour resection provide a viable management strategy.

AP-14-5 (2026-0385)

Figure & Table

Figure & Table 1.



ABSTRACT
Competition
Presentation
E-Poster

AP-14-6 (2026-0166)

Post-Operative Pain and Associated Factors after Cesarean Section Performed under Spinal Anesthesia at a Tertiary Hospital in the Philippines

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Background
Cesarean section remains the most common obstetric procedure performed worldwide. Studies have shown that pain after cesarean section is unacceptably high. Insufficient control of pain postoperatively can lead to the development of chronic pain. Despite advances in pain management, postpartum women experience significant pain in the acute postoperative period. Moreover, very little is known about the magnitude and factors associated with post-cesarean section pain in developing countries like the Philippines. Certain challenges such as scarcity of well-trained physicians, facilities, materials, and medications hinder ways on properly assessing and managing postoperative pain. This study aims to determine the severity and predictors of postoperative pain after cesarean delivery at a tertiary hospital in the Philippines.

Methods
An institutional-based prospective observational study was conducted among women who underwent cesarean deliveries at a tertiary hospital in the Philippines from 1 May 2025 to 31 August 2025. One hundred seven participants were recruited and assessed for pain severity at the 2nd and 24th postoperative hours using the Numerical Rating Scale-11(NRS-11). The patient's medical file was obtained, and information was gathered from them using a structured questionnaire. The information was prepared for analysis by being cleaned, coded, and entered into the Epi-data version 7 before being exported to SPSS version 20. Descriptive statistic was done and presented with frequency, percentage, mean, and standard deviation. The association among independent factors and the outcome variable was assessed by chi-square test, bivariable, and multivariable logistic regression. A p-value of less than 0.05 was considered statistically significant. Hosmer-Lemeshow test was applied to check the goodness-of-fit.

Results
Findings revealed that postoperative pain was generally mild to moderate at 2 hours, with a mean score of 3.71, but increased to moderate intensity at 24 hours, with a mean score of 4.45. The paired t-test showed a statistically significant increase in pain over time, highlighting the waning effects of spinal anesthesia and the need for timely analgesic interventions. Multivariable logistic regression identified three independent predictors of increased postoperative pain: history of previous cesarean section (AOR = 2.05, p = 0.041), multigravidity (AOR = 1.89, p = 0.049), and prolonged surgical duration of 60 minutes and longer (AOR = 2.71, p = 0.021). Other factors such as age, ASA classification, urgency of surgery, type of incision, and use of adjuvants were not significant predictors.

Conclusion
The study concludes that postoperative pain after cesarean section is multifactorial and significantly influenced by surgical history, reproductive experience, and operative duration. These findings underscore the importance of individualized pain management strategies, targeted interventions for high-risk patients, and standardized protocols to improve maternal recovery and patient satisfaction.

AP-14-8 (2026-0394)

Assessment of Residual Gastric Volume in Pregnancy Using Point-of-care Ultrasonography: A Systematic Review and Meta-analysis

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Background
Pregnancy is considered a full-stomach state because of physiological changes that are believed to increase pulmonary aspiration risk during anaesthesia. Point-of-care gastric ultrasonography (POCUS) has emerged as a reliable bedside tool for qualitative and quantitative assessment of gastric contents. However, studies comparing gastric ultrasonographic findings between pregnant and non-pregnant/first-trimester (NP/FT) pregnant women have reported conflicting results. This systematic review and meta-analysis aimed to analyse gastric ultrasonographic parameters between these populations.

Methods
The literature search of various databases was conducted from inception to 2026 following PRISMA 2020 guidelines. Outcomes assessed included gastric volume (GV) (mL), GV normalised to body weight (mL/kg), gastric antral cross-sectional area (CSA), and qualitative antral grading. Meta-analyses were performed using RevMan 5.4.

Results
Six studies were included (n=839): pregnant women- 426 and NP/FT women- 413. Characteristics of studies are included in table no.1. No significant differences were observed in GV (MD 1.38 ml; 95% CI −4.70 to 7.46; p=0.66; I2= 0%), GV normalized to body weight (MD 0.07 ml/kg; 95% CI −0.27 to 0.41; p=0.68; I2= 94), Grade 0 (RR 0.83, 95% CI 0.65–1.06; p = 0.14; I2= 71%), Grade 1(RR 1.03, 95% CI 0.51–2.08; p = 0.93; I2= 85%) or Grade 2 (RR 1.20, 95% CI 0.33–4.31; p = 0.78; I2= 80%) antral findings and antral CSA.

Conclusion
Pregnant women did not appear to have higher GV quantitatively and qualitatively than NP/FT pregnant women on USG findings. As an observational study, the overall evidence for the outcome is low. The generalisability of the result is limited by a lower number of studies and considerable heterogeneity in selected analyses. However, sensitivity analyses did not alter the result.

Figure & Table

Figure & Table 1.

Table 1. Characteristics of Included Studies Comparing Gastric Ultrasonographic Findings Between Pregnant and Non-Pregnant Women

Study (Year)	Country	Study Design	Population / Groups Compared	GV Estimation Method	Outcomes Assessed
Bellapukonda et al. (2023)	India	Prospective observational study	Term pregnant women undergoing elective CS vs NP women undergoing elective surgery	GV not directly estimated; assessment based on antral CSA measurements	Antral visibility, RLD CSA, supine CSA, qualitative grading
Ebrahim et al. (2021)	Egypt	Prospective observational study	Non-laboring third-trimester pregnant women vs NP women	GV not directly calculated; assessment based on Arzola grading and CSA measurements	Grade 0, Grade 1, Grade 2 antrum, gastric contents, CSA
Van de Putte et al. (2019)	Belgium	Prospective cohort study	Fasted term pregnant women vs NP women	Perlas mathematical model	GV (mL), GV (mL/kg), Perlas grading, CSA
Yuan et al. (2021)	China	Prospective observational study	Women with advanced maternal age vs NP women	Perlas mathematical model	GV (mL), GV (mL/kg), Perlas grading
Gal et al. (2019)	Israel	Prospective observational study	Term pregnant women undergoing elective CS vs NP/ FT pregnant women undergoing gynecological procedures	Perlas-based GV estimation from antral area	GV, antral CSA
Gopal et al. (2025)	India	Prospective observational comparative study	Full-term pregnant women undergoing elective CS vs NP women undergoing elective surgery	Schmitz formula	GV (mL/kg), gastric CSA, Perlas grading, qualitative and quantitative gastric ultrasound assessment

Abbreviations: CSA = Cross-sectional area; GV = Gastric volume; NP = Non-pregnant; FT = First trimester; RLD = Right lateral decubitus.

Figure & Table

Figure & Table 2.

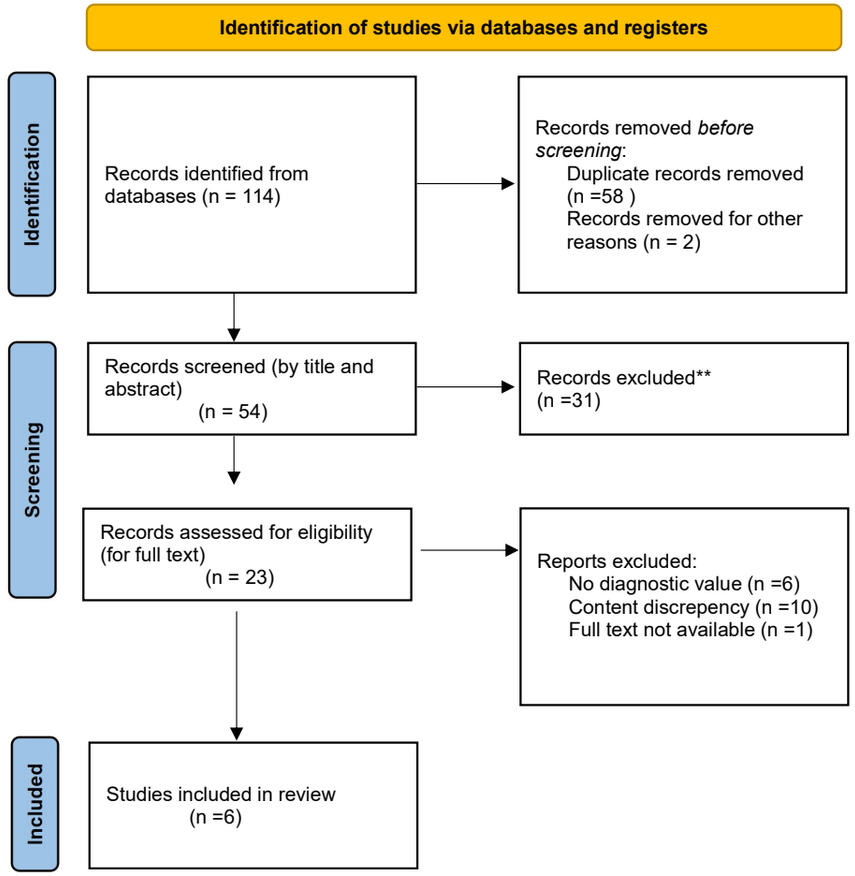


Figure 1. Flow diagram of the identification of relevant studies

Presentation

Abstract Presentation 15

Date / Time	Nov 5 (Thu), 15:30-17:00
Room	Room F *(Hyatt Regency)*
Language	English
Chair(s)	Sujin Baek *(Chungnam National University, Republic of Korea)* Hyo-Jin Byon *(Yonsei University, Republic of Korea)*

AP-15-1 2026-0217

Effect of Remimazolam Administered at the End of Surgery on Emergence Delirium in Children Undergoing General Anesthesia: A Randomized Controlled Trial

Natsumi Yamamoto[1*], Satoshi Kimura[1], Moritoki Egi[1]

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AP-15-2 2026-0589

A Heart Off the Beaten Path-Navigating AVNRT and WPW Syndrome in a Cardiomyopathic Parturient for Elective LSCS

Keerthana Jayabalan[1], Elayaraja Subramanian Mariappan[1*]

1. Anesthesia, Apollo Hospital Enterprises Limited, India

AP-15-3 2026-0479

Effect of Pregabalin Premedication on Emergence Agitation in Pediatric Infraumbilical Abdominal Surgery after Sevoflurane Anaesthesia, Double Blinded, Randomized Placebo Control Study

Himanshi Himanshi[1], Subrata Singha[2*]

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2. Anesthesia and Critical Care, AIIMS Raipur, India

AP-15-4 2026-0107

Bridging the Gap in Paediatric Anaesthesia Tools: Usability Assessment of the MyPaedsAnaesth App in a Tertiary Teaching Hospital

Muhammad Hafidz Bin Hasan[1,2], Zawiah Binti Kassim[1,2*], Afifah Binti Samsudin[1,2], Asmah Binti Azizeh[1,2]

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AP-15-5 2026-0252

Incidence of Spinal Anesthesia Induced Hypotension after Premedication with Ondansetron in Pregnant Patients Who Underwent Cesarean Section at Quirino Memorial Medical Center: A Retrospective Study

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AP-15-6 2026-0266

Possible Concurrent Amniotic Fluid Embolism and Perioperative Anaphylaxis during Cesarean Delivery: A Case Report

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AP-15-7 2026-0148

Uterine Rupture from Undiagnosed Placenta Percreta at a Prior Cornual Resection Scar in a Twin Pregnancy: A Case Report

Jisu Hong[1], Eun Mi Choi[1*]

1. Anesthesiology and Pain Medicine, Kangnam Sacred Heart Hospital, Republic of Korea

AP-15-8 2026-0567

Diagnostic Challenges and Management of Massive Irrigation Fluid Intravasation During Operative Hysteroscopy: A Case Report

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1. Department of Anesthesiology and Pain Medicine, Hanyang University, Republic of Korea

AP-15-1 (2026-0217)

Effect of Remimazolam Administered at the End of Surgery on Emergence Delirium in Children Undergoing General Anesthesia: A Randomized Controlled Trial

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1. Department of Anesthesiology, Kyoto University Hospital, Japan

Background
Emergence delirium (ED) is a common complication after general anesthesia in children and may cause self-injury or accidental removal of intravenous catheters and surgical drains, increasing the burden on healthcare providers and reducing parental satisfaction. Benzodiazepines such as midazolam have been reported to reduce the incidence of ED, but their use may prolong recovery time. Remimazolam, an ultra-short-acting benzodiazepine, has recently been investigated for the prevention of ED. However, the evidence remains inconclusive because of the limited number of studies and variations in patient populations, dosing regimens, and timing of administration. Therefore, we investigated whether a single dose of remimazolam (0.15 mg/kg) administered at the end of surgery reduces the incidence of ED in children undergoing general anesthesia.

Methods
This single-center, prospective, randomized, double-blind trial included children aged 2–7 years undergoing sevoflurane-based general anesthesia. Sixty patients were stratified into two age groups (2–4 and 5–7 years) and randomly assigned to receive either remimazolam 0.15 mg/kg (R group) or an equal volume of saline (C group) at the end of surgery. The primary outcome was the peak Pediatric Anesthesia Emergence Delirium (PAED) score. Secondary outcomes included the incidence of ED (defined as PAED score ≥10), the maximum Face, Legs, Activity, Cry, Consolability (FLACC) score, adverse events, and time to emergence after discontinuation of inhalational anesthesia. PAED and FLACC scores were assessed during the first 20 min after extubation. Continuous variables are presented as the median [interquartile range]and were compared using the Mann–Whitney U test. Categorical variables were analyzed using Fisher's exact test.

Results
A total of 60 children completed the study, including 36 aged 2–4 years and 24 aged 5–7 years, with no dropouts. The median age was 4 [2–5] years, 32 (53.3%) were boys, and ED occurred in 40 of 59 evaluable patients (67.8%). The peak PAED score did not differ significantly between the groups (R group: 12 [9–15] vs. C group: 12 [8–14], p = 0.693). Likewise, no significant differences were observed in the incidence of ED (69.0% vs. 66.7%, p = 1.000) or the maximum FLACC score (6 [1–9] vs. 5 [3–9], p = 0.618). However, time to emergence was significantly longer in the R group than in the C group (19.5 [16.3–23] min vs. 16.5 [13.2–18.8] min, p = 0.026). Postoperative nausea and vomiting occurred in 11 (18.3%) patients overall (R group: 6 [20.0%] vs. 5 [16.7%], p = 1.000), and no other adverse events were observed.

Conclusion
A single dose of remimazolam 0.15 mg/kg administered at the end of surgery did not reduce the incidence of emergence delirium but significantly prolonged emergence time in children undergoing general anesthesia.

AP-15-2 (2026-0589)

A Heart Off the Beaten Path-Navigating AVNRT and WPW Syndrome in a Cardiomyopathic Parturient for Elective LSCS

Keerthana Jayabalan[1], Elayaraja Subramanian Mariappan[1*]

1. Anesthesia, Apollo Hospital Enterprises Limited, India

Introduction
Dilated cardiomyopathy in pregnancy poses significant anesthetic risk due to reduced myocardial contractility and poor tolerance to hemodynamic fluctuations during cesarean delivery. The coexistence of two arrhythmogenic conditions—AVNRT and Wolff-Parkinson-White syndrome ,further increases vulnerability to pre-excited tachyarrhythmias, which are poorly tolerated with an ejection fraction of 42%. Pregnancy-related increases in heart rate, sympathetic tone, and stroke volume can precipitate such arrhythmias intraoperatively. Concurrent gestational diabetes mellitus and hypothyroidism necessitated additional metabolic and endocrine optimization. This report describes the anesthetic management of general anesthesia for elective LSCS in this high-risk parturient

Case
A parturient with GDM, hypothyroidism (on levothyroxine), DCM (EF 42%), AVNRT, and WPW syndrome was posted for elective LSCS.
Preoperative: Preoperative workup included cardiology and endocrinology consultation, baseline 12-lead ECG confirming pre-excitation, echocardiographic assessment of ventricular function, continued thyroxine supplementation, and blood glucose optimization with insulin as needed.
Monitoring: ASA standard monitors + invasive arterial line for continuous blood pressure and early arrhythmia detection; continuous ECG display; defibrillator pads, pacing backup and anti-arrhythmic drugs, including adenosine, were kept on standby.
Induction: Slow, titrated intravenous induction with Inj etomidate (0.2–0.3 mg/kg) for hemodynamic stability; Inj Fentanyl co-induction to attenuate sympathetic response to laryngoscopy; Inj Rocuronium for rapid, stable neuromuscular blockade
Maintenance: Balanced anesthesia was given with low-dose volatile agent and opioid supplementation with strict avoidance of drugs that shorten accessory pathway refractory period.Meticulous fluid administration and vasopressor titration guided by arterial line trends
Uterotonics: Slow, dilute oxytocin was infused to avoid bolus-induced tachycardia .Ergometrine avoided due to arrhythmogenic and hypertensive potential. Uterus well contracted.
The intraoperative course was hemodynamically stable without arrhythmic events, and emergence was smooth.
Postoperative: The patient was monitored in a high-dependency unit with continuous ECG ,glycemic and thyroid surveillance.

Conclusion
A multidisciplinary approach targeting rate control, sympathetic blunting, and arrhythmia prevention was essential. Careful selection of induction agents, invasive hemodynamic monitoring, avoidance of arrhythmia-provoking triggers, and multidisciplinary coordination enabled safe general anesthesia for elective LSCS in a parturient with dilated cardiomyopathy, AVNRT and WPW syndrome resulting in favorable maternal and fetal outcomes

Effect of Pregabalin Premedication on Emergence Agitation in Pediatric Infraumbilical Abdominal Surgery after Sevoflurane Anaesthesia, Double Blinded, Randomized Placebo Control Study

Himanshi Himanshi[1], Subrata Singha[2*]

1. Anesthesia, Pain Medicine and Critical Care, AIIMS Delhi, India
2. Anesthesia and Critical Care, AIIMS Raipur, India

Background

Emergence agitation is a common complication after sevoflurane anaesthesia in children, characterized by crying, restlessness, disorientation, and inconsolability. Pregabalin, an α2δ ligand of voltage-gated calcium channels, provides anxiolytic and analgesic effects by reducing excitatory neurotransmitter release. Although its perioperative role has been studied in paediatric surgery, evidence regarding its effect on emergence agitation following sevoflurane anaesthesia for infraumbilical abdominal surgery remains limited. The novelty of this study lies in evaluating pregabalin specifically in this surgical population while simultaneously assessing emergence agitation, postoperative pain, rescue analgesic requirements, recovery characteristics, and adverse effects. Thus, this study aimed to determine whether oral pregabalin premedication improves perioperative recovery in children.

Methods

This was a prospective, randomized, double blind, placebo controlled, parallel group clinical study. Children aged 3–12 years, classified as ASA physical status I or II and scheduled for elective infraumbilical abdominal surgery, were included. Participants were randomized into two groups. Group P received oral pregabalin 1.5mg/kg as premedication, while Group C received an equivalent volume of placebo syrup. Emergence agitation was assessed using EAS and PAED scale. Postoperative pain was assessed using the FLACC scale at predefined intervals.Time to eye opening, extubation time, PACU stay, rescue paracetamol requirements, and adverse effects were also recorded.

Results

The analysis included 77 paediatric patients: 39 in the pregabalin group and 38 in the placebo group. Mean age was 6.65 ± 3.09 years, with a median of 6 years. Baseline heart rate, respiratory rate, mean arterial pressure, and SpO_2 were comparable and clinically acceptable between groups.

Conclusion

In this randomized, double-blind, placebo-controlled study, oral pregabalin 1.5 mg/kg significantly reduced early postoperative emergence agitation in children undergoing infraumbilical abdominal surgery under sevoflurane anaesthesia. Pregabalin-treated children had lower PAED and EAS scores, reduced postoperative FLACC pain scores, and significantly fewer rescue paracetamol requirements. Pregabalin did not delay emergence or extubation and was well tolerated, with no serious adverse effects. These findings suggest that pregabalin may be a useful component of multimodal paediatric anaesthesia, providing benefits in both emergence agitation and postoperative analgesia. Larger multicentre randomized trials are warranted to confirm these findings and establish the optimal dose, timing, safety, and long-term clinical role of pregabalin in paediatric surgical patients.

AP-15-3 (2026-0479)

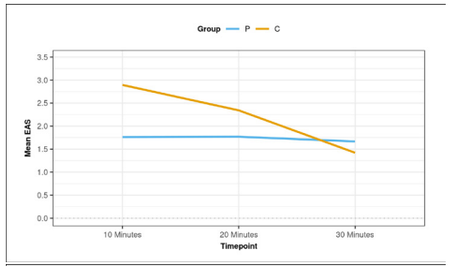
Figure & Table

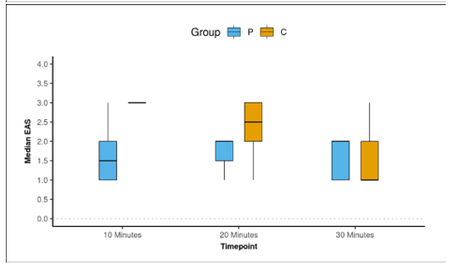
Figure & Table 1.

OVERVIEW OF KEY INFORMATION

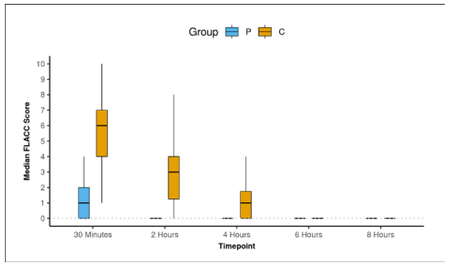
Basic Details	**Mean ± SD || Median (IQR) || Min-Max OR N (%)**
C	38 (49.4%)
Female	25 (32.5%)
Male	52 (67.5%)
P	39 (50.6%)
Age (Years)	6.65 ± 3.09 || 6.00 (4.00-9.00) || 3.00 - 13.00
Gender	
Group	
Heart Rate (BPM) (Baseline)	98.19 ± 15.60 || 100.00 (87.00-105.00) || 65.00 - 140.00
MAP (mmHg) (Baseline)	70.51 ± 10.50 || 68.00 (64.00-78.00) || 53.00 - 100.00
Respiratory Rate (/min) (Baseline)	21.75 ± 2.41 || 22.00 (20.00-24.00) || 15.00 - 27.00
SpO2 (%) (Baseline)	99.57 ± 0.75 || 100.00 (99.00-100.00) || 97.00 - 100.00

Figure & Table 2.





The Box-and-Whisker plot above shows the distribution of Emergence Agitation Scores (EAS) at different postoperative time points.



The Box-and-Whisker plot above displays the distribution of FLACC scores across multiple postoperative time points.

ABSTRACT
Competition
Presentation
E-Poster

Bridging the Gap in Paediatric Anaesthesia Tools: Usability Assessment of the MyPaedsAnaesth App in a Tertiary Teaching Hospital

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Background

Mobile health applications are increasingly utilised to support clinical decision-making and improve workflow efficiency. However, there is a lack of paediatric anaesthesia apps tailored to the Malaysian healthcare context. The study evaluated the usability of MyPaedsAnaesth, a mobile application developed to aid anaesthetic providers in managing paediatric patients perioperatively. It also explored existing referencing practices before app use and gathered user feedback for improvement.

Methods

A cross-sectional study was conducted among 27 anaesthetic providers (26% specialists, 74% medical officers) at Hospital Al-Sultan Abdullah, Universiti Teknologi MARA (UiTM) who had used the app for at least two months and in a minimum of three paediatric cases. Usability was assessed using the validated 21-item Mobile Health Application Usability Questionnaire (MAUQ), which evaluates three components: Ease of Use & Satisfaction, System Information Arrangement, and Usefulness. Responses were recorded on a 7-point Likert scale via an online survey. The Kaiser-Meyer-Olkin (KMO) and Bartlett's tests were used to assess sampling adequacy and data suitability for factor analysis.

Results

The overall MAUQ score was 6.00 ± 0.37 out of 7, indicating high usability. Component-specific mean scores were 6.28 ± 0.88 for Ease of Use & Satisfaction, 5.97 ± 0.92 for System Information Arrangement, and 5.71 ± 1.05 for Usefulness. KMO value was 0.653, and Bartlett's test was significant ($p<0.001$). Before using the app, 40.7% of participants relied on personal notes, 25.9% referred to printed textbooks or guidelines, and 37.0% used electronic resources. Thematic analysis highlighted positive user experience and identified areas for enhancement, including requests for printable outputs, antibiotic calculators, and interface customisation.

Conclusion

MyPaedsAnaesth demonstrated strong usability and was well received by anaesthetic providers. It effectively addressed key clinical workflow needs, particularly in referencing and paediatric dose calculation. Incorporating user feedback will guide future improvements, potentially supporting wider adoption in paediatric anaesthesia practice.

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Figure & Table

Figure & Table 1.

Usability Assessment (MAUQ Analysis)

Table 3.2 Descriptive Analysis of MAUQ. Values are expressed as mean ± standard deviation (SD) and minimum and maximum scores for each questionnaire item.

No.	Questions	N	Minimum	Maximum	Mean	Std. Deviation
	Ease of Use and Satisfaction					
1	The app was easy to use	27	5	7	6.26	0.76
2	It was easy for me to learn to use the app.	27	5	7	6.44	0.75
3	I like the interface of the app.	27	3	7	5.96	1.16
4	The information in the app was well organised, so I could easily find the information I needed.	27	5	7	6.30	0.78
5	I feel comfortable using this app in social settings.	27	5	7	6.44	0.64
6	The amount of time involved in using this app has been fitting for me	27	3	7	6.07	1.04
7	I would use this app again.	27	4	7	6.41	0.84
8	Overall, I am satisfied with this app.	27	4	7	6.37	0.88
	Overall Ease of Use and Satisfaction Score				6.28	
	System Information Arrangement					
9	Whenever I made a mistake using the app, I could recover easily and quickly.	27	3	7	5.70	1.17
10	This app provided an acceptable way to deliver health care services.	27	4	7	6.15	0.91
11	The app adequately acknowledged and provided information to let me know the progress of my action.	27	4	7	5.89	1.19
12	The navigation was consistent when moving between screens	27	5	7	6.07	0.78
13	The app's interface allowed me to use all the functions (such as entering information, responding to reminders, and viewing information).	27	4	7	6.00	0.92
14	This app has all the functions and capabilities I expect it to have.	27	5	7	6.00	0.78
	Overall System Information Arrangement Score				5.97	
	Usefulness of *MyPaedsAnaesth*					
15	The app would be useful for my healthcare practice	27	4	7	6.33	0.83
16	The app improved my access to delivering health care services.	27	3	7	6.11	0.97
17	The app helped me manage my patients' health effectively.	27	3	7	6.04	1.02
18	The app made it convenient for me to communicate with my patients.	27	3	7	5.52	1.31
19	Using the app gave me many more opportunities to interact with my patients.	27	3	7	5.52	1.25
20	I felt confident that any information I sent to my patients using the app will be received.	27	4	7	5.22	1.22
21	I felt comfortable communicating with my patients using the app.	27	3	7	5.26	1.26
	Overall Usefulness of *MyPaedsAnaesth* Score				5.71	

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Figure & Table

Figure & Table 2.

Demographic Analysis

Table 3.1 Demographic data. Values are expressed in mean ± SD or numbers (percentage)

CHARACTERISTICS	MEAN ± SD OR NUMBERS (PERCENTAGE)
Age (years)	31.5 ± 6.4
Gender	
Male	7 (26%)
Female	20 (74%)
Job Title	
Specialist	7 (26%)
Medical Officer	20 (74%)
Experience in Anaesthesia	
< 3 years	9 (33.3%)
3-6 years	4 (14.8%)
≥ 6 years	14 (51.9%)
Operating System	
Apple iOS	22 (81.5%)
Android	5 (18.5%)

AP-15-5 (2026-0252)

Incidence of Spinal Anesthesia Induced Hypotension after Premedication with Ondansetron in Pregnant Patients Who Underwent Cesarean Section at Quirino Memorial Medical Center: A Retrospective Study

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Background

Spinal anesthesia is preferred for cesarean delivery but frequently causes spinal anesthesia–induced hypotension (SAIH) in up to 80% of cases, risking maternal and fetal well-being. Ondansetron, a 5-HT3 receptor antagonist, may mitigate SAIH by attenuating the Bezold-Jarisch reflex. This study evaluated the incidence of SAIH and its associated factors following ondansetron premedication in pregnant patients undergoing cesarean section.

Methods

A retrospective study was conducted analyzing 153 pregnant patients (ASA 2/2E) who underwent emergency cesarean section under spinal anesthesia at Quirino Memorial Medical Center (2023–2024). All participants received 4 mg IV ondansetron premedication 5–20 minutes prior to spinal anesthesia. SAIH was defined as a $\ge$20% decrease from baseline systolic blood pressure (SBP). Patient demographics, hemodynamic changes, treatment interventions, and neonatal outcomes were analyzed using descriptive statistics and multivariable logistic regression.

Results

The incidence of SAIH was 44.4% (68/153), notably lower than the historical 80% baseline. Hypotensive events were managed primarily with fluid boluses (61.4%), with no vasopressor use required. Multivariable logistic regression identified baseline SBP as the sole significant predictor of SAIH (aOR 1.26, 95% CI: 1.17–1.35, $p < 0.001$). Maternal age, weight, height, gestational age, parity, and anesthetic dosage showed no significant association with SAIH. Neonatal outcomes were excellent, with no complications and mean Apgar scores of 8.14 at 1 minute and 9.00 at 5 minutes.

Conclusion

Premedication with 4 mg IV ondansetron is associated with a reduced incidence and severity of SAIH, maintaining maternal hemodynamic stability and safe neonatal outcomes without requiring vasopressors. Preoperative baseline SBP serves as a key predictor for hypotension risk.

Figure & Table

Figure & Table 1.

Table 1: Patient Demographics and Clinical Information

Patient Code	Age	Weight (kg)	Height (cm)	Gestational Age (weeks)	Parity	Type of Cesarean (Elective/ Emergency)	Preexisting Conditions
Overall Cohort (n = 153)	28.83 ± 5.93	73.75 ± 10.02	157.3 ± 4.3	38.30 ± 0.69	0 = 4 (2.6%) 1 = 51 (33.3%) 2 = 57 (37.3%) 3 = 24 (15.7%) 4 = 14 (9.2%) 5 = 3 (2.0%)	Emergency – 153 (100%)	Present – 153 (100%)

The study cohort consisted of 153 participants who had a cesarean section performed under spinal anesthesia. Participants had a mean age of 28.83 ± 5.93 years, mean weight of 73.75 ± 10.02 kg, and mean height of 157.3 ± 4.3 cm. At the time of delivery, participants had a mean gestational age of 38.30 ± 0.69 weeks, demonstrating that most of the deliveries occurred at term. The range of parity was 0 to 5, and most patients were in the para 1–2 (70.6%) group, indicating the cohort had a low-parity profile. The cohort's cesarean sections were all classified as emergencies, and all participants had obstetric indications necessitating emergency cesarean section, while patients with major cardiovascular diseases like pre-eclampsia, or uncontrolled hypertension were excluded.

The demographic data corroborates with the current obstetric trend data in the Philippines. Increasing maternal age and obstetric complications are leading to higher rates of cesarean deliveries (Kamenova, 2023). The majority of patients needing and receiving an emergency cesarean are of similar background and demographic. This points to the increased likelihood of this group being of higher intraoperative hemodynamic imbalances, especially those resulting from Spinal Anesthesia Induced Hypotension (SAIH). Spinal anesthesia is still the most applicable anesthetic method for the various types of cesarean deliveries, because of the speedy onset, dependable level of both sensory and motor function blockade, and the limited amount of anesthetic that crosses over the placenta (Kumar et al., 2019; Burke et al., 2022). SAIH complications that are so frequently reported in research publications still tend to be occurring, (Kirthi et al., 2024; Jokela et al., 2022), and data suggesting 80% of SAIH occurrences in deliveries is in fact true. Most SAIH interruptions are still the result of sympathetic block and subsequent vasodilation.

All participants having preexisting conditions may increase the likelihood of hypotension. Maternal comorbidities pre-existing hypertension or cardiovascular disease have been noted to be major predictors of SAIH, thus demanding meticulous perioperative planning, and possible perioperative prophylaxis with ondansetron (Samieirad et al., 2023; Alexander & Fennelly, 2019). These participants are at a high-risk, and the baseline demographic and clinical attributes are important for understanding future outcomes concerning maternal hemodynamic status and the wellbeing of the infant.

Table 2: Anesthesia and Premedication Details

Patient Code	Ondansetron Given (Yes/No)	Ondansetron Dose (mg)	Timing of Ondansetron (minutes before SA)	Type of Spinal Anesthesia Agent	Dose of Anesthetic (mg)	Additional Medications
Overall Cohort (n = 153)	Yes – 153 (100%)	4.0 ± 0.0	9.41 ± 4.62	Bupivacaine Heavy – 94 (61.4%) Bupivacaine Heavy + 0.1mg Intrathecal Morphine – 59 (38.6%)	15 mg	Present – 95 (62.1%) None – 58 (37.9%)

Each participant in the cohort received premedication with ondansetron, with a uniform dose of 4 mg given an average of 9.41 ± 4.62 minutes before the procedure. Spinal anesthesia was performed with bupivacaine heavy 15 mg in 61.4% of cases, whereas the remaining 38.6% received bupivacaine heavy 15 mg with 0.1mg Intrathecal Morphine. Additional medications such as Midazolam at a dose of 1-2mg were noted for 62.1% of participants while 37.9% were left without any adjunct medications.

The use of 5-HT3 antagonists, such as ondansetron, is gaining attention for the potential reduction of spinal anesthesia induced hypotension (SAIH) via the Bezold-Jarisch reflex. The Bezold-Jarisch reflex is a protective mechanism that acts via the vagus nerve and

Figure & Table

stimulates bradycardia and vasodilation (Ahmed Omran et al., 2021; Alexander & Fennelly, 2019). Prior to spinal anesthesia, ondansetron has been shown to help keep the maternal blood pressure within physiological limits and minimize the use of vasopressors, thereby improving hemodynamic stability for mothers (Binstock et al., 2024; Rai et al., 2022).

Bupivacaine's major usage is consistent with the literature for cesarean sections since it acts quickly and provides a dependable and thick blockade of both sensation and motor functions with low risk for systemic toxicity and fetal exposure (Kumar et al., 2019; Burke et al., 2022). Given that more than 50% of the cohort received other drugs apart from the induction agent, it is probable that a more tailored anesthetic approach was used for each patient, particularly to manage the individual's hemodynamic stability, more so in patients with comorbidities or those with higher parity, as both are established risk factors for SAIH (Samieirad et al., 2023; Tewu et al., 2022).

Table 3: Hemodynamic Parameters and Hypotension Incidence

Patient Code	Baseline Systolic BP (mmHg)	Baseline Diastolic BP (mmHg)	Lowest Systolic BP (mmHg)	Lowest Diastolic BP (mmHg)	Hypotension Occurred (Yes/No)	Intervention (Fluid Bolus/ Vasopressors)
Overall Cohort (n = 153)	120.07 ± 9.56	73.86 ± 9.11	93.20 ± 8.48	55.56 ± 7.15	Yes – 68 (44.4%) No – 85 (55.6%)	Fluids – 94 (61.4%) None – 59 (38.6%)

The mean cohort hemodynamics profile indicated mean systolic blood pressure (SBP) at 120.07 ± 9.56 mmHg and mean Diastolic blood pressure (DBP) 73.86 ± 9.11 mmHg. After spinal anesthesia, the lowest recorded SBP and DBP are 93.20 ± 8.48 mmHg and 55.56 ± 7.15 mmHg, respectively. 44.4% (68/153) participants experienced spinal anesthesia-induced hypotension (SAIH) defined as a drop of ≥20% SBP from baseline, while 55.6% (85/153) maintained hemodynamic stability during the procedure. Hypotension was managed mainly by fluid administration in 61.4% of the patients while 38.6% of the cases were manage without any interventions.

These results align with SAIH's patho-physiology, whereby, after spinal anesthesia, sympathetic blockade causes peripheral vasodilation, venous pooling, diminished cardiac output, and hypotension (Jokela et al. 2022; Alexander & Fennelly, 2019). The incidence in this cohort, due to prophylactic ondansetron administration prior to spinal anesthesia, is less than the 80% incidence in some studies (Kirthi et al., 2024). Ahmed Omran et al. (2021) and Binstock et al. (2024) noted that the 5-HT3 receptor antagonist, ondansetron, inhibits the Bezold-Jarisch reflex, and during cesarean delivery, this result in less hypotension and less severe hypotension.

Most of the hypotensive events in this study were in-accordance with the standards of clinical practice to be treated with fluid boluses. Managing SAIH with fluid boluses is a first line practice (Shukla et al. 2023). The remaining patients did not require any interventions, and this suggests that, particularly those with a lower baseline risk, Ondansetron may have provided enough hemodynamic stabilization. In high-risk obstetric patients, the results reinforce prior studies that indicate prophylactic Ondansetron, along with standard intraoperative monitoring and fluid management, may be used to avoid the hemodynamic effects of spinal anesthesia
(Rai et al. 2022; Purwoko et al. 2023).

Table 4: Obstetric and Neonatal Outcomes

Patient Code	Duration of Surgery (minutes)	Apgar Score (1 min)	Apgar Score (5 min)	Neonatal Birth Weight (grams)	Maternal Complications	Neonatal Complications
Overall Cohort (n = 153)	Not recorded	8.14 ± 0.71	9.00 ± 0.00	8.14 ± 0.72	Present – 84 (54.9%) None – 69 (45.1%)	None – 153 (100.0%)

The cohort equally benefited with regards to neonatal outcomes. Infants showed good scores in the first minute, averaging 8.14 ± 0.71, and in the 5-minute mark, all of them scored 9, indicating excellent adjustment to life outside the womb. Mean neonatal weight was good for term deliveries with 8.14 ± 0.72 grams. No complications at all were noted which shows that the management of maternal hemodynamics was protective of the baby during the c-section.

54.9% of cases showed maternal complications, while 45.1% showed no complications at all with the mothers. The dataset did not provide detail into the complications, but some maternal complications are likely surrounding the hypotensive episodes post spinal anesthesia likely because hypotension tends to be the most frequent negative consequence of spinal anesthesia for C-sections (Kirthi et al., 2024, Jokela et al., 2022). Some prophylactic measures like ondansetron and the controlled fluid intake are likely to have positively influenced hypotensive episodes and therefore hemodynamic stability of the mother and the fetus. (Ahmed Omran et al., 2021, Binstock et al., 2024)

The lack of neonatal complications supports the literature where it is noted that spinal anesthesia, properly administered, keeps the mother awake and promotes mother-infant bonding with no adverse effects on the neonate (Kumar et al, 2019; Burke et al, 2022). The

Figure & Table

uniformity of the Apgar scores and the ranges of the birth weights further supports the safety of using spinal anesthesia with ondansetron, for both elective and emergency, cesarean sections in this demographic. This continues to stress the value of using an evidence-based approach to mitigate the hypotensive effects of spinal anesthesia, which is critical for the well-being of the mother and neonate (Alexander & Fennelly, 2019; Purwoko et al, 2023).

Table 5: Multivariable Logistic Regression Analysis of Factors Associated with Spinal Anesthesia–Induced Hypotension (SAIH)

Variable	Adjusted Odds Ratio (aOR)	95% Confidence Interval	p-value
Maternal age (years)	1.00	0.92 – 1.09	0.967
Maternal weight (kg)	1.02	0.97 – 1.08	0.412
Maternal height (m)	0.01	0.00 – 1555.12	0.433
Gestational age (weeks)	0.67	0.32 – 1.38	0.277
Parity	0.86	0.56 – 1.33	0.504
Baseline systolic blood pressure (mmHg)	**1.26**	**1.17 – 1.35**	**<0.001**
Spinal anesthesia dose	2.07	0.79 – 5.39	0.137

Extensive analysis through multivariable logistic regression was employed to determine the independent factors correlated with the development of spinal anesthesia–induced hypotension (SAIH) in parturients who had a cesarean section. Of all the various factors studied, the initial systolic blood pressure (SBP) was the only major contributor in determining SAIH, where an adjusted odds ratio (aOR) of 1.26 was documented (95% CI: 1.17–1.35, p < 0.001). This finding means that with each millimeter of mercury (mmHg) increased in the baseline SBP, the likelihood of SAIH getting developed, increases by 26 percent. This finding reiterates the true value of the preoperative hemodynamic status and its predictive ability for hypotensive incidents.

Other than hemodynamic elements, other variables such as age, weight, height, gestational age, and spinal anesthesia dose, have been statistically linked with SAIH. Age of the patients (aOR 1.00, p = 0.967) and parity (aOR 0.86, p = 0.504) does not seem to affect the development of hypotension which confirms that obstetric demographics by themselves, may not be adequate and sufficiently accurate to justify the prediction of SAIH. Although a dose of spinal anesthetic (aOR 2.07, p = 0.137) does not appear to be statistically significant, it certainly was and has been documented in the past to have high concentrations associated with increased inhibition of the sympathetic nervous system and hypotension (Jokela et al., 2022; Kirthi et al., 2024).

While SAIH involves sympathetic blockade, vasodilation, and reduced venous return causing hypotension (Alexander & Fennelly, 2019; Wahid et al., 2022), baseline SBP may form the basis of positive and negative maternal cardiovascular reserves. This may explain the influence of preoperative pressures on the extent of the drop after spinal anesthesia. Even though prophylactic medications like ondansetron (Ahmed Omran et al., 2021; Burke et al., 2022) have been shown to lessen the Bezold-Jarisch reflex and lessen the severity of hypotension, the current study highlights the importance of individualized risk evaluation utilizing preoperative hemodynamic data.

Table 6a: Incidence of Spinal Anesthesia–Induced Hypotension According to Anesthetic Regimen and Adjunct Medications

Variable	No SAIH n (%)	SAIH n (%)	p-value
Spinal anesthetic agent			**0.353**
Bupivacaine Heavy 15 mg	55 (58.5%)	39 (41.5%)	
Bupivacaine + IT morphine	30 (50.8%)	29 (49.2%)	
Pre-induction midazolam			**0.267**
No	30 (50.0%)	30 (50.0%)	
Yes	55 (59.1%)	38 (40.9%)	
Post-induction midazolam			**0.293**
No	57 (58.8%)	40 (41.2%)	
Yes	28 (50.0%)	28 (50.0%)	

Figure & Table

According to Table 6a, patients receiving Bupivacaine with morphine intrathecal (49.2%) had higher instances of spinal anesthesia–induced hypotension (SAIH) than patients who had Bupivacaine Heavy 15 mg alone (41.5%), although it was not statistically significant (p = 0.353). Pre-induction midazolam was linked to lower instances of SAIH (40.9%) than those who did not receive it (50.0%), while post-induction midazolam had higher instances (50.0% vs. 41.2%) but neither were statistically significant (p = 0.267 and p = 0.293 respectively). Given the employed dosing protocols, added intrathecal morphine or low-dose midazolam appears to not significantly change the likelihood of post-spinal anesthesia hypotension.

Hypotension triggered by spinal anesthesia is due to sympathetic blockade, which causes venous dilatation, decreased venous return, and a drop in cardiac output (Alexander & Fennelly, 2019; Jokela et al., 2022). The Bezold-Jarisch reflex, which is initiated due to 5-HT3 receptor stimulation, may contribute to the worsening of hypotension and bradycardia (Ahmed Omran et al., 2021; Kossey & Kwok, 2024). Although intravenous ondansetron is commonly described to have an onset of antiemetic action within 15–30 minutes, its proposed role in mitigating spinal anesthesia–induced hypotension (SAIH) is mediated through early antagonism of 5-HT3 receptors involved in this reflex pathway. Experimental and clinical evidence suggests that 5-HT3 receptor blockade occurs shortly after intravenous administration and may attenuate the severity of reflex-mediated hypotension even when sympathetic blockade and hemodynamic changes develop within the first 10 minutes following spinal anesthesia (Ahmed Omran et al., 2021; Burke et al., 2022; Kossey & Kwok, 2024).

The absence of notable differences recorded in this cohort is consistent with the existing literature where low-dose adjunct medications, including sedatives and intrathecal opioids, seem to cause little to no effect on systemic vascular resistance when spinal anesthetic is given at the usual parenteral dose (Burke et al., 2022; Kirthi et al., 2024; Wahid et al., 2022). The total SAIH incidence in this study is lower than the SAIH incidence documented in several other reports which might be a result of effective strategies of SAIH prevention, the SAIH study population, or differences in SAIH anesthetic strategies (Kirthi et al., 2024). These findings clinically justify the administration of intrathecal morphine and midazolam for analgesia and sedation in the course of cesarean sections, without significantly increasing the risk of hypotension, and are in accordance with previous studies regarding the safety and hemodynamic tranquility of the adjuncts at a whole standard dose (Alexander & Fennelly, 2019; Burke et al., 2022; Jokela et al., 2022).

Table 6b: Independent Predictors of Spinal Anesthesia–Induced Hypotension

Variable	Adjusted OR	95% CI	p-value
Ondansetron (Yes vs No)	–	–	–
Intrathecal morphine (Yes vs No)	1.25	0.63 – 2.49	0.521
Midazolam pre-induction (Yes vs No)	0.50	0.23 – 1.12	0.093
Midazolam post-induction (Yes vs No)	2.03	0.91 – 4.53	0.084
Age (years)	0.99	0.94 – 1.05	0.778
Gestational age (weeks)	0.76	0.46 – 1.24	0.271

Note: Ondansetron could not be analyzed because it was constant (100% received ondansetron)

Table 6b displays the results from the multivariable logistic regression, which determined predictors of spinal anesthesia-induced hypotension (SAIH) for this group of patients. The odds of developing SAIH with intrathecal morphine was 1.25 (CI 0.63-2.49, p=0.521). This shows intrathecal morphine, and by extension intrathecal opioids, does not significantly put patients at increased risk for hypotension. Pre-induction midazolam was associated with a reduction in the odds of SAIH (adjusted OR = 0.50, 95% CI = 0.23-1.12, p = 0.093, and post midazolam had an odds ratio of 2.03 which does not show significance (CI 0.91-4.53 \, p=0.084). This does show a potential trend for SAIH, while midazolam post induction does show increased odds, but doesn't reach significance either way. Maternal Age and Gestational age, p=0.778 and p=0.271 respectively, show a lack of significance towards SAIH. Since every patient was prescribed ondansetron the authors could not analyze that variable independently. This does demonstrate the consistent use of ondansetron in the study cohort.

These results are consistent with the understanding that SAIH is mainly mediated by the sympathetic blockade caused by spinal anesthesia, and that adjuncts of low-dose intrathecal morphine and midazolam are unlikely to have as a result a major effect on the hemodynamic stability (Alexander & Fennelly, 2019; Burke et al., 2022; Jokela et al., 2022). The absence of statistically significant associations in this study is in line with the literature that notes the weak clinical effect of intrathecal opioids and sedatives when used with parverine, in combination with standard local anesthetic(s) (Kirthi et al., 2024; Wahid et al., 2022). The results suggest that standard-dose Bupivacaine and intrathecal morphine in combination with midazolam can be used in cesarean deliveries without a significant increase in SAIH, supporting the use of these medications for pain control and comfort measures during the procedure (Ahmed Omran et al., 2021; Alexander & Fennelly, 2019).

AP-15-6 (2026-0266)

Possible Concurrent Amniotic Fluid Embolism and Perioperative Anaphylaxis during Cesarean Delivery: A Case Report

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Introduction
Amniotic fluid embolism (AFE) and perioperative anaphylaxis may both present with sudden cardiorespiratory compromise during cesarean delivery, yet lack definitive diagnostic tests. We report a maternal collapse suggesting that both conditions may have occurred concurrently.

Case
A 33-year-old gravida 2, para 1 woman at 37 weeks and 4 days of gestation, with previous vaginal delivery, underwent cesarean delivery for placenta previa. She had no significant medical history, and her preoperative evaluation and laboratory findings were unremarkable. Spinal anesthesia was performed with bupivacaine 10 mg and fentanyl 15 μg, and a T4 sensory level was confirmed. Flomoxef sodium was administered as perioperative antimicrobial prophylaxis before skin incision. Following delivery of a healthy neonate and the placenta, multiple uterotonics, including oxytocin, carbetocin, ergonovine, and sulprostone, were administered as uterine tone remained suboptimal. Seven minutes after delivery, remimazolam infusion was initiated at 20 mg/h without a loading dose. Approximately 5 min later, she reported chest tightness and bilateral arm paresthesia, followed by abrupt desaturation to 85% despite a preserved plethysmographic waveform. She remained alert, cooperative, and conversant. Pruritus of both arms and a visible rash then developed, accompanied by tachycardia and profound hypotension. Epinephrine, pheniramine, and dexamethasone were administered, followed by conversion to general anesthesia and comprehensive resuscitation for shock.
At 1.5 h after symptom onset, laboratory testing showed thrombocytopenia and prolonged coagulation times (platelets, 164 to 87×10^9/L; PT-INR, 0.95 to 1.49; aPTT, 32.3 to 58.8 s), together with severe hypofibrinogenemia (99 mg/dL) and a markedly elevated D-dimer level (>20 mg/L), consistent with acute consumptive coagulopathy. By that time, documented blood loss was approximately 800 mL—500 mL during delivery and 300 mL after symptom onset. No blood products had been administered, and approximately 2,000 mL of crystalloid had been infused. These findings indicated that severe consumptive coagulopathy preceded clinically significant hemorrhage and was unlikely to be explained by dilution alone. Serum tryptase obtained at 1.5 h after symptom onset was 6.3 μg/L; the baseline value measured one week later was 2.3 μg/L, meeting the event-related criterion for acute mast-cell activation of 1.2×baseline+2 μg/L (4.76 μg/L).
Intermittent loss of uterine tone with vaginal bleeding prompted balloon tamponade and vaginal packing; however, progressive hemorrhage ultimately required emergency hysterectomy followed by arterial embolization. She recovered after intensive care and was discharged. Skin-prick and intradermal testing for suspected agents is planned.

Conclusion
Neither AFE nor perioperative anaphylaxis alone adequately explained the entire clinical course. Early severe consumptive coagulopathy preceding major hemorrhage and abrupt hypoxemia without evident bronchospasm were compatible with AFE, whereas pruritus, rash, and event-related tryptase elevation supported perioperative anaphylaxis. Although isolated perioperative anaphylaxis does not readily explain the profound early coagulation abnormalities, isolated AFE does not account for the cutaneous manifestations and biochemical evidence of mast-cell activation. These findings raised the possibility of concurrent AFE and perioperative anaphylaxis.

AP-15-7 (2026-0148)

Uterine Rupture from Undiagnosed Placenta Percreta at a Prior Cornual Resection Scar in a Twin Pregnancy: A Case Report

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Introduction
Uterine rupture during pregnancy is a life-threatening obstetric emergency for both mother and fetus, most commonly associated with a history of uterine surgery. Placenta accreta spectrum (PAS) is a significant risk factor for uterine rupture, particularly when the placenta implants over a previous myometrial scar [1]. We report a rare case of undiagnosed placenta percreta resulting in spontaneous uterine rupture at the site of a prior cornual resection scar in a twin pregnancy at 28 weeks' gestation.

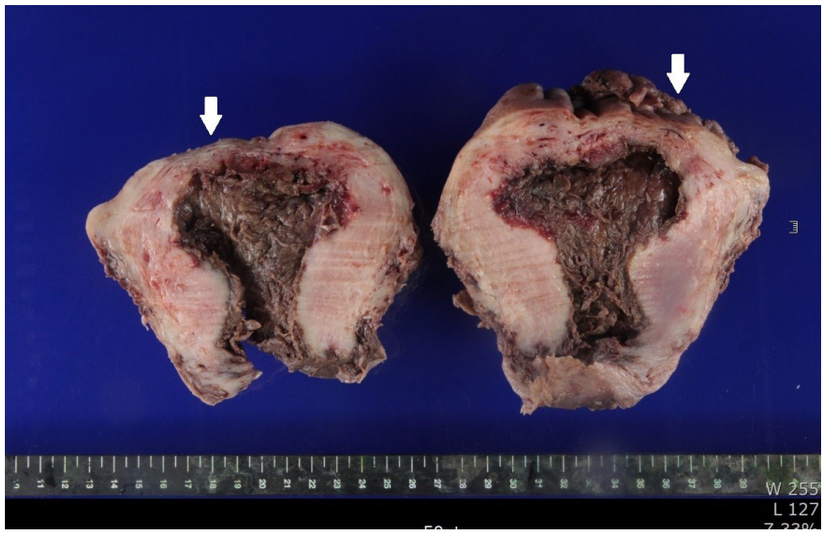
Case
A 39-year-old woman with a dichorionic diamniotic twin pregnancy conceived via in vitro fertilization presented with sudden severe abdominal pain and profound hypovolemic shock at 28+1 weeks' gestation. Her obstetric history included a laparoscopic right cornual resection for an ectopic pregnancy one year prior. Ultrasonography performed during hospitalization for cervical shortening demonstrated placental locations in the fundal and posterior fundal regions without definite signs of PAS. Emergency cesarean section was performed under general anesthesia. Upon entering the abdominal cavity, massive bleeding was noted. Following prompt delivery of both fetuses, surgical exploration revealed a uterine rupture at the previous right cornual resection scar with active bleeding and uterine atony. Due to uncontrollable hemorrhage, a subtotal hysterectomy was performed. The patient received 11 units of packed red blood cells, 6 units of fresh frozen plasma, and 8 units of platelets, with an estimated blood loss of 4,000 mL. Histopathological examination confirmed placenta percreta and marked myometrial thinning at the previous cornual resection site. (Fig. Pathologic specimen. On cross-section of the uterus, the myometrium in the right cornual region, indicated by a white arrow, is thinner than that on the left side.) The patient was hemodynamically stabilized and discharged on postoperative day 6 without complications. Both neonates were managed in the neonatal intensive care unit and discharged in stable condition.

Conclusion
This case highlights that a prior uterine surgical site represents a vulnerable location for PAS and subsequent uterine rupture. Posterior fundal PAS, as in the present case, is relatively uncommon and may be particularly challenging to detect by ultrasonography. Therefore, in patients with clinical risk factors for PAS and inconclusive ultrasonographic findings, adjunctive MRI evaluation should be considered [2]. Anesthetic and surgical strategies should be planned in advance to prepare for possible uterine rupture, massive transfusion, and emergency surgery in patients with PAS.

AP-15-7 (2026-0148)

Figure & Table

Figure & Table 1.



AP-15-8 (2026-0567)

Diagnostic Challenges and Management of Massive Irrigation Fluid Intravasation During Operative Hysteroscopy: A Case Report

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Introduction

Operative hysteroscopy is a widely performed minimally invasive procedure, but excessive irrigation fluid intravasation remains a potentially life-threatening complication. Because its early physiological manifestations may overlap with those of other causes of acute intraoperative cardiopulmonary deterioration, early recognition is often challenging. Herein, we report a case of massive irrigation fluid intravasation during operative hysteroscopy in which physiological monitoring, arterial blood gas analysis (ABGA), and intraoperative findings prompted diagnostic reassessment and successful management.

Case

A 46-year-old woman (ASA physical status I) was scheduled for elective hysteroscopic endometrial polypectomy under general anesthesia using normal saline as the distension medium. Approximately 20 minutes into the procedure, end-tidal carbon dioxide (ETCO2) declined from 30 mmHg to 20 mmHg, peak airway pressure increased from 11 to 21 cmH2O, and oxygen saturation gradually decreased to 94% despite increasing FiO2 to 0.8. Initial ABGA revealed severe hyperchloremic metabolic acidosis (pH 7.179, HCO3- 10.5 mmol/L, Cl- 126 mmol/L) and marked hemodilution (hemoglobin 5.5 g/dL) with a normal lactate level.

Although venous gas embolism or pulmonary thromboembolism was initially suspected, the absence of severe cardiovascular instability led to further evaluation. The severe metabolic acidosis and unexpected hemodilution, evaluated via the Stewart physicochemical approach, suggested rapid intravascular absorption of large volumes of normal saline rather than acute hemorrhage alone. Reassessment of the operative field revealed a fluid deficit of approximately 7 L after a total of 10 L of normal saline was used, confirming massive irrigation fluid intravasation. The patient subsequently underwent successful uterine artery embolization for moderate active bleeding and was transferred to the surgical ICU. She recovered uneventfully and was discharged on postoperative day 8 without complications.

Conclusion

Massive irrigation fluid intravasation during operative hysteroscopy can present as abrupt intraoperative cardiopulmonary deterioration. Prompt diagnosis relies on the integration of physiological monitoring, ABGA-based strong ion difference analysis, and careful assessment of operative findings, ensuring timely and appropriate management.

AP-15-8 (2026-0567)

Figure & Table

Figure & Table 1.

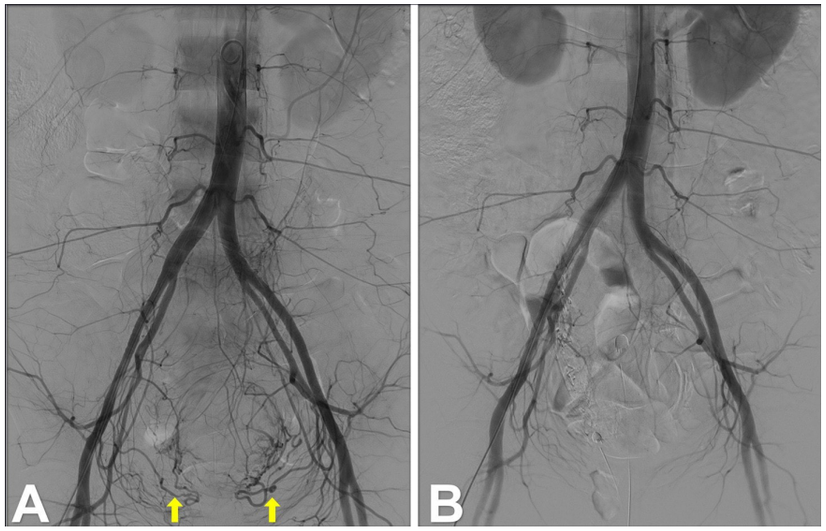
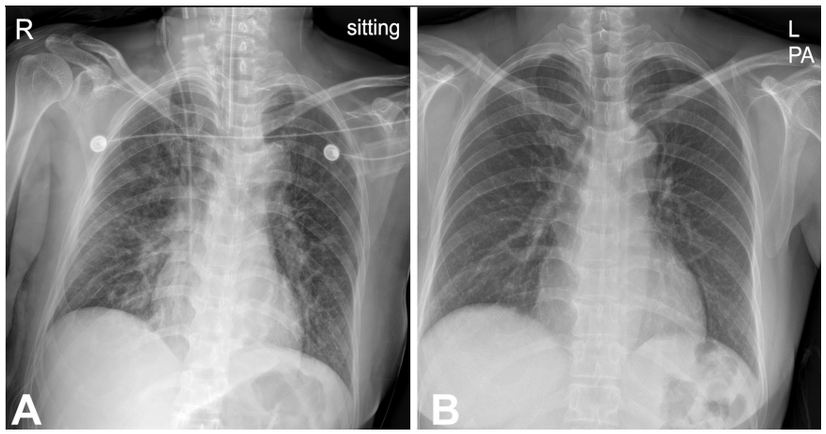


Figure & Table 2.



Presentation

Abstract Presentation 16

Date / Time	Nov 6 (Fri), 11:00-12:30
Room	Room B *(Paradise City)*
Language	English
Chair(s)	JunHyun Kim *(Inje University, Republic of Korea)* Kyu Nam Kim *(Hanyang University, Republic of Korea)*

AP-16-1
2026-0603

Effect of Goal-Directed Blood Pressure Management Using the Hypotension Prediction Index on Acute Kidney Injury after Robotic Urologic Surgery: A Randomized Controlled Trial

Sooyoung Cho[1,2*], Sunho Lim[1,2], Sunyoung Moon[1,2], Seunghee Yoo[1,2], Chahyun Oh[4], Hee Seung Lee[1,2], Jae Hee Woo[1,3], Won-joong Kim[1,2], Hye-Won Oh[1,3], Ji Seon Chae[1,3]

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AP-16-2
2026-0239

Non-invasive Prediction of Preload Dependency Using Peripheral Venous Waveform–Based Machine Learning

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AP-16-3
2026-0157

Paradoxical Burst Suppression at an Appropriate Patient State Index during General Anesthesia: Frequency, Associated Factors, and Monitor Under-detection

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AP-16-4
2026-0415

The Effect of Bilingual Audio-Visual Educational Aid on Patient Understanding of Patient-Controlled Analgesia: A Randomised Controlled Study

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AP-16-5
2026-0159

Reduced Oxygen Reserve Index during Low-flow Anesthesia Reflects Lower Delivered FiO_2, Not Co_2 Rebreathing: A Retrospective Cohort Study

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AP-16-6
2026-0519

A Sustainable, Low-Cost, 3D-Printed Emergency Front-of-Neck Access (eFONA) Model: A Nine-Iteration Development Report

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AP-16-7
2026-0532

CONOX-Guided Anesthesia for Opioid Sparing and Perioperative Recovery - A Systematic Review and Meta-analysis

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AP-16-8
2026-0198

Delayed Recognition of Posterior Arytenoid Cartilage Dislocation After Uneventful Intubation During Robotic Prostatectomy: Educational Lessons for Perioperative Airway Assessment

Seong Hyeok Lee[1], Hyunjung Koh[1*]

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Effect of Goal-Directed Blood Pressure Management Using the Hypotension Prediction Index on Acute Kidney Injury after Robotic Urologic Surgery: A Randomized Controlled Trial

Sooyoung Cho[1,2*], Sunho Lim[1,2], Sunyoung Moon[1,2], Seunghee Yoo[1,2], Chahyun Oh[4], Hee Seung Lee[1,2], Jae Hee Woo[1,3], Won-joong Kim[1,2], Hye-Won Oh[1,3], Ji Seon Chae[1,3]

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Background

Robotic urologic surgery combines prolonged pneumoperitoneum with steep Trendelenburg positioning, creating a distinctive risk for intraoperative hypotension and postoperative acute kidney injury (AKI). Whether Hypotension Prediction Index (HPI)-guided management improves renal outcomes in this setting is unknown.

Methods

In this single-center randomized controlled trial (NCT06051162; IRB-approved, written informed consent), 124 adults undergoing robotic prostatectomy, nephrectomy, or cystectomy were allocated 1:1 to HPI-guided management (protocolized treatment of hypovolemia, vasoplegia, and reduced contractility) or standard care with the HPI display covered; 121 were analyzed (HPI 62, control 59). The primary outcome was AKI within 7 days (KDIGO creatinine criteria). Secondary outcomes included hypotensive burden at MAP thresholds of 60-75 mmHg, the Unprevented Hypotension Ratio (UHR; the proportion of HPI alerts followed by hypotension), mixed-model hemodynamic trajectories across 12 pneumoperitoneum phases, and serum cystatin C and KIM-1.

Results

AKI occurred in 1/62 (1.6%) vs 6/59 (10.2%) patients (p = 0.057; Firth OR 0.20, 95% CI 0.02-1.00); all seven events followed nephrectomy or cystectomy, none prostatectomy. The HPI group had lower duration, area under the threshold, and time-weighted average of MAP < 60 mmHg (p = 0.011-0.020), robust to CKD-stage adjustment, with no differences at 65-75 mmHg. UHR was lower with HPI at the 15-minute horizon (MAP < 70 mmHg after HPI > 85 alerts, p = 0.008; MAP < 60 mmHg after HPI > 50, p = 0.025). Despite equivalent MAP, trajectory curvature diverged for HPI, dynamic arterial elastance, and stroke volume index in prostatectomy (FDR q <= 0.043), suggesting volume-led preload optimization. AKI was associated with distinct MAP curvature (q = 0.017) and higher postoperative KIM-1 (p = 0.018).

Conclusion

HPI-guided management did not significantly reduce postoperative AKI but attenuated severe hypotension, improved prevention after long-horizon alerts, and reshaped hemodynamic trajectories - physiologic efficacy without demonstrated clinical effectiveness. All AKI events occurred in higher-risk procedures, supporting risk-stratified application and adequately powered trials in nephrectomy and cystectomy.

AP-16-1 (2026-0603)

Figure & Table

Figure & Table 1.

Table 1. Intraoperative hypotensive burden at four MAP thresholds.

MAP threshold	Metric	HPI (N=62)	Control (N=59)	Unadjusted P-value	Adjusted P-value
MAP < 60 mmHg	Duration, min	0.0 [0.0, 0.0]	0.0 [0.0, 1.0]	**0.011**	**0.020**
	AUT, mmHg·min	0.0 [0.0, 0.0]	0.0 [0.0, 5.0]	**0.016**	**0.024**
	TWA, mmHg	0.0 [0.0, 0.0]	0.0 [0.0, 0.0]	**0.020**	**0.029**
MAP < 65 mmHg	Duration, min	0.2 [0.0, 1.9]	1.0 [0.0, 3.7]	0.187	0.259
	AUT, mmHg·min	0.2 [0.0, 6.2]	3.3 [0.0, 21.5]	0.099	0.132
	TWA, mmHg	0.0 [0.0, 0.0]	0.0 [0.0, 0.1]	0.102	0.137
MAP < 70 mmHg	Duration, min	2.7 [0.0, 8.1]	5.7 [0.7, 12.7]	0.140	0.210
	AUT, mmHg·min	7.8 [0.0, 38.1]	27.0 [1.7, 68.0]	0.095	0.137
	TWA, mmHg	0.0 [0.0, 0.2]	0.1 [0.0, 0.3]	0.110	0.160
MAP < 75 mmHg	Duration, min	11.5 [2.3, 23.0]	16.7 [2.8, 31.2]	0.216	0.367
	AUT, mmHg·min	47.8 [14.8, 109.0]	93.7 [14.2, 175.3]	0.095	0.170
	TWA, mmHg	0.2 [0.1, 0.6]	0.3 [0.1, 0.9]	0.134	0.230

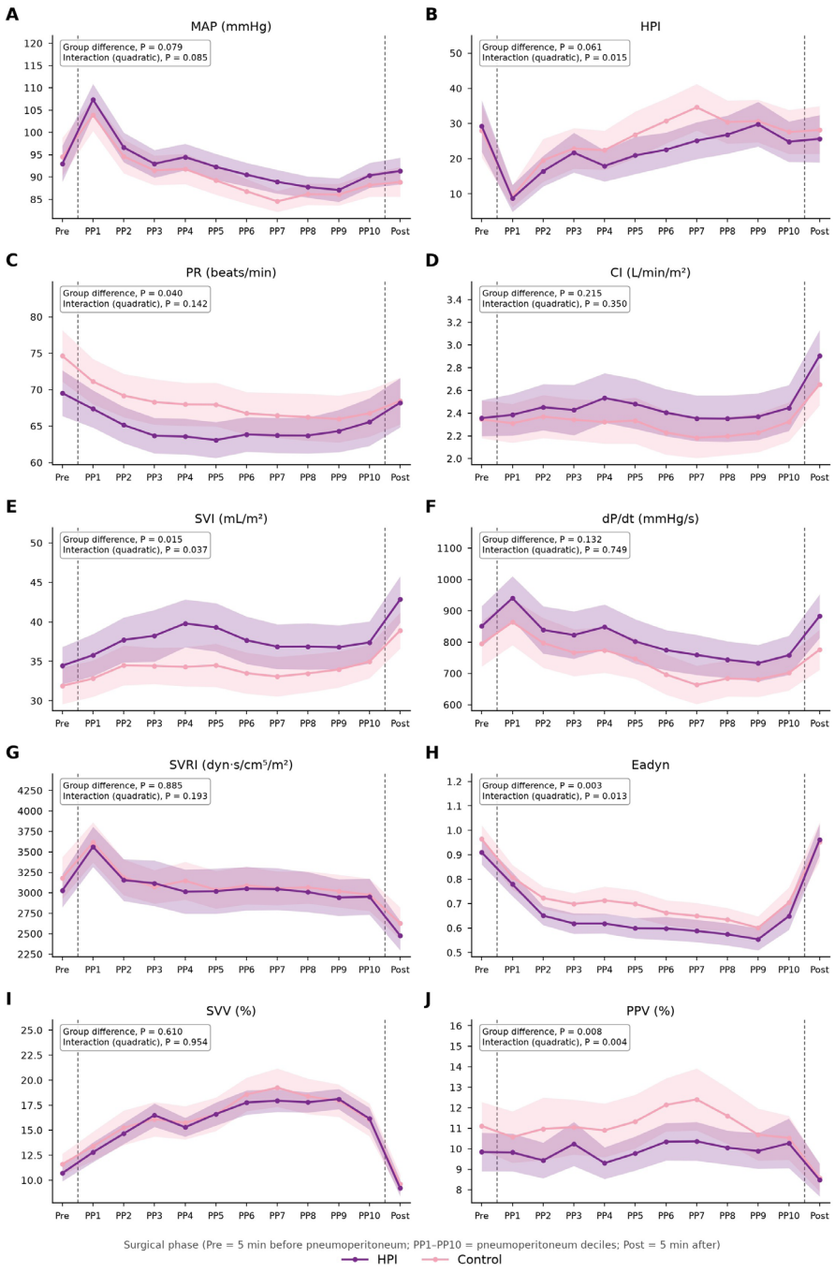
Values are median [interquartile range]. Bold values indicate p < 0.05. Adjusted P values were obtained by rank-based analysis of covariance with CKD stage by eGFR (normal: ≥ 90; stage 2: 60–89; stage ≥ 3: < 60 mL/min/1.73 m^2) as a covariate; because the metrics are right-skewed, no effect estimate is reported. AUT, area under the threshold; eGFR, estimated glomerular filtration rate; MAP, mean arterial pressure; TWA, time-weighted average.

ABSTRACT
Competition
Presentation
E-Poster

AP-16-1 (2026-0603)

Figure & Table

Figure & Table 2.



AP-16-2 (2026-0239)

Non-invasive Prediction of Preload Dependency Using Peripheral Venous Waveform–Based Machine Learning

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Background

Goal-directed fluid therapy relies on dynamic indices such as stroke volume variation (SVV) to assess preload dependency; however, these require invasive arterial monitoring. Peripheral venous pressure waveforms are widely available but have not been fully utilized due to low signal fidelity. Advances in signal processing and artificial intelligence model may enable extraction of clinically meaningful features from peripheral venous pressure waveforms. To develop and evaluate a machine learning model using peripheral venous waveform features to predict preload-dependent state (SVV ≥13%) during general anesthesia.

Methods

Peripheral venous waveform data were prospectively collected from patients undergoing hepatectomy (n=42). After preprocessing (bandpass filtering, robust normalization, and respiratory cycle segmentation), physiologically interpretable features were extracted, including amplitude variability, waveform morphology, and inspiratory–expiratory asymmetry. Statistically significant features distinguishing SVV ≥13% vs. <13% were selected using false discovery rate correction. Machine learning models (logistic regression and random forest) were trained using a leave-one-subject-out cross-validation approach. Model performance was evaluated using AUROC, sensitivity, specificity, and positive predictive value.

Results

Analysis of 42 patients demonstrated that peripheral waveform features were significantly associated with preload dependency. The optimal model achieved an AUROC of 0.711, with sensitivity of 0.576 and specificity of 0.721. Importantly, periods with the highest predicted probabilities (top 5%) showed a positive predictive value of 83.5–88.6% for SVV ≥13%, indicating strong enrichment of preload-dependent states. Key contributing features included waveform shape metrics such as crest factor and respiratory-related amplitude variations.

Conclusion

Peripheral venous waveforms contain clinically relevant information for predicting preload-dependent states. A machine learning approach using physiologically interpreable features achieved moderate discriminative performance and high predictive enrichment. This non-invasive method has the potential to provide accessible hemodynamic monitoring and may complement or substitute invasive dynamic indices with further validation in larger cohorts.

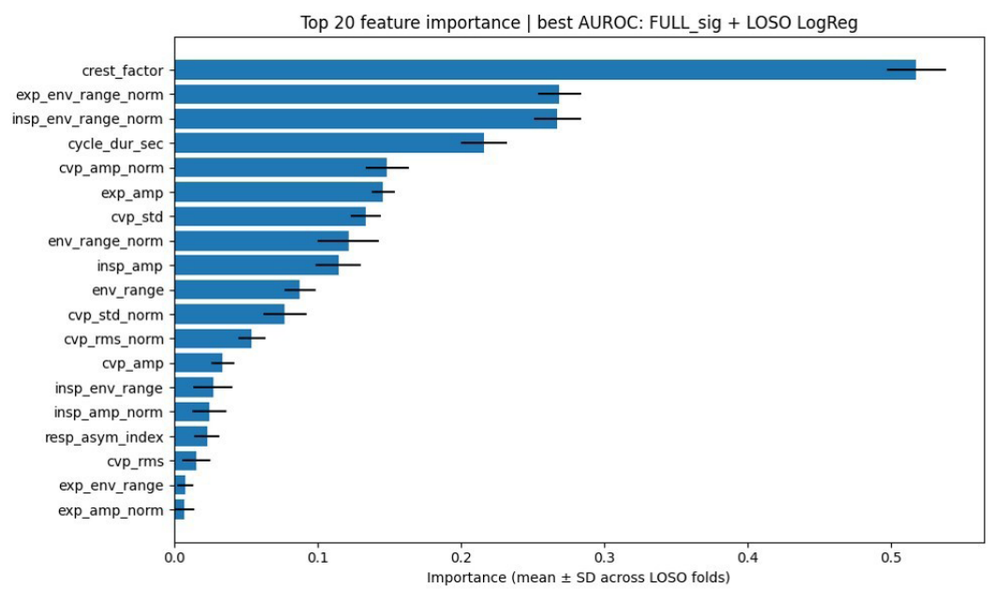
AP-16-2 (2026-0239)

Figure & Table

Figure & Table 1.



Figure & Table 2.



AP-16-3 (2026-0157)

Paradoxical Burst Suppression at an Appropriate Patient State Index during General Anesthesia: Frequency, Associated Factors, and Monitor Under-detection

Su Yeon Cho[1], Dong Joon Kim[1], Yujeong Kim[1], Ki Tae Jung[1*]

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Background
Processed electroencephalogram (EEG) depth indices can remain within the recommended range while the raw EEG shows burst suppression. This discordance has been described for the Bispectral Index and Entropy but not for the SedLine Patient State Index (PSI). We examined how often burst suppression—confirmed on the raw EEG—occurred while the PSI was within the recommended range (25–50), the associated patient factors, and the extent to which the SedLine suppression ratio (SR) reflected it.

Methods
We retrospectively analysed intraoperative SedLine recordings from 239 general anaesthesia cases at a single centre (volatile or total intravenous anaesthesia; cases with an undeterminable anaesthetic were excluded; VitalDB; 80,641 quality-controlled 30-s epochs). Epochs meeting a conservative suppression criterion (peak-to-peak <5 μV for ≥1 s, with artefact exclusion) were verified against the raw four-channel EEG; 78% were confirmed (90% of episodes lasting ≥120 s). Suppression was summarised per patient as cumulative confirmed-suppression time and as sustained episodes (≥60 and ≥120 s). Associations with age, anaesthetic type (total intravenous anaesthesia [TIVA] inferred from the absence of a volatile-gas trace), and sex were assessed using generalised estimating equations with patient-level clustering. Agreement with the SedLine SR was examined by stratum and by suppression duration.

Results
Confirmed burst suppression during a PSI of 25–50 was observed in 27.6% of patients. It was more frequent in patients aged ≥65 years (35.2% vs 21.4%) and under TIVA (42.0% vs 23.8% for volatile anaesthesia). Age (odds ratio 1.50 per decade, 95% CI 1.06–2.12) and TIVA (odds ratio 6.45, 2.38–17.48) were independently associated with the finding; sex was not. The SedLine SR read <5% during 86.1% of confirmed-suppression epochs, including 84% of sustained episodes ≥60 s, 65% of episodes ≥120 s, and in 56% of patients who accumulated ≥5 min of suppression.

Conclusion
In this single-centre cohort, raw-EEG–confirmed burst suppression occurred during an apparently adequate PSI in approximately one in four patients, more often in older and TIVA-maintained patients, and was frequently not reflected by the SedLine SR. The findings are observational and associational.

AP-16-3 (2026-0157)

Figure & Table

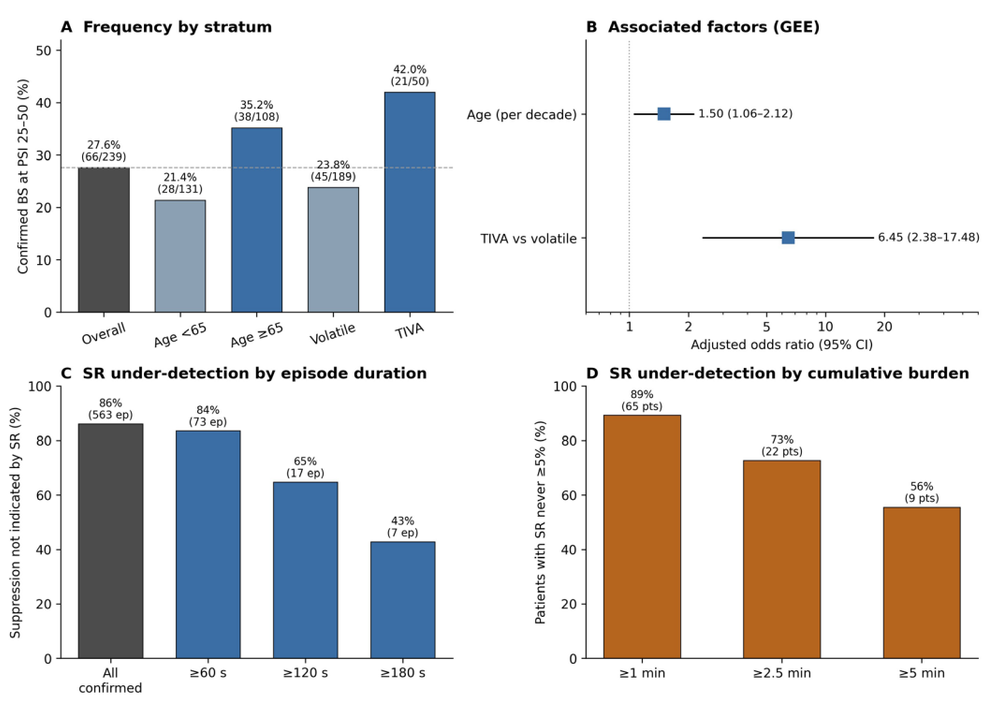
Figure & Table 1.

Table 1. Patient characteristics by paradoxical burst suppression (PSI 25–50)

Characteristic	Overall (n=239)	Paradox+ (n=66)	Paradox− (n=173)	p
Age, y, mean ± SD	59.3 ± 15.9	61.5 ± 16.1	58.5 ± 15.7	0.087
Age ≥65 y, n (%)	108 (46.6)	38 (59.4)	70 (41.7)	0.019
Male sex, n (%)	123 (51.5)	36 (54.5)	87 (50.3)	0.566
Anaesthetic, n (%)				
Volatile	189 (79.1)	45 (68.2)	144 (83.2)	0.013
TIVA	50 (20.9)	21 (31.8)	29 (16.8)	0.013

Figure & Table 2.

Figure 1. Paradoxical burst suppression at an appropriate PSI: frequency, associated factors, and SedLine SR under-detection (raw-EEG–confirmed suppression; 239 cases)



AP-16-4 (2026-0415)

The Effect of Bilingual Audio-Visual Educational Aid on Patient Understanding of Patient-Controlled Analgesia: A Randomised Controlled Study

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Background
Patient-controlled analgesia (PCA) is widely used for postoperative pain management; however, inadequate patient understanding and misconceptions regarding PCA use and opioid-related side effects may compromise its safety and effectiveness. Conventional verbal education is often inconsistent, particularly for complex concepts such as lockout mechanisms and opioid safety. Audio-visual educational aid may improve patient comprehension and perception of PCA.

Methods
A prospective randomized controlled study was conducted involving 88 adult surgical patients planned for postoperative PCA randomized into control (verbal education) and intervention (audio-visual plus verbal education) groups. Outcomes were assessed at 24 hours post operation. Perception was measured on 5-points Likert scale (8 items), knowledge of PCA use and safety (10 points) and opioid-related side effects (12 points) were measured on dichotomous questionnaires. Median scores (IQR) were compared using the Mann–Whitney U test; categorical distributions were compared with χ^2 tests. Statistical significance was set at $p<0.05$.

Results
The intervention group demonstrated higher perception of PCA efficacy (4.44 [IQR 4.03–4.88] vs 3.81 [3.41–4.38]; p=0.001), greater knowledge of PCA use and safety (8 [7–9] vs 5 [4–7]; p<0.001), and improved knowledge of opioid-related side effects (9 [7–9] vs 5 [4–8]; p<0.001). A substantially larger proportion of intervention patients achieved high knowledge scores (>80%); across domains (PCA knowledge 75.7% vs 24.3%; side-effect knowledge 72.7% vs 27.3%; all p≤0.002).

Conclusion
A brief and structured audio-visual educational aid significantly improved patient perception and knowledge related to PCA. Integration of such tools may standardize perioperative education, enhance patient safety and is amenable to scale-up across institutions.

Figure & Table

Figure & Table 1.

RESULTS
A total of eighty-eight patients (mean age 45.2 ± 16.5 years; 64.8% female) were enrolled, with 44 patients in each group. Patients sociodemographic and clinical characteristics were similar between groups; no variables differed significantly. Detailed baseline data are summarised in Table 1.

Table 1. Sociodemographic and clinical characteristics

Variables, n (%)	Control n=44	Intervention n=44	*p*†
Gender			
Male	17 (54.8)	14 (45.2)	0.503
Female	27 (47.4)	30 (52.6)	
Employment Status			
In work	21 (48.8)	22 (51.2)	0.518
Retired	11 (52.4)	10 (47.6)	
Not working because of illness	0 (0)	2 (100)	
Housewife	6 (50)	6 (50)	
Unemployed	6 (60)	4 (40)	
Present or last occupation			
Managerial	20 (48.8)	21 (51.2)	0.710
Shop/Office	7 (63.6)	4 (36.4)	
Manual	4 (66.7)	2 (33.3)	
Technical	6 (46.2)	7 (53.8)	
Never worked	7 (41.2)	10 (58.8)	
Educational qualifications			
No qualifications	0 (0)	2 (100)	0.150
SPM	9 (36)	16 (64)	
Diploma	13 (52)	12 (48)	
Degree	17 (63)	10 (37)	
Master	5 (55.6)	4 (44.4)	
History of previous surgery			
Yes	15 (45.5)	18 (54.5)	0.509
No	29 (52.7)	26 (47.3)	
Used PCA before			
Yes	5 (41.7)	7 (58.3)	0.534
No	39 (51.3)	37 (48.7)	
Type of Surgery			
Gynaecological	10 (37)	17 (63)	0.434
General Surgery	15 (55.6)	12 (44.4)	
Orthopaedic	9 (52.9)	8 (47.1)	
Other (Oral Maxillofacial, Plastic,Ophthalmic)	10 (58.8)	7 (41.2)	

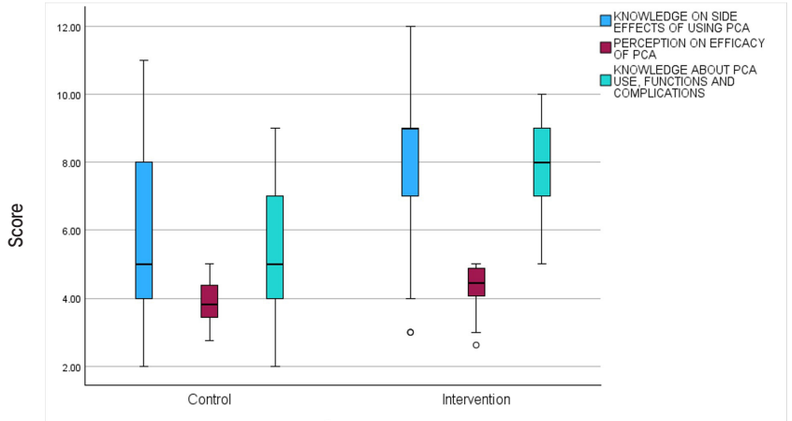
†Chi-square test.
No statistically significant differences were observed between groups.

AP-16-4 (2026-0415)

Figure & Table

Overall, patients receiving audio-visual educational aid demonstrated higher perception of PCA efficacy and greater knowledge of PCA use and opioid-related side effects compared with verbal education alone. (Figure 1)

Figure 1: Box plot median comparison of perception and knowledge scores between control and intervention groups



Patients receiving audio-visual educational aid demonstrated significantly higher perception of PCA efficacy and superior knowledge of PCA use and opioid-related side effects compared with control group. Median PCA knowledge scores were higher in the intervention group, with a greater proportion achieving high knowledge levels (>80%) (Table 2).

Table 2. Comparison of perception and knowledge outcomes between groups

Outcome domain	Control group (n = 44)	Intervention group (n = 44)	P value†
Perception of PCA efficacy	3.81 (3.41–4.38)	4.44 (4.03–4.88)	0.001
High perception, n (%)	25 (39.70)	38 (60.30)	0.002‡
Knowledge of PCA use, functions & safety	5.00 (4.00 –7.00)	8.00 (7.00 –9.00)	0.001
High knowledge (>80%), n (%)	9.00 (24.30)	28.0 (75.70)	0.001‡
Knowledge of opioid-related side effects	5.00 (4.00 –8.00)	9.00 (7.00 – 9.00)	<0.001
High knowledge (>80%), n (%)	9.0 (27.30)	24 (72.70)	0.001‡

Data are presented as median (interquartile range) unless otherwise stated.
†Mann–Whitney U test.
‡Chi-square test.

Figure & Table

Generally, participants understood that the PCA pump will not deliver medication without pressing the button, repeated pressing will not result in overdose and a large proportion of participants believed that it is recommended to push the button before doing activities that may cause pain. However, misconceptions regarding PCA were common, that PCA should only be used when pain becomes severe, still feeling moderate to severe pain while using PCA, fear of opioid addiction, and some participants believed that PCA activation by another person during sleep was acceptable. (Table 3)

Table 3. Overall response rate for knowledge of PCA use and opioids-related side effects

Items	Yes, n (%)	No, n (%)
Knowledge of PCA use, functions, and complications		
The pump gives me pain medication without pushing the button.	15 (17.0)	73 (83.0)
I feel that the pump is safe, so it will not give me extra amount of medicine?	73 (83.0)	15 (17.0)
If I push the button twice; will it give me more pain medicine?	30 (34.1)	58 (65.9)
I should wait till I have severe pain to push the button?	37 (42.0)	51 (58.0)
There should be a specific time between the pushes specified by the nurse.	58 (65.9)	30 (34.1)
Is it usual to feel moderate to severe pain while using the pump?	42 (47.7)	46 (52.3)
It is advised to push the button before doing activities that may cause pain?	65 (73.9)	23 (26.1)
I have fear of addiction that may result from pain medication that is given by the pump?	26 (29.5)	62 (70.5)
I have received enough information and training on how to use the pump.	87 (98.9)	1 (1.1)
I can ask somebody else to push the button instead of me when I go to sleep.	12 (13.6)	76 (86.4)
Knowledge of opioid-related side effects		
Unintentional weight gain	10 (11.4)	78 (88.6)
Excessive fatigue	29 (33.0)	59 (67.0)
Drowsiness	67 (76.1)	21 (23.9)
Inability to concentrate	36 (40.9)	52 (59.1)
Nausea	55 (62.5)	33 (37.5)
Diarrhoea	19 (21.6)	69 (78.4)
Dizziness	57 (64.8)	31 (35.2)
Constipation	47 (53.4)	41 (46.6)
Skin rashes	41 (46.6)	47 (53.4)
Stomach aches	33 (37.5)	55 (62.5)
Heart burn	28 (31.8)	60 (68.2)
Vomiting	54 (61.4)	34 (38.6)

Footnotes:
Correct responses for the PCA knowledge items were:
1. The pump gives me pain medication without pushing the button. (No)
2. I feel that the pump is safe, so it will not give me extra amount of medicine. (Yes)
3. If I push the button twice; will it give me more pain medicine? (No)
4. I should wait till I have severe pain to push the button? (No)
5. There should be a specific time between the pushes specified by the nurse. (No)
6. Is it usual to feel moderate to severe pain while using the pump? (No)
7. It is advised to push the button before doing activities that may cause pain? (Yes)
8. I have fear of addiction that may result from pain medication that is given by the pump? (Yes)
9. I have received enough information and training on how to use the pump. (Yes)
10. I can ask somebody else to push the button instead of me when I go to sleep. (No)
Correct responses for opioid-related side effects were "Yes" for: drowsiness, nausea, vomiting, dizziness, constipation, skin rash, excessive fatigue, inability to concentrate, and stomach ache; and "No" for: unintentional weight gain, diarrhoea, and heartburn.

Figure & Table

Item-level analysis demonstrated significant improvements in the intervention group for key safety domains, including understanding of lockout intervals, appropriate timing of PCA usage, prohibition of proxy activation, and reduced fear of opioid addiction (all $p < 0.05$; (Table 4).

Table 4. Correct item-level comparison of knowledge of PCA use and safety

PCA knowledge item	Control n (%)	Intervention n (%)	P value†
PCA delivers analgesia only when button is pressed	31 (42.5)	42 (57.5)	0.005
Lockout interval prevents overdose	30 (41.1)	43 (58.9)	0.001
PCA should be used before pain becomes severe	14 (27.5)	37 (72.5)	0.001
Repeated pressing does not increase dose	21 (36.2)	37 (63.8)	0.001
Only the patient should press the PCA button	33 (43.4)	43 (56.6)	0.005
PCA use does not cause addiction	24 (38.7)	38 (61.3)	0.001

†Chi-square test

Patients demonstrated better awareness of common opioid-related side effects such as drowsiness, nausea, vomiting, dizziness, and constipation. In contrast, awareness of less intuitive side effects, including weight gain and heartburn, was relatively low. The intervention group had significantly greater knowledge for opioid-related side effects compared with the control group. Recognition of drowsiness, nausea, vomiting, dizziness, constipation, skin rashes, and weight gain was significantly higher in the intervention group ($p < 0.05$), whereas no significant differences were observed for fatigue, diarrhoea, stomach ache, or heartburn (Table 5)

Table 5. Correct item-level comparison of opioid-related side effects knowledge

Opioid-related side effect	Control n (%)	Intervention n (%)	P value†
Weight gain	35 (44.9)	43 (55.1)	0.019
Fatigue	16 (55.1)	13 (44.8)	0.496
Drowsiness	27 (40.3)	40 (59.7)	0.003
Inability to concentrate	17 (47.2)	19 (52.8)	0.665
Nausea	21 (38.2)	34 (61.8)	0.004
Diarrhoea	35 (50.7)	34 (49.3)	0.796
Dizziness	22 (38.6)	35 (61.4)	0.004
Constipation	14 (29.8)	33 (70.2)	0.001
Skin rashes	7 (17.1)	34 (82.9)	0.001
Stomach ache	14 (42.4)	19 (57.6)	0.271
Heart burn	32 (53.3)	28 (46.7)	0.360
Vomiting	19 (35.2)	35 (64.8)	0.001

†Chi-square test.

Reduced Oxygen Reserve Index during Low-flow Anesthesia Reflects Lower Delivered FiO_2, Not Co_2 Rebreathing: A Retrospective Cohort Study

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Background

Low fresh gas flow (FGF) anesthesia is widely encouraged for economic and environmental reasons, and it is known that lowering FGF reduces the delivered (inspired) oxygen concentration even when the dial FiO_2 is unchanged. Whether this is accompanied by a measurable loss of oxygenation margin, and what it is associated with, has not been characterized with a continuous reserve monitor. The Oxygen Reserve Index (ORI) noninvasively tracks arterial oxygenation in the moderate-hyperoxia range (PaO_2 ≈ 100–200 mmHg); an ORI <0.24 denotes reduced oxygen reserve, not hypoxemia. Using per-second ORI in supine general anesthesia, we examined whether a lower ORI at low flow is associated with a lower delivered FiO_2 (inspired-oxygen dilution) or with CO_2 rebreathing.

Methods

We performed a retrospective, single-center analysis of per-second intraoperative waveforms. Adult patients undergoing supine general anesthesia with a valid maintenance window were included (n = 96). FGF was categorized by its maintenance median as low (≤1), reduced (1–2), or standard (>2 $L{\cdot}min^{-1}$) and was also analyzed continuously. The primary outcome was the proportion of maintenance time with ORI <0.24 (reserve-deficit time). Maintenance-phase inspired-gas composition was recovered from the anesthesia ventilator gas analyzer: delivered FiO_2, inspired CO_2, and an unmeasured inert residual fraction (100 − FiO_2 − inspired CO_2 − inspired N_2O − inspired agent; predominantly nitrogen, as the carrier gas was oxygen/air). Reserve was modeled with fractional logistic regression.

Results

At an unchanged dial FiO_2 of 0.50, the delivered FiO_2 was lower at low flow (median 36.1% vs 43.6% at ≤1 vs >2 $L{\cdot}min^{-1}$; P < 0.001), and this deficit was filled by inert residual gas, not by CO_2 (inspired CO_2 ≈0.1% in all groups) (Table 1, Figure 1A). Reserve-deficit time was correspondingly greater at low flow (Low-ORI 71.9% vs 8.9%). Delivered FiO_2, not FGF, was associated with reserve (odds ratio 0.92 per 1% FiO_2, P = 0.041; FGF P = 0.37 after adjustment), with an observed inflection near a delivered FiO_2 of ~40% (Figure 1B). Static compliance did not differ across flow groups (P = 0.68), arguing against a lung-mechanical explanation.

Conclusion

During supine low-flow anesthesia, a reduced ORI was associated with a lower delivered FiO_2, diluted by inert (mainly nitrogen) gas as fresh gas flow fell, not with CO_2 rebreathing, and tracked the delivered FiO_2 rather than the flow. These hypothesis-generating observational findings support monitoring the measured FiO_2 at the bedside. A prospective titration trial decoupling delivered FiO_2 from FGF is required.

AP-16-5 (2026-0159)

Figure & Table

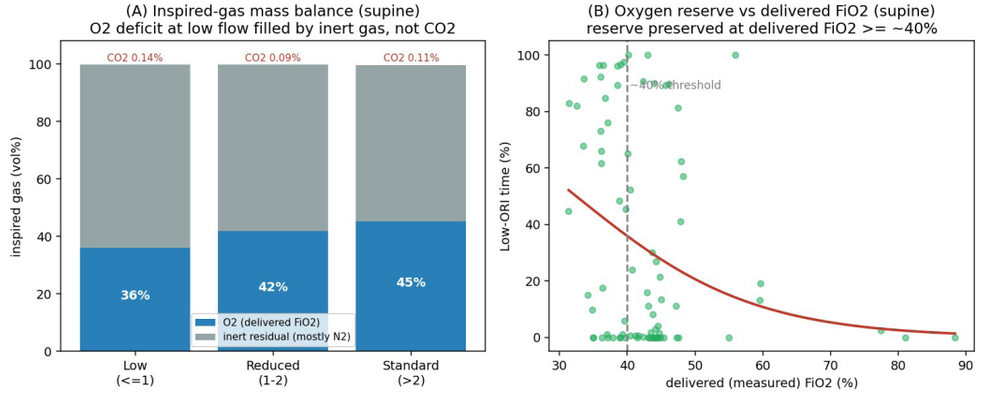
Figure & Table 1.

Table 1. Inspired-gas composition and oxygen reserve by fresh-gas-flow group (supine; medians)

Variable	Low (<=1) n=13	Reduced (1-2) n=27	Standard (>2) n=56	P (KW)
Delivered FiO2 (%)	36.1	43.0	43.6	<0.001
Inert residual gas (%	63.8	56.9	56.2	<0.001
Inspired CO2 (%)	0.1	0.1	0.1	0.04*
ORI (median)	0.20	0.30	0.40	0.057
Reserve-deficit time, Low-ORI (%)	71.9	1.7	8.9	0.064**
Static compliance (mL/cmH2O)	39.3	36.6	37.3	0.68

*magnitude trivial. **Low(<=1) vs standard(>2) P=0.043; continuous-FGF fractional-logit OR 0.69/L/min, P=0.044.*

Figure & Table 2.



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A Sustainable, Low-Cost, 3D-Printed Emergency Front-of-Neck Access (eFONA) Model: A Nine-Iteration Development Report

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Background
Emergency Front-of-Neck Access (eFONA) is a life-saving rescue procedure in "Can't Intubate, Can't Oxygenate" airway emergencies, but commercial simulation trainers (USD 165–1133) restrict access to repeated deliberate practice. We developed a low-cost eFONA trainer to address this equipment barrier.

Methods
The model airway structure was 3D-printed from the freely available 3D Cric Trainer blueprint (The Airway App, airwaycollaboration.org), integrated with a replaceable cricothyroid membrane and skin layer, and an inflatable glove simulating lung inflation to provide real-time tactile and visual feedback (chest rise on successful tube placement). Total build cost was under USD 7. The airway structure has remained durable since first use. The skin layer was changed from foam paper to silicone (tattoo-effect) material, and the membrane from polyurethane rubber tape to a silicone sticker; a blood patch was added to simulate bleeding, and the structure was modified to give more precise palpable landmarks (thyroid cartilage, cricoid, hyoid). Each skin insert allows up to 3 attempts; membranes are single-use. The model was deployed as a dedicated hands-on station across nine consecutive airway management workshops (2024–2026), with the above material and fidelity upgrades introduced from the 8th iteration. Learner satisfaction and paired pre/post knowledge scores were collected via routine, anonymised workshop evaluation forms. Realism was not formally validated against a comparator device.

Results
Participant satisfaction (rated 5/5) with the eFONA station increased across iterations: 90.2% (2024), 92.3% (2025), and 100% (2026), coinciding with the material and fidelity upgrades. Consumable cost per learner attempt (skin and membrane) was approximately USD 1.5, versus approximately USD 49 for commercial equivalents (>85% reduction). Paired pre/post knowledge assessments demonstrated measurable learning gains across cohorts (>80% improvement).

Conclusion
This 3D-printed, low-cost eFONA model achieved consistently high learner satisfaction and measurable knowledge gains across nine iterations, at a fraction of commercial simulator cost, with iterative fidelity improvements to skin, membrane, and landmark realism. The design offers a scalable, sustainable equipment solution for airway crisis training in resource-variable settings. Structured validity assessment (Messick's framework) and objective performance benchmarking against commercial trainers are planned as future work.

Figure & Table

Figure & Table 1.

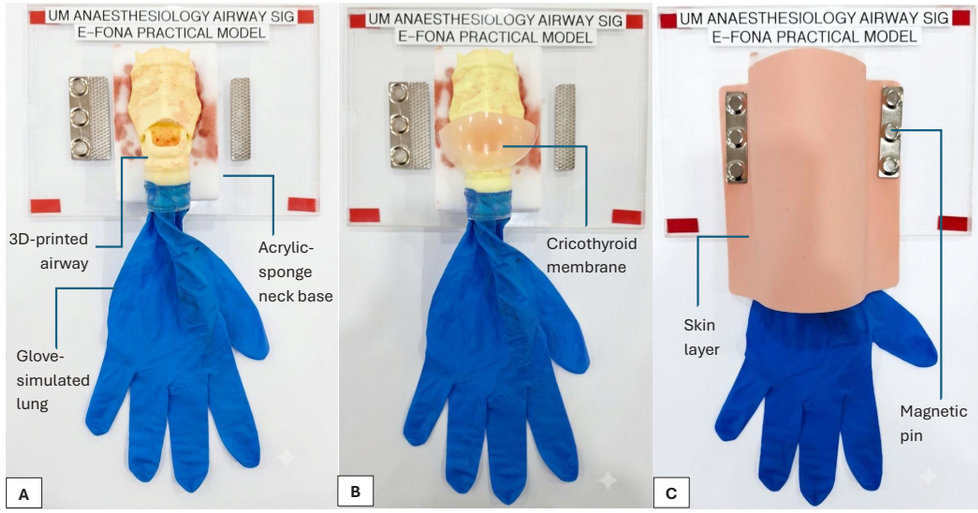


Figure 1. 3D-printed eFONA model: (A) 3D-printed airway model connected to glove-simulated lung on an acrylic-sponge neck base; (B) with cricothyroid membrane sticker; (C) with silicone skin layer and magnetic pin fixation.

CONOX-Guided Anesthesia for Opioid Sparing and Perioperative Recovery - A Systematic Review and Meta-analysis

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Background

Conventional intraoperative opioid titration relies largely on haemodynamic surrogates that may not accurately reflect nociception. CONOX integrates the Quantium Consciousness Index (qCON) for hypnotic depth and the Quantium Noxious Index (qNOX) for nociception–antinociception balance. We evaluated whether CONOX-guided general anaesthesia reduces intraoperative opioid consumption and improves perioperative recovery in adults undergoing elective surgery.

Methods

PubMed/MEDLINE, Scopus, Cochrane CENTRAL, and EBSCOHost were searched from inception through August 2026. Randomized or prospective controlled studies were eligible when CONOX-derived qCON/qNOX actively guided hypnotic and/or opioid titration and the comparator did not use qNOX for opioid administration. Risk of bias in randomized trials was assessed using Cochrane RoB 2. Continuous opioid outcomes reported on different scales were pooled as Hedges standardized mean differences (SMDs) using a random-effects inverse-variance model.

Results

Of 194 records, 150 remained after deduplication and 74 full texts were assessed. Three RCTs involving 251 participants were included; two trials (n=152) contributed compatible mean–SD data. CONOX guidance was associated with lower intraoperative opioid consumption (SMD -0.44, 95% CI -0.77 to -0.12; I^2=0%; τ^2=0.00; p=0.007). Arulkumaran reported lower total fentanyl with CONOX than AoA monitoring (128.2±26.7 vs 146.2± 34.28 μg; p=0.031), and Dutta reported lower fentanyl exposure than conventional monitoring (1.25±0.18 vs 1.32± 0.20 μg/kg/h; p=0.006). Altoufaili found no significant difference in median fentanyl consumption among CONOX, conventional, and BIS groups. Recovery advantages were reported in one trial but were not consistent across studies. One RCT was at low risk of bias and two raised some concerns.

Conclusion

CONOX-guided anaesthesia may provide a modest opioid-sparing effect, but consistent improvement in perioperative recovery has not been demonstrated. The evidence base is small and clinically heterogeneous; larger preregistered multicentre RCTs using standardized opioid-equivalent and recovery outcomes are required.

AP-16-7 (2026-0532)

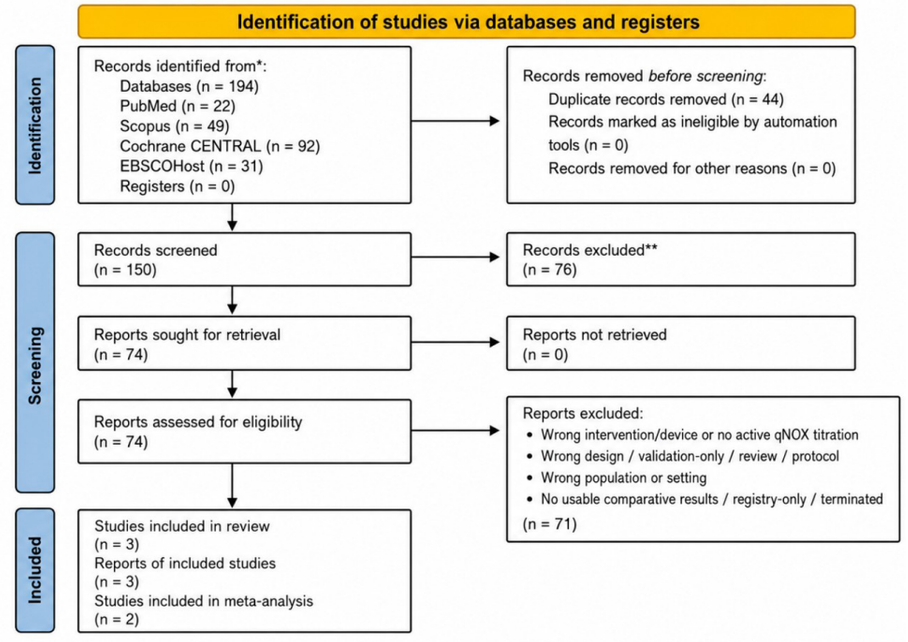
Figure & Table

Figure & Table 1.

3.1 Study selection

The database searches identified 194 records. After removing 44 duplicates, 150 unique records were screened. Seventy-six were excluded at title/abstract screening, leaving 74 reports for full-text eligibility assessment. Three randomized trials met the final device-specific eligibility criteria for qualitative synthesis; two contributed to the quantitative meta-analysis.

Figure 1. PRISMA 2020 flow diagram (working counts).



3.2 Characteristics of included studies

Table 1. Characteristics and principal findings of the included randomized trials.

Study	Population / setting	N	CONOX strategy	Comparator	Principal findings
Arulkumaran et al., 2024	India; 18–60 y; ASA I–II; elective routine surgery, GA with ETT	58 (27 CONOX; 31 AoA)	qCON 40–60; qNOX 40–60; fentanyl 0.5 μg/kg boluses	AoA: State Entropy + SPI	Lower total fentanyl with CONOX (128.2±26.7 vs 146.2±34.28 μg; p=0.031); emergence and haemodynamics similar.
Dutta et al., 2024	West Bengal, India; 18–65 y; ASA I–II; elective urological surgery	94 analyzed (49 CONOX; 45 control)	qCON/qNOX 40–60; propofol and fentanyl titrated by indices	Clinical HR/BP; >20% change triggered dose adjustment	Lower fentanyl (1.25±0.18 vs 1.32 ±0.20 μg/kg/h; p=0.006); faster eye opening/extubation; lower early VAS.
Altoufaili et al., 2024	Moscow, Russia; 70–85 y; ASA III–IV; elective ENT surgery	99 (33/33/33)	qCON and qNOX 40–60; extra fentanyl 1 μg/kg if qNOX>60	No cerebral monitoring and BIS-guided hypnosis	Median fentanyl not significantly different (overall p=0.444); PONV, pain, awakening similar; postoperative MMSE higher in CONOX subgroup >120 min (p=0.044).

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Figure & Table

Figure & Table 2.

Figure 2. Random-effects meta-analysis of intraoperative opioid consumption. Negative SMD favours CONOX.

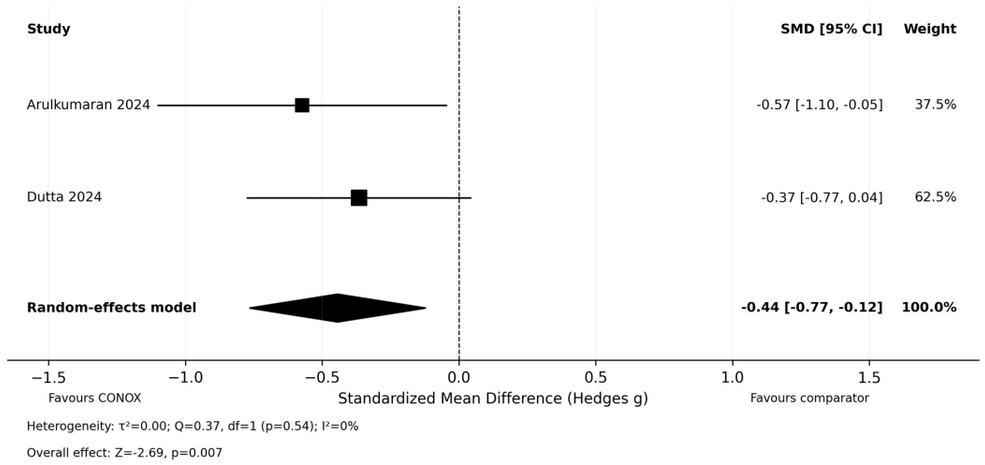


Table 2. Input data and study-level effects for the primary meta-analysis.

Study	CONOX N	Mean	SD	Comparator N	Mean	SD	Hedges g [95% CI]
Arulkumaran 2024	27	128.2	26.7	31	146.2	34.28	−0.57 [−1.10, −0.05]
Dutta 2024	49	1.25	0.18	45	1.32	0.20	−0.37 [−0.77, 0.04]
Pooled	76	—	—	76	—	—	-0.44 [-0.77, -0.12]

AP-16-8 (2026-0198)

Delayed Recognition of Posterior Arytenoid Cartilage Dislocation After Uneventful Intubation During Robotic Prostatectomy: Educational Lessons for Perioperative Airway Assessment

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Introduction

Arytenoid cartilage dislocation is an uncommon but clinically important complication of endotracheal intubation that may result in persistent postoperative hoarseness and swallowing dysfunction. Because transient hoarseness is frequently encountered after general anesthesia, early recognition of arytenoid dislocation can be challenging, often leading to delayed diagnosis and treatment. Early reduction is associated with favorable functional recovery; therefore, prompt identification is essential. We report a case of delayed recognition of posterior arytenoid cartilage dislocation during prolonged robot-assisted radical prostatectomy, highlighting the importance of maintaining clinical suspicion, careful postoperative airway assessment, and repeat laryngoscopic evaluation when symptoms persist.

Case

A 63-year-old man underwent robot-assisted radical prostatectomy under general anesthesia. Preoperative airway assessment was unremarkable. Endotracheal intubation was successfully performed on the first attempt using a video laryngoscope (Cormack–Lehane grade I) with an 8.0-mm endotracheal tube. Cuff pressure and ventilation remained within acceptable ranges, and no airway-related events occurred during the 3.5-hour operation in a continuous steep Trendelenburg position. Immediately after surgery, the patient developed aphonia, dysphagia, left tongue hypoesthesia, and reduced tongue mobility. Flexible laryngoscopy on postoperative day (POD) 3 demonstrated left vocal fold immobility, and the symptoms were initially attributed to postoperative vocal fold paralysis with possible hypoglossal neuropraxia. Persistent dysphagia and worsening hoarseness prompted repeat laryngoscopy on POD 6, which revealed posterior dislocation of the left arytenoid cartilage. Closed reduction was performed on POD 7, resulting in immediate improvement in swallowing and gradual recovery of vocal function after two months of voice therapy.

Conclusion

Posterior arytenoid cartilage dislocation should be considered in patients with persistent postoperative hoarseness or dysphagia, even after apparently uneventful endotracheal intubation. Although a causality cannot be established from a single case, prolonged robotic surgery with steep Trendelenburg positioning may increase biomechanical stress on the laryngeal framework and contribute to arytenoid injury. Because arytenoid dislocation may mimic postoperative vocal fold paralysis, persistent symptoms should prompt early otolaryngologic evaluation and repeat laryngoscopy. Early diagnosis and timely closed reduction are essential for optimal functional recovery.

AP-16-8 (2026-0198)

Figure & Table

Figure & Table 1.

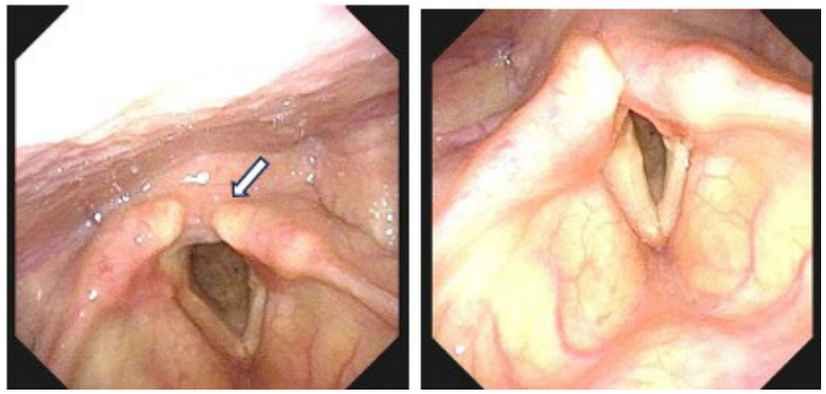
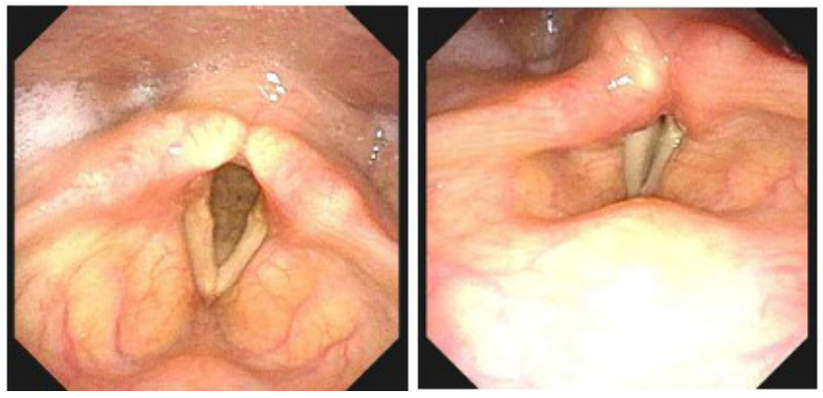


Figure & Table 2.



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Abstract Presentation 17

Date / Time	Nov 6 (Fri), 11:00-12:30
Room	Room C *(Paradise City)*
Language	English
Chair(s)	Young-Eun Jang *(Seoul National University, Republic of Korea)* Hyo-Jin Byon *(Yonsei University, Republic of Korea)*

AP-17-1 2026-0181

Effects of Topical Glycerin with Hyaluronic Acid on Postoperative Sore Throat in Children: A Randomized Controlled Trial

Gahyeon Kim[1], Seungcheol Lee[1], Soron Choi[1], Mina Kim[1], Geonho Lee[1], Sangyoong Park[1*]

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AP-17-2 2026-0268

Peri-Extubation FiO_2 Strategies and Postoperative Respiratory Outcomes in Children Undergoing General Anesthesia: a Scoping Review

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2. Department of Anesthesiology, Saitama Children's Medical Center, Japan

AP-17-3 2026-0496

Clinical Efficacy of the SafeLM® Supraglottic Airway Device in Paediatric Population

Chin Ang Ng[1*], Muhammad Syamel Aizad Mohd Amin[3], Rufinah Teo[1], Sook Hui Chaw[3], Ina Ismiarti Shariffuddin[3], Siti Nidzwani Mohamad Mahdi[1], Farah Hanim Abdullah[1], Izzuddin Azaharuddin[1], Azlina Masdar[1], Mohd Khazrul Nizar Abd Kader[2], Pravesh Arjan[4]

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2. Department of Anaesthesiology and Intensive Care, Hospital Canselor Tuanku Muhriz, Kuala Lumpur, Malaysia
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AP-17-4 2026-0186

Evaluation of the Assessment of Sonographic Airway Assessment Parameters to Predict Difficult Airway in Children

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AP-17-5 2026-0539

Epidural Bolus: Ultrasound-Guided Versus Weight-Based Dosing for an Ex-36 weeker with Developmental Hip Dysplasia

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AP-17-7 2026-0194

Sudden Intraoperative Ventilation Failure Caused by Kinking of an Endotracheal Tube in a Pediatric Patient Undergoing Ophthalmic Surgery: A Case Report

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AP-17-8 2026-0179

Anaesthetic Management of a Ruptured Giant Sacrococcygeal Teratoma Causing Massive Haemorrhage in a Neonate Immediately After Delivery

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Effects of Topical Glycerin with Hyaluronic Acid on Postoperative Sore Throat in Children: A Randomized Controlled Trial

Gahyeon Kim[1], Seungcheol Lee[1], Soron Choi[1], Mina Kim[1], Geonho Lee[1], Sangyoong Park[1*]

1. Department of Anesthesiology and Pain Medicine, Dong-A University Hospital, Republic of Korea

Background
Postoperative sore throat (POST) is a common complication after endotracheal intubation. Hyaluronic acid (HA) contributes to mucosal hydration and lubrication and is involved in epithelial protection, tissue repair, and modulation of inflammatory responses. We evaluated whether topical application of a gel containing HA and glycerin could reduce POST in pediatric patients.

Methods
In this prospective, randomized, controlled trial, patients aged 3–12 years undergoing ophthalmic surgery with endotracheal intubation were assigned to receive either a topical gel containing HA and glycerin or normal saline applied to the oropharyngeal space after intubation. The primary outcome was the incidence of POST within 24 h after surgery. Secondary outcomes included POST severity, hoarseness, emergence agitation, postoperative pain, and emergence-related respiratory adverse events.

Results
A total of 158 patients were analyzed, with 79 in each group. The incidence of POST within 24 h did not differ significantly between the Endotra Gel and normal saline groups (13.9% vs. 25.3%, P = 0.071), and POST severity was comparable at all assessment time points. Hoarseness within 24 h was less frequent in the Endotra Gel group (6.3% vs. 20.3%, P = 0.010). Emergence agitation, postoperative pain, and respiratory adverse events were comparable between groups. No intervention-related adverse events were observed.

Conclusion
Topical application of a gel containing HA and glycerin did not significantly reduce the incidence or severity of POST but was associated with a lower incidence of postoperative hoarseness.

AP-17-1 (2026-0181)

Figure & Table

Figure & Table 1.

Table 2. Incidence and severity of postoperative sore throat

Sore throat	Group		P value
	Endotra Gel (n = 79)	Normal saline (n = 79)	
At 1 h			
0	69 (87.3%)	61 (77.2%)	0.225[1]
1	7 (8.9%)	11 (13.9%)	
2	3 (3.8%)	7 (8.9%)	
At 4 h			
0	74 (93.7%)	68 (86.1%)	0.114[1]
1	5 (6.3%)	11 (13.9%)	
At 24 h			
0	78 (98.7%)	77 (97.5%)	1.000[2]
1	1 (1.3%)	2 (2.5%)	
Within 24 h			
No	68 (86.1%)	59 (74.7%)	0.071[1]
Yes (score ≥ 1)	11 (13.9%)	20 (25.3%)	

Values are presented as number (%).
[1] P values were derived using the chi-square test.
[2] P values were derived using Fisher's exact test.

Figure & Table 2.

Table 5. Incidence and severity of postoperative hoarseness

Hoarseness	Group		P value
	Endotra Gel (n = 79)	Normal saline (n = 79)	
At 1 h			
0	74 (93.7%)	64 (81.0%)	0.034[2]
1	5 (6.3%)	13 (16.5%)	
2	0 (0.0%)	2 (2.5%)	
At 4 h			
0	75 (94.9%)	70 (88.6%)	0.148[1]
1	4 (5.1%)	9 (11.4%)	
At 24 h			
0	78 (98.7%)	74 (93.7%)	0.210[2]
1	1 (1.3%)	5 (6.3%)	
Within 24 h			
No	74 (93.7%)	63 (79.7%)	0.010[1]
Yes (score ≥ 1)	5 (6.3%)	16 (20.3%)	

Values are presented as number (%).
[1] P values were derived using the chi-square test.
[2] P values were derived using Fisher's exact test.

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AP-17-2 (2026-0268)

Peri-Extubation FiO_2 Strategies and Postoperative Respiratory Outcomes in Children Undergoing General Anesthesia: a Scoping Review

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2. Department of Anesthesiology, Saitama Children's Medical Center, Japan

Background
FiO_2 1.0 is commonly used before tracheal extubation to increase oxygen reserve. Adult studies have raised concern that this practice may promote postoperative atelectasis, although its effects on clinically important respiratory outcomes remain uncertain. Whether these findings apply to children is unclear. We conducted a scoping review to map peri-extubation FiO_2 strategies in intubated children, describe reported postoperative respiratory outcomes, and identify evidence gaps.

Methods
The protocol was preregistered on the Open Science Framework before study screening (DOI: 10.17605/OSF.IO/9AWBF). We searched PubMed/MEDLINE, Web of Science, the Cochrane Library, and Scopus, supplemented by Google Scholar and reference-list searches. Eligible studies included intubated pediatric patients undergoing general anesthesia, a definable peri-extubation or perioperative FiO_2 or oxygen strategy, and postoperative respiratory outcomes. Data were charted according to FiO_2 value, timing, duration, co-interventions, outcome definitions, and assessment windows. Formal risk-of-bias assessment and meta-analysis were not performed.

Results
Seven studies involving 564 patients were included: six randomized studies and one observational cohort, published between 1998 and 2025. No study evaluated the independent effect of peri-extubation FiO_2. The evidence mapped to three clinical contexts: FiO_2 strategies extending across anesthesia and emergence, peri-extubation oxygen combined with lung-volume or airway-pressure interventions, and oxygen delivered as part of post-extubation respiratory support or lung ultrasound-guided optimization. Across these contexts, FiO_2 was combined with interventions such as lung inflation, suctioning, PEEP, recruitment maneuvers, or assisted respiratory support. Reported outcomes were heterogeneous and included atelectasis, functional residual capacity, ventilation inhomogeneity, hypoxemia, PaO_2/FiO_2 ratio, reintubation, duration of oxygen support, and pulmonary complications. Consequently, the reported outcomes could not be attributed to FiO_2 alone.

Conclusion
The principal evidence gap is the absence of studies isolating extubation FiO_2 from accompanying ventilation, airway, and postoperative respiratory support strategies. Consequently, the available evidence cannot determine the independent effect of FiO_2 or identify an optimal FiO_2 target at tracheal extubation in children. Future comparative studies should clearly define FiO_2 value, timing, and duration while standardizing co-interventions and outcome assessment windows.

AP-17-3 (2026-0496)

Clinical Efficacy of the SafeLM® Supraglottic Airway Device in Paediatric Population

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Background
SafeLM® is a supraglottic airway device (SAD) with an integrated videoscope. This prospective single-arm clinical trial is the first study evaluating its efficacy in paediatric population, conducted in two major teaching hospital in Malaysia.

Methods
A total of 83 paediatric patients (≤ 18 years, ≥ 10 kg, ASA I or II) scheduled for elective surgery under general anaesthesia with a SAD were enrolled and allocated with an appropriately sized SafeLM® of 2, 2.5, 3, 4, or 5, followed by insertion guided with real-time visualisation of surrounding structure as it goes through the oral and pharyngeal space. Our primary outcome was the overall insertion success rate. Secondary outcomes were first attempt insertion success rate, oropharyngeal leak pressure (OPLP), insertion time, post-insertion view classified into grade 1–4 (figure 1), peri-operative complications, and the associations of post-insertion view with success rate, OPLP, and complications.

Results
The overall success rate of insertion was 100% (95% CI, 95.7–100), first attempt success rate was 97.6% (95% CI, 91.6–99.7), median OPLP was 25.0 cmH_2O [IQR, 21–30], and median insertion time was 32 seconds [IQR, 21.7–53.0]. Intra-operatively, small number of complications were observed, including laryngospasm (n = 2, 2.4%) in which partially closed vocal cord was promptly recognised through the real-time videoscope (figure 2), bronchospasm (n = 1, 1.2%), device displacement (n = 1, 1.2%), and airway leakage (n = 2, 2.4%). Post-removal, vomiting occurred in one patient (n = 1, 1.2%), sore throat in six (n = 6, 7.4%), and blood staining on the device in eight (n = 8, 9.9%). There were no desaturation, post-operative hoarseness, or gastric aspiration observed. Twenty-one patient had a post-insertion view of grade 1 (25.3%), thirty-eight had grade 2 (45.8%), eleven had grade 3 (13.3%) and thirteen had grade 4 (15.7%). No statistically significant associations were found between post insertion view and the outcomes studied.

Conclusion
This study demonstrated SafeLM® has a high first-attempt insertion success rate with good sealing pressure in children. The potential diagnostic role of the real-time video feature can be explored further.

AP-17-3 (2026-0496)

Figure & Table

Figure & Table 1.

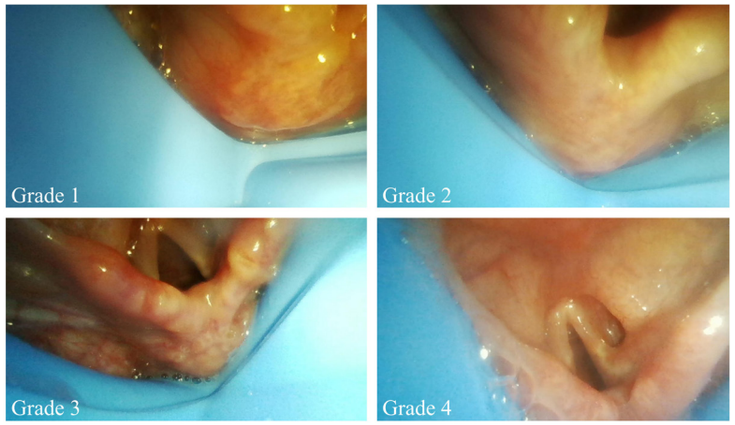


Figure 1: Post-insertion view. Grade 1, showing visualisation of the lateral part of the left aryepiglottic fold and part of the laryngeal inlet, and the ventilation was good; Grade 2, visualisation of the bilateral aryepiglottic fold and part of laryngeal inlet, and the ventilation was good; Grade 3, visualisation of all laryngeal inlet and posterior glottis; Grade 4, visualisation of the whole glottis.

Figure & Table 2.

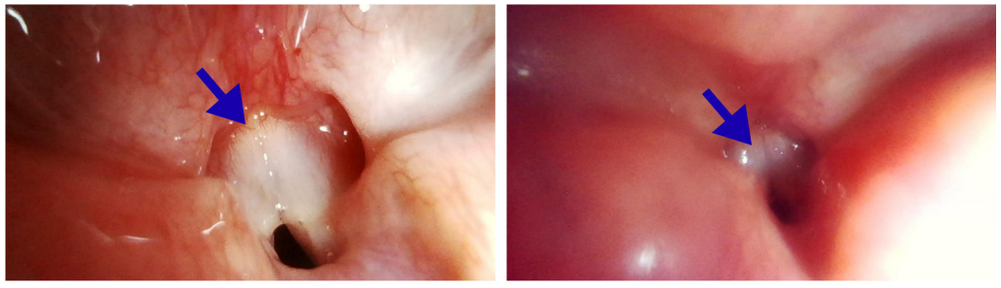


Figure 2: Images captured during laryngospasm episodes in two different patients. The blue arrows point to the partially closed glottic opening.

AP-17-4 (2026-0186)

Evaluation of the Assessment of Sonographic Airway Assessment Parameters to Predict Difficult Airway in Children

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Background
Difficult airway is one of the greatest challenges for anesthesiologist. The role of ultrasound in airway assessment is still primitive, with no standard parameters to predict difficult airway specially in children. This study aimed to evaluate the effectiveness of sonographic- based airway assessment parameters to predict difficult airway in children using Cormack- Lehane grading.

Methods
In this prospective observational study, we did sonographic assessment of airway in 500 children of age group 1-10 years undergoing elective and emergency surgery. Parameters assessed were hyomental distance in neutral (HMDN) and extended (HMDE) position, their ratio (HMDR), tongue width, tongue length, tongue cross-sectional area (TCSA), tongue volume (TV), oral cavity height (OCH), skin to hyoid (SHD), skin to epiglottis (SED), skin to vocal cord (SVC) and ratio of the pre-epiglottic space (pre-E) and epiglottis vocal cord (E-VC) distance. After anesthesia induction, check laryngoscopy was done by an experienced anesthesiologist to record Cormack-Lehane (CL) grade. The CL grade (easy laryngoscopy – CL grade 1&2; difficult laryngoscopy- CL grade 3&4) was then correlated with sonographic screening parameters to predict difficult airway.

Results
Our data demonstrated that shorter and younger children had a higher incidence of difficult airway. The HMDR showed a statistically significant difference between the easy and difficult laryngoscopy groups. The easy laryngoscopy group had a higher HMDR (1.11+0.04) compared to the difficult laryngoscopy group (1.08+0.03) (p value=0.022). On doing univariate logistic regression analysis of the CL grade, we found only SHD to have a significant Area Under ROC Curve (AUC) value of 0.7082 out of all the assessed predictors for difficult laryngoscopy. AUC value of SHD increased to 0.9023 in the age group 6 to 8 years.

Conclusion
Shortened HMDR could be associated with the difficult airway in children, SHD may be a useful predictor, especially in the 6 to 8 years age group.

AP-17-5 (2026-0539)

Epidural Bolus: Ultrasound-Guided Versus Weight-Based Dosing for an Ex-36 weeker with Developmental Hip Dysplasia

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Introduction

Background: Epidural analgesia remains a cornerstone of perioperative management, yet achieving reliable spread of injectate continues to be a clinical challenge. Traditionally, clinicians administer standardized bolus volumes based on body-weight without real-time confirmation of epidural distribution, leading to potential under- or over-dosing.1 Most children that are born premature catch up to term children by 2 years of age, but 10% do not.2 This case report highlights the unpredictability of epidural spread and demonstrates how utilizing ultrasound to perform a real-time dynamic flow tracking technique when dosing an epidural can address this problem.

Case

Learning Objectives: After reviewing this case, the reader will be able to: 1. Recognize interpatient variability in anatomy influencing optimal epidural dosing requirements. 2. Apply lessons learned to optimize future epidural dosing strategies.

Case Report: An ex-36 week 17 month old 11.5kg (88%ile) 79.4cm(53%ile) female with a history of developmental dysplasia of the hip presented for open reduction and pelvic acetabular osteotomy. Presentation: Initially presented with limping. On exam, had asymmetric thigh creases with a waddling gait and a normal spine.

Diagnostic Studies: ultrasound was utilized to identify L4-L5 with an epidural space of 1.8cm. Age based formula: 1 + 0.15 x age (1.58 years)= 1.2cm. Weight based formula: 1mm x weight (11.5kg)= 1.5cm.

Procedural Course: Epidural placement was achieved at the level of L4-5 using a midline approach with a loss of resistance at 2cm and taped at 6cm.

Every 2cm of catheter length corresponded to 1 spinal level (Image 1). To achieve 5 levels of spread from catheter tip at L2-L3 to T10 we calculated 0.05mL x weight (11.5kg) x per level (5 levels) to total 2.9mL. A test bolus of lidocaine with epinephrine (1mL) and 8ml of 3% chlorprocaine was bolused under direct ultrasound guidance to T9-T10.

Patient Outcomes: There were minimal hemodynamic variations throughout the surgery. The patient had 0/10 pain scores for 24 hours while the epidural was utilized. The patient had an early return of bowel function and was discharged 48h after surgery.

Conclusion

Conclusion: This volume utilized was 6mL more than weight-based dosing. This case demonstrates that individualized dosing under ultrasound guidance can meaningfully improve the reliability of epidural bolus administration. The experience has shaped our practice by adopting ultrasound real-time dynamic flow tracking technique for bolusing.

AP-17-5 (2026-0539)

Figure & Table

Figure & Table 1.

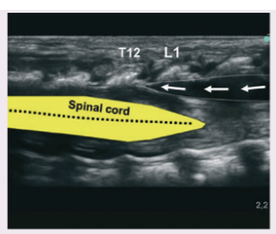


Figure 1. Longitudinal (paramedian sagittal) ultrasound demonstrating cephalad epidural injectate spread (arrows) with hypoechoic expansion of the epidural space.
Adapted from Jöhr M, Berger TM. Caudal blocks. *Pediatr Anesth.* 2012;22(1):44–50. doi:10.1111/j.1460-9592.2011.03669.x.[4]
This sonographic pattern is analogous to the real-time cephalad epidural spread observed in our ultrasound-guided bolus administration.

Figure & Table 2.

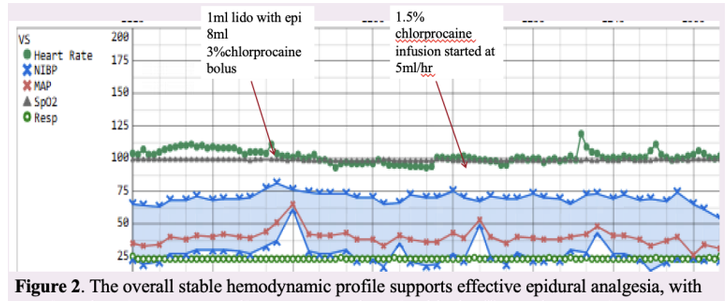


Figure 2. The overall stable hemodynamic profile supports effective epidural analgesia, with transient elevations corresponding to suspected waning block effect and responsive to additional epidural dosing.

ABSTRACT
Competition
Presentation
E-Poster

Sudden Intraoperative Ventilation Failure Caused by Kinking of an Endotracheal Tube in a Pediatric Patient Undergoing Ophthalmic Surgery: A Case Report

Woohyun Park[1], Kyungmi Kim[1*], Jaewoo Kim[1], JangEun Cho[1]

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Introduction
Intraoperative airway management is particularly emphasized in pediatric patients, as they are more susceptible to hypoxemia due to their unique anatomical characteristics, reduced functional residual capacity (FRC), and increased oxygen demand. Accordingly, airway management during general anesthesia in pediatric patients requires a heightened level of vigilance and meticulous care.

Case
A 6-year-old boy underwent bilateral epiblepharon correction under general anesthesia. After induction with thiopental sodium, rocuronium, and fentanyl, tracheal intubation was performed using a videolaryngoscope with a 5.5-mm internal diameter endotracheal tube. Mechanical ventilation was maintained with sevoflurane anesthesia without difficulty during the initial stage of surgery. However, during preparation for surgery on the second eye, peak inspiratory pressure suddenly increased to more than 30 mmHg, tidal volume decreased markedly, and oxygen saturation began to decline. Immediate corrective measures including increasing FiO_2 and manual ventilation were attempted, but ventilation remained inadequate. Endotracheal suction was unsuccessful because the suction catheter could not pass through the tube, suggesting mechanical obstruction. The patient was extubated, and kinking of the endotracheal tube was identified. After administration of additional rocuronium, reintubation was successfully performed, and ventilation returned to normal. The remainder of the procedure was completed uneventfully, and the patient recovered without complications.

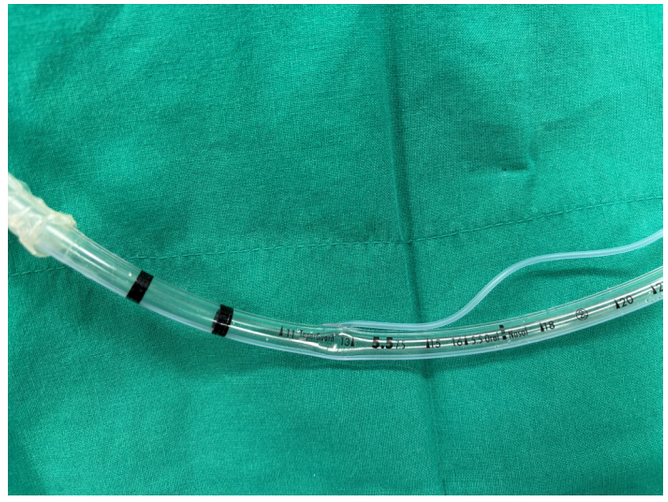
Conclusion
Endotracheal tube kinking should be considered in the differential diagnosis of sudden intraoperative ventilation failure in pediatric patients. Prompt recognition and systematic evaluation of airway obstruction are essential for preventing hypoxia and ensuring patient safety.

Figure & Table

Figure & Table 1.



Figure & Table 2.



Anaesthetic Management of a Ruptured Giant Sacrococcygeal Teratoma Causing Massive Haemorrhage in a Neonate Immediately After Delivery

Chloe Yeo[1*]

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Introduction

Sacrococcygeal teratomas (SCT) are the most common germ cell tumours in neonates, but it is a rare neonatal emergency encountered by anaesthetists. It is associated with high output cardiac failure from arteriovenous shunting and anaemia from intratumour haemorrhage. We report the perioperative management of a ruptured giant SCT requiring emergency surgical haemostasis immediately after birth.

Case

A 24 week-old fetus from a previously unbooked pregnancy was diagnosed to have a SCT on fetal ultrasound. Serial ultrasounds showed that it was a progressively enlarging, reaching 13.8 cm at 33 weeks complicated by features of high-output cardiac physiology. Elective cesarean section was performed at 34 weeks as a multidisciplinary effort involving obstetrics, paediatric surgery, paediatric anaesthesia, neonatology, nursing teams and blood bank services.

Parallel preparation of two side-by-side operating theatres allowed delivery in one theatre with a second theatre on standby for emergency neonatal surgery. A team briefing before maternal induction included clearly defined roles, emergency surgery and blood transfusion activation criteria, communication pathways and a dry run of neonate transfer between theatres.

During delivery, the tumour ruptured with brisk haemorrhage. The neonatology team resuscitated and intubated the infant at 3 minutes of life while the paediatric surgeon applied direct compression on the tumour before and during transfer to the adjacent operating theatre. Massive Transfusion Protocol (MTP) was activated simultaneously. The umbilical vein was cannulated for blood product and drug administration, while an arterial line was placed by the neonatologist on standby. Anaesthetic management focused on administration of massive transfusion with simultaneous correction of hypothermia, hypoglycaemia, acidosis and ROTEM-proven hypofibrinogenaemia.

Hypotension persisted despite the ligation of the two major feeding vessels and first wave of MTP. The cause of persistent hemodynamic instability was a combination of reduced preload from blood loss and inadequate resuscitation, reduced contractility from pre-existing dilated cardiomyopathy worsened with cardio-depressive effects of anaesthetic agents, as well as increased in vascular capacitance from tumour and vasodilation from anaesthesia. Additional blood products were required as initial resuscitation and calculation for MTP did not take into account increased capacitance of tumour, and child's weight was estimated based on fetal ultrasound. The neonate was transferred to NICU after stabilization and complete tumour resection was successfully performed on day 5 of life.

Conclusion

This case highlights the importance of multidisciplinary perioperative planning, coordinated cross-theatre activation, and clearly defined team roles in managing time-critical neonatal emergencies. It also underscores the need for continuous reassessment of haemodynamic physiology and resuscitation strategies when clinical progress deviates from the anticipated course.

Figure & Table

Figure & Table 1.



Presentation

Abstract Presentation 18

Date / Time	Nov 6 (Fri), 11:00-12:30
Room	Room D *(Paradise City)*
Language	English
Chair(s)	Soowon Lee *(Seoul National University, Republic of Korea)* Ki Tae Jung *(Chosun University, Republic of Korea)*

AP-18-1
2026-0397

Respiratory Adverse Events with Propofol Alone Versus Dexmedetomidine Plus Propofol during Deep Sedation for Total Knee Arthroplasty under Spinal Anaesthesia: a Randomised Controlled Trial

Young In Lee[1], Seunguk Bang[1*], Jihyun Chung[1], Jungwon Shin[1], Yoonji Park[1]

1. Department of Anesthesiology and Pain Medicine, The Catholic University of Korea, Republic of Korea

AP-18-2
2026-0251

The Safety of Remimazolam Depends on How You Give It: Bolus Administration as a Common Risk Factor for Hypotension and Anaphylaxis

Hyunyoung Seong[1*], Jeonghoon Lee[1], Jang Eun Cho[1], Seung Zhoo Yoon[1], Sung Uk Choi[1]

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AP-18-3
2026-0164

Diphenhydramine Inhibits ATP-Sensitive Potassium Channel-Induced Vasodilation via PKC Activation in Isolated Rat Aorta

Kyeong-Eon Park[1], Gyujin Sim[1], Ju-Tae Sohn[1*]

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AP-18-4
2026-0361

Association Between Intraoperative Etomidate Exposure and Adrenal Insufficiency After Surgery: A Nationwide Cohort Study

Howon Jang[1], Tak Kyu Oh[1*]

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AP-18-5
2026-0511

Effect of Intravenous Acetaminophen on Emergence Agitation after General Anesthesia for Nasal Surgery: A Prospective, Randomized, Assessor-Blinded, Placebo-Controlled Trial

Hojin Oh[1], You-Seok Kim[1], Tae-Yun Sung[1*]

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AP-18-6
2026-0267

Effective Dose of Fentanyl for Hemodynamic Stability during Endotracheal Intubation under Remimazolam Induction: A Dose Finding Study Using Dixon's Up and Down Method

Sung-Ae Cho[1*], Chaeeun Kim[1]

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AP-18-7
2026-0276

Effect of Intravenous Lidocaine on Hemodynamic Responses to Tracheal Intubation during Remimazolam Induction with Remifentanil Target-Controlled Infusion: A Randomized, Placebo Controlled Clinical Trial

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1. Department of Anesthesiology and Pain Medicine, Sungkyunkwan University Samsung Changwon Hospital, Republic of Korea

AP-18-8
2026-0237

Simulation of Oral Ringer's Solution Using an Extended Four-Compartment Volume Kinetic Model Incorporating Gastrointestinal Absorption and Metabolic Water Loss

Hyungseop Lee[1], Seung Eun Song[1], Hyun Jung Kim[1,2*], So Hui Yun[1,2], Jong Cook Park[1,2]

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AP-18-1 (2026-0397)

Respiratory Adverse Events with Propofol Alone Versus Dexmedetomidine Plus Propofol during Deep Sedation for Total Knee Arthroplasty under Spinal Anaesthesia: a Randomised Controlled Trial

Young In Lee[1], Seunguk Bang[1*], Jihyun Chung[1], Jungwon Shin[1], Yoonji Park[1]

1. Department of Anesthesiology and Pain Medicine, The Catholic University of Korea, Republic of Korea

Background
Deep sedation is often needed during total knee arthroplasty (TKA) under spinal anesthesia because intense non-nociceptive stimuli, including vibration and noise, may persist despite adequate sensory block. However, propofol at doses required for deep sedation may increase the risk of airway obstruction and respiratory depression. We investigated whether adding dexmedetomidine to propofol reduces respiratory adverse events during deep sedation for TKA.

Methods
In this prospective, single-center, randomized controlled trial, 82 patients aged 50–80 years with American Society of Anesthesiologists physical status I–III undergoing TKA under spinal anesthesia were randomly assigned to propofol alone (Group P, n=41) or propofol plus dexmedetomidine (Group PD, n=41). Propofol was administered by target-controlled infusion and titrated to a modified Observer's Assessment of Alertness/Sedation score of 1. Group PD received dexmedetomidine 1 μg kg^{-1} over 10 min followed by 0.4 μg kg^{-1} h^{-1}. The primary outcome was the incidence of respiratory adverse events, defined as airway obstruction or respiratory depression.

Results
Respiratory adverse events occurred in 41 of 41 patients (100%) in Group P and 20 of 41 patients (48.8%) in Group PD (risk ratio 2.05, 95% confidence interval 1.50–2.81; P<0.001). Complete airway obstruction occurred in 73.2% and 24.4% of patients, respectively. Respiratory depression, defined as apnea, hypoventilation, or oxygen desaturation, occurred in 24.4% of Group P and none of Group PD (P=0.001). Median [IQR] propofol consumption was significantly lower in Group PD than in Group P (117 [86–200] mg vs 464 [372–573] mg; P<0.001). Hemodynamic events, postoperative opioid consumption, and recovery times were similar between groups.

Conclusion
Adding dexmedetomidine to propofol significantly reduced respiratory adverse events during deep sedation for TKA under spinal anesthesia, with marked reductions in airway obstruction and propofol requirements, without an increase in clinically significant hemodynamic events.

AP-18-2 (2026-0251)

The Safety of Remimazolam Depends on How You Give It: Bolus Administration as a Common Risk Factor for Hypotension and Anaphylaxis

Hyunyoung Seong[1*], Jeonghoon Lee[1], Jang Eun Cho[1], Seung Zhoo Yoon[1], Sung Uk Choi[1]

1. Anesthesiology and Pain Medicine, Korea University Medical Center, Anam Hospital, Republic of Korea

Background
Randomized trials have consistently shown that remimazolam provides greater hemodynamic stability than propofol. However, it remains unclear whether post-induction hypotension (PIH) and remimazolam-associated anaphylaxis in routine clinical practice are primarily determined by patient characteristics or by the administration strategy. We evaluated the incidence and risk factors of both complications in a large real-world cohort.

Methods
We retrospectively analyzed consecutive adult patients who underwent general anesthesia with remimazolam induction between October 2021 and December 2025 at a tertiary university hospital. PIH, defined as systolic blood pressure <90 mmHg or mean arterial pressure <65 mmHg during induction, was the primary endpoint. Suspected remimazolam-associated anaphylaxis was analysed as a secondary endpoint. Multivariable logistic regression and propensity score-matched analyses were performed to identify independent risk factors.

Results
Among 5,169 patients receiving remimazolam, PIH occurred in 19.7%, whereas suspected remimazolam-associated anaphylaxis occurred in 12 patients (2.3 per 1,000). During the 4-year study period, remimazolam use increased steadily and expanded to older patients and those with higher ASA physical status and cardiovascular disease (Figure 1). Despite this progressive shift toward a higher-risk population, the incidence of PIH remained stable over time.
Multivariable analysis demonstrated that rapid induction bolus administration was independently associated with PIH (adjusted OR 2.17, 95% CI 1.64–2.86), together with older age, lower baseline mean blood pressure, emergency surgery, and preoperative norepinephrine use. In contrast, ASA physical status and comorbidity burden were not independently associated with PIH. For suspected anaphylaxis, induction bolus administration showed the strongest association (adjusted OR 35.23, 95% CI 9.40–132.03), followed by a history of allergy, whereas female sex and higher serum albumin were associated with lower risk (Figure 2). Propensity score-matched analyses confirmed the association of bolus administration with both PIH (OR 2.81) and suspected anaphylaxis (OR 7.00).

Conclusion
In this large real-world cohort, administration strategy, rather than baseline patient severity, was the principal determinant of remimazolam safety. Rapid bolus administration was consistently associated with both post-induction hypotension and suspected anaphylaxis. Avoiding rapid bolus administration may represent a simple and modifiable strategy to preserve the hemodynamic advantages of remimazolam.

AP-18-2 (2026-0251)

Figure & Table

Figure & Table 1.

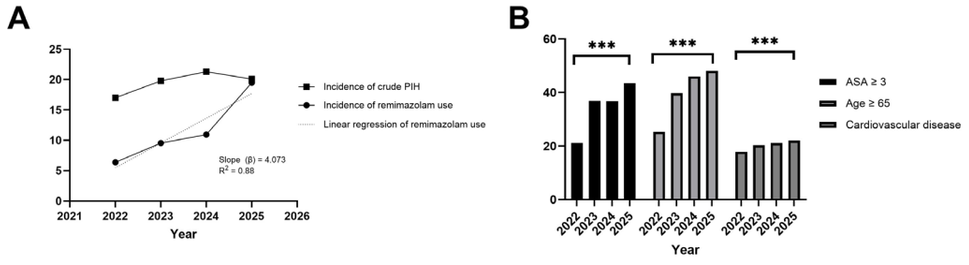
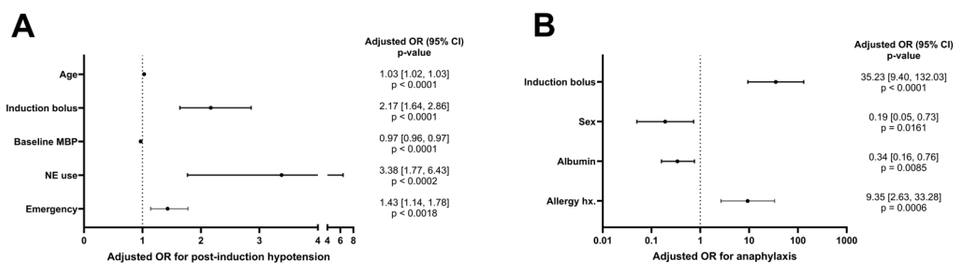


Figure & Table 2.



AP-18-3 (2026-0164)

Diphenhydramine Inhibits ATP-Sensitive Potassium Channel-Induced Vasodilation via PKC Activation in Isolated Rat Aorta

Kyeong-Eon Park[1], Gyujin Sim[1], Ju-Tae Sohn[1*]

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Background
Adenosine triphosphate (ATP)-sensitive potassium (KATP) channels play an important role in regulating vascular tone and blood flow under pathophysiological conditions such as hypoxia, acidosis, and ischemia. Although diphenhydramine exerts vascular effects independent of histamine H1 receptor antagonism, its influence on KATP channel-mediated vasodilation remains unknown. This study investigated the effects of diphenhydramine on vasodilation induced by the KATP channel agonist levcromakalim in isolated rat aorta and the underlying mechanisms.

Methods
The effects of diphenhydramine (5×10^{-7} and 10^{-5} M) on levcromakalim-induced vasodilation were examined in endothelium-intact and endothelium-denuded rat aortae. The effects of diphenhydramine on levcromakalim (10^{-8}–10^{-5} M)-induced vasodilation were also evaluated in endothelium-denuded aortae pretreated separately with the KATP channel inhibitor glibenclamide (5×10^{-6} M), the protein kinase C (PKC) inhibitor GF109203X (10^{-6} M), or the tyrosine kinase inhibitor genistein (10^{-5} M). The effect of diphenhydramine on diltiazem-induced vasodilation was examined in endothelium-denuded aortae. The effects of the PKC activator phorbol 12,13-dibutyrate (PDBu, 10^{-7} M) and GF109203X alone on levcromakalim-induced vasodilation were also examined. The effects of diphenhydramine and glibenclamide, alone or in combination, on levcromakalim-induced membrane hyperpolarization in rat aortic vascular smooth muscle cells were evaluated using electrophysiological recordings. The effects of diphenhydramine and GF109203X, alone or in combination, on PKC phosphorylation were analyzed by Western blotting.

Results
Diphenhydramine (10^{-5} M) significantly inhibited levcromakalim-induced vasodilation in both endothelium-intact and endothelium-denuded aortae. Glibenclamide abolished the inhibitory effect of diphenhydramine on levcromakalim-induced vasodilation. GF109203X partially attenuated the inhibitory effect of diphenhydramine, whereas genistein had no significant effect. PDBu inhibited levcromakalim-induced vasodilation, whereas GF109203X alone did not significantly affect the vasodilatory response to levcromakalim. Diphenhydramine did not significantly alter diltiazem-induced vasodilation. Both diphenhydramine and glibenclamide inhibited levcromakalim-induced membrane hyperpolarization. In addition, GF109203X suppressed diphenhydramine-induced PKC phosphorylation.

Conclusion
A supraclinical concentration of diphenhydramine (10^{-5} M) inhibits KATP channel-mediated vasodilation, at least in part through PKC activation, in isolated rat aorta.

Association Between Intraoperative Etomidate Exposure and Adrenal Insufficiency After Surgery: A Nationwide Cohort Study

Howon Jang[1], Tak Kyu Oh[1*]

1. Anesthesiology and Pain Medicine, Seoul National University Bundang Hospital, Republic of Korea

Background
Etomidate provides hemodynamic stability during anesthetic induction but can suppress adrenal steroidogenesis after a single dose. Whether this biochemical effect is associated with clinically recognized adrenal insufficiency in a broad surgical population remains uncertain.

Methods
We conducted a nationwide retrospective cohort study using South Korean National Health Insurance Service data. Adults undergoing a first eligible surgery under general anesthesia between January 1, 2022, and December 31, 2023, were included. Patients with regular glucocorticoid use during the preceding 90 days or adrenal insufficiency during the preceding year were excluded. Etomidate exposure was identified from medication and anesthesia claims for the index surgery. The outcome was newly diagnosed adrenal insufficiency accompanied by pharmacologic treatment within 1 year. The primary analysis used hospital fixed-effects propensity score overlap weighting and an overlap-weighted Cox model with hospital-clustered robust standard errors. Complementary multivariable Cox models were stratified by hospital in the full eligible cohort.

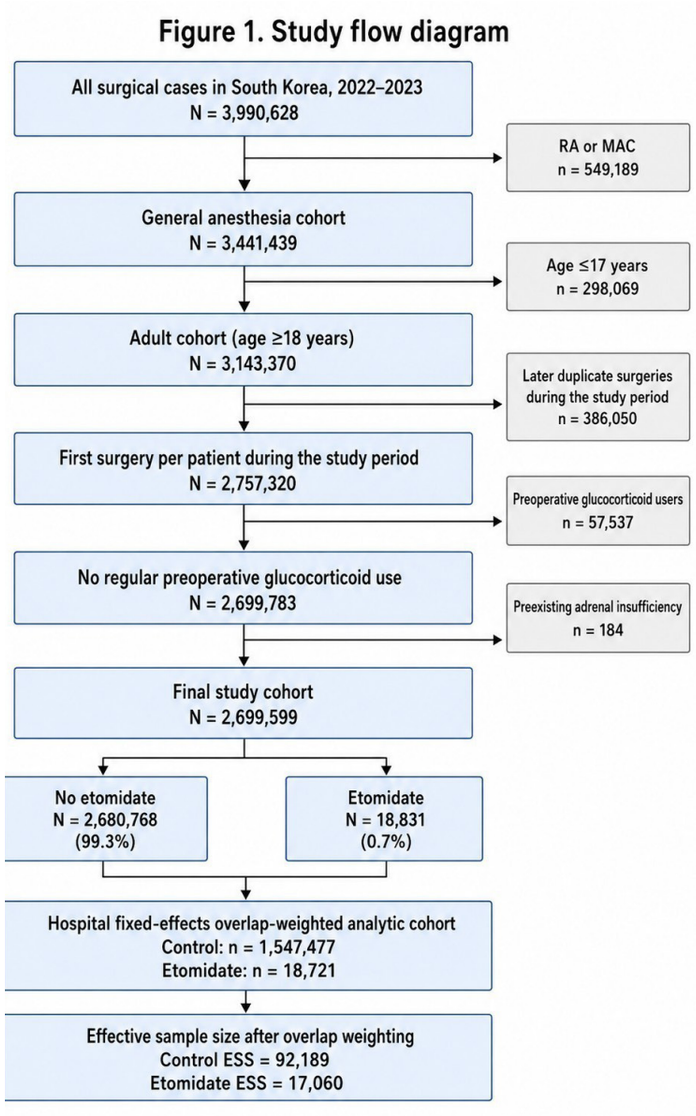
Results
Among 2,699,599 adults, 18,831 (0.7%) received etomidate. The primary analytic cohort included 1,547,477 unexposed and 18,721 etomidate-exposed patients treated at hospitals using both exposure strategies. After overlap weighting, all measured covariates were well balanced, with standardized mean differences below 0.001. During 1 year of follow-up, adrenal insufficiency occurred in 13,828 patients. Etomidate exposure was associated with a higher hazard of adrenal insufficiency (hazard ratio [HR], 1.15; 95% confidence interval [CI], 1.02–1.29; P=0.024). In the full cohort, 18,297 events occurred, and the association was similar after multivariable adjustment (adjusted HR, 1.21; 95% CI, 1.07–1.36; P=0.002) and after additional adjustment for inpatient intravenous steroid use (adjusted HR, 1.20; 95% CI, 1.06–1.35; P=0.003).

Conclusion
In this nationwide surgical cohort, intraoperative etomidate exposure was associated with a modestly higher hazard of newly diagnosed and treated adrenal insufficiency within 1 year. The observational design and limitations of claims-based outcome timing preclude causal inference.

AP-18-4 (2026-0361)

Figure & Table

Figure & Table 1.



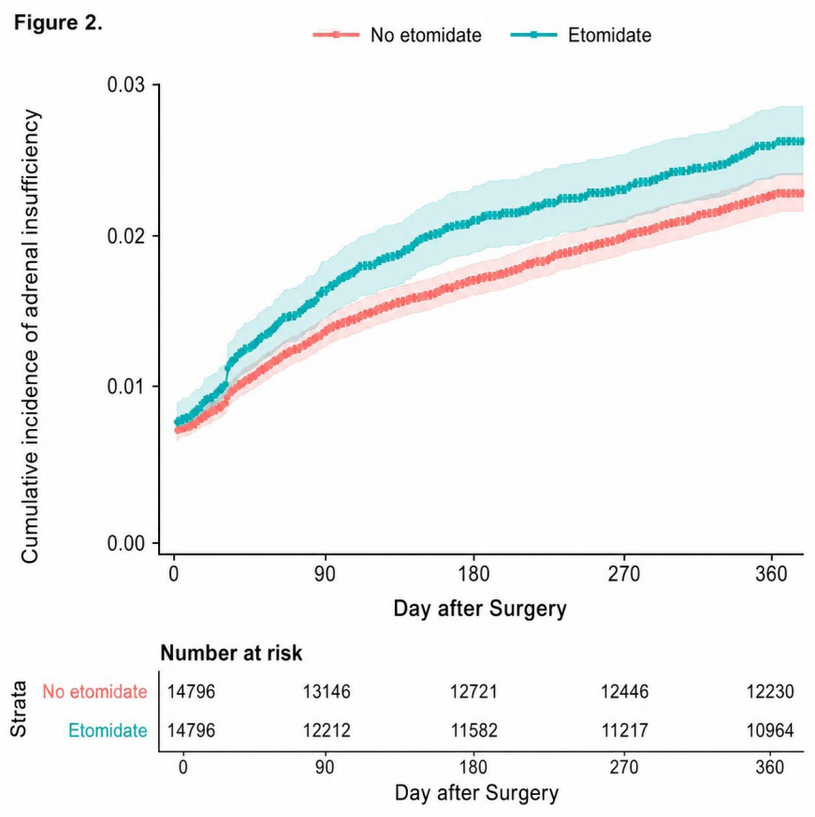
ABSTRACT
Competition
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AP-18-4 (2026-0361)

Figure & Table

Figure & Table 2.

Figure 2.



AP-18-5 (2026-0511)

Effect of Intravenous Acetaminophen on Emergence Agitation after General Anesthesia for Nasal Surgery: A Prospective, Randomized, Assessor-Blinded, Placebo-Controlled Trial

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Background

Emergence agitation (EA) is a common and potentially harmful complication after general anesthesia, with a particularly high incidence after nasal surgery. Although postoperative pain is a recognized risk factor for EA, the effect of intravenous acetaminophen on EA in adults undergoing nasal surgery remains unclear. We investigated whether intravenous acetaminophen reduces EA in this population.

Methods

In this prospective, randomized, assessor-blinded, placebo-controlled trial, 52 adults undergoing elective nasal surgery under general anesthesia were randomly assigned to receive intravenous acetaminophen or 0.9% saline approximately 20 minutes before the anticipated end of surgery. The primary outcome was the incidence of EA, defined as a Riker Sedation-Agitation Scale (RSAS) score ≥5at any time from discontinuation of sevoflurane until 5 minutes after extubation. Secondary outcomes included EA assessed using the Richmond Agitation-Sedation Scale (RASS) and Aono's Four-Point Agitation Scale (AFPS), severe EA, hemodynamic changes, PACU pain scores, and rescue fentanyl use.

Results

The incidence of EA based on RSAS was significantly lower in the acetaminophen group than in the control group (19.2% vs. 69.2%; P < 0.001; relative risk, 0.28; 95% CI, 0.12–0.64), as were the incidences of EA based on RASS (15.4% vs. 46.2%; P = 0.034) and AFPS (15.4% vs. 50.0%; P = 0.017). Severe EA did not differ significantly between groups. Acetaminophen reduced PACU pain scores (median 2 vs. 4.5; P = 0.004) and the frequency (23.1% vs. 69.2%; P = 0.002) and total dose (median 0 vs. 50 μg; P = 0.001) of rescue fentanyl, without clinically significant hemodynamic instability.

Conclusion

Intravenous acetaminophen reduced the incidence of EA across three assessment scales and improved postoperative analgesic outcomes.

AP-18-5 (2026-0511)

Figure & Table

Figure & Table 1.

Table 1. Baseline and Intraoperative Characteristics

Variable	Control (n=26)	Acetaminophen (n=26)	P value
Age (yr)	50 (42, 62)	57 (45, 66)	0.410
Sex (M/F)	16/10	16/10	1.000
Height (cm)	170 (159, 180)	166 (161, 171)	0.197
Weight (kg)	71 (65, 86)	67 (59, 82)	0.246
BMI (kg/m^2)	25.1 (23.9, 28.9)	25.0 (22.1, 28.9)	0.499
ASA-PS (I/II)	1/25	1/25	1.000
Anesthesia time (min)	78 (63, 96)	86 (64, 98)	0.867
Operation time (min)	56 (42, 71)	62 (43, 71)	0.831
Propofol (mg/kg)	1.5 (1.4, 1.5)	1.5 (1.4, 1.5)	0.965
Total rocuronium (mg)	60 (50, 80)	55 (50, 68)	0.194
Total fluid (mL)	300 (250, 388)	300 (200, 350)	0.320
Vasoactive drug use, n (%)	7 (26.9)	5 (19.2)	0.743
Ephedrine	6 (23.1)	2 (7.7)	0.248
Phenylephrine	0 (0.0)	0 (0.0)	1.000
Labetalol	1 (3.8)	1 (3.8)	1.000
Nicardipine	0 (0.0)	2 (7.7)	0.490

Values are presented as median (Q1, Q3), n/n, or n (%). ASA-PS, American Society of Anesthesiologists physical status

Figure & Table 2.

Table 2. Incidence of Emergence Agitation During the Emergence Period

Variable	Control (n=26)	Acetaminophen (n=26)	Relative risk (95% CI)	Effect size *h*	P value
Emergence Agitation by					
RSAS	18 (69.2)	5 (19.2)	0.28 (0.12–0.64)	1.058	<0.001
RASS	12 (46.2)	4 (15.4)	0.33 (0.12–0.90)	0.688	0.034
AFPS	13 (50.0)	4 (15.4)	0.31 (0.12–0.82)	0.765	0.017
Severe Emergence Agitation by					
RSAS	8 (30.8)	3 (11.5)	0.38 (0.11–1.26)	0.483	0.173
RASS	5 (19.2)	3 (11.5)	0.60 (0.16–2.26)	0.215	0.703
AFPS	5 (19.2)	3 (11.5)	0.60 (0.16–2.26)	0.215	0.703

Values are presented as n (%). EA, emergence agitation; RSAS, Riker Sedation-Agitation Scale; RASS, Richmond Agitation-Sedation Scale; AFPS, Aono's Four-Point Agitation Scale; CI, confidence interval.

AP-18-6 (2026-0267)

Effective Dose of Fentanyl for Hemodynamic Stability during Endotracheal Intubation under Remimazolam Induction: A Dose Finding Study Using Dixon's Up and Down Method

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Background
Remimazolam provides superior hemodynamic stability during induction but lacks sufficient analgesic potency to suppress the sympathetic surge from endotracheal intubation. Consequently, opioid co-administration is essential. This study aimed to determine the 50% and 95% effective doses (ED50 and ED95) of fentanyl required to maintain hemodynamic stability during remimazolam bolus induction.

Methods
This prospective dose-finding study was conducted using Dixon's up-and-down method in patients undergoing elective surgery with bolus remimazolam 0.2 mg/kg. Success was defined as maintaining mean blood pressure and heart rate within 20% of baseline for 2 minutes post-intubation. The ED50 and ED95 were estimated using isotonic regression analysis based on the pooled adjacent violator algorithm. To evaluate the quality of induction, integrated hemodynamic indices including average real variability (ARV) and time in target range (TTR) were derived from hemodynamic data.

Results
Thirty-one patients were enrolled (Figure 1). The ED50 and ED95 of fentanyl for blunting the intubation response were estimated as 2.848 μg/kg (90% confidence interval [CI] 2.241–3.313) and 3.434 μg/kg (90% CI 3.360-3.481), respectively. Integrated hemodynamic indices including ARV and TTR remained within a constant range regardless of fentanyl dose escalation (Figure 2A and 2B).

Conclusion
During remimazolam bolus anesthesia, the ED50 and ED95 of fentanyl required to maintain hemodynamic stability during endotracheal intubation using Dixon's up and down method with isotonic regression were estimated as 2.85 μg/kg and 3.43 μg/kg, respectively. Integrated hemodynamic indices and adverse events indicated preserved cardiovascular stability throughout anesthesia induction using remimazolam.

AP-18-6 (2026-0267)

Figure & Table

Figure & Table 1.

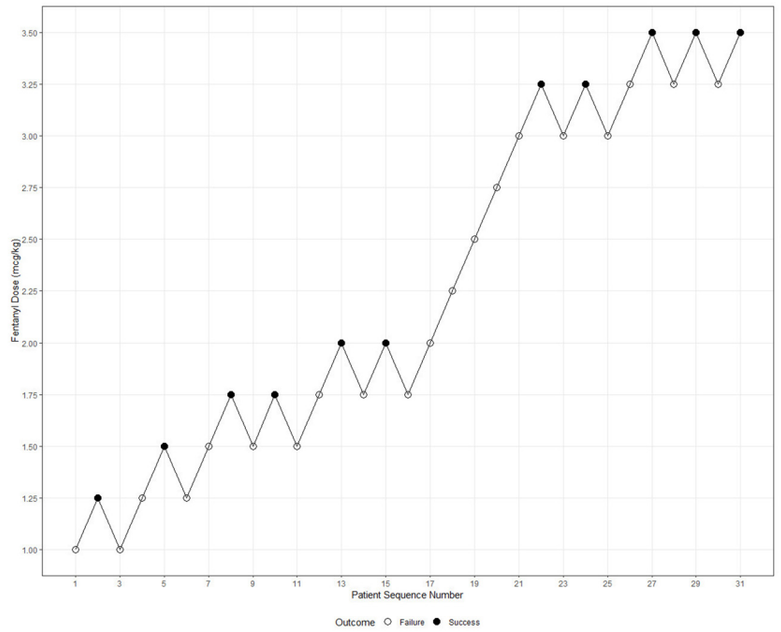
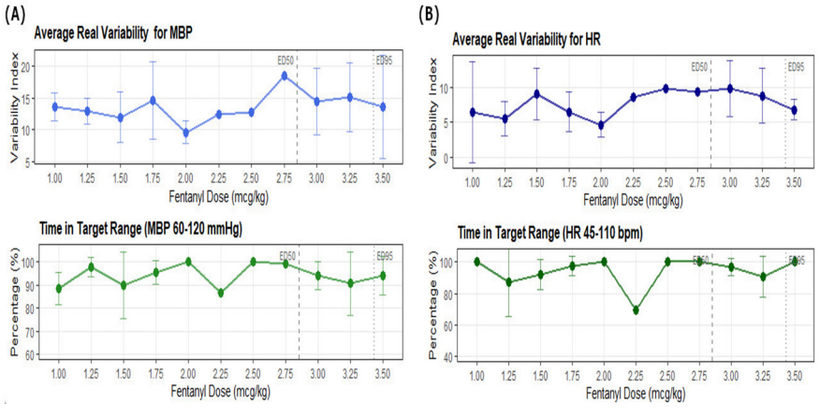


Figure & Table 2.



AP-18-7 (2026-0276)

Effect of Intravenous Lidocaine on Hemodynamic Responses to Tracheal Intubation during Remimazolam Induction with Remifentanil Target-Controlled Infusion: A Randomized, Placebo Controlled Clinical Trial

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Background

Remimazolam is associated with greater hemodynamic stability and a lower incidence of post-induction hypotension than propofol. However, sympathetic responses to airway manipulation may still occur. Remifentanil target-controlled infusion (TCI) is commonly used for this purpose. However additional attenuation may be desirable. Although lidocaine is known to attenuate the hemodynamic response to tracheal intubation, its effects during remimazolam-based anesthetic induction has not, to our knowledge, been specifically investigated. This study investigated whether intravenous lidocaine provides additional attenuation of the hemodynamic response during remimazolam induction.

Methods

In this prospective, randomized, placebo-controlled trial, 80 adult patients were randomly assigned to receive intravenous lidocaine (1.5 mg/kg) or an equal volume of normal saline. Anesthesia was induced with remimazolam and remifentanil TCI. Mean arterial pressure (MAP) and heart rate (HR) were subsequently recorded immediately before tracheal intubation and at 1 and 2 minutes after intubation. The primary outcome was the change in MAP from baseline to 1 minute after tracheal intubation. Secondary outcomes included the changes in MAP from baseline to 2 minutes after intubation; the changes in HR from baseline to 1 and 2 minutes after intubation; change in MAP and HR from immediately before induction to 1 minutes after intubation.

Results

Seventy-eight patients (lidocaine, n = 38; placebo, n = 40) were included in the final analysis. Baseline characteristics were comparable between the two groups (Table 1).

The increase in MAP from baseline to 1 min after tracheal intubation was significantly smaller in the lidocaine group than in the placebo group (3.97 ± 14.36 vs. 16.04 ± 16.56 mmHg; mean difference, −12.06 mmHg [95% CI, −19.04 to −5.08]; P = 0.001). Changes in HR from baseline to 1 and 2 min after intubation did not differ significantly between groups. However, when changes from immediately before intubation to 1 min after intubation were assessed, the increases in HR (10.18 ± 11.99 vs. 16.28 ± 11.76 beats/min; mean difference, −6.09 beats/min [95% CI, −11.45 to −0.73]; P = 0.026) were significantly smaller in the lidocaine group. (Table 2).The attenuation of the HR response observed at 1 min was not evident at 2 min after intubation, indicating that the observed difference in HR was limited to the early post-intubation period. Overall, the hemodynamic effect of lidocaine was more consistent for MAP than for HR.

Conclusion

Intravenous lidocaine attenuated the pressor response to tracheal intubation during remimazolam induction with remifentanil TCI without clinically significant adverse events observed, suggesting that it may be a useful adjunct for improving hemodynamic stability during anesthetic induction.

AP-18-7 (2026-0276)

Figure & Table

Figure & Table 1.

Table 1.
Patient characteristics and hemodynamic variables

Variable	Lidocaine (n = 38)	Placebo (n = 40)	p-value
Age (yr)	45.29 ± 12.57	49.20 ± 12.15	0.166
Sex (M/F), n (%)	12/26 (31.58/68.42)	13/27 (32.50/67.50)	0.931
Body mass index (kg/m²)	25.00 ± 3.93	24.53 ± 3.76	0.587
ASA-PS			>0.999
I, n (%)	1 (2.63)	1 (2.50)	
II, n (%)	37 (97.37)	39 (97.50)	
MAP at baseline (mmHg)	96.74 ± 12.44	97.76 ± 11.77	0.709
MAP at Tpre (mmHg)	85.05 ± 16.28	86.95 ± 14.16	0.584
MAP at T1 (mmHg)	100.71 ± 18.24	113.80 ± 18.61	0.002
MAP at T2 (mmHg)	89.21 ± 13.36	97.73 ± 15.91	0.013
HR at baseline (beats/min)	78.88 ± 14.30	80.98 ± 17.98	0.572
HR at Tpre (beats/min)	82.39 ± 12.91	80.78 ± 15.18	0.614
HR at T1 (beats/min)	92.58 ± 15.13	97.05 ± 14.62	0.188
HR at T2 (beats/min)	90.47 ± 12.74	90.00 ± 12.32	0.868
Intubation time (s)	19.39 ± 6.02	19.85 ± 6.15	0.742

Values are presented as mean ± SD or number (%). Baseline MAP and HR were defined as the mean of two resting measurements obtained before anesthetic induction. ASA-PS: American Society of Anesthesiologists Physical Status, MAP: mean arterial pressure, HR: heart rate, Tpre: immediately before tracheal intubation, T1: 1 min after tracheal intubation, T2: 2 min after tracheal intubation.

Figure & Table 2.

Table 2.
Comparison of clinical outcomes

Outcome	Lidocaine (n = 38)	Placebo (n = 40)	Mean difference (95% CI)	P value
Primary outcome				
Change in MAP, baseline to T1 (mmHg)	3.97 ± 14.36	16.04 ± 16.56	−12.06 (−19.07 to −5.06)	0.001
Secondary outcomes				
Change in MAP, baseline to T2 (mmHg)	−7.53 ± 11.86	−0.04 ± 14.93	−7.49 (−13.59 to −1.39)	0.017
Change in MAP, Tpre to T1 (mmHg)	15.66 ±21.05	26.85±16.90	-11.19 (-19.78, -2.60)	0.011
Change in HR, baseline to T1 (beats/min)	13.70 ± 15.28	16.07 ± 16.31	−2.38 (−9.51 to 4.76)	0.509
Change in HR, baseline to T2 (beats/min)	11.59 ± 14.43	9.03 ± 14.34	2.57 (−3.92 to 9.06)	0.433
Change in HR, Tpre to T1 (beats/min)	10.18 ± 11.99	16.28 ± 11.76	-6.09 (-11.45, -0.73)	0.026
Rescue treatment for hypertension, n (%)	1 (2.63)	3 (7.50)	–	0.616
Rescue treatment for hypotension, n (%)	1 (2.63)	0 (0.00)	–	0.487
Rescue treatment for tachycardia, n (%)	4 (10.5)	4 (10.0)	–	1
Adverse events, n (%)	0 (0.00)	0 (0.00)	NE	–

Values are presented as mean ± SD or number (%). CI: confidence interval, MAP: mean arterial pressure, HR: heart rate, T1: I min after tracheal intubation, Tpre: immediately before tracheal intubation, T2: 2 min after tracheal intubation. NE: not estimable.

AP-18-8 (2026-0237)

Simulation of Oral Ringer's Solution Using an Extended Four-Compartment Volume Kinetic Model Incorporating Gastrointestinal Absorption and Metabolic Water Loss

Hyungseop Lee[1], Seung Eun Song[1], Hyun Jung Kim[1,2*], So Hui Yun[1,2], Jong Cook Park[1,2]

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2. Department of Anesthesiology and Pain Medicine, Jeju National University College of Medicine, Republic of Korea

Background
Volume kinetic theory provides a quantitative framework for describing the distribution and elimination of intravenously infused crystalloid fluids [1,2]. Recent studies have improved our understanding of gastrointestinal fluid absorption following oral administration and the existence of a slowly equilibrating interstitial compartment (Vt2)[3,4]. However, no integrated physiological model has been developed to simulate oral administration of Ringer's solution while simultaneously incorporating gastrointestinal absorption, metabolic water loss, and renal excretion. This study aimed to develop an extended four-compartment volume kinetic model to simulate the physiological kinetics of orally administered Ringer's solution.

Methods
A four-compartment volume kinetic model consisting of a gastrointestinal compartment (GI), central compartment (Vc), rapidly equilibrating compartment (Vt1), and slowly equilibrating compartment (Vt2) was developed. Following oral administration of 400 mL Ringer's solution into the GI compartment, gastrointestinal absorption was modeled as a first-order process. Because no direct measurements of the absorption rate constant (ka) for oral Ringer's solution are available, ka = 0.04 min^{-1} was adopted from published gastric-emptying studies of electrolyte-containing oral rehydration solutions, with sensitivity analyses performed using ka values of 0.03 and 0.05 min^{-1}. Metabolic water loss (kb) and renal excretion (k10) were incorporated, and the coupled differential equations were solved numerically using Microsoft Excel.

Results
The simulation demonstrated an exponential decrease in gastrointestinal fluid volume following oral administration. Delayed expansion of the central compartment occurred depending on the gastrointestinal absorption rate constant and was followed by sequential expansion of Vt1 and Vt2. Increasing ka accelerated gastrointestinal absorption, resulting in earlier and greater expansion of Vc, whereas decreasing ka delayed systemic fluid entry and reduced the peak central volume response. Volume changes in Vt1 and Vt2 were smoother and more prolonged than those in Vc because of sequential intercompartmental fluid transfer (Fig. 1).

Conclusion
The proposed four-compartment physiological model extends conventional volume kinetic theory to oral administration of Ringer's solution by incorporating gastrointestinal absorption, extracellular fluid distribution, metabolic water loss, and renal excretion into a unified mathematical framework. Because direct measurements of the gastrointestinal absorption rate constant for orally administered Ringer's solution are currently unavailable, a physiologically reasonable value (ka = 0.04 min^{-1}) derived from published gastric-emptying studies of electrolyte-containing oral rehydration solutions was adopted. This model provides a theoretical framework for quantitative simulation of oral electrolyte-containing fluid therapy and establishes a foundation for future validation using plasma dilution, serum sodium concentration, urine output, and sodium balance measurements.

AP-18-8 (2026-0237)

Figure & Table

Figure & Table 1.

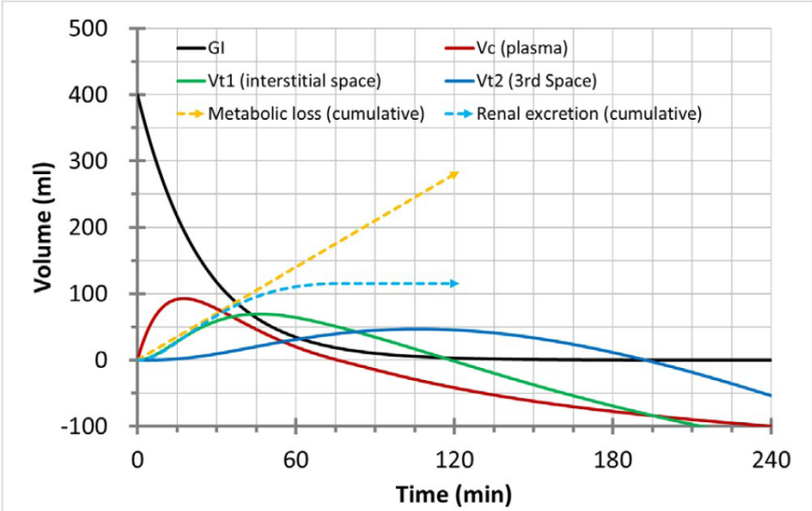


Figure 1. Figure 1. Simulated time course of fluid distribution following oral ingestion of 400 mL of Ringer's solution in a subject with a metabolic state of MET 2, based on an extended four-compartment volume kinetic model. The model depicts gastrointestinal absorption of Ringer's solution (GI), expansion of the central fluid compartment (Vc), sequential distribution into the rapidly equilibrating (Vt1) and slowly equilibrating (Vt2) tissue compartments, together with cumulative metabolic water loss (kb) and cumulative renal fluid excretion (k10).

Presentation

Abstract Presentation 19

Date / Time	Nov 6 (Fri), 11:00-12:30
Room	Room F *(Hyatt Regency)*
Language	English
Chair(s)	Young Chul Yoo *(Yonsei University, Republic of Korea)* Geunjoo Choi *(Chung-Ang University, Republic of Korea)*

AP-19-1 2026-0026

Personalized Music Increases Dreaming During Propofol Sedation: A Randomized Trial

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2. Student, Wonkwang University School of Medicine, Republic of Korea

AP-19-2 2026-0059

Factors Associated with Anesthetic Complications among Dental Patients Undergoing General Anesthesia at a Dental Hospital

Jitpisut Munsil[1], Phimphloi Phengklang[1*], Saruta Thongchunjit[2], Rungtiwa Kaewkunlaya[1], Krittika Saiso[1], Anuchart Sanomsri[1]

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AP-19-3 2026-0568

Impact of Nurse-Administered Sedation on Endoscopy Workflow and Patient Satisfaction: A Multicenter Study in Mongolia

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AP-19-4 2026-0498

Persistent Opioid Use After Cancer Surgery in South Korea: Incidence and Risk Factors in a Nationwide Claims-Based Study

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AP-19-5 2026-0287

Comparison of Cervical Spine Motion between Hyperangulated and Macintosh-type Blades during Videolaryngoscopic Intubation under Simulated Cervical Spine Immobilization: A Randomized Controlled Trial

Eun Bi Park[1], Woo-Young Jo[1*], Seoyoung Ma[1], Kyong Won Shin[1], Hyongmin Oh[1], Hee-Pyoung Park[1]

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AP-19-7 2026-0078

Beyond Local Infiltration: Monitored Anesthesia Care as a Standalone Technique for Breast-Conserving Surgery and Duct Excision — A Case Series

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AP-19-8 2026-0027

Age-Related Differences in Postoperative Pulmonary Complications Among Surgical Patients Using GLP-1 Receptor Agonists: A Multicenter OMOP-CDM Study

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Personalized Music Increases Dreaming During Propofol Sedation: A Randomized Trial

Cheol Lee[1*], Kyongseo Kim[2]

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2. Student, Wonkwang University School of Medicine, Republic of Korea

Background

Auditory stimulation can be processed during sedation and may influence dream recall and emotional tone. Perioperative music has been associated with reduced anxiety and improved patient experience, but whether structured music increases dreaming during propofol sedation, and whether personally preferred music enhances dream pleasantness compared with matched non-preferred music, remains unclear. We investigated the effects of music and music personalization on dreaming, recovery, satisfaction, and safety during intravenous propofol sedation.

Methods

In this single-center, parallel, three-arm randomized controlled trial, 300 adults undergoing elective procedures under spinal anesthesia or peripheral nerve block with intravenous propofol sedation were randomized 1:1:1 to preferred music, matched non-preferred music, or silence with headphones. Music was delivered through closed-back headphones from 1–2 minutes before sedative administration until the end of sedation. The co-primary outcomes were dream incidence, comparing pooled music groups with silence, and dream pleasantness among dream recallers, comparing preferred with non-preferred music. Secondary outcomes included dream content metrics, satisfaction, hemodynamic variability, propofol dose, recovery time, pain, and adverse events.

Results

All 300 randomized participants were included in the intention-to-treat analysis. Dream incidence was higher with pooled music than with silence: 107 of 200 patients, 53.5%, versus 35 of 100 patients, 35.0%; relative risk, 1.53; 95% confidence interval, 1.14 to 2.06; P = 0.005. Among dream recallers, dream pleasantness was greater with preferred music than with non-preferred music: 7.2 ± 1.4 versus 6.4 ± 1.5 points; mean difference, 0.8 points; 95% confidence interval, 0.3 to 1.2; P = 0.001. Preferred music was also associated with greater auditory salience and more positive affect after false-discovery-rate correction. Pooled music was associated with lower propofol dose, lower mean arterial pressure and heart-rate variability, shorter recovery, lower postoperative pain scores, and higher satisfaction. There were no statistically significant differences in desaturation or overall adverse events.

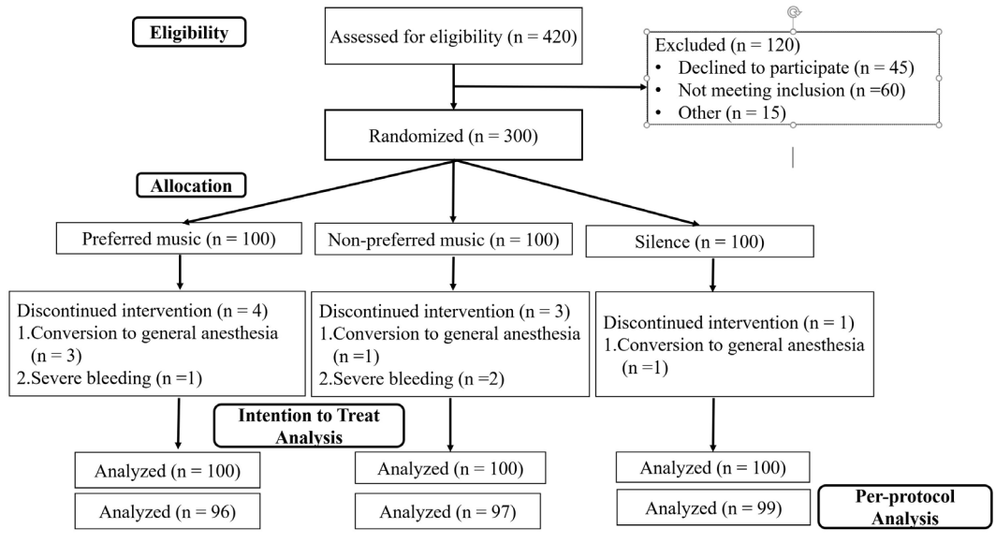
Conclusion

During intravenous propofol sedation, structured headphone music increased dream incidence, and personally preferred music enhanced dream pleasantness without detected safety trade-offs. Routine perioperative headphone music, with optional patient preference capture, may improve the subjective quality of sedation and early recovery.

AP-19-1 (2026-0026)

Figure & Table

Figure & Table 1.



ABSTRACT
Competition
Presentation
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AP-19-2 (2026-0059)

Factors Associated with Anesthetic Complications among Dental Patients Undergoing General Anesthesia at a Dental Hospital

Jitpisut Munsil[1], Phimphloi Phengklang[1*], Saruta Thongchunjit[2], Rungtiwa Kaewkunlaya[1], Krittika Saiso[1], Anuchart Sanomsri[1]

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Background
The use of general anesthesia for dental and oral and maxillofacial procedures has increased in recent years, particularly among patients requiring extensive surgical procedures, those with severe anxiety, intellectual disabilities, autism spectrum disorder, or limited cooperation. These procedures involve shared airway management between the surgical and anesthesia teams, creating unique perioperative challenges and potential risks of anesthesia-related complications. Understanding the incidence, characteristics, and factors associated with these complications is essential for improving patient safety and perioperative care. Therefore, this study aimed to determine the incidence, characteristics, and factors associated with anesthetic complications among patients undergoing dental and oral and maxillofacial procedures under general anesthesia at the Dental Hospital, Faculty of Dentistry, Mahidol University.

Methods
A prospective analytical study was conducted among 618 patients undergoing dental and oral and maxillofacial procedures under general anesthesia at the Dental Hospital, Faculty of Dentistry, Mahidol University, between January and December 2025. Participants were recruited using consecutive sampling. Patient-, anesthetic-, and surgery-related factors, as well as anesthetic complications occurring during anesthesia, in the post-anesthesia care unit (PACU), and within 24–48 hours after anesthesia, were collected. Factors associated with anesthetic complications were analyzed using multiple binary logistic regression. Adjusted odds ratios (AORs) and 95% confidence intervals (CIs) were calculated, with $p<0.05$ considered statistically significant.

Results
Among 618 patients, anesthetic complications occurred in 22.8% during anesthesia, 79.3% in the PACU, and 56.0% within 24–48 hours after anesthesia. Airway injury was the most common intraoperative complication (8.1%), while pain (76.7%) and sore throat (29.9%) were the most common complications in the PACU and within 24–48 hours, respectively. After adjustment for confounding variables, oral intubation was associated with lower odds of intraoperative complications than nasal intubation (AOR=0.42, 95% CI=0.20–0.89). In the PACU, patients aged 11–30 and 31–60 years had higher odds of complications than those aged 3–10 years (AOR=7.87, 95% CI=2.86–21.65; AOR=5.79, 95% CI=2.01–16.66, respectively), while oral intubation (AOR=0.29, 95% CI=0.16–0.52) and minor surgery (AOR=0.48, 95% CI=0.28–0.85) were associated with lower odds. Within 24–48 hours after anesthesia, male sex (AOR=0.69, 95% CI=0.49–0.98), anesthesia duration >3 hours (AOR=0.58, 95% CI=0.34–0.98), and minor surgery (AOR=0.69, 95% CI=0.49–0.98) were associated with lower odds of complications.

Conclusion
Anesthetic complications were common among patients undergoing dental procedures under general anesthesia, with different patient, anesthetic, and surgery-related factors associated with complications across perioperative periods. These findings highlight the importance of comprehensive preoperative assessment, appropriate airway management, and continued postoperative monitoring to enhance patient safety and reduce anesthesia-related complications.

AP-19-3 (2026-0568)

Impact of Nurse-Administered Sedation on Endoscopy Workflow and Patient Satisfaction: A Multicenter Study in Mongolia

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Background
Sedation improves patient comfort and tolerance during gastrointestinal (GI) endoscopy. However, requiring anesthesia personnel from another department may cause logistical delays and affect workflow. In Mongolia, some endoscopy units use appropriately trained nurses to administer sedation, while others rely on anesthesia personnel. This study aimed to describe current sedation practices and compare endoscopy throughput and patient satisfaction between these service models.

Methods
A multicenter cross-sectional descriptive study was conducted among 80 endoscopy nurses from 38 hospitals in Mongolia. Nurses were surveyed regarding sedation training and practice. Patient satisfaction was assessed using a structured questionnaire among 100 patients from eight hospitals representing three models: sedation administered by endoscopy nurses within the unit (2 hospitals), anesthesia personnel from another department (3 hospitals), and no sedation-assisted endoscopy (3 hospitals). Endoscopy activity was also compared over equivalent five-day periods between the two sedation models.

Results
Of 80 endoscopy nurses, 40 (50.0%) independently administered sedation, 28 (35.0%) worked in hospitals where anesthesia personnel provided sedation, and 12 (15.0%) worked in hospitals without sedation-assisted endoscopy. Over five working days, 222 patients underwent endoscopy when sedation was provided within the endoscopy unit, including 63 (28.4%) sedated procedures. During an equivalent five-day period when anesthesia personnel were called from another department, 182 patients underwent endoscopy, including 34 (18.7%) sedated procedures. Thus, 40 more endoscopy procedures were observed with the integrated sedation model, with 22.0% higher overall procedure volume and 85.3% more sedated procedures. The mean number of procedures per day was 44.4 versus 36.4, and sedated procedures per day were 12.6 versus 6.8, respectively. Among 100 patients, 98% reported very high satisfaction when sedation was administered within the endoscopy unit, compared with 62% when anesthesia personnel came from another department. In hospitals without sedation-assisted endoscopy, 87% reported dissatisfaction with the endoscopy process.

Conclusion
In this multicenter observational study, provision of sedation within the endoscopy unit by appropriately trained nurses was associated with higher observed endoscopy throughput, a greater proportion of sedated procedures, and higher patient satisfaction compared with a model requiring anesthesia personnel from another department. These findings suggest that nurse-administered sedation may facilitate an integrated endoscopy workflow and reduce logistical barriers for selected patients. It should not replace anesthesiology expertise when clinically indicated. Standardized education, competency assessment, patient risk stratification, monitoring, rescue capability, and institutional credentialing are essential for safe implementation. Prospective multicenter studies are warranted to confirm effects on waiting time, throughput, safety, and cost-effectiveness.

AP-19-3 (2026-0568)

Figure & Table

Figure & Table 1.

Outcome	Nurse-administered sedation	Anesthesia personnel called
Observation period	5 days	5 days
Total endoscopy procedures	222	182
Procedures/day	44.4	36.4
Sedated procedures	63 (28.4%)	34 (18.7%)
Sedated procedures/day	12.6	6.8
Sedation proportion	28.4%	18.7%
Statistical comparison	p=0.023	
Sedation practice	n	%
Endoscopy nurse-administered sedation	40	50.0%
Anesthesia personnel from another department	28	35.0%
No sedation-assisted endoscopy	12	15.0%
Total	80	100%

AP-19-4 (2026-0498)

Persistent Opioid Use After Cancer Surgery in South Korea: Incidence and Risk Factors in a Nationwide Claims-Based Study

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Background

Cancer surgery may predispose patients to chronic opioid use (COU) because of overlapping surgical, cancer-related, and treatment-related pain, yet population-level evidence from countries with relatively low opioid prescribing is scarce. We examined the incidence of and factors associated with COU after cancer surgery in South Korea.

Methods

Using nationwide Korean National Health Insurance Service claims, we identified adults undergoing surgery for 16 cancer types from 2014 through 2023. The primary and secondary outcomes were COU during the 90 and 180 days after discharge, respectively, defined using prespecified noninjectable opioid prescription-pattern criteria. Associated factors were evaluated using multivariable logistic regression. Analyses were repeated among opioid-naïve patients and in subgroups by cancer surgery type.

Results

Among 1,059,268 patients, 70,445 (6.65%) and 39,078 (3.69%) met the primary and secondary definitions of COU, respectively, with broadly stable incidence over 10 years. Older age, greater comorbidity burden, psychiatric comorbidities, chronic pain, neoadjuvant radiotherapy, preoperative central nervous system-active medication use, longer hospitalization, lower income, residence outside the capital, and greater opioid exposure before and during perioperative care were associated with higher odds of both outcomes; neoadjuvant chemotherapy was associated with lower odds. COU varied by cancer surgery type and was most frequent after esophageal, lung, ovarian, and pancreatic cancer surgery, while associated factors varied across surgery-type subgroups. Among 822,546 opioid-naïve patients, 35,778 (4.35%) and 15,468 (1.88%) met the definitions, with most associations persisting.

Conclusion

COU affected a clinically relevant proportion of patients after cancer surgery, even in a country with relatively low opioid prescribing and among opioid-naïve patients. These findings support risk-based surveillance and perioperative opioid stewardship targeting preexisting vulnerabilities, high-risk operations, and potentially modifiable opioid exposure.

Figure & Table

Figure & Table 1.

Table 1. Baseline characteristics of the overall cohort by primary outcome status

	Chronic opioid use (n=70,445)	No chronic opioid use (n=988,823)
Age (years)	62.29 ± 11.69	57.54 ± 13.7
Female	41,516 (58.92)	624,068 (63.11)
Updated Charlson Comorbidity Index score		
0–2	33,406 (47.42)	614,086 (62.1)
3–4	21,159 (30.04)	249,140 (25.2)
≥5	15,880 (22.54)	125,597 (12.7)
Psychiatric comorbidities	20,990(29.80)	172,671(17.46)
Mood disorder	9,505 (13.49)	67,851 (6.86)
Anxiety	11,022 (15.65)	85,756 (8.67)
Schizophrenia	700 (0.99)	7,488 (0.76)
Substance abuse	497 (0.71)	3,659 (0.37)
Other mental illness	11,396 (16.18)	91,920 (9.3)
Comorbid chronic pain	44,275(62.85)	422,718(42.75)
Chronic pain	10,100 (14.34)	66,832 (6.76)
Back, neck pain	34,082 (48.38)	297,656 (30.1)
Neuropathic pain	4,785 (6.79)	30,798 (3.11)
Osteoarthritis	23,496 (33.35)	184,058 (18.61)
Headache	9,130 (12.96)	81,534 (8.25)
Perioperative oncologic therapy		
Neoadjuvant chemotherapy	8,108 (11.51)	62,127 (6.28)
Neoadjuvant radiotherapy	4,034 (5.73)	15,771 (1.59)
Adjuvant chemotherapy	39,452 (56)	246,856 (24.96)
Adjuvant radiotherapy	17,221 (24.45)	218,289 (22.08)
Preoperative CNS-active medications		
Benzodiazepine	18,660 (26.49)	161,298 (16.31)
Gabapentinoid	9,684 (13.75)	49,753 (5.03)
Other sedatives	7,873 (11.18)	50,569 (5.11)
Type of cancer surgery		
Gastric	4,753 (6.75)	138,189 (13.98)
Lung	18,289 (25.96)	68,701 (6.95)
Gallbladder	744 (1.06)	8,048 (0.81)
Liver	1,959 (2.78)	37,350 (3.78)
Colorectal	11,684 (16.59)	158,528 (16.03)
Pancreatic	2,214 (3.14)	12,605 (1.27)
Esophageal	1,272 (1.81)	4,422 (0.45)
Small bowel	142 (0.2)	2,487 (0.25)
Cervical	2,280 (3.24)	48,020 (4.86)
Endometrial	336 (0.48)	2,814 (0.28)
Ovarian	3,910 (5.55)	15,359 (1.55)
Renal	1,238 (1.76)	23,315 (2.36)
Prostate	763 (1.08)	15,185 (1.54)
Bladder	352 (0.5)	5,390 (0.55)
Breast	16,476 (23.39)	199,347 (20.16)
Thyroid	4,033 (5.73)	249,063 (25.19)
Year of surgery		
2014–2018	31,949 (45.35)	474,198 (47.96)
2019–2023	38,496 (54.65)	514,625 (52.04)
Length of hospital stay, days	11.65 ± 6.03 10 (7–15)	9.33 ± 5.25 8 (5–11)
Income level		
First quartile (lowest)	19,310 (27.41)	221,599 (22.41)
Second quartile	12,732 (18.07)	179,966 (18.2)
Third quartile	15,938 (22.62)	231,330 (23.39)
Fourth quartile (highest)	21,428 (30.42)	339,653 (34.35)
Residence type		
Capital	30,919 (43.9)	480,912 (48.64)
Metropolitan	14,826 (21.05)	205,937 (20.83)
Other area	24,689 (35.05)	301,815 (30.53)
Preoperative opioid use		
Naïve	35,778 (50.79)	786,768 (79.57)
Intermittent	18,610 (26.42)	170,578 (17.25)
Continuous	16,057 (22.79)	31,477 (3.18)
Perioperative opioid use		
Opioid classification by analgesic potency		
No	38,520 (54.68)	733,873 (74.22)
Weak	23,741 (33.7)	199,307 (20.16)
Strong	14,193 (20.15)	73,643 (7.45)
Buprenorphine/pentazocine	297 (0.42)	3,686 (0.37)
Combination	6,276 (8.91)	21,605 (2.18)
Cumulative prescribed opioid dose (MME)	35.21 ± 137.43 0 (0–15)	10.73 ± 48 0 (0–1.875)
Perioperative opioid exposure group, cumulative MME		
0	38,520 (54.68)	733,873 (74.22)
>0 to <10	10,820 (15.36)	108,087 (10.93)
≥10 to <100	15,210 (21.59)	118,894 (12.02)
≥100	5,867 (8.33)	27,764 (2.81)

AP-19-4 (2026-0498)

Figure & Table

Figure & Table 2.

Table 2. Multivariable logistic regression analyses for the primary and secondary outcomes

	Primary outcome		Secondary outcome	
	OR (95% CI)	P-value	OR (95% CI)	P-value
Age (years)	1.005 (1.005-1.006)	<0.001	1.007 (1.006-1.008)	<0.001
Sex				
Female (Reference)	1.00 (Reference)	-	1.00 (Reference)	-
Male	0.944 (0.925-0.963)	<0.001	1.053 (1.025-1.081)	<0.001
Updated Charlson Comorbidity Index score				
0–2	1.00 (Reference)	-	1.00 (Reference)	-
3–4	1.098 (1.077-1.120)	<0.001	1.125 (1.096-1.155)	<0.001
≥5	1.262 (1.233-1.291)	<0.001	1.359 (1.319-1.399)	<0.001
Psychiatric comorbidities	1.097 (1.073-1.122)	<0.001	1.201 (1.168-1.236)	<0.001
Comorbid chronic pain	1.278 (1.254-1.302)	<0.001	1.373 (1.337-1.409)	<0.001
Neoadjuvant chemotherapy	0.868 (0.842-0.896)	<0.001	0.909 (0.875-0.945)	<0.001
Neoadjuvant radiotherapy	2.185 (2.091-2.283)	<0.001	1.531 (1.450-1.617)	<0.001
Preoperative CNS-active medications				
Benzodiazepine	1.130 (1.105-1.156)	<0.001	1.159 (1.127-1.192)	<0.001
Gabapentin	1.259 (1.224-1.294)	<0.001	1.359 (1.315-1.404)	<0.001
Other sedatives	1.270 (1.233-1.308)	<0.001	1.328 (1.281-1.375)	<0.001
Type of cancer surgery				
Endocrinal: Breast, Thyroid	1.00 (Reference)	-	1.00 (Reference)	-
Thoracic: Lung, Esophageal	2.890 (2.807-2.976)	<0.001	2.191 (2.103-2.283)	<0.001
GI: Gastric, Gallbladder, Liver, Colorectal, Pancreatic, Small bowel	0.641 (0.624-0.659)	<0.001	0.911 (0.880-0.945)	<0.001
GY: Cervical, Endometrial, Ovarian	1.751 (1.697-1.806)	<0.001	1.980 (1.897-2.067)	<0.001
URO: Renal, Prostate, Bladder	0.614 (0.584-0.645)	<0.001	0.808 (0.761-0.859)	<0.001
Year of surgery				
2014–2018	1.00 (Reference)	-	1.00 (Reference)	-
2019–2023	1.061 (1.043-1.079)	<0.001	0.963 (0.942-0.985)	0.001
Length of hospital stay, days	1.056 (1.054-1.057)	<0.001	1.064 (1.062-1.066)	<0.001
Income level				
First quartile (lowest)	1.00 (Reference)	-	1.00 (Reference)	-
Second quartile	0.938 (0.915-0.962)	<0.001	0.890 (0.862-0.920)	<0.001
Third quartile	0.906 (0.885-0.928)	<0.001	0.845 (0.820-0.872)	<0.001
Fourth quartile (highest)	0.801 (0.784-0.819)	<0.001	0.723 (0.703-0.744)	<0.001
Residence type				
Capital	1.00 (Reference)	-	1.00 (Reference)	-
Metropolitan	1.036 (1.014-1.059)	0.001	1.102 (1.071-1.135)	<0.001
Other area	1.070 (1.050-1.091)	<0.001	1.111 (1.084-1.139)	<0.001
Preoperative opioid use				
Naïve	1.00 (Reference)	-	1.00 (Reference)	-
Intermittent	1.791 (1.755-1.828)	<0.001	2.144 (2.086-2.204)	<0.001
Continuous	7.224 (7.036-7.416)	<0.001	10.954 (10.621-11.298)	<0.001
Perioperative opioid exposure group, cumulative MME				
0 (Reference)	1.00 (Reference)	-	1.00 (Reference)	-
>0 to <10	1.410 (1.375-1.446)	<0.001	1.363 (1.318-1.409)	<0.001
≥10 to <100	1.571 (1.534-1.608)	<0.001	1.521 (1.476-1.568)	<0.001

AP-19-5 (2026-0287)

Comparison of Cervical Spine Motion between Hyperangulated and Macintosh-type Blades during Videolaryngoscopic Intubation under Simulated Cervical Spine Immobilization: A Randomized Controlled Trial

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Background

To prevent secondary neurological injury, balancing airway securement with cervical spine immobilization is critical during endotracheal intubation. We hypothesized that videolaryngoscope with hyperangulated blades would result in reduced cervical spine motion compared with Macintosh-type blades during intubation under manual in-line stabilization.

Methods

104 adult patients were randomized into hyperangulated (n = 52) or Macintosh-type blade (n = 52) groups. Sample size was based on previous studies reporting cervical spine motion at the occiput–C1 segment of 8.6° (Macintosh-type) and 5.8° (hyperangulated), respectively. Lateral cervical spine radiographs were obtained twice before (baseline) and during intubation. The primary outcome was cervical spine motion at the occiput–C1 segment, defined as the change in cervical spine angle from baseline to intubation.

Results

Cervical spine motion at the occiput–C1 segment was significantly smaller in the hyperangulated blade group (median [interquartile range], 3.3 [1.8–7.1] ° vs. 5.6 [3.2–9.2] °; P = 0.01) than in the Macintosh-type blade group. After adjusting for cervical spine angle before intubation, the hyperangulated blade group still demonstrated significantly less cervical spine motion (mean [standard error], 4.4 [0.5] ° vs. 6.3 [0.5] °; P = 0.02). The hyperangulated blade group also required significantly fewer external laryngeal manipulations (9/52 [17%] vs. 24/52 [46%]; P = 0.003) and direct epiglottis elevations (0/52 [0%] vs. 8/52 [15%]; P = 0.01).

Conclusion

As hyperangulated blades significantly reduced cervical spine motion and required fewer airway maneuvers compared to Macintosh-type blades, they are a recommended option for patients requiring minimized cervical spine motion.

AP-19-5 (2026-0287)

Figure & Table

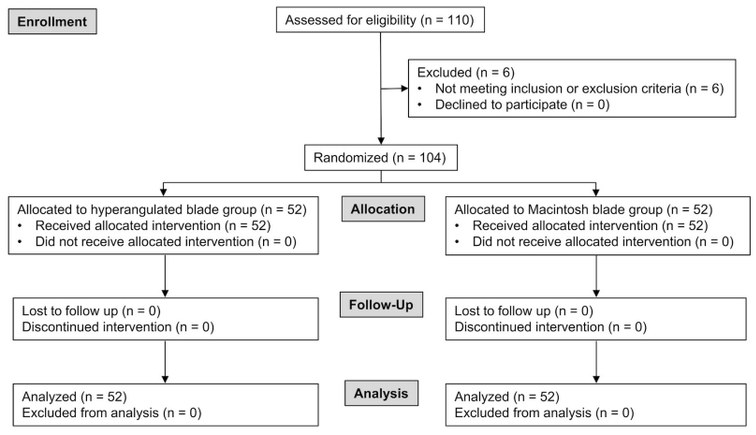
Figure & Table 1.

Supplementary digital content 2. Sensitivity analysis using multivariable linear regression for cervical spine motion at the occiput–C1 segment, adjusting for imbalances in demographics and airway-related parameters

Variable	Univariable analysis		Multivariable analysis*	
	Unstandardized coefficient (95% CI)	P	Unstandardized coefficient (95% CI)	P
Hyperangulated group	−1.98 (−3.57–−0.39)	0.015	−1.94 (−3.55–−0.33)	0.019
Male sex	−0.90 (−2.65–0.85)	0.309		
Mallampati class	−0.78 (−2.3–0.74)	0.310		
Interincisal gap	−0.04 (−0.18–0.10)	0.554		
Sternomental distance	−0.02 (−0.07–0.04)	0.521		
Cervical circumference	−0.02 (−0.04–0.01)	0.157		
Occiput-C1 angle before intubation	−0.18 (−0.31–−0.06)	0.006	−0.15 (−0.29–−0.02)	0.028

*: The adjusted variables included videolaryngoscopic blade type, sex, Mallampati class, interincisal gap, sternomental distance, cervical circumference, and baseline occiput–C1 angle (adjusted R^2 = 0.083; P = 0.032 for the overall model). CI, confidence interval

Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

AP-19-7 (2026-0078)

Beyond Local Infiltration: Monitored Anesthesia Care as a Standalone Technique for Breast-Conserving Surgery and Duct Excision — A Case Series

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Introduction
General anaesthesia (GA) for breast-conserving surgery (BCS) and duct excisions carries well-recognised perioperative disadvantages — airway instrumentation-related morbidity, postoperative nausea and vomiting (PONV), prolonged emergence, and delayed discharge — that are particularly problematic in the day-surgery oncology setting. While monitored anaesthesia care (MAC) combined with local anaesthetic (LA) infiltration is an established alternative, some surgical oncologists avoid LA infiltration on the grounds that it distorts tissue planes and compromises intraoperative margin assessment. This creates a unique anaesthetic challenge: providing adequate sedoanalgesia for breast surgery without either GA or local anaesthesia. We describe a case series in which MAC was administered as a standalone technique — entirely without local anaesthetic — for BCS and duct excisions at a tertiary cancer centre, at the specific request of the operating surgeon.

Case
Ten consecutive female patients (ASA I–III, median age 55 years) underwent elective BCS (n = 4) or duct excision (n = 6) under MAC without LA at Sri Shankara Cancer Hospital, Bangalore (October–December 2025). All cases were performed by the same surgeon–anaesthetist pair. Protocol: fentanyl 2 mcg/kg IV bolus pre-incision, dexmedetomidine bolus 0.4–0.5 mcg/kg followed by infusion 0.4–0.5 mcg/kg/h, supplemented by ketamine 30 mg or propofol 30 mg IV bolus (RSS target 4–5). Oxygen via nasal prongs; $EtCO_2$ monitored throughout. GA conversion equipment on standby.
All ten procedures were completed under MAC without GA conversion. Mean operative duration: 26 minutes. Eight patients (80%) required no airway intervention. Two (20%) needed brief bag-mask ventilation (2–3 min), both resolving without sequelae. Zero PONV. No haemodynamic instability. All patients were alert and oriented within minutes of procedure completion — no residual sedation or grogginess. Maximum pain NRS: 1/10 (two patients). Oral fluids resumed within 2–2.5 hours. All discharged home within four hours.

Conclusion
MAC without local anaesthesia is a feasible, safe, and surgeon-accommodating technique for carefully selected patients undergoing BCS and duct excisions. A structured sedoanalgesia protocol combining dexmedetomidine, fentanyl, and low-dose ketamine or propofol can provide adequate intraoperative conditions without airway instrumentation or LA infiltration. The technique offers superior recovery quality compared to GA — with rapid return of alertness, zero PONV, minimal pain, early oral intake, and same-day discharge. It is particularly suited to oncological settings where LA infiltration is undesirable. Larger prospective studies comparing MAC without LA, MAC with LA, and GA are needed.

AP-19-8 (2026-0027)

Age-Related Differences in Postoperative Pulmonary Complications Among Surgical Patients Using GLP-1 Receptor Agonists: A Multicenter OMOP-CDM Study

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Background
The perioperative impact of glucagon-like peptide-1 (GLP-1) receptor agonists on respiratory complications remains uncertain, particularly in elderly patients.

Methods
We conducted a multicenter retrospective cohort study using the OMOP-CDM

Results
A total of 403 patients were analyzed (88 elderly, 315 non-elderly). PPCs occurred more frequently in elderly patients (10.23% vs. 2.86%, Table 1). Elderly patients had a higher risk of PPCs (OR 3.87, 95% CI 1.49–10.08). The pooled adjusted OR was 4.69 (95% CI 1.84–11.96, Table 1). Respiratory failure was the predominant component. Sensitivity analyses showed a consistent direction of association

Conclusion
Among surgical patients using GLP-1 receptor agonists, older age was associated with a higher incidence of PPCs, particularly respiratory failure. These findings may reflect age-related physiological vulnerability and should be interpreted cautiously given the limited number of events.

AP-19-8 (2026-0027)

Figure & Table

Figure & Table 1.

Table 1. Incidence of postoperative pulmonary complications according to age group

Outcome	Elderly (n=88)	Young (n=315)	OR (95% CI)	p-value
Any pulmonary complication	10.23	2.86	3.873 (1.488 – 10.081)	0.003
Pneumonia	0	0.32	-	-
Pleural effusion	1.14	0	-	-
Respiratory failure	9.09	2.54	3.838 (1.397 – 10.540)	0.005

Values are presented as percentage unless otherwise indicated. Odds ratios (ORs) and 95% confidence intervals (CIs) were estimated using univariable logistic regression analysis. Postoperative pulmonary complications were defined as events occurring within 30 days after surgery and identified using diagnostic codes (see Supplementary Table S6). OR, odds ratio; CI, confidence interval.

Figure & Table 2.

Table 2. Association between age group and postoperative pulmonary complications across hospitals

Hospital	Crude		Adjusted	
	OR (95% CI)	p-value	OR (95% CI)	p-value
A	15.13 (3.38–99.61)	<0.010	5.17 (0.70–38.20)	0.113
B	8.80 (1.01–76.86)	0.050	10.51 (1.00–105.88)	0.052
C	2.35 (0.14–39.17)	0.550	6.48 (0.88–47.88)	0.067
D	1.00 (0.16–6.44)	1.000	1.38 (0.12–15.39)	0.850
E	3.40 (0.20–57.67)	0.400	2.24 (0.25–20.22)	0.550
Pooled	3.45 (1.32–8.99)	0.011	4.69 (1.84–11.96)	0.001

Crude odds ratios were estimated using univariable logistic regression analysis. Adjusted odds ratios were estimated using multivariable logistic regression analysis including age group (elderly vs. young), sex, body mass index, Charlson Comorbidity Index, anesthesia type (general vs. regional), procedure type (open vs. non-open/other), and sugammadex use. The pooled odds ratio was calculated using a fixed-effect model with inverse-variance weighting. Statistical significance was assessed using two-sided tests, and a p-value < 0.05 was considered statistically significant. OR, odds ratio; CI, confidence interval.

Presentation

Abstract Presentation 20

Date / Time	Nov 6 (Fri), 13:30-15:00
Room	Room B *(Paradise City)*
Language	English
Chair(s)	Seokyoung Song *(Daegu Catholic University, Republic of Korea)* Seokyung Shin *(Yonsei University, Republic of Korea)*

AP-20-1 2026-0573

Frailty Index as a Risk Stratification Tool for Intraoperative Hypotension and Postoperative Acute Kidney Injury in the Elderly Population

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AP-20-2 2026-0358

Prognostic Nutritional Index Improves Mortality Risk Stratification Beyond ASA Classification in Older Patients Undergoing Noncardiac Surgery

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AP-20-3 2026-0350

Surgical Inflammatory Response and the Residual Gastric Volume in Older Adults Undergoing Staged-Bilateral Total Knee Arthroplasty: A Prospective Observational Study

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AP-20-4 2026-0332

Age-Related Heterogeneity in Postoperative Delirium With Remimazolam Versus Volatile Anesthesia After Major Vascular Surgery

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AP-20-5 2026-0348

Preoperative Modifiable Risk Factors for Postoperative Outcomes after Lung Cancer Surgery: A Retrospective Cohort Study

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AP-20-6 2026-0340

Association between the Preoperative Advanced Lung Cancer Inflammation Index and Postoperative Delirium in Older Adults Undergoing Hip Surgery

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AP-20-7 2026-0158

Acute Leukocyte Telomere Dynamics and Oxidative Stress as Biomarkers of Early Cognitive Resilience Following Major Orthopedic Surgery: A Prospective Observational Study

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Frailty Index as a Risk Stratification Tool for Intraoperative Hypotension and Postoperative Acute Kidney Injury in the Elderly Population

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Background
Frailty and intraoperative hypotension (IOH) are associated with adverse postoperative outcomes, including acute kidney injury (AKI). Although frailty has been associated with greater IOH exposure, it remains unclear whether frail patients are more vulnerable to IOH-associated AKI. This study evaluated FI-Lab-defined frailty in relation to IOH burden and postoperative AKI.

Methods
Data from patients aged ≥65 yr undergoing noncardiac surgery in the Asan Medical Center (AMC) and INSPIRE cohorts were retrospectively analyzed. The laboratory-based frailty index (FI-Lab), a frailty measure derived from routine laboratory and vital-sign data, was calculated as the number of deficits divided by the number of measured variables, with patients categorized as robust (<0.25), prefrail (0.25–0.40), or frail (>0.40). IOH was defined as mean arterial pressure <65 mm Hg. IOH burden was quantified using occurrence, rate, duration, time-weighted duration (TWD), area under the threshold (AUC), and time-weighted average depth (TWA depth). Associations of frailty and IOH burden with postoperative AKI, including adjusted absolute risk differences across frailty categories, were evaluated using multivariable regression.

Results
The analysis included 39,750 patients from AMC and 19,769 from INSPIRE. In both cohorts, higher FI-Lab-defined frailty was associated with greater IOH burden. Observed AKI rates increased across frailty levels and IOH duration categories (Figure 1). In multivariable analyses, both FI-Lab-defined frailty and IOH burden remained independently associated with postoperative AKI. Compared with robust patients, frail patients had higher odds of AKI in AMC (OR 2.72, 95% CI 2.41–3.07, P<0.001) and INSPIRE (OR 2.37, 95% CI 1.98–2.84, P<0.001). Similarly, any IOH was associated with higher odds of AKI in AMC (OR 1.44, 95% CI 1.30–1.59, P<0.001) and INSPIRE (OR 1.32, 95% CI 1.13–1.53, P<0.001). IOH was associated with a greater absolute increase in AKI risk at higher levels of frailty (Figure 2). For any IOH versus no IOH, the adjusted risk differences in AMC were 0.96, 2.70, and 5.90 percentage points for robust, prefrail, and frail patients, respectively. In INSPIRE, the corresponding risk differences were 0.79, 3.10, and 3.34 percentage points. Similar patterns were observed for other IOH burden measures.

Conclusion
Higher FI-Lab-defined frailty was associated with greater IOH burden and increased AKI risk. The absolute increase in AKI risk associated with IOH was greater at higher levels of frailty, suggesting greater vulnerability to IOH-associated AKI in frail patients. These findings support preoperative identification and optimization of frail patients and individualized hemodynamic strategies to minimize IOH.

Figure & Table

Figure & Table 1.

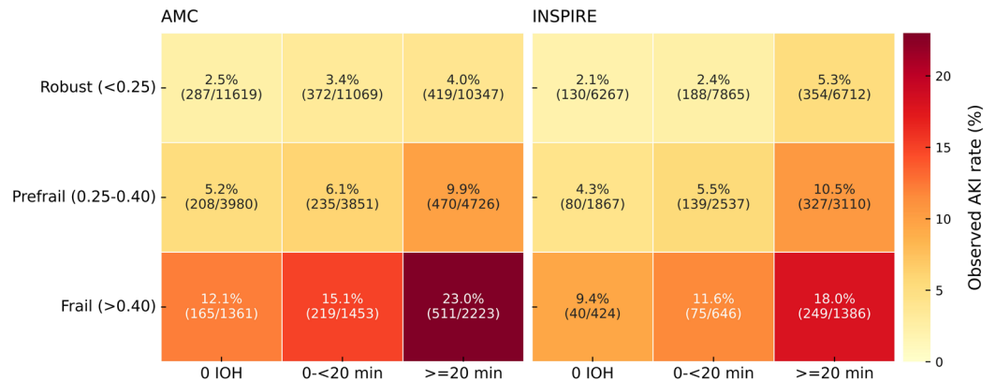
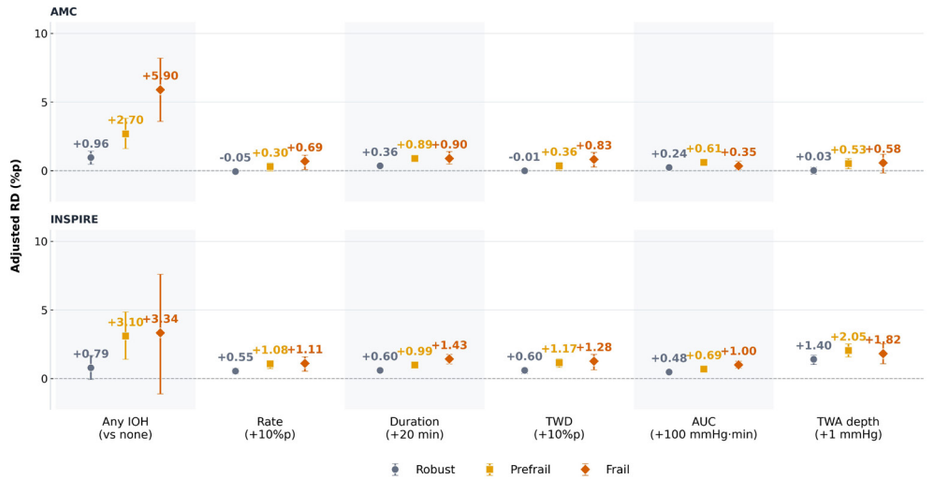


Figure & Table 2.



AP-20-2 (2026-0358)

Prognostic Nutritional Index Improves Mortality Risk Stratification Beyond ASA Classification in Older Patients Undergoing Noncardiac Surgery

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Background
Elderly patients undergoing non-cardiac surgery face substantial risk of postoperative ICU admission and mortality. The American Society of Anesthesiologists (ASA) physical status classification is the standard preoperative risk tool, but its subjective, categorical nature limits precision. The Prognostic Nutritional Index (PNI), calculated from serum albumin concentration and total lymphocyte count, has been linked to postoperative complications, but whether it provides prognostic information beyond ASA classification remains unclear.

Methods
We conducted a retrospective cohort study using the INSPIRE dataset, a publicly available perioperative database. Patients aged ≥65 years undergoing non-cardiac surgery under general anesthesia were included (n=19,385). Discrimination (AUC) for ICU admission and in-hospital mortality was compared among ASA-alone, PNI-alone, and ASA+PNI models using DeLong's test, integrated discrimination improvement (IDI), and continuous net reclassification improvement (NRI). PNI tertile-stratified mortality was examined within each ASA class.

Results
Among 19,385 patients (median age 70 years), 3,500 (18%) were admitted to ICU and 272 (1%) died in-hospital. PNI alone showed good discrimination for mortality (AUC 0.774), exceeding ASA classification alone (AUC 0.654). Combining PNI with ASA further improved discrimination (AUC 0.784); adding PNI to an ASA-based model markedly improved discrimination (ΔAUC=0.130, p<0.001), whereas adding ASA to a PNI-based model showed only a borderline AUC improvement (ΔAUC=0.011, p=0.054) but significant reclassification improvement (IDI=0.008, p<0.001; NRI=0.40, p=0.013). Similar patterns were observed for ICU admission (AUC: ASA 0.608, PNI 0.639, combined 0.675; both additions significant, p<0.001). Within each ASA class, PNI further stratified mortality risk: among ASA 3 patients, mortality ranged from 1% (highest PNI tertile) to 7% (lowest PNI tertile, p<0.001); a similar gradient was seen in ASA 2 (<1% vs 2%, p<0.001).

Conclusion
PNI independently predicts postoperative ICU admission and mortality and provides prognostic information beyond ASA classification alone, including meaningful risk stratification within individual ASA classes. Incorporating this simple, low-cost nutritional marker into standard preoperative assessment may improve perioperative risk stratification in elderly surgical patients.

AP-20-2 (2026-0358)

Figure & Table

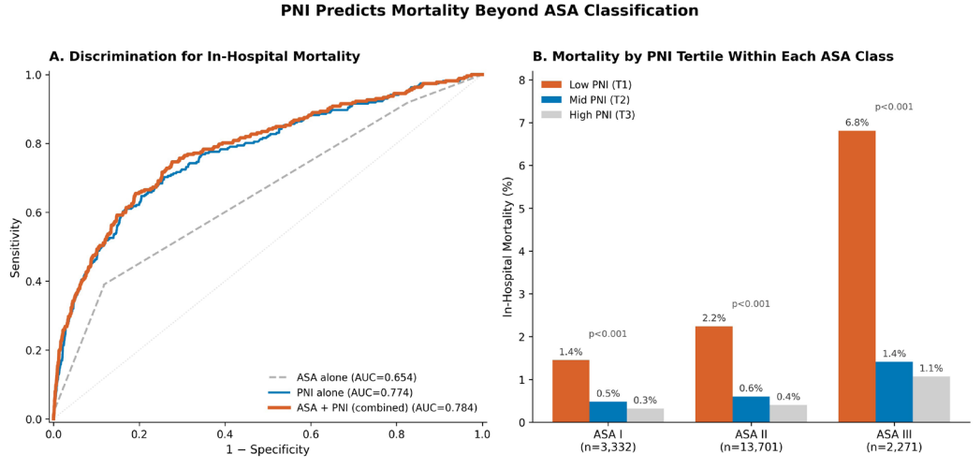
Figure & Table 1.

Table 1. Baseline characteristics of elderly patients undergoing non-cardiac surgery (N = 19,385)

	Value (N = 19,385)
Age, years, median (IQR)	70.0 (65.0–75.0)
Male sex, n (%)	9,921 (51)
BMI, kg/m2, median (IQR)	23.9 (21.5–26.0)
Anesthesia duration, min, median (IQR)	140 (85–230)
ASA physical status, n (%)	
I	3,332 (17)
II	13,701 (71)
III	2,271 (12)
IV–VI	81 (<1)
Hemoglobin, g/dL, median (IQR)	12.9 (11.6–14.2)
Albumin, g/dL, median (IQR)	4.0 (3.8–4.3)
PNI, median (IQR)	40.0 (38.0–43.0)
Creatinine, mg/dL, median (IQR)	0.8 (0.7–1.0)
Anemia (WHO criteria), n (%)	7,622 (39)
ICU admission, n (%)	3,500 (18)
In-hospital death, n (%)	272 (1)

Abbreviations: BMI, body mass index; ASA, American Society of Anesthesiologists; PNI, prognostic nutritional index; ICU, intensive care unit; IQR, interquartile range; WHO, World Health Organization.

Figure & Table 2.



A. DeLong's test: PNI+ASA vs ASA alone, p<0.001; PNI+ASA vs PNI alone, p=0.054 (IDI=0.008, p<0.001; NRI=0.40, p=0.013).
B. Chi-square trend test within each ASA class.
ASA, American Society of Anesthesiologists; PNI, prognostic nutritional index; AUC, area under the curve.

ABSTRACT
Competition
Presentation
E-Poster

Surgical Inflammatory Response and the Residual Gastric Volume in Older Adults Undergoing Staged-Bilateral Total Knee Arthroplasty: A Prospective Observational Study

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Background
Residual gastric volume (RGV) is a key determinant of aspiration risk, yet fasting duration alone poorly predicts RGV, particularly in elderly patients with delayed gastric emptying. Staged bilateral total knee arthroplasty (TKA) provides a model of cumulative perioperative inflammation and stress. We hypothesized that surgical inflammatory responses contribute to increased RGV before the second surgery compared with the first one.

Methods
This prospective observational study enrolled patients aged ≥65 years undergoing staged bilateral total knee arthroplasty. Preoperative RGV was estimated using gastric ultrasonography, and the inflammatory cytokines interleukin (IL)-1β, IL-6, IL-10, and tumor necrosis factor-α were measured at both surgical stages. Hospital Anxiety and Depression Scale for Koreans (HADS-K) and preoperative pain scores were also assessed. The primary outcomes were the preoperative RGVs and cytokine levels and their inter-stage changes (ΔRGV and Δcytokines), and their associations were evaluated using correlation and linear regression analyses. Patients were stratified into an increased RGV and a non-increased RGV subgroups, and between-subgroup comparisons of variables were conducted.

Results
Of 52 enrolled patients, 47 were included in the final analysis. Preoperative fasting duration, HADS-K scores, and RGV were similar between the first and second surgeries, while only IL-6 increased significantly at the second stage. ΔIL-6 showed a strong positive correlation with ΔRGV (B = 3.46, 95% CI 2.40 to 4.51, standardized β = 0.70, P <0.001; Fig. 1), whereas other cytokines did not. Increased RGV group (61.7%) demonstrated significantly greater Δ IL-6 compared with the non-increased RGV group (Table 1), with no differences in baseline characteristics between subgroups.

Conclusion
In elderly patients undergoing staged bilateral TKA, increased IL-6 was the factor associated with increased RGV before the second surgery, highlighting the surgical inflammatory response as a key contributor and supporting the use of preoperative gastric ultrasonography in high-risk patients.

AP-20-3 (2026-0350)

Figure & Table

Figure & Table 1.

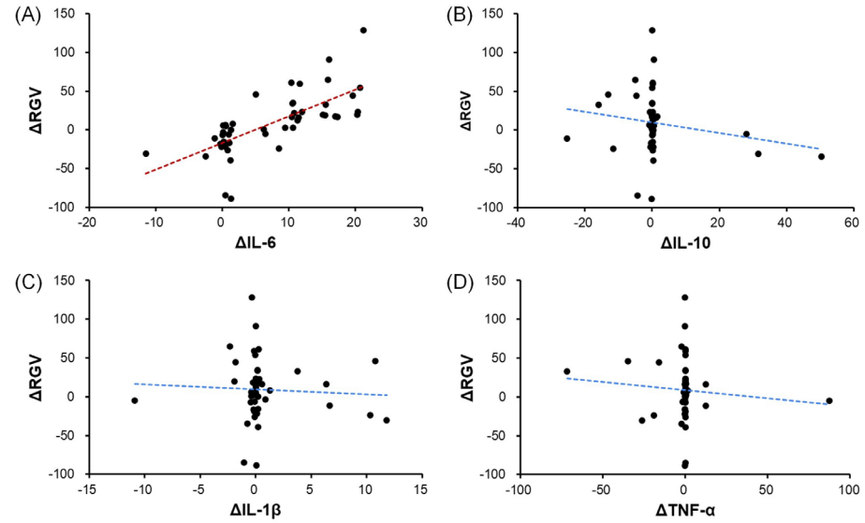


Figure & Table 2.

Table 1. Comparison between the increased vs. the non-increased RGV groups

	Increased RGV (n = 29)	Non-increased RGV (n = 18)	P value
IL-6 (pg/ml)			
1st TKA	14.5 ± 8.2	19.0 ± 3.3	0.024
2nd TKA	26.5 ± 10.3	19.4 ± 3.6	0.016
ΔIL-6	12.0 ± 6.2	0.4 ± 3.9	< 0.001
IL-10 (pg/ml)			
1st TKA	23.6 ± 12.6	27.7 ± 13.7	0.229
2nd TKA	22.4 ± 9.1	31.5 ± 25.4	0.216
ΔIL-10	-1.2 ± 4.0	3.8 ± 16.9	0.437
IL-1β (pg/ml)			
1st TKA	15.0 ± 2.9	15.8 ± 5.2	0.599
2nd TKA	15.6 ± 3.9	16.7 ± 6.2	0.835
ΔIL-1β	0.5 ± 2.5	0.9 ± 4.8	0.793
TNF-α (pg/ml)			
1st TKA	25.0 ± 17.5	23.5 ± 8.1	0.196
2nd TKA	21.2 ± 5.8	26.3 ± 25.2	0.818
ΔTNF-α	-3.7 ± 15.0	2.8 ± 22.6	0.279

Values are mean ± SD or number (%).
ASA, American Society of Anesthesiologists physical status; BMI, body mass index; HADS, Hospital anxiety and depression scale; IL, interleukin; NRS, numeric rating scale; RGV, residual gastric volume; TNF, tumor necrosis factor

ABSTRACT
Competition
Presentation
E-Poster

Age-Related Heterogeneity in Postoperative Delirium With Remimazolam Versus Volatile Anesthesia After Major Vascular Surgery

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Background
Postoperative delirium is common after major vascular surgery, but analyses of anesthetic technique typically estimate a single average effect and may overlook clinically important heterogeneity with advancing age. We evaluated whether the association between remimazolam and postoperative delirium varied across the older age spectrum.

Methods
This single-center retrospective cohort included 162 patients aged ≥60 years who underwent bypass surgery, open abdominal aortic aneurysm repair, endarterectomy, or thrombectomy between January 2024 and May 2026. Anesthesia was maintained with remimazolam or volatile anesthetics (desflurane or sevoflurane). Postoperative delirium was defined as ≥1 positive CAM-ICU assessment through postoperative day 2, based on scheduled assessments three times daily and additional symptom-triggered evaluations. Multivariable logistic regression included anesthetic technique, continuous age, their interaction, sex, non-age-adjusted Charlson Comorbidity Index, ASA physical status ≥4, and surgical category. Firth bias-reduced regression was performed as a sensitivity analysis. Age groups were used only for descriptive presentation.

Results
Postoperative delirium occurred in 37 patients (22.8%). Incidence was 15.9% with remimazolam (10/63) and 27.3% with volatile anesthesia (27/99; unadjusted odds ratio [OR] 0.50, 95% confidence interval [CI] 0.22–1.13; P=0.124). There was evidence of age-related heterogeneity in the remimazolam–delirium association (interaction OR 0.21 per 10-year increase, 95% CI 0.05–0.89; P=0.034). The interaction remained directionally consistent in Firth regression (OR 0.24, 95% CI 0.06–0.95; P=0.042). Observed delirium rates with volatile anesthesia versus remimazolam were 4.2% versus 5.3% at 60–69 years, 26.9% versus 21.9% at 70–79 years, and 52.2% versus 16.7% at ≥80 years.

Conclusion
Although remimazolam was not associated with a definitive overall reduction in postoperative delirium, its association with delirium appeared to vary across the older age spectrum, becoming increasingly favorable with advancing age. These exploratory findings suggest that anesthetic effects may not be uniform among older adults and support prospective age-stratified evaluation in major vascular surgery.

Figure & Table

Figure & Table 1.

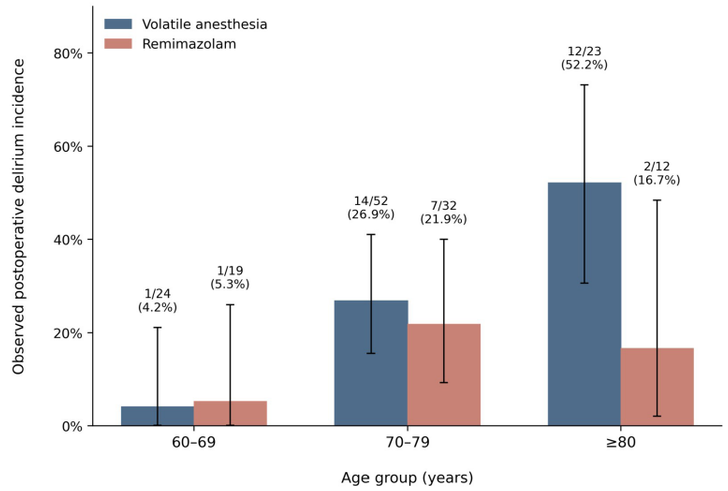


Figure 1. Unadjusted postoperative delirium incidence by age group and anesthetic technique. Values above the bars indicate events/total patients and corresponding percentages; error bars represent exact 95% confidence intervals. Volatile anesthesia included desflurane and sevoflurane. Age groups were used for descriptive visualization only, whereas age was analyzed as a continuous variable in the primary model.

Figure & Table 2.

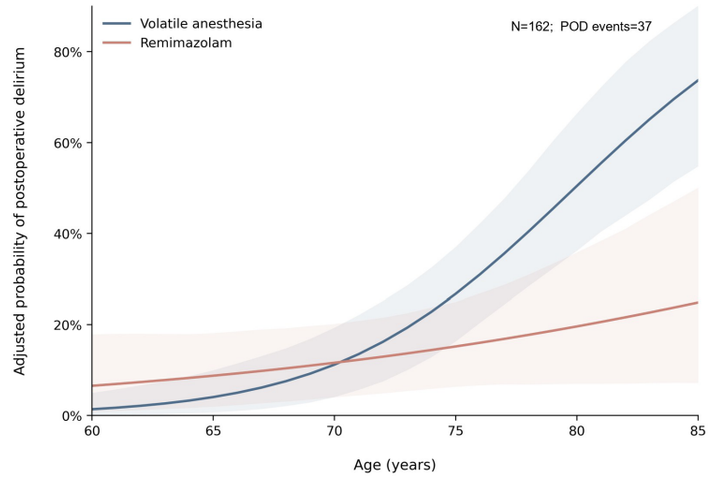


Figure 2. Adjusted marginal probabilities of postoperative delirium across age according to anesthetic technique. Shaded areas represent 95% bootstrap confidence intervals. Estimates were derived from a multivariable logistic regression model including anesthetic technique, continuous age, the age-by-anesthetic interaction, sex, non-age-adjusted Charlson Comorbidity Index, ASA physical status ≥4, and surgical category. The age-by-anesthetic interaction odds ratio was 0.21 per 10-year increase in age (95% CI, 0.05–0.89; P=0.034).

Preoperative Modifiable Risk Factors for Postoperative Outcomes after Lung Cancer Surgery: A Retrospective Cohort Study

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Background
Postoperative complications after lung cancer surgery are influenced by non-modifiable factors and by modifiable factors (nutrition, physical fitness, anemia) that are targets of prehabilitation. This study had two primary aims: to identify modifiable preoperative factors associated with postoperative 30-day complications, and to compare postoperative 30-day complication rates between patients referred to a prehabilitation program and those not referred.

Methods
Among 1,139 adult patients eligible after lung cancer surgery (2023-2025), data collection is ongoing; 389 were collected to date, of whom 10 were excluded, leaving 379 for this interim analysis. Patients were divided by whether they underwent prehabilitation assessment (cardiopulmonary exercise testing, body composition, hand grip strength [HGS]): referred (n=224) and non-referred (n=155). Within the referred group, multivariable analysis evaluated preoperative predictors of 30-day complications, including VO2max, fat-free mass index (FFMI), HGS, and BMI. Postoperative 30-day complication and readmission rates were compared between groups using logistic regression adjusted for age, sex, and Charlson's comorbidity index (CCI).

Results
Median age was 68 years (IQR 62-74); 232 (61.2%) were male. Postoperative 30-day complications occurred in 118 patients (31.1%). In the referred group, higher preoperative VO2max (adjusted odds ratio [aOR] 0.90, 95% CI 0.83-0.98, p=0.017) and higher BMI (aOR 0.81, 95% CI 0.67-0.99, p=0.039) were independently associated with fewer postoperative 30-day complications, whereas FFMI and HGS were not (Figure). The referred group was higher-risk at baseline (higher CCI, more non-adenocarcinoma, more advanced stage, greater resection extent). After adjustment, referral was associated with fewer postoperative 30-day complications (aOR 0.53, 95% CI 0.32-0.88, p=0.014) and lower readmission (aOR 0.26, 95% CI 0.10-0.69, p=0.007) (Table).

Conclusion
Preoperative cardiopulmonary fitness and nutritional status, reflected by higher VO2max and BMI, were independently associated with fewer postoperative 30-day complications. Despite a higher-risk baseline profile, patients referred to prehabilitation had significantly fewer postoperative 30-day complications and readmissions after adjustment. These findings highlight preoperative fitness and nutrition as key modifiable targets for structured prehabilitation.

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Figure & Table

Figure & Table 1.

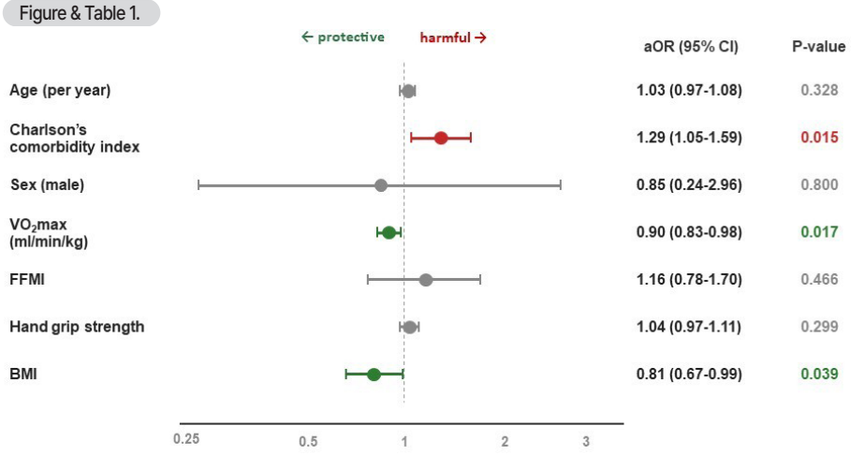


Figure & Table 2.

Table 1. Baseline characteristics and postoperative outcomes

Variable	Referred (n=224)	Non-referred (n=155)	P-value	Adjusted aOR (95% CI)	P-value
Preoperative characteristics					
Age, years	68.3±8.5	66.3±9.6	0.103		
Male	139 (62.1%)	93 (60.0%)	0.748		
BMI, kg/m2	24.3±3.1	24.3±3.1	0.971		
Charlson index	5.2±1.9	4.6±1.6	**0.005***		
ASA class	2.3±0.5	2.2±0.4	0.082		
Hemoglobin, g/dL	13.1±1.5	13.0±1.4	0.177		
Albumin, g/dL	4.4±0.3	4.3±0.4	0.163		
DLCO, %pred	85.8±17.5	88.8±16.4	0.235		
Current smoker	45 (20.1%)	34 (21.9%)	0.700		
Non-adenocarcinoma	59 (26.3%)	23 (14.8%)	**0.008***		
Sublobar resection	32 (14.3%)	37 (23.9%)	**0.021***		
Open/robotic approach	35 (15.6%)	19 (12.3%)	0.375		
Stage III-IV	44 (19.6%)	18 (11.6%)	**0.047***		
Postoperative outcomes					
30-day complication	29.9%	32.9%	0.573	0.53 (0.32-0.88)	**0.014***
Major complication	14.3%	11.3%	0.437	0.78 (0.39-1.55)	0.483
Readmission	3.4%	11.8%	0.003	0.26 (0.10-0.69)	**0.007***

Values are mean ± SD or n (%). Adjusted odds ratios (aOR) are from multivariable logistic regression adjusted for age, Charlson comorbidity index, ASA class, histology (adenocarcinoma vs non-adenocarcinoma), cancer stage, and resection extent. *P values indicate statistical significance (P<0.05). All variance inflation factors were <3. aOR, adjusted odds ratio; CI, confidence interval; DLCO, diffusing capacity of the lung for carbon monoxide.

ABSTRACT
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Association between the Preoperative Advanced Lung Cancer Inflammation Index and Postoperative Delirium in Older Adults Undergoing Hip Surgery

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Background

Postoperative delirium (POD) is a clinically important complication in older patients undergoing hip surgery. POD is associated with delayed recovery, functional decline, prolonged rehabilitation and increased mortality. Malnutrition and systemic inflammation are recognized as risk factors for POD. The advanced lung cancer inflammation index (ALI), calculated from body mass index (BMI), albumin, and neutrophil-to-lymphocyte ratio (NLR), reflects both inflammatory and nutritional status. In this study, we evaluated the association between preoperative ALI and POD and the ability of ALI to identify high-risk patients undergoing hip surgery.

Methods

This retrospective cohort study included 342 adults aged 65 years or older who underwent hip surgery. The preoperative ALI was calculated as BMI × serum albumin divided by NLR. POD was defined according to documented Confusion Assessment Method evaluations, psychiatric consultation records, or clinician diagnoses documented in the electronic medical records. Receiver operating characteristic curve analysis was performed to assess the discriminative ability of ALI for POD, and the optimal cutoff value was determined using the Youden index. POD incidence was compared between low- and high-ALI groups and across ALI quartiles. Univariable and multivariable logistic regression analyses were performed to evaluate the associations between ALI and POD, with ALI modeled as both a binary variable (based on the optimal-cutoff) and a continuous variable (per 10-unit decrease). Multivariable analyses were adjusted for age, sex, American Society of Anesthesiologists physical status ≥III, preoperative cognitive impairment, and emergency surgery.

Results

Among 342 patients, 68 (19.9%) developed POD. The area under the curve was 0.689 (95% CI 0.624–0.748), and the optimal cutoff was 27.51 (sensitivity 85.3%, specificity 50.7%) (Fig. 1). POD occurred in 30.1% of patients in the low-ALI group (ALI≤27.51), compared with 6.7% of those in the high-ALI group (ALI>27.51). The incidences of POD across ALI quartiles were 33.7%, 22.4%, 20.0%, and 3.5% respectively, showing a progressive decrease in POD incidence with increasing ALI (Fig. 2). Low-ALI group was associated with higher odds of POD (crude OR, 5.97; 95% CI, 2.93–12.17; p<0.001; adjusted OR, 2.18; 95% CI, 0.96–4.95; p=0.063). Each 10-unit decrease in ALI showed a similar association (crude OR=1.48; 95% CI, 1.24–1.76; p<0.001; adjusted OR=1.17; 95% CI, 0.97–1.40; p=0.105).

Conclusion

Lower preoperative ALI was associated with a higher incidence of POD in older adults undergoing hip surgery. As an easily derived index, preoperative ALI may be a useful predictive index for identifying patients at high risk of POD.

Figure & Table

Figure & Table 1.

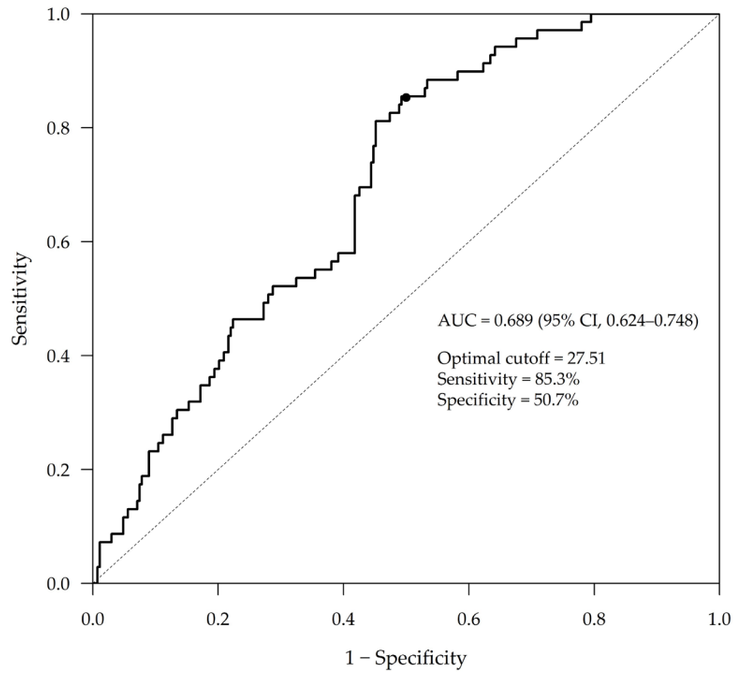
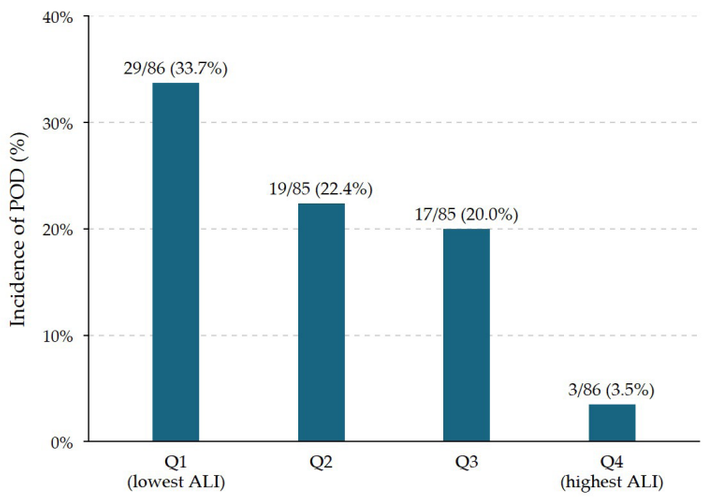


Figure & Table 2.



AP-20-7 (2026-0158)

Acute Leukocyte Telomere Dynamics and Oxidative Stress as Biomarkers of Early Cognitive Resilience Following Major Orthopedic Surgery: A Prospective Observational Study

Puneet Khanna[1*], Deepika Sharma[1], Ankita Maheshwari[1], Ritika Tejwani[1]

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Background
Postoperative delirium (POD) and delayed neurocognitive recovery (DNR) are common complications following major surgery in older adults. While leukocyte telomere length (TL) is a recognized biomarker of biological aging, its acute perioperative dynamics and relationship with postoperative cognitive outcomes remain poorly understood (1, 2). This study investigated perioperative changes in leukocyte TL, oxidative stress, and neurotrophic biomarkers and their association with early cognitive recovery after major orthopedic surgery.

Methods
In this prospective observational study, 100 patients aged ≥60 years undergoing major orthopedic surgery under general anesthesia were enrolled. Cognitive function was assessed preoperatively and postoperatively using validated neuropsychological tests, while POD was evaluated using the Delirium Rating Scale-Revised-98. Peripheral blood samples collected before and after surgery were analyzed for relative leukocyte TL by quantitative PCR, serum malondialdehyde (MDA), and brain-derived neurotrophic factor (BDNF) using ELISA.

Results
The incidences of DNR and POD were 21% and 26%, respectively. Relative leukocyte TL increased significantly after surgery ($p=0.0056$), whereas MDA levels decreased significantly ($p<0.0001$), indicating reduced oxidative stress. Patients without DNR demonstrated a significant postoperative increase in TL ($p=0.0035$), whereas those with DNR showed no significant telomere change ($p=0.6365$). Similarly, TL increased significantly only in patients without POD ($p=0.0117$). BDNF levels remained unchanged across groups. Although telomere dynamics differed between cognitively resilient and impaired patients, multivariable logistic regression did not identify TL as an independent predictor of DNR or POD.

Conclusion
Acute postoperative increases in leukocyte telomere length may reflect adaptive immune cell mobilization associated with cognitive resilience after surgery. Failure to mount this response was associated with early postoperative cognitive impairment, suggesting that perioperative telomere dynamics may serve as a novel biomarker of acute physiological adaptation rather than chronological aging.

Presentation

Abstract Presentation 21

Date / Time	Nov 6 (Fri), 13:30-15:00
Room	Room C *(Paradise City)*
Language	English
Chair(s)	Hojin Lee *(Seoul National University, Republic of Korea)* Jae Hun Kim *(Konkuk University, Republic of Korea)*

AP-21-1
2026-0526

Age-Related Differences in the Modeled Minimum Fentanyl Effect-Site Concentration During 48-Hour Postoperative Intravenous Patient-Controlled Analgesia: A Retrospective Observational Study

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AP-21-2
2026-0407

Spiritual Support for Pain Management in Medicaid Facilities: A Cost-Effectiveness Analysis

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2. Internal Medicine, Kirk Kerkorian School of Medicine at UNLV, USA
3. Medicine, Harvard Medical School, USA

AP-21-3
2026-0085

Opioid-Free Multimodal Analgesia Versus Fentanyl for Prevention of Emergence Agitation in Children Undergoing Strabismus Surgery: A Randomized Double-Blind Non-Inferiority Trial

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AP-21-5
2026-0558

Therapeutic Effectiveness of Epidural Blood Patch in Brain Sagging Syndrome

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AP-21-6
2026-0024

Neck Pain after Gastroenteritis:Spontaneous Intracranial Hypotension: Case Report and Review

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AP-21-7
2026-0143

Ultrasound-Guided Bilateral Glossopharyngeal Nerve Pulsed Radiofrequency for Refractory Neuropathic Orofacial Pain: A Case Report

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AP-21-8
2026-0497

Bilateral Continuous Ultrasound-Guided Erector Spinae Plane Block for Postoperative Analgesia After Emergency Laparotomy in an Adolescent With Late-Presenting Hirschsprung Disease: A Case Report

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AP-21-1 (2026-0526)

Age-Related Differences in the Modeled Minimum Fentanyl Effect-Site Concentration During 48-Hour Postoperative Intravenous Patient-Controlled Analgesia: A Retrospective Observational Study

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Background
Postoperative fentanyl requirements during intravenous patient-controlled analgesia (IV-PCA) are known to vary with age. The persistence of age-related differences in modeled fentanyl effect-site concentrations during the first 48 postoperative hours remains unclear. In this study, we examined the association between age and the modeled minimum fentanyl effect-site concentration (Ce_min) during this period.

Methods
This single-center retrospective observational study included adult patients who received postoperative fentanyl IV-PCA after laparoscopic or robot-assisted colorectal surgery. All procedures were performed under general anesthesia between July 2023 and March 2026. We excluded patients with missing data, non-fentanyl opioid use, or open or combined surgery. Fentanyl effect-site concentration (Ce) was estimated from the complete perioperative dosing history, including intraoperative administration and postoperative basal and patient-controlled bolus doses, using the Shafer population pharmacokinetic model. The minimum predicted Ce within each prespecified postoperative time window from 0–2 through 44–48 h was defined as Ce_min. The primary outcome was the association between age and the Ce_min trajectory during the first 48 postoperative h. Trajectories were analyzed using a linear mixed-effects model including age per 10-year increase, time interval, their interaction, and a patient-specific random intercept. Pain intensity at rest and with movement was assessed using an 11-point numerical rating scale (NRS) during postoperative rounds conducted by anesthesiologists on postoperative days 1 and 2 and analyzed using an ordinal logistic generalized estimating equations model.

Results
Of 230 patients identified, 64 were excluded because of missing data (n=27), use of opioids other than fentanyl (n=16), or open or combined surgery (n=21), leaving 166 patients and 1,852 Ce_min measurements. The age-by-time interaction was not significant (P=0.894). In the reduced model, each 10-year increase in age was associated with a lower Ce_min across the 48-h period (estimated difference, −0.032 ng/mL; 95% confidence interval [CI], −0.048 to −0.016; P<0.001). During the 44–48-h interval, with data available in 52 patients, each 10-year increase in age was associated with a 0.030 ng/mL lower Ce_min (95% CI, 0.006–0.054 ng/mL lower; P=0.014). NRS data were available for 157 patients on postoperative day 1 and 87 on postoperative day 2. Age was not significantly associated with the odds of higher NRS scores (odds ratio per 10-year increase, 0.87; 95% CI, 0.74–1.03; P=0.096).

Conclusion
Older age was associated with a lower modeled minimum fentanyl effect-site concentration during postoperative IV-PCA. This association did not significantly vary throughout the first 48 postoperative h. Lower modeled fentanyl exposure in older patients was not accompanied by higher postoperative pain scores.

AP-21-2 (2026-0407)

Spiritual Support for Pain Management in Medicaid Facilities: A Cost-Effectiveness Analysis

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2. Internal Medicine, Kirk Kerkorian School of Medicine at UNLV, USA
3. Medicine, Harvard Medical School, USA

Background
Pain management in Medicaid nursing facilities presents a significant challenge due to a heavy reliance on continuous pharmacologic interventions, particularly opioids. For residents enrolled in the Behaviorally Complex Care Program (BCCP), structured spiritual support has emerged as a promising non-pharmacologic approach to alleviate pain-related distress and reduce the burden of opioid dependence. However, the economic implications of this approach remain underexplored. Therefore, the objective of this study is to evaluate the cost-effectiveness of incorporating spiritual support care for BCCP nursing home residents from the U.S. Medicaid payer perspective.

Methods
A Markov state-transition model was developed to simulate the clinical and economic trajectories of a cohort of long-term care residents qualifying for the BCCP over an 84-month analytic horizon. The model utilized monthly cycles to capture transitions between various health states defined by pain severity and opioid dependence. The intervention group received a structured spiritual support program consisting of two hours per week of dedicated counseling, which was compared against a conventional care strategy standard to Medicaid facilities. The primary effectiveness measure was defined as quality-adjusted life months (QALMs) gained. Costs were calculated from the U.S. Medicaid payer perspective, incorporating intervention implementation, routine care, and opioid-related pharmacologic expenses. Both costs and outcomes were discounted at an annual rate of 3%, and the robustness of the model was tested using deterministic and probabilistic sensitivity analyses.

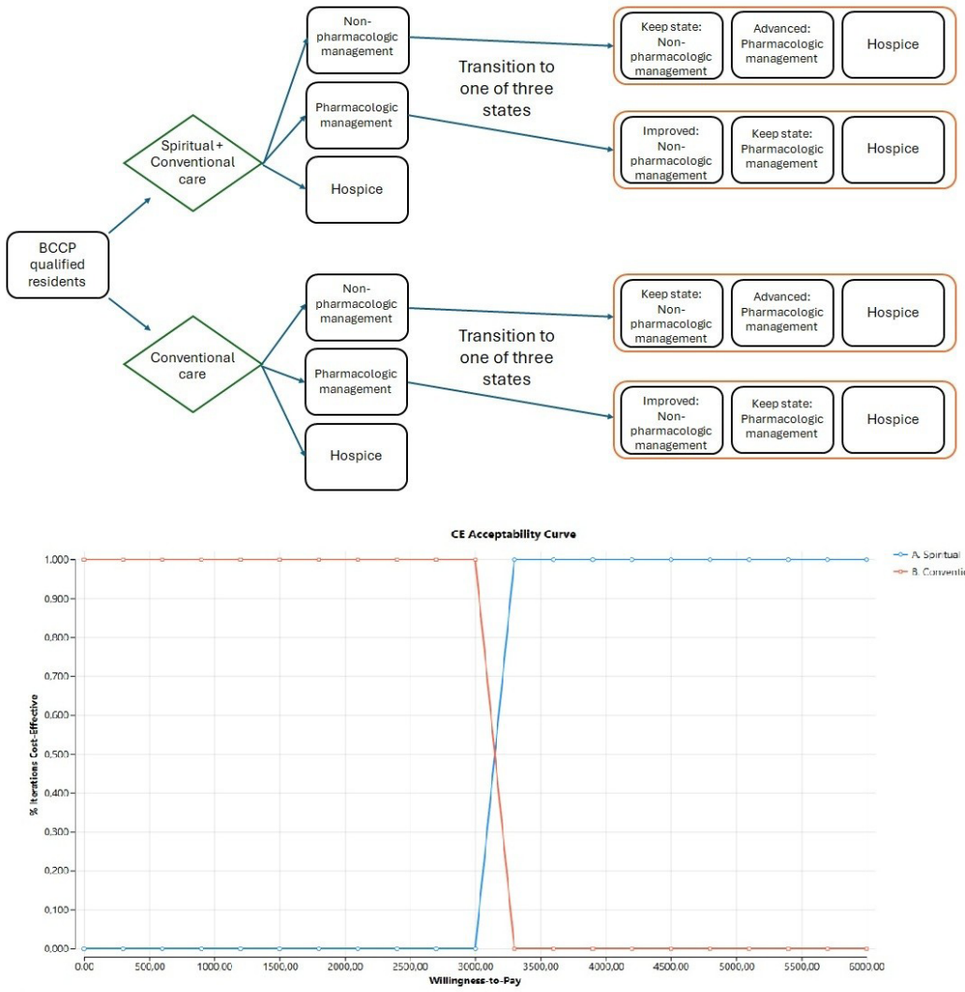
Results
Driven by a reduced probability of transitioning to continuous opioid use, spiritual support intervention was cost-effective compared to conventional care, yielding an incremental effectiveness of 2.62 QALMs and an additional cost of $8,624. This resulted in an incremental cost-effectiveness ratio (ICER) of $3,289 per QALM gained and an incremental net monetary benefit of $2,302. Both one-way and probabilistic sensitivity analyses confirmed the robust economic stability of the model, demonstrating that the spiritual support intervention remained the optimal, cost-effective strategy in the vast majority of simulations at the reference willingness-to-pay threshold.

Conclusion
Integrated structured spiritual support is a cost-effective strategy that enhances the operational and financial sustainability of long-term care facilities under U.S. Medicaid programs.

AP-21-2 (2026-0407)

Figure & Table

Figure & Table 1.



AP-21-2 (2026-0407)

Figure & Table

Figure & Table 2.

Table. Cost-effectiveness analysis results by spiritual support and conventional care (84-month horizon)

Strategy	Cost (US$)	Incremental cost (US$)	Effectiveness ([1]QALM)	Incremental effectiveness (QALM)	[2]ICER (US$/QALM)	Incremental [3]NMB
Conventional	382,338		55.24			
Spiritual support	390,962	8,624	57.86	2.62	3,289	2,302

Abbreviations: [1]QALM, quality-adjusted life month; [2] ICER, incremental cost-effectiveness ratio; [3]NMB, net monetary benefit

Table. One-way sensitivity analysis results

Parameters	Range tested (US$)	[1]ICER (US$/[2]QALM)	Interpretation
Non-pharmacologic management cost	3,043 3,521 3,998	2,458 3,261 4,065	Higher Non-pharmacologic management cost increased the ICER; Spiritual care remains still cost-effective
Pharmacologic management cost	5,810 6,857 7,903	4,132 3,275 2,417	Higher Pharmacologic management cost decreased the ICER; Spiritual care remains still cost-effective
Spiritual care cost	93 112 131	2,614 3,127 3,640	Higher Spiritual care cost increased the ICER; Spiritual care remains still cost-effective
Hospice cost	8,862 12,202 15,541	3,357 3,288 3,219	ICER changed minimally; Spiritual care remains still cost-effective

Abbreviations: [1]ICER, incremental cost-effectiveness ratio; [2]QALM, quality-adjusted life month

AP-21-3 (2026-0085)

Opioid-Free Multimodal Analgesia Versus Fentanyl for Prevention of Emergence Agitation in Children Undergoing Strabismus Surgery: A Randomized Double-Blind Non-Inferiority Trial

Jeongsoo Choi[1*], Sohyun Ka[1], Nayeon Kim[2], Hyuna Lee[2], Sohee Song[2]

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Background
Emergence agitation (EA) occurs in 20–80% of children undergoing strabismus surgery under sevoflurane anesthesia and represents a major perioperative challenge. Although fentanyl effectively attenuates EA, its opioid-related adverse effects—including postoperative nausea and vomiting (PONV) and respiratory depression—are particularly burdensome in ambulatory pediatric surgery. Ketorolac and intravenous (IV) acetaminophen offer complementary analgesic mechanisms with ketorolac acting mainly via peripheral COX-1/2 inhibition, whereas acetaminophen is thought to exert central analgesic effects through COX inhibition and modulation of descending inhibitory and endocannabinoid pathways. However, no randomized trial has yet demonstrated the non-inferiority of this opioid-free combination to fentanyl for EA prevention.

Methods
This single-center, prospective, double-blind, double-dummy, randomized non-inferiority trial enrolls children aged 2–8 years (ASA I–II) undergoing elective strabismus surgery under sevoflurane-based anesthesia at Soonchunhyang University Cheonan Hospital. Patients are randomized 1:1 in blocks to receive either IV ketorolac 0.5 mg/kg (maximum 30 mg) as a bolus, plus IV acetaminophen 15 mg/kg infused over 30 minutes immediately after completion of induction (opioid-free group), or matched placebo bolus and infusion at the same timepoints. In the placebo group, IV fentanyl 1 mcg/kg is administered 15 minutes before the end of surgery. Identical-appearing preparations are used to maintain double-blind allocation. Anesthesia was induced intravenously with propofol and sevoflurane, maintained with sevoflurane at 1.0 MAC, and neuromuscular block was reversed with sugammadex guided by quantitative neuromuscular monitoring. The primary endpoint is the incidence of emergence agitation (EA), defined as Aono's four-point agitation scale ≥3 at any assessment within 30 minutes in the post-anesthesia care unit (PACU), evaluated by blinded observers at T0, T10, T20, and T30. Non-inferiority is tested using the 95% confidence interval of the between-group risk difference (margin Δ=15 percentage points; one-sided α=0.025; 80% power; planned sample size n=276, 138 per arm). Secondary endpoints include Pediatric Anesthesia Emergence Delirium (PAED) score, FLACC pain score, rescue fentanyl requirements, postoperative nausea and vomiting incidence, and PACU length of stay.

Results
Patient enrollment and follow-up are currently ongoing. Initial experience in a small number of patients suggests that the study protocol, including the double-dummy blinding and standardized anesthetic regimen, is feasible and has not raised any major safety concerns so far. Formal efficacy and non-inferiority analyses await completion of the planned sample size.

Conclusion
This trial will provide the first randomized evidence on whether opioid-free multimodal analgesia is non-inferior to fentanyl for EA prevention in pediatric strabismus surgery, potentially supporting opioid-sparing perioperative protocols in this vulnerable population.

AP-21-5 (2026-0558)

Therapeutic Effectiveness of Epidural Blood Patch in Brain Sagging Syndrome

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2 Radiology, University of Texas Medical Branch, USA

Introduction
Sagging brain syndrome is a rare consequence of spontaneous intracranial hypotension (SIH), characterized by brain descent secondary to cerebrospinal fluid (CSF) leak. Patients may present with orthostatic headache, gait disturbance, and cognitive changes, with MRI findings of brain sagging and pachymeningeal enhancement [1,2]. We present a case of an blood patch (EBP) as a viable interventional therapy in the treatment of a pt with headache refractory to conventional medical management.

Case
Informed consent was obtained, and this report is exempt from IRB review per Saint Louis University policy. Clinical data were obtained through review of the electronic medical record, including patient demographics, past medical history, neuroimaging, procedural details, and follow-up documentation. A 52-year-old male with a history of type 2 diabetes, hypothyroidism, and psychiatric comorbidities presented with recurrent orthostatic headaches, gait instability, and memory impairment. Brain MRI revealed diffuse pachymeningeal enhancement and inferior displacement of brain structures, consistent with sagging brain syndrome. CT myelography demonstrated cerebrospinal fluid (CSF)-venous fistulae from T6–T12. In June 2025, the patient underwent a high-volume lumbar epidural blood patch (20 mL), resulting in immediate improvement of headache symptoms; however, recurrence occurred within several days. Multidisciplinary discussion deferred repeat intervention, and the patient initially declined further blood patching in favor of surgical evaluation. Two months later, persistent gait instability and headache prompted repeat epidural blood patch at the cervicothoracic level (15 mL). The procedure resulted in marked symptom improvement, including reduction in headache intensity and improved ambulation, without complications. The patient was subsequently referred for definitive neurosurgical repair with planned T6–T12 laminectomy and posterior fusion. This case illustrates the role of epidural blood patch as a safe, temporizing intervention in sagging brain syndrome, providing transient clinical stabilization while awaiting surgical correction of CSF-venous fistulae.

Conclusion
Epidural blood patch (EBP) is an effective interventional option for sagging brain syndrome, providing rapid symptom relief and bridging to definitive surgical repair [3,4]. Despite its utility, there is a notable dearth of literature on EBP specifically for CSF-venous fistula–associated sagging brain syndrome, with most reports limited to case studies [3]. Highlighting its role may encourage broader recognition and adoption in multidisciplinary management.

AP-21-6 (2026-0024)

Neck Pain after Gastroenteritis: Spontaneous Intracranial Hypotension: Case Report and Review

Yoong Chuan Tay[1*], Teng Roy Lai[1]

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Introduction
Spontaneous intracranial hypotension headache is often underdiagnosed with an estimated annual incidence of 5 per 100 000 per year and should be suspected in patients with orthostatic headache features, often accompanied by nausea, vomiting, neck pain, tinnitus and giddiness.

Case
We present a 37-year-old female with hypothyroidism on treatment referred to pain team for 5 days history of neck pain after preceding gastroenteritis two weeks prior. The tight sensation of headache starts from both shoulders radiating to neck and entire head which occurs immediately on sitting or standing up but would be asymptomatic when lying flat in bed. General neurological examination was normal other than right middle finger tingling with headache. She was referred to neurology for further assessment and her MRI brain revealed florid features of intracranial hypotension (Bern Score 8). Further MRI thoracic and lumbar spine were performed to reveal spinal longitudinal epidural collection extending from C5-6 to T8-9 possibly related to the C56 posterior marginal osteophyte. Interventional neuroradiology performed a CT guided epidural blood patch with 12ml of patient's blood which resolved her headache completely. The cause of her dural leak was attributed to her retching during her gastroenteritis episode a fortnight prior.

Conclusion
A high index of suspicion for timely investigations is crucial for early diagnosis for definitive treatment.

AP-21-7 (2026-0143)

Ultrasound-Guided Bilateral Glossopharyngeal Nerve Pulsed Radiofrequency for Refractory Neuropathic Orofacial Pain: A Case Report

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Introduction
Glossopharyngeal neuralgia is a rare cranial neuropathy characterized by neuropathic pain involving the tongue, soft palate, and pharynx. Patients with atypical presentations or poor response to pharmacological therapy remain challenging to treat. Pulsed radiofrequency (PRF) is a minimally invasive neuromodulation technique that may provide pain relief while preserving neural integrity. We report the successful use of ultrasound-guided bilateral glossopharyngeal nerve PRF in a patient with refractory neuropathic orofacial pain.

Case
A 30-year-old woman presented with a two-year history of burning and stabbing pain involving the posterior and lateral tongue and soft palate, radiating to both cheeks, eyes, and head. The pain resembled a burning sensation after eating spicy food, with a baseline Numeric Rating Scale (NRS) score of 2–3 and exacerbations reaching NRS 7–8. Previous treatment with Diclofenac Sodium and Carbamazepine failed to provide adequate relief. Neurological examination was unremarkable. PainDETECT and DN4 scores were 11 and 4, respectively, supporting neuropathic pain. Brain magnetic resonance imaging, laboratory investigations, and chest radiography showed no significant abnormalities. The patient was diagnosed with chronic neuropathic orofacial pain with suspected glossopharyngeal neuralgia and glossodynia as a differential diagnosis. Two weeks before PRF, diagnostic bilateral glossopharyngeal nerve blocks produced temporary pain relief, supporting the glossopharyngeal nerve as the pain generator. Under monitored sedation, bilateral ultrasound-guided PRF was performed. The styloid process was identified sonographically, and correct needle placement was confirmed by sensory stimulation at 0.3–0.5 V. PRF was delivered at 42°C for 5 minutes bilaterally, followed by 5 mg perineural dexamethasone. The procedure was completed without complications. At one-week follow-up, the patient reported meaningful improvement with reduced pain intensity and fewer painful episodes. A mild burning sensation of the tongue persisted but was less severe and only occasionally associated with pain.

Conclusion
Ultrasound-guided bilateral glossopharyngeal nerve PRF provided early pain reduction without complications in a patient with refractory neuropathic orofacial pain after a positive diagnostic nerve block. Ultrasound guidance enables precise needle placement without radiation exposure and may be considered a minimally invasive treatment option when conservative therapy fails. Further studies are needed to determine long-term efficacy and optimal patient selection.

AP-21-7 (2026-0143)

Figure & Table

Figure & Table 1.



AP-21-8 (2026-0497)

Bilateral Continuous Ultrasound-Guided Erector Spinae Plane Block for Postoperative Analgesia After Emergency Laparotomy in an Adolescent With Late-Presenting Hirschsprung Disease: A Case Report

Ainie Disomimba[1*], Athena Hafizza Derico-Abdullah[1]

1. Anesthesiology, Amai Pakpak Medical Center, Philippines

Introduction
Complete intestinal obstruction from Hirschsprung disease (HD) rarely presents beyond infancy, and an emergency surgical presentation in adolescence poses unique perioperative analgesic challenges.

Case
We describe a 17-year-old female, ASA 3E, who presented with acute complete intestinal obstruction and underwent emergency exploratory laparotomy, multiple colonic biopsies, double-barrel sigmoid colostomy, and lavage under general endotracheal anesthesia (GETA); intraoperative and histopathologic findings confirmed malrotation and Hirschsprung disease. Postoperative analgesia was provided through bilateral ultrasound-guided continuous erector spinae plane (ESP) block catheters at T8-T9, with an initial bolus of bupivacaine 0.25% + lidocaine 0.5% + dexamethasone 4mg (20mL per side) followed by bupivacaine 0.125%, 20mL per side, every 12 hours, within a multimodal, opioid-sparing plan. Throughout the 72-hour catheter infusion, the patient maintained a Numerical Pain Scale (NPS) of 0 at rest and 0-1 with movement, required no rescue opioid doses, and showed no clinical signs of local anesthetic systemic toxicity (LAST) or catheter-related complications.

Conclusion
Bilateral continuous ESP block catheters were technically feasible and were associated with substantial opioid-sparing analgesia after emergency laparotomy, even in this diagnostically and technically complex adolescent presentation of Hirschsprung disease.

AP-21-8 (2026-0497)

Figure & Table

Figure & Table 1.

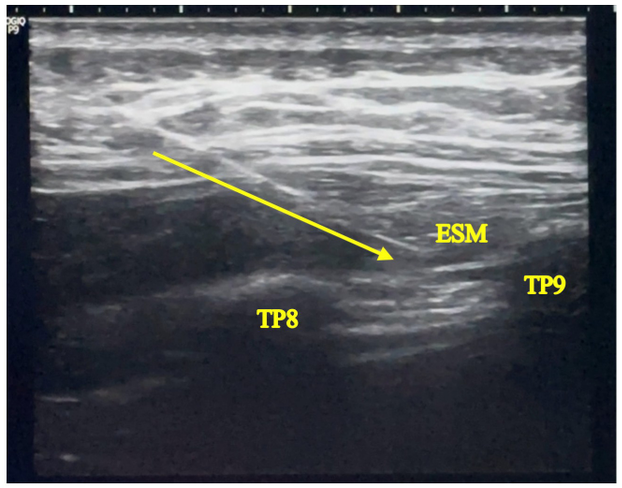


Figure 1 Actual sonographic image of the erector spinae plane with the transducer placed in a longitudinal parasagittal orientation in line with the tip of the thoracic transverse processes (TP). The end point (arrow) for needle tip insertion is the plane deep to erector spinae muscle (ESM).

Figure & Table 2.

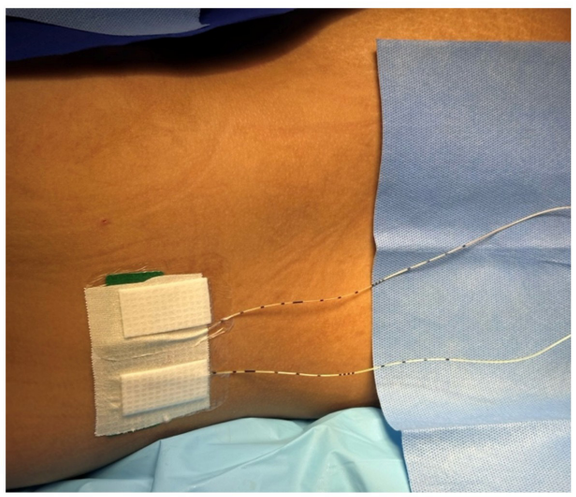


Figure 2 Bilateral continuous ultrasound-guided erector spinae plane (ESP) block catheter insertion at the T8–T9 level in left lateral decubitus position. The indwelling catheters were secured bilaterally for postoperative continuous infusion of Bupivacaine 0.125%.

Presentation

Abstract Presentation 22

Date / Time	Nov 6 (Fri), 13:30-15:00
Room	Room E *(Hyatt Regency)*
Language	English
Chair(s)	Hee Young Kim *(Pusan National University, Republic of Korea)* Chahyun Oh *(Chungnam National University, Republic of Korea)*

AP-22-1
2026-0432

Fast-Track Cardiac Anaesthesia Using a Multimodal Pharmacological Bundle for Elective Coronary Artery Bypass Graft Surgery: A Multicentre Pilot Randomised Controlled Trial

Laurence Weinberg[1,2*], Je Min Suh[1], Nattaya Raykateeraroj[3], Anoop Koshy[4], Jay Bhaskar[5], George Matalanis[5], Sivendran Seevanayagam[5], Stephen Warrillow[6], Ziauddin Ansari[7], Dong Kyu Lee[8], Michael Yii[9]

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AP-22-2
2026-0303

Preoperative Iron Deficiency and Postoperative Hemoglobin Recovery After Cardiac Surgery: Modifying Role of Preoperative Anemia

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AP-22-3
2026-0426

Impact of Leukocyte-Depleted Red Blood Cell Transfusion in Cardiac Surgery: An Interrupted Time-Series Analysis

Jisu Kim[1], Sang-Jun Park[1], In Jung Kim[1], Hangil Kang[1], Hyeon Cheun[1], Jaeyeon Chung[1], Youn Joung Cho[1], Karam Nam[1], Yunseok Jeon[1], Jae-Woo Ju[1*]

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AP-22-4
2026-0162

Protective Effect of Lipid Emulsion Against Toxic-Dose Diphenhydramine–Induced Apoptosis in Rat Cardiomyoblasts

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AP-22-5
2026-0460

Stroke Volume Variation–Guided vs Central Venous Pressure–Guided Fluid Management in Open Liver Resection: A Non-Inferiority Randomized Controlled Trial for Intraoperative Blood Loss

Kanchana Khaweephab[1], Chalita Samhuay[1], Sittasart Saothong[1], Srisulak Kacha[1], Anon Chotirosniramit[2], Asara Thepbunchornchai[2], Sunhawit Junrungsee[2], Worakitti Lapisatepun[2], Warangkana Lapisatepun[1*]

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AP-22-6
2026-0591

Association between Inferior Vena Cava Collapsibility Index And Preoperative Fasting Status

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AP-22-7
2026-0284

Perioperative Refractory Cardiac Arrest Secondary to Antiplatelet Discontinuation with an Unrecognized History of Remote Coronary Stenting

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AP-22-8
2026-0499

An Evaluation of a Wireless Heat-Flux Cutaneous Thermometer in Cardiac Surgical Patients: A Prospective Observational Study

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Fast-Track Cardiac Anaesthesia Using a Multimodal Pharmacological Bundle for Elective Coronary Artery Bypass Graft Surgery: A Multicentre Pilot Randomised Controlled Trial

Laurence Weinberg[1,2*], Je Min Suh[1], Nattaya Raykateeraroj[3], Anoop Koshy[4], Jay Bhaskar[5], George Matalanis[5], Sivendran Seevanayagam[5], Stephen Warrillow[6], Ziauddin Ansari[7], Dong Kyu Lee[8], Michael Yii[9]

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Background
Fast-track cardiac anaesthesia (FTCA) aims to facilitate early tracheal extubation after cardiac surgery while maintaining effective analgesia and safety. However, the optimal pharmacological strategy remains uncertain. We evaluated the feasibility, safety, and preliminary efficacy of a protocolised multimodal FTCA bundle compared with usual care in adults undergoing elective coronary artery bypass grafting (CABG).

Methods
This two-centre, open-label, blinded-endpoint, pilot randomised controlled trial was conducted at one public and one private hospital in Victoria, Australia. Adults undergoing isolated elective CABG with planned cardiopulmonary bypass, preserved left ventricular systolic function, and low-to-moderate operative risk were randomised 1:1 to FTCA or usual care. The FTCA pathway incorporated methadone, dexmedetomidine, remifentanil, magnesium, lignocaine, sugammadex-based neuromuscular reversal, and protocolised extubation assessment. The primary objective was feasibility, with extubation within 4 postoperative hours as the primary clinical endpoint. Secondary outcomes included time to extubation, opioid consumption, pain, length of stay, and safety outcomes. Analyses followed the intention-to-treat principle. The trial was approved by the Austin Hospital Human Research Ethics Committee (HREC/86574/Austin-2022), and written informed consent was obtained from all participants.

Results
From September 2025 to June 2026, 374 patients were screened and 100 were randomised, 50 to the FTCA and 50 to usual care. All participants received allocated management, complete follow-up, and had primary endpoint data available. All prespecified feasibility criteria were met. Extubation within 4 postoperative hours occurred in 27 (54·0%) FTCA patients and 3 (6·0%) usual care patients (risk difference 0·48, 95% CI 0·32–0·62; p<0·001). Median time to extubation was 3·9 h (IQR 3·0–9·8) with FTCA and 10·8 h (7·2–13·5) in usual care (Hodges–Lehmann location shift −5·0 h, 95% CI −7·2 to −3·2; p<0·001). Operating-room extubation occurred in 10 (20·0%) FTCA patients and no usual care patients. Opioid consumption at 24 h and severe pain were lower with FTCA. ICU and hospital length of stay were similar between groups. Safety outcomes were broadly similar.

Conclusion
In selected elective CABG patients, a protocolised multimodal FTCA pathway was feasible and associated with substantially earlier extubation, lower early opioid use, and less severe pain without a clear excess safety signal. These pilot findings support evaluation in a larger pragmatic multicentre trial.

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Figure & Table

Figure & Table 1.

Table 1. Baseline characteristics of the trial population

Characteristic	Overall N = 100	Treatment Group	
		Usual care N = 50	FTCA N = 50
Study Centre			
Hospital A	39 (39.0%)	18 (36.0%)	21 (42.0%)
Hospital B	61 (61.0%)	32 (64.0%)	29 (58.0%)
Age (years)	70.0 [64.0, 78.5]	72.0 [64.0, 78.0]	69.5 [65.0, 79.0]
Male	87 (87.0%)	42 (84.0%)	45 (90.0%)
BMI (kg/m²)	27.9 [25.2, 31.5]	28.0 [25.1, 32.9]	27.9 [25.3, 31.4]
Current smoker	22 (22.0%)	12 (24.0%)	10 (20.0%)
Elective surgery	57 (57.0%)	27 (54.0%)	30 (60.0%)
Hypertension	76 (76.0%)	37 (74.0%)	39 (78.0%)
Prior CVA/TIA	7 (7.0%)	4 (8.0%)	3 (6.0%)
Diabetes mellitus	28 (28.0%)	16 (32.0%)	12 (24.0%)
COPD	5 (5.0%)	2 (4.0%)	3 (6.0%)
EuroSCORE II	1.3 [0.8, 1.7]	1.3 [0.8, 1.8]	1.1 [0.9, 1.5]
LVEF (%)	57.0 [51.0, 62.5]	55.5 [50.0, 60.0]	59.5 [53.0, 65.0]
Haemoglobin (g/L)	139.5 [128.5, 149.0]	139.0 [129.0, 150.0]	140.0 [128.0, 149.0]
Platelet count (×10^9/L)	228.5 [186.0, 276.0]	223.5 [181.0, 248.0]	240.5 [188.0, 300.0]
White cell count (×10^9/L)	7.3 [6.1, 8.4]	7.7 [6.2, 8.5]	7.1 [5.9, 8.0]
PT (s)	12.0 [11.4, 13.0]	12.0 [11.0, 13.0]	12.0 [11.7, 13.0]
aPTT (s)	26.5 [24.0, 29.0]	26.0 [24.0, 31.0]	27.0 [24.0, 29.0]
INR	1.0 [1.0, 1.1]	1.0 [1.0, 1.1]	1.0 [1.0, 1.1]
Creatinine (μmol/L)	86.0 [73.0, 106.0]	82.5 [70.0, 106.0]	88.5 [81.0, 106.0]
eGFR (mL/min/1.73m²)	76.5 [59.0, 87.5]	80.5 [58.0, 90.0]	75.0 [59.0, 84.0]

Data are n (%) for categorical variables and median (IQR) for continuous variables, as appropriate.
Abbreviation: BMI, body mass index; COPD, chronic obstructive pulmonary disease; CVA, cerebrovascular accident; eGFR, estimated glomerular filtration rate; EuroSCORE II, European System for Cardiac Operative Risk Evaluation II; FTCA, fast-track cardiac anaesthesia; INR, international normalized ratio; LVEF, left ventricular ejection fraction; PT, prothrombin time; aPTT, activated partial thromboplastin time; TIA, transient ischemic attack.

ABSTRACT
Competition
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Figure & Table

Figure & Table 2.

Table 2. Clinical efficacy and safety outcomes

Outcome	Overall N = 100	Usual care N = 50	FTCA N = 50	Effect estimate (95% CI)	P-value
Efficacy and recovery outcomes					
Extubated within 4 postoperative hours	30 (30.0%)	3 (6.0%)	27 (54.0%)	0.48 (0.32 to 0.62)	<0.001*
Extubated in operating room	10 (10.0%)	0 (0.0%)	10 (20.0%)	0.20 (0.11 to 0.33)	0.001*
Time to extubation (h)	8.6 [3.8, 12.1]	10.8 [7.2, 13.5]	3.9 [3.0, 9.8]	-5.0 (-7.2 to -3.2)	<0.001*
Opioid consumption at 24 h (mg IV morphine equivalent)	30.6 [22.0, 38.1]	33.7 [26.7, 40.0]	26.5 [20.0, 36.4]	-6.0 (-10.8 to -1.0)	0.018*
Opioid consumption at 48 h (mg IV morphine equivalent)	29.1 [20.0, 39.6]	32.7 [21.4, 41.0]	25.3 [19.2, 36.0]	-5.2 (-11.0 to 0.0)	0.059
Reintubation within 24 h	1 (1.0%)	1 (2.0%)	0 (0.0%)	-0.02 (-0.11 to 0.05)	>0.999
Readmission to ICU from ward	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.00 (-0.07 to 0.07)	>0.999
ICU length of stay (h)	69.1 [46.6, 95.3]	79.0 [59.0, 93.1]	58.2 [45.1, 96.5]	-13.9 (-25.0 to 2.9)	0.179
Hospital length of stay (days)	7.9 [6.7, 9.6]	7.8 [6.7, 9.5]	7.9 [6.7, 9.6]	0.1 (-0.9 to 1.0)	0.791
Hospital mortality†	1 (1.0%)	1 (2.0%)	0 (0.0%)	-0.02 (-0.11 to 0.05)	>0.999
30-day mortality††	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.00 (-0.07 to 0.07)	>0.999
Cardiorespiratory safety outcomes					
Acute myocardial infarction	1 (1.0%)	1 (2.0%)	0 (0.0%)	-0.02 (-0.11 to 0.05)	>0.999
New-onset atrial fibrillation	36 (36.0%)	17 (34.0%)	19 (38.0%)	0.04 (-0.15 to 0.23)	0.835
Other arrhythmia	5 (5.0%)	3 (6.0%)	2 (4.0%)	-0.02 (-0.13 to 0.08)	>0.999
Permanent pacemaker	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.00 (-0.07 to 0.07)	>0.999
Bradycardia	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.00 (-0.07 to 0.07)	>0.999
Hypotension	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.00 (-0.07 to 0.07)	>0.999
Pneumonia	3 (3.0%)	3 (6.0%)	0 (0.0%)	-0.06 (-0.16 to 0.01)	0.242
Pulmonary embolism	5 (5.0%)	4 (8.0%)	1 (2.0%)	-0.06 (-0.17 to 0.04)	0.362
Other postoperative complications					
Return to theatre	6 (6.0%)	2 (4.0%)	4 (8.0%)	0.04 (-0.07 to 0.16)	0.678
Acute kidney injury	15 (15.0%)	5 (10.0%)	10 (20.0%)	0.10 (-0.04 to 0.25)	0.262
Deep vein thrombosis	2 (2.0%)	2 (4.0%)	0 (0.0%)	-0.04 (-0.14 to 0.03)	0.495
Cerebrovascular event	7 (7.0%)	4 (8.0%)	3 (6.0%)	-0.02 (-0.19 to 0.09)	>0.999
Delirium	8 (8.0%)	6 (12.0%)	2 (4.0%)	-0.08 (-0.21 to 0.03)	0.269
Wound infection	1 (1.0%)	1 (2.0%)	0 (0.0%)	-0.02 (-0.11 to 0.05)	>0.999
Sepsis	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.00 (-0.07 to 0.07)	>0.999
Bleeding-related outcomes					
Lowest haemoglobin (g/L)	86.0 [81.0, 92.0]	86.5 [82.0, 91.0]	85.0 [79.0, 92.0]	-1.00 (-4.00 to 3.00)	0.619
Drain output at 24 h (mL)	775.0 [530.0, 1,090.0]	790.0 [550.0, 1,100.0]	755.0 [507.0, 1,050.0]	-90.00 (-240.00 to 60.00)	0.257
Postoperative blood transfusion	63 (63.0%)	34 (68.0%)	29 (59.2%)	-0.09 (-0.27 to 0.10)	0.408

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Figure & Table

Outcome	Overall N = 100	Usual care N = 50	FTCA N = 50	Effect estimate (95% CI)	P-value
Pain, sedation, and medication-related outcomes					
Severe pain (pain score ≥7)	16 (16.0%)	13 (26.0%)	3 (6.0%)	-0.20 (-0.35 to -0.06)	0.012*
Deep sedation	3 (3.0%)	3 (6.0%)	0 (0.0%)	-0.06 (-0.16 to 0.01)	0.242
Antiemetic use	79 (79.0%)	38 (76.0%)	41 (82.0%)	0.06 (-0.10 to 0.22)	0.624
Naloxone use	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.00 (-0.07 to 0.07)	>0.999

Data are presented as n (%) for binary outcomes and median [Q1, Q3] for continuous outcomes. Effect estimates are risk differences for binary outcomes and Hodges–Lehmann estimates of location shift for continuous outcomes, each with 95% confidence intervals (CI) and calculated as FTCA minus usual care. P values were calculated using Fisher's exact test for binary outcomes and the Wilcoxon rank-sum test for continuous outcomes, as appropriate. *P < 0.05 was considered statistically significant. †Hospital mortality was assessed until hospital discharge; one patient in the usual-care group died during the index hospitalisation on day 94.46 after randomisation. ††30-day mortality was defined as death from any cause within 30 days after randomisation. Abbreviations: CI, confidence interval; FTCA, fast-track cardiac anaesthesia; ICU, intensive care unit; IV, intravenous.
Note: Postoperative blood transfusion is reported as 29 (59.2%) in the FTCA group, implying a denominator of 49. Confirm whether one observation is missing and, if so, specify the denominator or missing data in the final table footnote.

Preoperative Iron Deficiency and Postoperative Hemoglobin Recovery After Cardiac Surgery: Modifying Role of Preoperative Anemia

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Background

Hemoglobin measured approximately two months after cardiac surgery (POD60 Hb) was previously reported to independently predict 1-year mortality, highlighting postoperative hemoglobin recovery as a clinically meaningful and potentially modifiable target. We therefore investigated whether preoperative iron deficiency, a common and reversible cause of impaired erythropoiesis, influences postoperative hemoglobin recovery, with particular focus on the modifying role of preoperative anemia.

Methods

In this single-center retrospective cohort study, we included patients undergoing cardiac surgery between 2014 and 2024 who had a preoperative iron profile and no preoperative intravenous iron therapy. The primary cohort comprised 1,005 patients with POD60 Hb. Iron deficiency was defined as ferritin <100 ng/mL, or ferritin 100–299 ng/mL with transferrin saturation <20%. Secondary outcomes were hemoglobin trajectory through 1 year and new or progressive CKD. Analyses were performed overall and separately in patients with and without preoperative anemia (WHO criteria); effect modification was assessed by testing the iron deficiency × anemia interaction, with adjustment for age, sex, and baseline eGFR.

Results

Iron deficiency was present in 611 patients (60.8%). POD60 Hb was lower with iron deficiency (11.46 vs. 11.88 g/dL, P<0.001), while this differed by preoperative anemia (P for interaction <0.001). Among non-anemic patients, those with iron deficiency already had lower preoperative hemoglobin (13.48 vs. 14.28 g/dL), and this deficit persisted: POD60 Hb 12.24 vs. 13.15 g/dL (adjusted mean difference −0.59 g/dL, 95% CI −0.86 to −0.32) and 13.13 vs. 14.31 g/dL at 1 year (all P<0.001). Iron-replete patients returned to their preoperative hemoglobin by 1 year, whereas iron-deficient patients did not (−0.30 g/dL, P=0.02). No difference was observed among anemic patients at any time point (POD60 Hb 11.00 vs. 10.96 g/dL, P=0.78). Iron deficiency was not associated with CKD (10.4% vs. 10.8%, P=0.92); however, higher POD60 Hb was associated with lower risks of CKD (adjusted OR 0.74 per 1 g/dL, 95% CI 0.64–0.85) and 1-year mortality (OR 0.46, 95% CI 0.38–0.57).

Conclusion

The association between preoperative iron deficiency and postoperative hemoglobin recovery differed according to preoperative anemia, with a significant effect observed only in non-anemic patients, in whom hemoglobin remained lower throughout 1 year. Given the prognostic importance of POD60 hemoglobin, prospective studies are warranted to determine whether correction of iron deficiency before surgery improves postoperative hemoglobin recovery and subsequent clinical outcomes.

Figure & Table

Figure & Table 1.

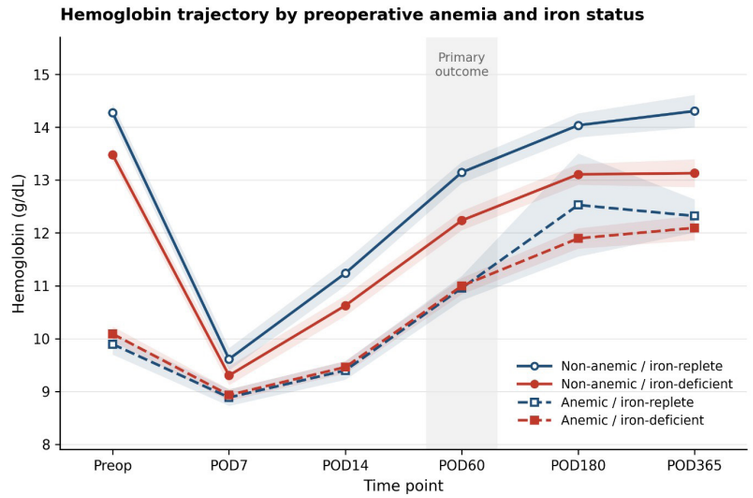
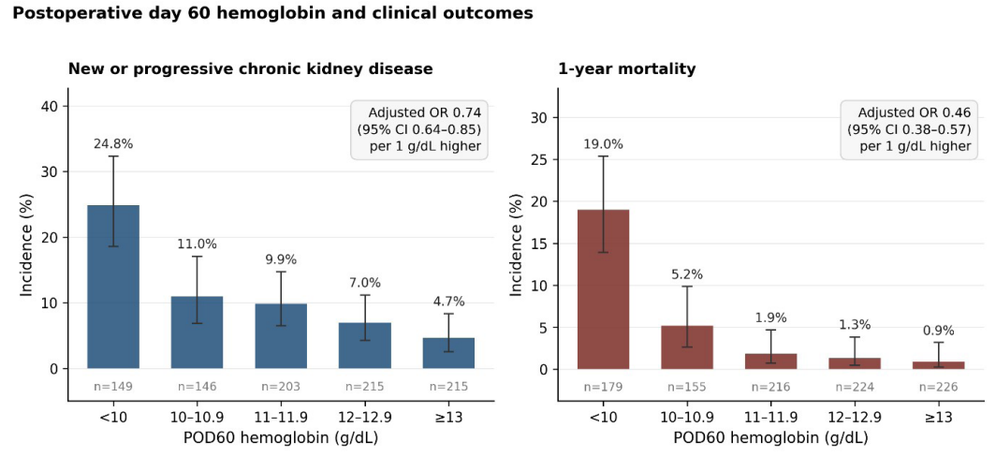


Figure & Table 2.



Impact of Leukocyte-Depleted Red Blood Cell Transfusion in Cardiac Surgery: An Interrupted Time-Series Analysis

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Background

Red blood cell (RBC) transfusion can induce transfusion-related immunomodulation, a significant concern in cardiac surgery where substantial transfusion is frequently required [1]. Although current guidelines recommend routine leukodepleted RBC (LD-RBC) transfusion, these recommendations derive largely from studies conducted in the early 2000s [2]. Whether this practice provides additional benefits in contemporary cohorts remains uncertain [3]. We evaluated the impact of an institutional transition from non-LD-RBC to LD-RBC on postoperative intensive care unit length of stay (ICU-LOS).

Methods

This single-center retrospective observational study included adult patients undergoing cardiac surgery at a tertiary hospital in South Korea between 2014 and 2024. In November 2018, the institution implemented routine intraoperative LD-RBC use. To evaluate the impact of this practice on the primary outcome, postoperative ICU-LOS, an interrupted time-series (ITS) analysis with segmented linear regression was performed using its monthly averages. The transition period (November 2018 to September 2019) was excluded. Additionally, case-level multivariable linear regression was conducted to assess the dose-response association between the number of transfused intraoperative LD-RBC and non-LD-RBC units and postoperative outcomes. Secondary outcomes included postoperative infection, peak high-sensitivity C-reactive protein (hs-CRP), and postoperative hospital length of stay.

Results

Of 5,085 included patients, 3,066 were not transfused, 1,110 received non-LD-RBC, and 909 received LD-RBC. The median ICU-LOS was 61.9 hours for the non-LD-RBC group and 49.4 hours for the LD-RBC group, compared with 46.0 hours for the non-transfused group ($P < 0.001$). In the ITS analysis, institutional implementation of routine intraoperative LD-RBC use was associated with an immediate and significant reduction in monthly mean ICU-LOS, with an intercept change of -26.8 hours (95% CI, -48.8 to -4.8; $P = 0.019$), while pre- and post-implementation slope changes were not significantly different (-0.5 hours/year; 95% CI, -1.1 to 0.1; $P = 0.13$). In case-level multivariable analyses, each additional unit of non-LD-RBC transfusion was significantly associated with longer ICU-LOS (mean difference 12.5 hours; 95% CI, 9.2 to 15.7; $P < 0.001$), increased postoperative infection (OR 1.06; 95% CI, 1.01 to 1.12; $P = 0.031$), higher peak hs-CRP (mean difference 0.25; 95% CI, 0.12 to 0.38; $P < 0.001$), and longer hospital length of stay (mean difference 1.8 days; 95% CI, 0.9 to 2.7; $P < 0.001$) compared with no transfusion, while LD-RBC transfusion showed no significant associations with any adverse postoperative outcomes.

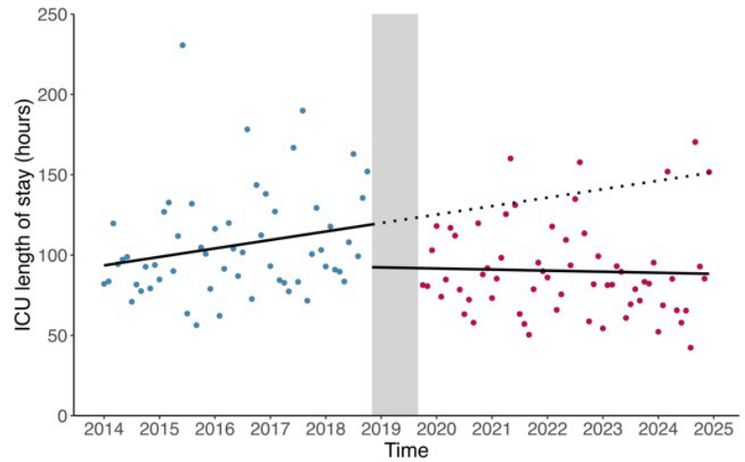
Conclusion

Institutional implementation of routine intraoperative LD-RBC use in cardiac surgery may improve ICU-LOS without increasing complications compared with non-LD-RBC transfusion. These findings suggest that universal leukoreduction may remain beneficial in contemporary cardiac surgery, supporting its continued adoption.

AP-22-3 (2026-0426)

Figure & Table

Figure & Table 1.



ABSTRACT
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AP-22-4 (2026-0162)

Protective Effect of Lipid Emulsion Against Toxic-Dose Diphenhydramine–Induced Apoptosis in Rat Cardiomyoblasts

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Background
Diphenhydramine, an inverse agonist of the H1 histamine receptor, is widely used to treat allergic rhinitis and insomnia. Toxic doses can cause cardiovascular collapse by inhibiting voltage-gated calcium channels and human ether-à-go-go–related gene (hERG) potassium channels. Although lipid emulsion therapy has been reported to improve vasopressor-refractory hypotension in diphenhydramine toxicity, its cardioprotective effects at the cellular level remain unclear. This study investigated the effects of lipid emulsion on diphenhydramine-induced cardiotoxicity and the underlying mechanisms in H9c2 rat cardiomyoblasts.

Methods
Cell viability following treatment with diphenhydramine (4×10^{-4} M), the H2 histamine receptor antagonist cimetidine, lipid emulsion (Lipofundin® MCT/LCT, 0.5%), and the reactive oxygen species (ROS) scavenger N-acetyl-L-cysteine (NAC), alone or in combination, was assessed using the Cell Counting Kit-8 assay. The effect of lipid emulsion on diphenhydramine-induced impairment of cell migration was evaluated using a wound-healing assay. The effects of diphenhydramine and lipid emulsion, alone or in combination, on the expression of cleaved caspase-3, -8, and -9 and the Bax/Bcl-2 ratio were analyzed by Western blotting. The effects of lipid emulsion on diphenhydramine-induced apoptosis were evaluated using TUNEL staining. The effects of diphenhydramine, lipid emulsion, NAC, and the mitochondrial ROS scavenger MitoTEMPO, alone or in combination, on ROS production and mitochondrial membrane potential were evaluated using fluorescence-based assays. The effects of diphenhydramine, lipid emulsion, NAC, and MitoTEMPO, alone or in combination, on cell cycle distribution and cell proliferation were evaluated using flow cytometry and Ki-67 immunostaining, respectively.

Results
Diphenhydramine (2×10^{-4}–10^{-3} M) significantly reduced cell viability, whereas cimetidine had no effect. Lipid emulsion (0.5%) and NAC (3×10^{-2} M) significantly reversed the reduction in cell viability induced by diphenhydramine (4×10^{-4} M). Lipid emulsion also restored diphenhydramine-induced impaired cell migration. Furthermore, lipid emulsion attenuated the diphenhydramine-induced increases in cleaved caspase-3, cleaved caspase-9, and the Bax/Bcl-2 ratio, whereas cleaved caspase-8 expression was not significantly altered. Lipid emulsion reduced the number of TUNEL-positive cells induced by diphenhydramine. In addition, lipid emulsion, NAC, and MitoTEMPO inhibited diphenhydramine-induced ROS production and mitochondrial membrane depolarization. Lipid emulsion and NAC also reversed the diphenhydramine-induced increase in the sub-G1 population and restored the decrease in cell proliferation.

Conclusion
These findings suggest that lipid emulsion attenuates toxic-dose diphenhydramine-induced apoptotic cell death by suppressing ROS production and mitochondrial dysfunction through inhibition of the intrinsic mitochondrial apoptotic pathway.

AP-22-5 (2026-0460)

Stroke Volume Variation–Guided vs Central Venous Pressure–Guided Fluid Management in Open Liver Resection: A Non-Inferiority Randomized Controlled Trial for Intraoperative Blood Loss

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Background
Maintaining CVP <5 mmHg is a widely accepted approach to reduce hepatic venous and sinusoidal bleeding during parenchymal transection. SVV is a dynamic index of volume status and fluid responsiveness that may achieve comparable bleeding control while permitting goal-directed fluid administration after transection to preserve organ perfusion. Whether SVV guidance is non-inferior to low-CVP management has not been established.

Methods
This single-center, randomized, non-inferiority trial allocated 70 patients undergoing elective open liver resection to high-SVV guidance (n=35) or low-CVP guidance (n=35). The primary outcome was intraoperative blood loss, assessed during parenchymal transection and over the entire operation. A non-inferiority margin of 210 mL, chosen to remain below the volume of one unit of packed red blood cells, was prespecified before data collection. Non-inferiority required the upper limit of the 95% CI for the mean difference to remain below this margin for both measures. All randomized patients were analyzed for the primary outcomes. Serial lactate, measured at the end of surgery and on postoperative days 1, 3, and 5, was analyzed using a linear mixed-effects model of log-transformed values with a patient-level random intercept and robust standard errors.

Results
Total intraoperative blood loss was 470.0±342.0 mL with SVV guidance versus 634.3±446.0 mL with CVP guidance (mean difference, −164.3 mL; 95% CI [−353.9, 25.3]), and blood loss during parenchymal transection was 342.9 ±241.6 mL versus 519.4±384.3 mL (mean difference, −176.6 mL; 95% CI [−329.7, −23.5]). The upper limits of both intervals were below the prespecified 210-mL margin, meeting the criterion for non-inferiority. Intraoperative transfusion was required in 4 (11.4%) versus 7 (20.0%) patients (risk difference, −0.09; 95% CI [−0.26, 0.08]). End-of-surgery lactate was lower with SVV guidance (geometric mean ratio, 0.70; 95% CI [0.53, 0.92]; P=0.010), and hyperlactatemia ≥2 mmol/L was less frequent (54.3% vs 91.4%; risk difference, −37.1 percentage points; 95% CI [−56.1, −18.2]). Between-group differences in lactate were not observed on postoperative days 1, 3, or 5, and the overall group-by-time interaction was not statistically significant ($\chi^2[3]=7.11$; P=0.069). Acute kidney injury, posthepatectomy liver failure, complications, and length of hospital stay were comparable between groups.

Conclusion
High-SVV–guided fluid management was non-inferior to low-CVP–guided management for limiting intraoperative blood loss during open liver resection. Neither lactate nor clinical outcomes indicated impaired tissue perfusion with SVV guidance.

AP-22-5 (2026-0460)

Figure & Table

Figure & Table 1.

Table 1. Primary outcome: intraoperative blood loss (N = 70)

Outcome	High-SVV group (n = 35)	Low-CVP group (n = 35)	Difference (95% CI)	Margin	Conclusion
Total intraoperative blood loss (mL)	470.0 ± 342.0	634.3 ± 446.0	−164.3 (−353.9, 25.3)	210	Non-inferior
Blood loss during parenchymal transection (mL)	342.9 ± 241.6	519.4 ± 384.3	−176.6 (−329.7, −23.5)	210	Non-inferior
Intraoperative transfusion, n (%)	4 (11.4)	7 (20.0)	−0.09 (−0.26, 0.08)	—	—

Values are mean ± SD or n (%). Differences are expressed as high-SVV minus low-CVP: mean difference for continuous outcomes and risk difference for binary outcomes.

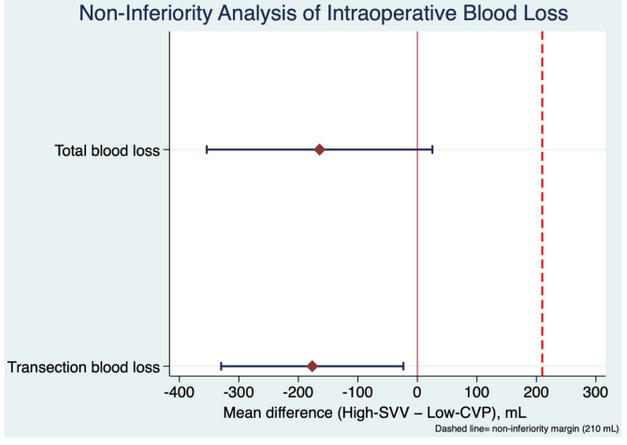
Non-inferiority was concluded when the upper limit of the 95% CI lay below the pre-specified margin of 210 mL.
Non-inferiority required both components of the primary outcome to meet this criterion; as this constitutes an intersection–union test, no adjustment to the significance level was applied.

P values are not reported. In a non-inferiority trial the comparison of interest is between the confidence interval and the margin; a P value testing the null hypothesis of no difference does not address the non-inferiority hypothesis.

CI, confidence interval.

Figure & Table 2.

Figure 1. Non-inferiority analysis of intraoperative blood loss



Points are mean differences (high-SVV minus low-CVP) with 95% confidence intervals. The dashed line indicates the pre-specified non-inferiority margin of 210 mL; the solid vertical line indicates no difference. Non-inferiority was concluded when the upper limit of the confidence interval lay below the margin, which was met for both components of the primary outcome.

AP-22-6 (2026-0591)

Association between Inferior Vena Cava Collapsibility Index And Preoperative Fasting Status

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Background
Preoperative fasting is implemented to reduce the risk of pulmonary aspiration of gastric contents during anesthesia. Prolonged preoperative fasting may reduce intravascular fluid volume; however, studies investigating its association with the inferior vena cava collapsibility index (IVC-CI) are relatively limited.

Objective
The aim of this study was to determine the association between the duration of preoperative fasting and the inferior vena cava collapsibility index.

Methods
This single-center observational study included 84 patients aged ≥18 years who underwent surgery under general anesthesia at the Department of Anesthesia and Surgical Services, Mongolian-Japanese Hospital,Mongolian National University of Medical Sciences, between June 2023 and June 2025.
Patients were transferred to the operating room and underwent bedside ultrasonographic assessment before induction of general anesthesia. The maximum and minimum diameters of the inferior vena cava (IVC) during expiration and inspiration, respectively, were measured and recorded. The IVC collapsibility index was calculated using the following formula: IVC-CI (%) = [(IVCmax − IVCmin) / IVCmax] × 100
The duration of preoperative fasting was recorded in hours and minutes. Statistical analysis was performed using SPSS version 26.0

Results
A total of 84 patients were included in the study. The mean maximum IVC diameter during expiration was 17.94 ± 2.4 mm (13–25), while the mean minimum IVC diameter during inspiration was 7.79 ± 2.2 mm (4–12). The mean IVC collapsibility index was 56.35 ± 11.7% (33.3–75).
The mean duration of preoperative fasting was 12.8 ± 2.5 hours (7.2–19.9). Spearman's correlation analysis demonstrated a strong positive and statistically significant correlation between the duration of preoperative fasting and the IVC collapsibility index (r = 0.610, p < 0.001).

Conclusion
An increased IVC collapsibility index, reflecting greater respiratory variation in IVC diameter, may indicate reduced intravascular volume. Our findings demonstrate that a longer duration of preoperative fasting is associated with a higher IVC collapsibility index, suggesting an association between prolonged fasting and reduced intravascular volume.

Perioperative Refractory Cardiac Arrest Secondary to Antiplatelet Discontinuation with an Unrecognized History of Remote Coronary Stenting

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Introduction

Acute coronary syndrome (ACS) due to perioperative very late stent thrombosis is a critical cardiovascular complication in non-cardiac surgery, primarily driven by the prothrombotic rebound state following dual antiplatelet therapy (DAPT) cessation, with the pathophysiological risk of stent occlusion persisting indefinitely. Despite these established risks, clinical pitfalls often arise from the intersection of non-adherence to antiplatelet therapy and a lack of systematic medication reconciliation. We present this case report to highlight a critical intraoperative refractory cardiac arrest where an unrecognized history of coronary stenting and arbitrary DAPT discontinuation intersected with concurrent high-dose corticosteroid use, and to share our clinical experience of utilizing immediate intraoperative extracorporeal cardiopulmonary resuscitation (CPR) to achieve a favorable neurological outcome.

Case

A 57-year-old male with a history of hypertension and prediabetes underwent general anesthesia for an elective sclerectomy. Intraoperatively, the patient developed abrupt, severe hypotension accompanied by prominent ST-segment elevation on electrocardiography, which rapidly deteriorated into cardiac arrest. Despite prolonged CPR, spontaneous circulation was not restored. Consequently, immediate intraoperative extracorporeal CPR using veno-arterial extracorporeal membrane oxygenation (VA-ECMO) was initiated, successfully achieving return of spontaneous circulation. Emergent coronary angiography identified a previously placed stent in the mid-left anterior descending artery, with a distinct filling defect at its proximal edge. Retrospective evaluation revealed an unrecognized history of coronary stenting 5 years prior and subsequent self-discontinuation of antiplatelet therapy. Additionally, the patient had been receiving high-dose corticosteroid therapy for concurrent ophthalmic tuberculosis, which may have heightened the risk of ACS. The patient was ultimately discharged with full neurological recovery and favorable clinical outcomes.

Conclusion

The risk of stent thrombosis persists indefinitely and represents a continuous hazard that can be abruptly triggered when antiplatelet non-compliance combines with systemic prothrombotic factors, such as high-dose corticosteroid therapy and intense intraoperative stress. Anesthesiologists must prioritize comprehensive review of medical records over patient self-reporting to identify these latent risks. When such preoperative information gaps lead to catastrophic intraoperative collapse, the immediate initiation of ECMO serves as a circulatory bridge, facilitating both successful coronary revascularization and the best potential for neurological recovery.

AP-22-7 (2026-0284)

Figure & Table

Figure & Table 1.

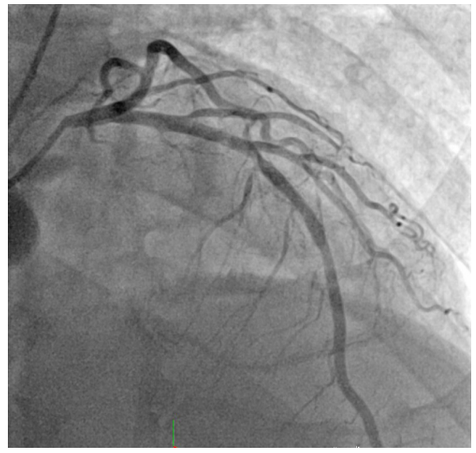


Figure & Table 2.



ABSTRACT
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AP-22-8 (2026-0499)

An Evaluation of a Wireless Heat-Flux Cutaneous Thermometer in Cardiac Surgical Patients: A Prospective Observational Study

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Background

Accurate perioperative core temperature monitoring is essential during cardiac surgery to avoid adverse outcomes associated with hypothermia and hyperthermia. Heat-flux thermometers provide noninvasive continuous temperature monitoring without active heating. However, clinical evidence regarding their agreement with invasive core temperature remains limited. We therefore evaluated the agreement between a novel heat-flux thermometer (Thermosafer XST600™) and pulmonary artery temperature in patients undergoing cardiac surgery.

Methods

In this single-center prospective observational study, 30 adult patients undergoing elective cardiac surgery with planned pulmonary artery catheterization were enrolled. Temperature was measured simultaneously at the pulmonary artery, nasopharynx, bladder, and forehead using a novel heat-flux thermometer. Temperature data were averaged into 1-minute intervals after initial calibration period, and measurements obtained during cardiopulmonary bypass were excluded. Agreement between heat-flux and pulmonary artery temperatures was assessed using Bland-Altman analysis, with clinically acceptable 95% limits of agreement predefined as ±0.5 °C. A linear mixed-effects model accounting for repeated measurements within patients was used to estimate mean bias and 95% limits of agreement, and 95% confidence intervals were obtained by bootstrap resampling with 1,000 iterations. The proportion of heat-flux measurements within ±0.5 °C of pulmonary artery temperature was also calculated.

Results

Thirty patients with 4,534 matched temperature pairs were included in the final analysis. Pulmonary artery temperatures ranged from 33.5 °C to 37.3 °C. Heat-flux temperature showed a positive bias relative to pulmonary artery temperature, with a mean bias of 0.41 °C (95% confidence interval, 0.31 to 0.51 °C) and 95% limits of agreement of −0.43 to 1.26 °C, exceeding the predefined clinically acceptable range of ±0.5 °C. Overall, 63.3% of measurements were within ±0.5 °C of pulmonary artery temperature (95% confidence interval, 46.4% to 77.8%).

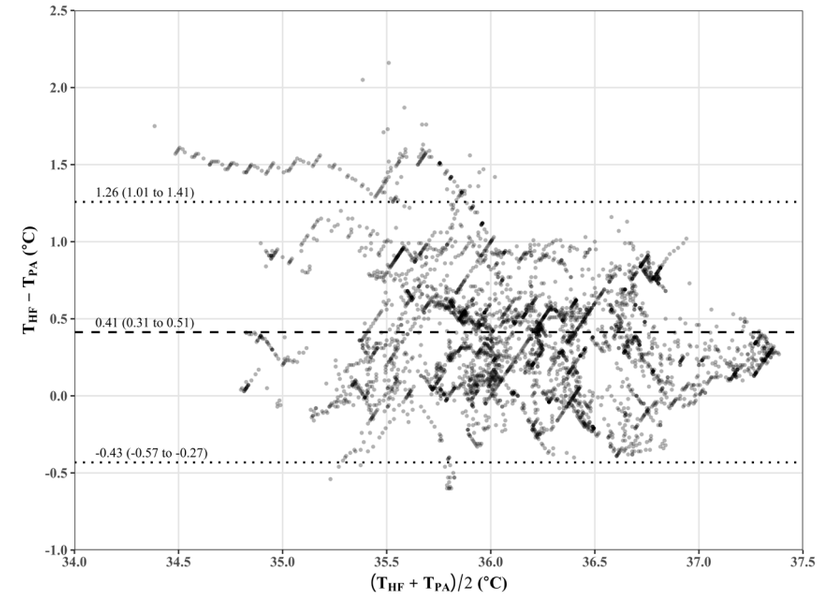
Conclusion

The heat-flux thermometer showed better agreement with pulmonary artery temperature under normothermic to mild hypothermic conditions, suggesting potential utility in thermally stable clinical settings. However, its agreement decreased during more pronounced hypothermia and rapid thermal changes, and the predefined clinically acceptable limits of agreement were not achieved overall.

AP-22-8 (2026-0499)

Figure & Table

Figure & Table 1.



ABSTRACT
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Presentation

Abstract Presentation 23

Date / Time	Nov 6 (Fri), 13:30-15:00
Room	Room F *(Hyatt Regency)*
Language	English
Chair(s)	Hee-Pyoung Park *(Seoul National University, Republic of Korea)* Hyongmin Oh *(Seoul National University, Republic of Korea)*

AP-23-1 2026-0563

Association of Burst Suppression with Delirium and Mortality in Surgical Patients and Mechanically Ventilated and Sedated ICU Patients: A Systematic Review with Meta-Analysis

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AP-23-2 2026-0289

Depth of Anesthesia Alters Surgery-Induced Microglia Activity

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AP-23-3 2026-0219

Dexmedetomidine Versus Low-Dose Desflurane for Transcranial Motor-Evoked Potential Monitoring During Adolescent Posterior Spinal Fusion: A Randomized Double-Blind Trial

Sirima Phoowanakulchai[1], Ratima Boonmuang[1*], Duangnet Kuljittichanok[1], Pawit Somnuke[1], Thanitthi Thiparporn[1], Alif Noikham[1], Natpapat Tangpraphachaikul[1], Masahiko Kawaguchi[2], Thanase Ariyawatkul[3], Manee Raksakietisak[1]

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AP-23-4 2026-0388

Comparison Between Effects Of Inhalational Anaesthetics And Total Intravenous Anaesthesia (TIVA) During Different Stages Of Resection On Heart Rate Variability In Patients Undergoing Temporal Lobe Epilepsy Surgery: A Prospective Randomized Controlled Study

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AP-23-5 2026-0363

Association Between Intraoperative Hypothermia, Hypotension, and Perioperative Neurocognitive Disorders in Elderly Patients Undergoing Elective Urological Surgery: A Prospective Observational Study

Afnan Fakhrurazi[1], Azarinah Izaham[1], Low Ren Geng[1], Farah Hanim Abdullah[1], Iskandar Khalid[1], Syarifah Noor Nazihah Sayed Masri[1*]

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AP-23-6 2026-0576

Anaesthetic Management of Atrial Flutter with Slow Ventricular Response in an Elderly Patient Undergoing Cranioplasty: A Case Report

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AP-23-7 2026-0347

Management of Immunosuppression and Immunotherapy for Anti-NMDAR Encephalitis Complicated by Refractory Seizures and Thoracic Empyema: A Case Report

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AP-23-8 2026-0258

Preserving Spontaneous Ventilation in Difficult Airway Surgery: Ultrasound-Guided Bilateral Superficial Cervical Plexus Block for Tracheal Surgery—A Two-Case Series from Ospital ng Maynila Medical Center

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Association of Burst Suppression with Delirium and Mortality in Surgical Patients and Mechanically Ventilated and Sedated ICU Patients: A Systematic Review with Meta-Analysis

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Background
Whether electroencephalographic (EEG) burst suppression, the deepest level of anesthesia and sedation, is a modifiable cause of delirium or a marker of brain vulnerability remains debated. We evaluated its association with delirium and mortality in surgical and mechanically ventilated, sedated intensive care unit (ICU) patients.

Methods
This systematic review followed PRISMA guidelines (PROSPERO CRD420261470288). PubMed, EMBASE, Cochrane Library, Web of Science, Scopus, KoreaMed/KCI, and ClinicalTrials.gov were searched from inception to August 2026. Observational studies and secondary analyses of randomized trials reporting individually measured burst suppression in adult surgical or ICU patients were included. Co-primary outcomes were delirium in surgical and in ICU patients. Secondary outcomes included maintenance-phase burst suppression, suppression duration and ratio (BSR) by delirium status, and mortality. Random-effects meta-analysis pooled risk ratios (RR), adjusted odds ratios (aOR), and standardized mean differences (SMD) with conservative Hartung-Knapp-Sidik-Jonkman (HKSJ) 95% confidence intervals (CI); Wald intervals were added for three-study pools.

Results
Of 12,133 records, 25 studies were included. Burst suppression was independently associated with postoperative delirium (POD; aOR = 3.38, 95% CI [1.93, 5.91]; Wald 2.02–5.63; I^2 = 0%; 3 studies). Delirium incidence was significantly higher with burst suppression (crude RR = 1.44 [1.06, 1.97], I^2 = 48%; 12 studies) (Fig. 1), higher for ward or postoperative-ICU delirium (RR = 1.77 [1.07, 2.92]) than for early post-anesthesia care unit (PACU) delirium (RR = 1.15 [0.89, 1.50]; subgroup p = 0.18). Maintenance-phase burst suppression showed a consistent estimate (RR = 1.82 [0.88, 3.80]; Wald 1.32–2.51; 3 studies). Delirious patients had a significantly longer suppression duration (SMD = 0.34 [0.16, 0.51]; MD = 3.7 min [0.5, 6.9]; 11 studies) (Fig. 2) and higher BSR (SMD = 0.26 [0.09, 0.43]; 6 studies); conversely, burst suppression incidence was higher with delirium (RR = 1.20 [1.03, 1.39]; 13 studies). In ICU patients, single studies linked burst suppression to post-coma delirium (aOR = 4.16 [1.27, 13.62]) and 6-month mortality (HR = 2.04 [1.12, 3.70]); a surgical study found no independent association with 90-day mortality (aOR = 0.83 [0.55, 1.25]).

Conclusion
Burst suppression is independently associated with POD, with consistent signals across crude, duration, BSR, and maintenance-phase analyses. The association was stronger for the ward or ICU delirium than for early PACU delirium; ICU evidence remains limited to single studies. Burst suppression may reflect brain vulnerability as well as anesthetic exposure; EEG monitoring to minimize it and flag affected patients may help delirium prevention.

AP-23-1 (2026-0563)

Figure & Table

Figure & Table 1.

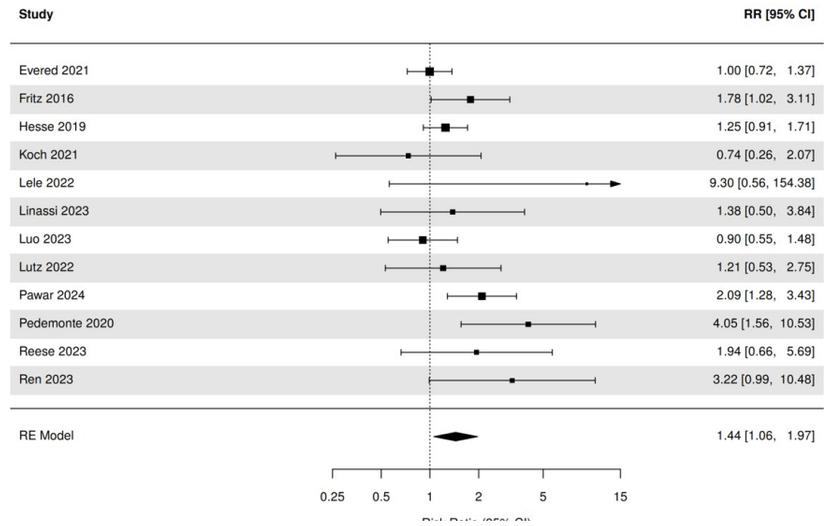
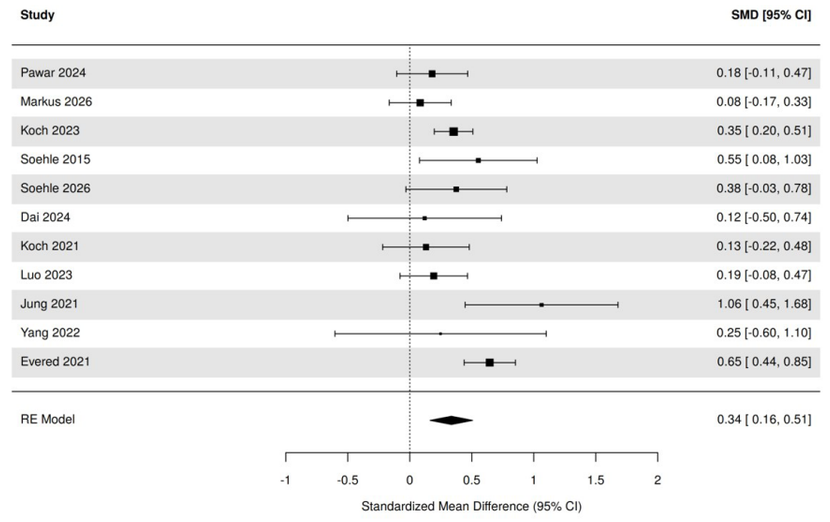


Figure & Table 2.



ABSTRACT
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E-Poster

Depth of Anesthesia Alters Surgery-Induced Microglia Activity

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2. Department of Anesthesiology and Pain Medicine, Chungnam National University School of Medicine, Republic of Korea

Background
Perioperative stress induced by surgical trauma and anesthesia can provoke systemic inflammation and neuroimmune responses. Microglial activation has been implicated in postoperative neuroinflammation and may contribute to postoperative delirium. Microglia also regulate synaptic strength through phagocytic engulfment. However, whether microglial synaptic engulfment is affected by anesthetic depth during surgery remains unclear. Therefore, we investigated whether anesthetic depth alters microglia following exploratory laparotomy in mice.

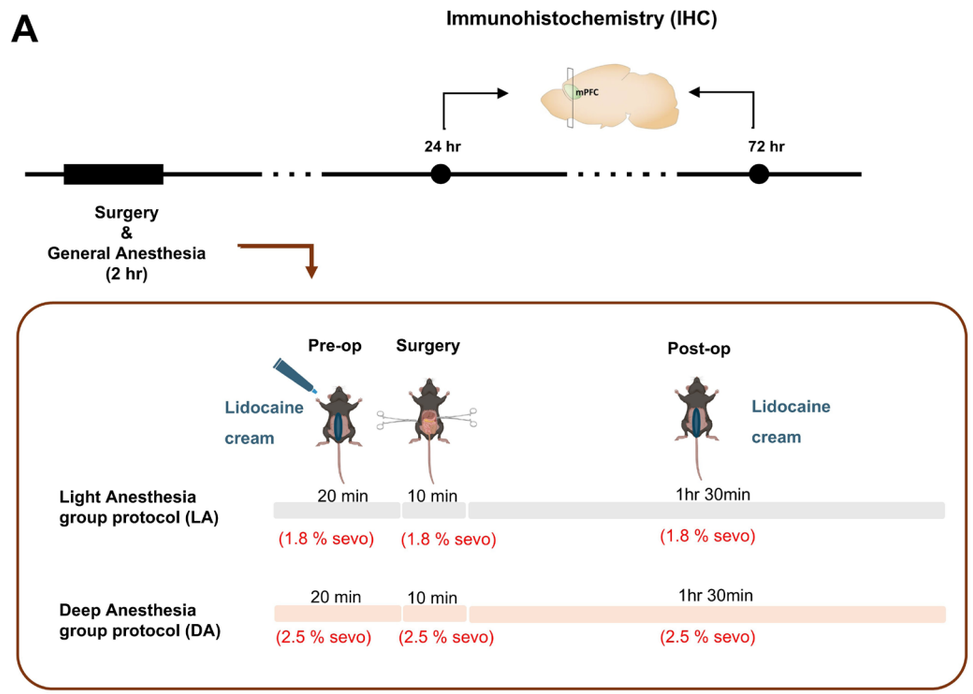
Methods
Young (2 months old) and aged (>18 months old) male mice underwent exploratory laparotomy under general anesthesia with endotracheal intubation (Figure 1A). Anesthetic depth was controlled using two concentrations of sevoflurane. The deep anesthesia (DA) group received 2.5% sevoflurane, which produced burst suppression (BS) on EEG (Figure 1B), whereas the light anesthesia (LA) group received 1.8% sevoflurane without BS. The total duration of anesthesia was 2 hours. Microglial engulfment of excitatory synapses was quantified at 24 and 72 hours after surgery using three-dimensional image analysis with Imaris software.

Results
In the LA group, microglia showed increased engulfment of synaptic material in the hippocampus at 24 and 72 hours after surgery, as demonstrated by increased colocalization of the postsynaptic marker Homer1 within the lysosomal marker Lamp1 in IBA1-positive microglia (Figure 2A, B). However, no significant changes were observed in the DA group (Figure 2A, B). Our results suggest that deep anesthesia attenuates surgery-induced microglia activation. More importantly, such changes were not discovered in the hippocampus of aged mice (Figure 2).

Conclusion
Surgical stimulation under general anesthesia induced microglial synaptic engulfment in adult mice. However, microglial synapse engulfment varied depending on the depth of anesthesia and the age of the animal. These findings suggest the need for additional studies regarding the depth of anesthesia, age, surgery-related neuroinflammation, and POD.

Figure & Table

Figure & Table 1.



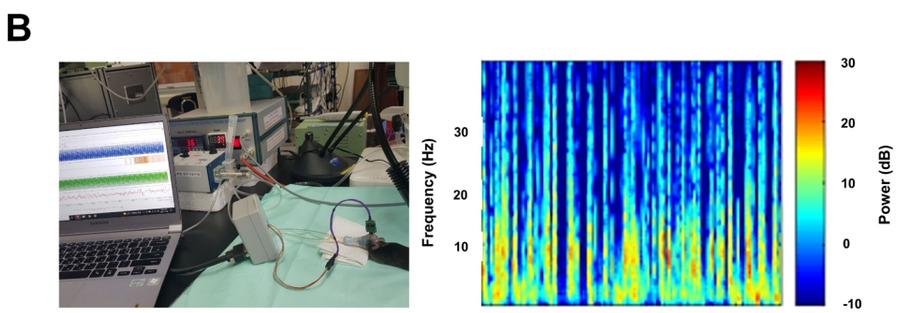


Figure 1. (A) Experimental time-line. (B) Robust burst suppression occurred at 2.5% sevoflurane.

AP-23-2 (2026-0289)

Figure & Table

Figure & Table 2.

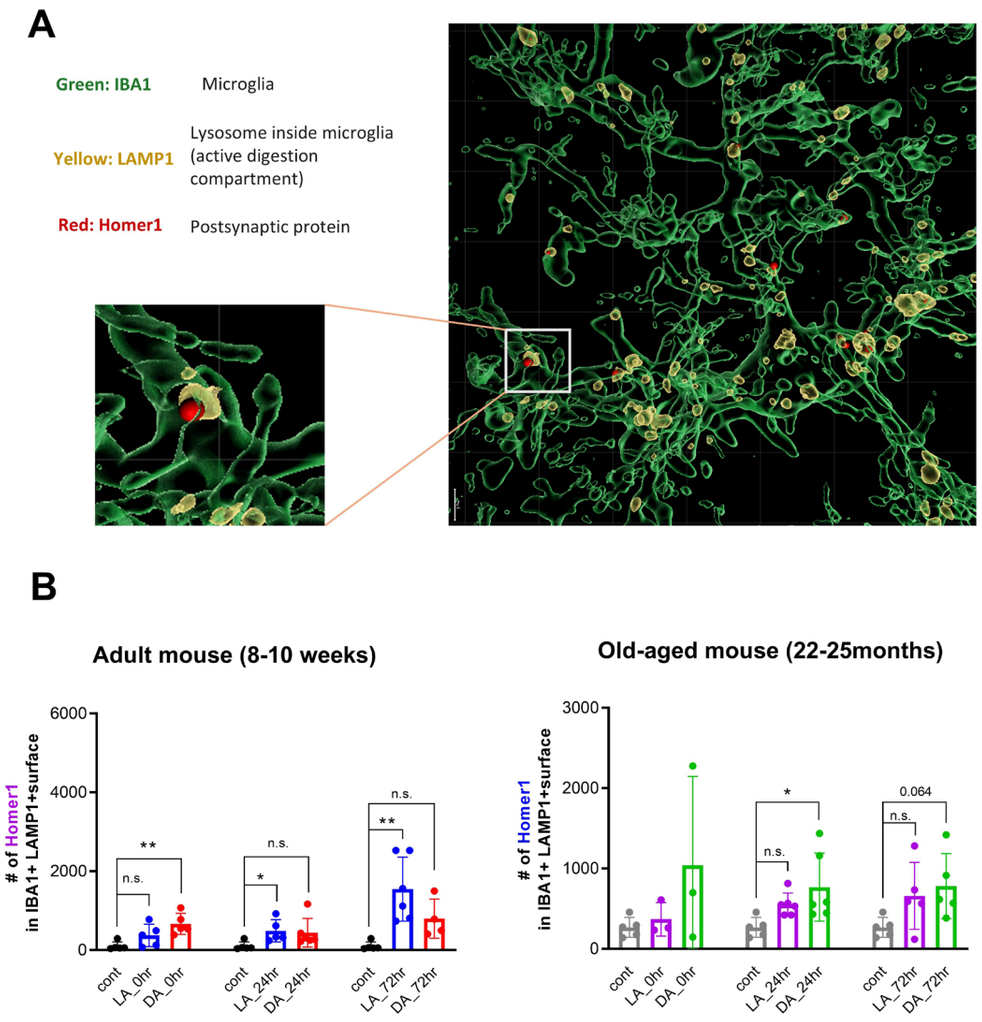


Figure 2. (A) Representative image of microglia synaptic engulfment. (B) Deep anesthesia prevented microglial synaptic engulfment only in young adult mice.

AP-23-3 (2026-0219)

Dexmedetomidine Versus Low-Dose Desflurane for Transcranial Motor-Evoked Potential Monitoring During Adolescent Posterior Spinal Fusion: A Randomized Double-Blind Trial

Sirima Phoowanakulchai[1], Ratima Boonmuang[1*], Duangnet Kuljittichanok[1], Pawit Somnuke[1], Thanitthi Thiparporn[1], Alif Noikham[1], Natpapat Tangpraphachaikul[1], Masahiko Kawaguchi[2], Thanase Ariyawatkul[3], Manee Raksakietisak[1]

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3. Orthopaedic, Siriraj hospital, Mahidol university, Thailand

Background

Reliable transcranial motor-evoked potential (tcMEP) monitoring requires anesthetic conditions that preserve corticospinal responses without allowing disruptive movement. Dexmedetomidine and low-dose desflurane are used as adjuncts to propofol, but their relative effects on tcMEP monitoring and recovery in adolescents remain uncertain.

Methods

In this prospective, randomized, double-blind trial, 58 adolescents undergoing posterior spinal fusion were assigned to dexmedetomidine (0.5 μg/kg followed by 0.2 μg/kg/h; n=29) or desflurane 0.3 minimum alveolar concentration (n=29), each with propofol–fentanyl anesthesia. tcMEPs were recorded bilaterally from the abductor pollicis brevis, abductor hallucis, and gastrocnemius at before incision (T0), after instrumentation (T1), and before wound closure (Tfinal). The primary outcome was the T0-adjusted between-group difference in amplitude for each of six muscles. Secondary outcomes included movement during monitoring, amplitude reduction ≥80%, emergence agitation after extubation in the operating room, and postoperative recovery.

Results

Reproducible bilateral T0 responses and complete tcMEP data were obtained in all 58 participants. No treatment-by-time interaction or between-group amplitude difference was detected in any muscle (adjusted differences 28–269 μV; all 95% confidence intervals included zero; P=0.113–0.776). Marked amplitude reductions did not differ between groups. No participant developed a new postoperative motor deficit. Movement during monitoring was more frequent with dexmedetomidine (27.6% vs 6.9%; risk difference 20.7 percentage points, 95% confidence interval 0.9–39.5; P=0.037). Among participants extubated in the operating room, emergence agitation was less frequent with dexmedetomidine (3/26 [11.5%] vs 11/28 [39.3%]; risk difference −27.7 percentage points, 95% confidence interval −47.5 to −4.3; P=0.030). Other recovery outcomes were similar.

Conclusion

At the studied doses, tcMEP amplitudes did not differ significantly between groups. Dexmedetomidine was associated with more movement during monitoring but less emergence agitation after operating-room extubation. The regimens therefore differed in their secondary clinical profiles rather than in the measured tcMEP outcome.

AP-23-3 (2026-0219)

Figure & Table

Figure & Table 1.

Table 1 tcMEP amplitude by muscle: adjusted between-group differences (linear mixed model)

Muscle	Adjusted mean Desflurane (μV)	Adjusted mean Dexmedetomidine (μV)	Adjusted difference (95% CI)	P-value
APB, left	599	682	83 (−346, 513)	0.699
APB, right	845	953	108 (−235, 451)	0.531
AH, left	545	573	28 (−166, 221)	0.776
AH, right	496	765	269 (−66, 604)	0.113
Gastrocnemius, left	152	218	66 (−158, 290)	0.556
Gastrocnemius, right	144	210	66 (−156, 288)	0.553

APB = abductor pollicis brevis; AH = abductor hallucis. Adjusted mean = marginal mean from linear mixed model.

Figure & Table 2.

Table 2 Incidence of amplitude reduction ≥80% from T0

Muscle	Time	Desflurane, n (%)	Dexmedetomidine, n (%)	P value
APB, left	T1	3 (10.3)	2 (6.9)	1.000
	Tfinal	2 (6.9)	1 (3.4)	1.000
APB, right	T1	2 (6.9)	4 (13.8)	0.670
	Tfinal	1 (3.4)	1 (3.4)	1.000
AH, left	T1	1 (3.4)	1 (3.4)	1.000
	Tfinal	0 (0.0)	2 (6.9)	0.491
AH, right	T1	1 (3.4)	2 (6.9)	1.000
	Tfinal	0 (0.0)	3 (10.3)	0.237
Gastrocnemius, left	T1	1 (3.4)	0 (0.0)	1.000
	Tfinal	0 (0.0)	2 (6.9)	0.491
Gastrocnemius, right	T1	1 (3.4)	1 (3.4)	1.000
	Tfinal	2 (6.9)	1 (3.4)	1.000
Any of six muscles	T1	4 (13.8)	7 (24.1)	0.504
	Tfinal	5 (17.2)	6 (20.7)	1.000

P values are from two-sided Fisher's exact tests. "Any of six muscles" is a participant-level composite defined as at least one monitored muscle meeting the ≥80% threshold. AH, abductor hallucis; APB, abductor pollicis brevis.

AP-23-4 (2026-0388)

Comparison Between Effects Of Inhalational Anaesthetics And Total Intravenous Anaesthesia (TIVA) During Different Stages Of Resection On Heart Rate Variability In Patients Undergoing Temporal Lobe Epilepsy Surgery: A Prospective Randomized Controlled Study

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Background

Interictal cardiac autonomic dysfunction is well described in temporal lobe epilepsy (TLE) and has been linked to sudden unexpected death in epilepsy (SUDEP). Heart rate variability (HRV) offers a non-invasive window into sympathovagal balance, but whether anaesthetic technique, propofol-based total intravenous anaesthesia (TIVA) versus sevoflurane, modulates perioperative HRV during TLE surgery is not well characterised. We compared HRV and haemodynamic trajectories between propofol and sevoflurane anaesthesia across defined stages of anterior temporal lobectomy with amygdalohippocampectomy (ATL+AH), benchmarked against a non-epilepsy control group.

Methods

In this prospective randomized controlled study (IEC approval SCT/IEC/2394/JUNE/2025; CTRI/2026/06/111996), 40 adults undergoing ATL+AH for drug-resistant TLE were randomized to propofol-TIVA (Group P, n=20) or sevoflurane (Group S, n=20), both titrated to BIS 40-60; 30 patients undergoing non-temporal glioma surgery with seizures served as controls. Five-minute ECG segments were recorded at eight perioperative time points (baseline to post-extubation recovery) for time-domain (SDRR, RMSSD) and frequency-domain (LF, HF, LF/HF ratio) HRV analysis, alongside haemodynamic parameters.

Results

TLE patients showed higher baseline LF/HF ratio and lower HF power than controls , consistent with interictal sympathetic predominance; this difference resolved after induction regardless of agent. SDRR and LF/HF ratio did not differ between propofol and sevoflurane at any time point. RMSSD was comparable through the case but was significantly higher with sevoflurane at recovery , with significant longitudinal RMSSD change only in the sevoflurane group . Seizure-focus laterality independently influenced autonomic trajectory: right-sided foci shifted from sympathetic to parasympathetic dominance by recovery , while left-sided foci showed a significant RMSSD fall not captured by LF/HF classification. Heart rate did not differ between anaesthetic groups; mean arterial pressure was higher with sevoflurane at three stimulus-intensive points. Complication rates were higher with propofol (than sevoflurane), including all bradyarrhythmic and asystolic events.

Conclusion

Propofol and sevoflurane produced broadly similar intraoperative HRV and haemodynamic profiles in TLE surgery, but sevoflurane was associated with faster vagal recovery at emergence. TLE patients showed baseline autonomic imbalance that normalized after induction irrespective of agent. Seizure-focus laterality independently shaped the direction of perioperative autonomic change. HRV may offer more sensitive perioperative autonomic monitoring than standard haemodynamic parameters in this population.

AP-23-5 (2026-0363)

Association Between Intraoperative Hypothermia, Hypotension, and Perioperative Neurocognitive Disorders in Elderly Patients Undergoing Elective Urological Surgery: A Prospective Observational Study

Afnan Fakhrurazi[1], Azarinah Izaham[1], Low Ren Geng[1], Farah Hanim Abdullah[1], Iskandar Khalid[1], Syarifah Noor Nazihah Sayed Masri[1*]

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Background

Perioperative neurocognitive disorders (PND) are important complications in older patients undergoing surgery and anaesthesia. Intraoperative hypothermia and hypotension are potentially modifiable perioperative factors that may contribute to postoperative cognitive decline.

Methods

This prospective observational study included 93 older patients undergoing elective urological surgery. Cognitive function was assessed preoperatively, within 24 h after surgery, and 14–30 days postoperatively. Intraoperative temperature and mean arterial pressure (MAP) were recorded at predefined intervals. Associations between intraoperative factors and PND were evaluated using univariable and multivariable analyses.

Results

Among 93 patients, 20 (21.5%) developed PND. Early postoperative cognitive decline occurred in 16 patients (17.2%), while delayed neurocognitive recovery was observed in 19 (20.4%), 15 patients were affected at both assessments. PND was more frequent in patients with intraoperative hypothermia (54.8% vs. 4.8%, p<0.001) and hypotension (47.8% vs. 12.9%, p<0.001). Both factors remained independently associated with PND after adjustment: hypothermia (aOR 41.26, 95% CI 6.50–262.09; p<0.001) and hypotension (aOR 8.96, 95% CI 1.49–53.79; p=0.016) with lower educational level as independent predictors of PND.

Conclusion

Intraoperative hypothermia demonstrated the strongest independent association with PND, while intraoperative hypotension and lower educational attainment were also independently associated with PND. These findings support further investigation of perioperative temperature and haemodynamic management as potentially modifiable targets for reducing postoperative neurocognitive complications in older patients.

AP-23-5 (2026-0363)

Figure & Table

Figure & Table 1.

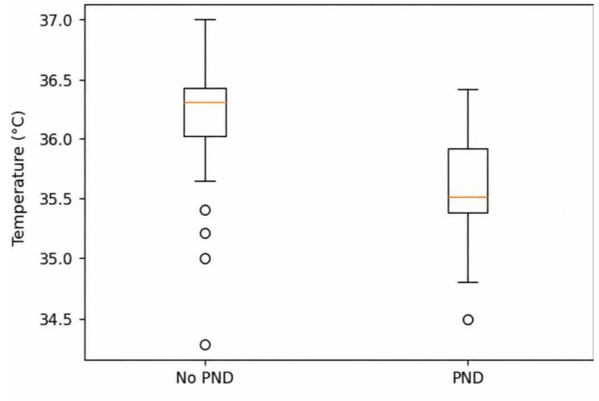


Figure 1a: Distribution of the intraoperative temperature according to Perioperative Neurocognitive Disorder (PND) status.

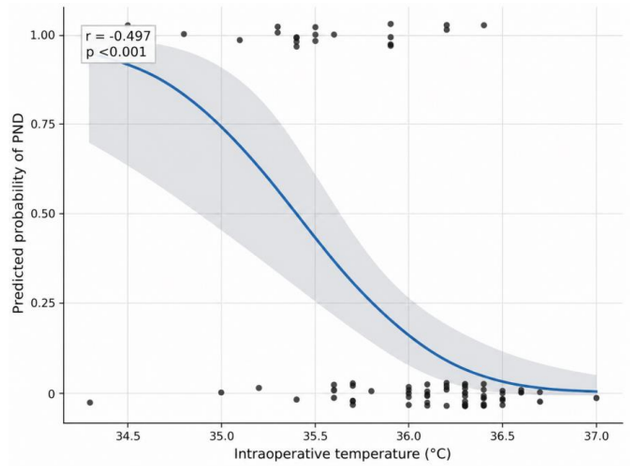


Figure 1b. Predicted probability of PND according to intraoperative temperature with a 95% confidence band.

ABSTRACT
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Presentation
E-Poster

AP-23-5 (2026-0363)

Figure & Table

Figure & Table 2.

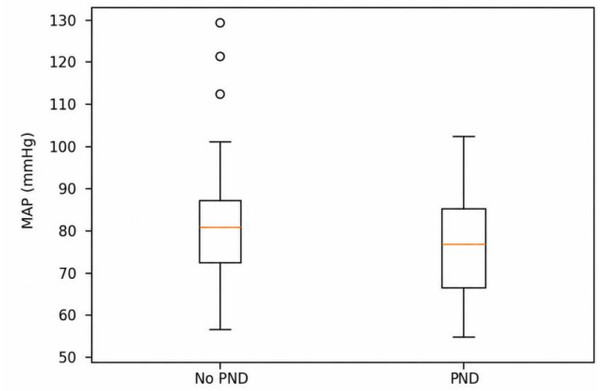


Figure 2a: Distribution of the intraoperative MAP according to Perioperative Neurocognitive Disorder (PND) status.

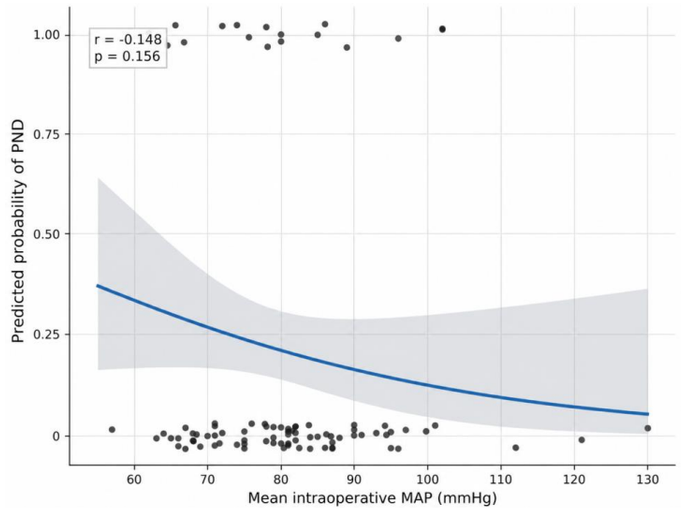


Figure 2b. Predicted probability of PND according to intraoperative MAP with a 95% confidence band.

AP-23-6 (2026-0576)

Anaesthetic Management of Atrial Flutter with Slow Ventricular Response in an Elderly Patient Undergoing Cranioplasty: A Case Report

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Introduction

Atrial flutter (AFL) typically presents with a rapid ventricular response; however, a slow ventricular response is an uncommon presentation that may reflect significant conduction abnormalities. In elderly patients with structural heart disease and impaired ventricular function, this can pose substantial perioperative haemodynamic challenges. We present the anaesthetic management of an elderly patient with AFL and marked bradycardia undergoing cranioplasty.

Case

A 72-year-old obese man with diabetes mellitus, hypertension, asthma, ischemic heart disease and previous neurosurgery was scheduled for cranioplasty following decompressive surgery for an acute subdural haemorrhage. Preoperative examination revealed an irregular pulse with a heart rate of 38–40 beats/min. Electrocardiography demonstrated atrial flutter with atrioventricular block and a ventricular rate of approximately 40 beats/min. Echocardiography showed left ventricular ejection fraction of 35–40%, severe concentric left ventricular hypertrophy, severe mitral regurgitation and dilated cardiac chambers. Cardiology evaluation diagnosed sick sinus syndrome. In view of the anticipated haemodynamic risk, a temporary transvenous pacemaker was inserted immediately before surgery and programmed to VOO mode at 60 beats/min. Invasive arterial pressure monitoring was established. Anaesthesia was induced with carefully titrated doses of midazolam, fentanyl, propofol and phenylephrine. Despite gradual induction, severe hypotension occurred, requiring intravenous adrenaline and noradrenaline infusion. Tracheal intubation was performed using videolaryngoscopy. Anaesthesia was maintained with isoflurane in air–oxygen and intermittent fentanyl, with vasopressor support and vigilant haemodynamic monitoring. The intraoperative course was subsequently stable. Following surgery, the patient was managed in the intensive care unit with gradual ventilatory and vasopressor weaning. He was extubated uneventfully after a successful spontaneous breathing trial. The temporary pacemaker and central venous catheter were removed two hours later, with the heart rate returning to the baseline range of 40–45 beats/min. Anticoagulation was resumed after 24 hours.

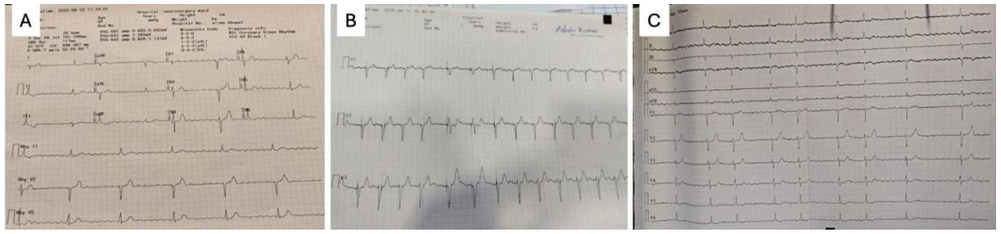
Conclusion

Atrial flutter with a slow ventricular response is an uncommon but clinically important perioperative finding, particularly in elderly patients with structural heart disease and ventricular dysfunction. Recognition of the underlying conduction abnormality and proactive multidisciplinary planning are essential. Temporary pacing, invasive haemodynamic monitoring, cautious titration of anaesthetic agents and preparedness for vasoactive support facilitated safe perioperative management in this high-risk patient.

AP-23-6 (2026-0576)

Figure & Table

Figure & Table 1.



AP-23-7 (2026-0347)

Management of Immunosuppression and Immunotherapy for Anti-NMDAR Encephalitis Complicated by Refractory Seizures and Thoracic Empyema: A Case Report

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Introduction
Anti-N-methyl-D-aspartate receptor (anti-NMDAR) encephalitis is the most common type of autoimmune encephalitis, despite its overall rarity. The pathogenesis is mediated by immunoglobulin G (IgG) autoantibodies that target NMDA receptors in the central nervous system. This specific disruption of excitatory and inhibitory synaptic transmission leads to significant psychiatric and neurological symptoms. Managing these intricate cases poses considerable diagnostic and therapeutic difficulties, especially in critically ill patients necessitating coordinated interdisciplinary care.

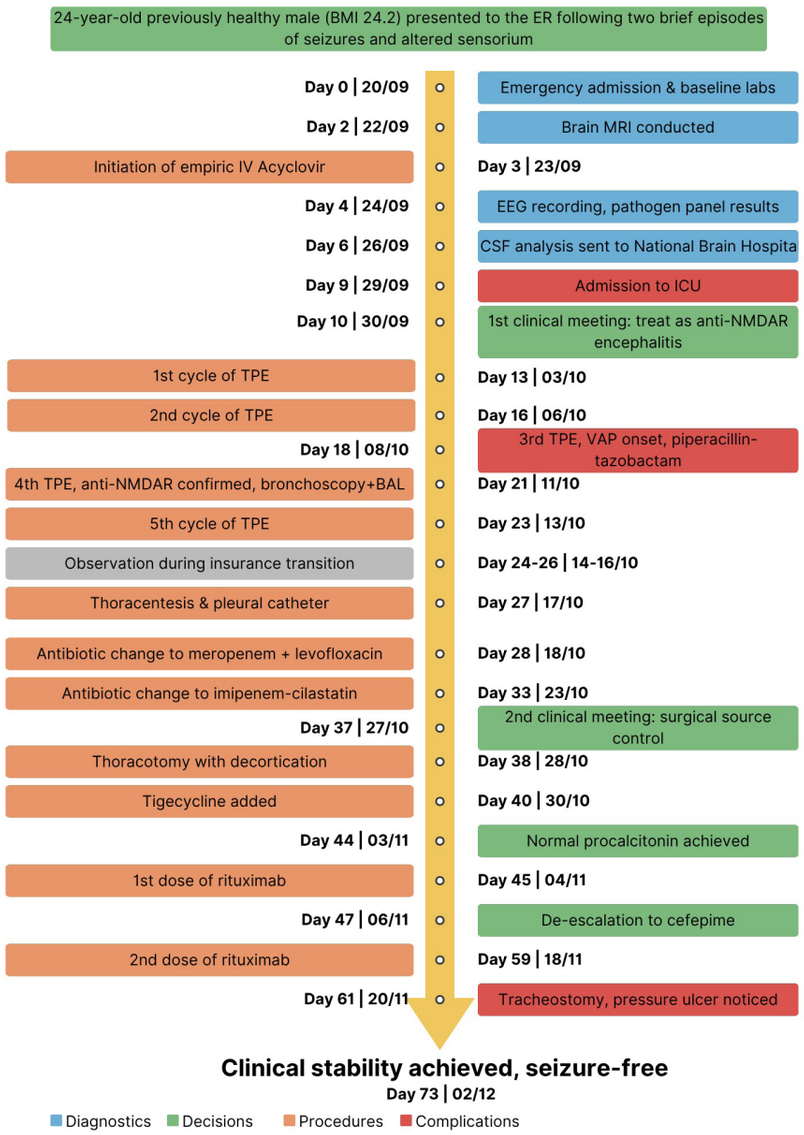
Case
We report a previously healthy 24-year-old male exhibiting acute psychiatric symptoms, altered consciousness, and refractory faciobrachial status epilepticus. Despite unremarkable initial neuroimaging and conventional cerebrospinal fluid analyses, electroencephalography demonstrated an extreme delta brush pattern, leading to an empirical diagnosis of anti NMDAR encephalitis. Preliminary treatments, comprising empirical steroid immunosuppression and five sessions of therapeutic plasma exchange, did not result in clinical enhancement. The initiation of second-line rituximab was significantly postponed due to the emergence of severe thoracic empyema and simultaneous insurance complications, resulting in a significant therapeutic delay. Urgent surgical source control through thoracotomy was prioritized using a multidisciplinary approach. After decortication and the normalization of procalcitonin levels, rituximab was commenced safely. The patient demonstrated significant clinical improvement, attaining total seizure cessation and neurological stabilization within two weeks after the second dose of rituximab.

Conclusion
Refractory seizures with anti-NMDAR encephalitis require personalized treatment. Plasmapheresis removes antibodies, while rituximab inhibits autoantibody production. Cerebrospinal fluid data validation should not delay life-saving empiric actions. Its symptoms often resemble other encephalitides, so intensivists must diagnose and escalate treatment accordingly. This case gives a good example of how the importance of decision-making, interdisciplinary communication, and flexible rapid action is crucial for patient survival. It is necessary in determining timely starting drugs, choosing when to escalate immunosuppression, and aggressively treating secondary infections.

AP-23-7 (2026-0347)

Figure & Table

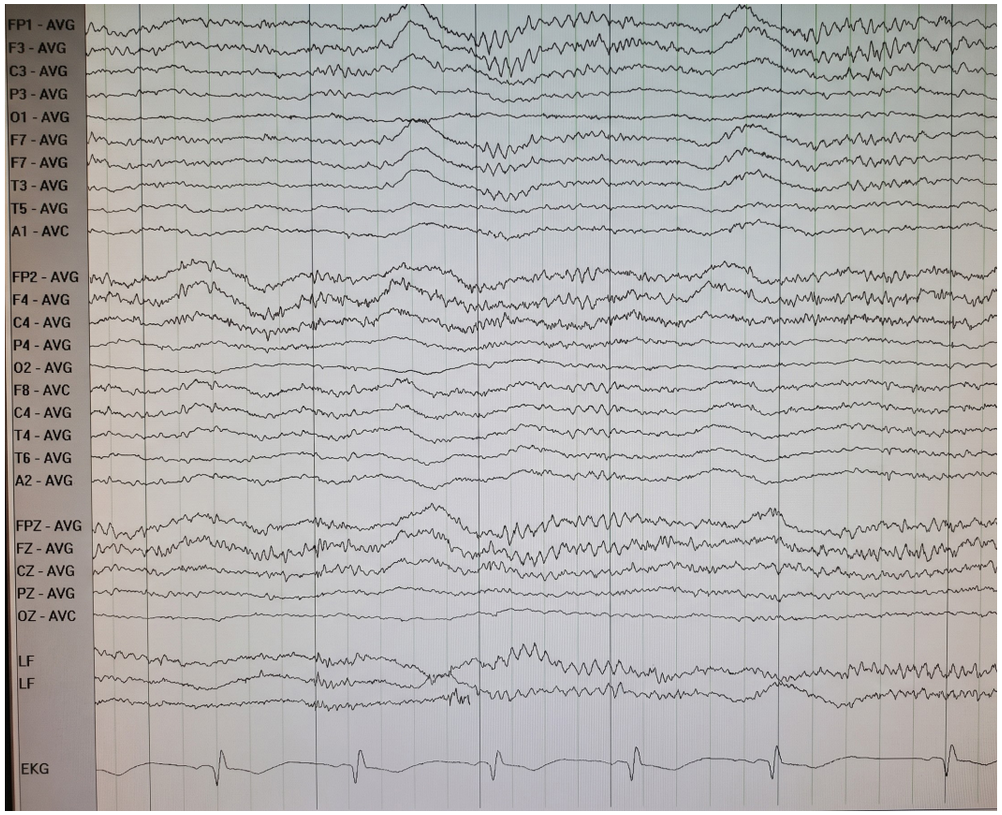
Figure & Table 1.



AP-23-7 (2026-0347)

Figure & Table

Figure & Table 2.



ABSTRACT
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AP-23-8 (2026-0258)

Preserving Spontaneous Ventilation in Difficult Airway Surgery: Ultrasound-Guided Bilateral Superficial Cervical Plexus Block for Tracheal Surgery—A Two-Case Series from Ospital ng Maynila Medical Center

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Introduction

Awake airway management remains the standard for anticipated difficult airways, yet ultrasound-guided regional anesthesia is an underrecognized adjunct for tracheal surgery. The superficial cervical plexus block (SCPB) can provide surgical anesthesia while preserving spontaneous ventilation, potentially avoiding the catastrophic consequences of induction in patients with critical airway obstruction. We describe two difficult airway cases successfully managed using ultrasound-guided bilateral SCPB.

Case

Two patients with anticipated difficult airways underwent tracheal surgery using ultrasound-guided bilateral SCPB.
Case 1: A 41-year-old morbidly obese woman (BMI 46.6 kg/m^2) with post-COVID Myers–Cotton Grade II tracheal stenosis presented with progressive dyspnea.
Case 2: An 87-year-old man with a hypopharyngeal tumor and inability to tolerate the supine position underwent tracheostomy and suspension laryngoscopy.
In all patients, ultrasound-guided bilateral SCPB was performed at the posterior border of the sternocleidomastoid muscle under real-time ultrasound guidance, preserving spontaneous ventilation while minimizing airway manipulation. Using a high-frequency linear ultrasound transducer, the superficial cervical plexus was identified along the posterior border of the sternocleidomastoid muscle, and 5 mL of 0.25% isobaric bupivacaine was injected on each side under direct ultrasound visualization following negative aspiration.
All procedures were completed successfully without airway loss, hypoxemia, emergency airway rescue, block-related complications, or conversion to an alternative anesthetic technique. SCPB provided satisfactory surgical anesthesia for awake tracheostomy, maintained patient cooperation and spontaneous ventilation during airway access, and facilitated subsequent airway management without adverse perioperative events.

Conclusion

When induction may be the greatest airway risk, avoiding it may be the safest strategy. Ultrasound-guided bilateral SCPB enabled safe airway access while preserving spontaneous ventilation across three distinct difficult airway scenarios. This case series highlights SCPB as a valuable airway-sparing adjunct that expands the anesthesiologist's options for carefully selected patients undergoing tracheal surgery.

AP-23-8 (2026-0258)

Figure & Table

Figure & Table 1.

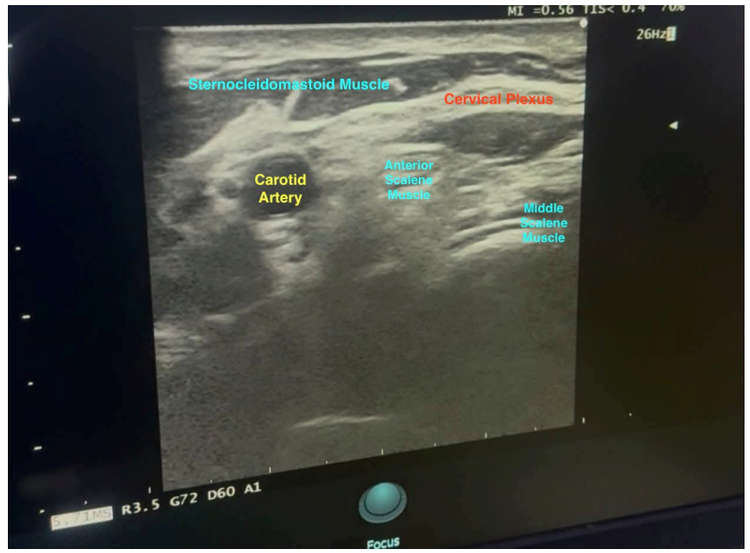
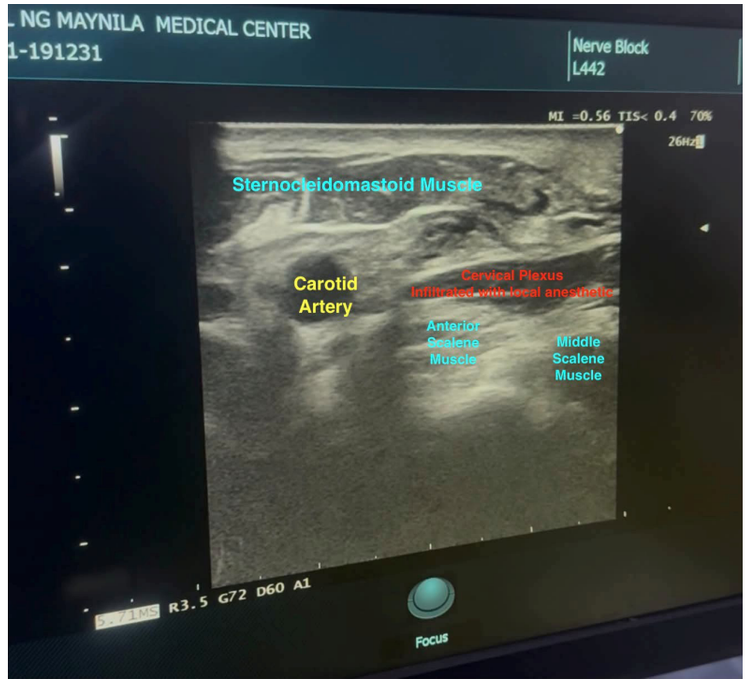


Figure & Table 2.



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Abstract Presentation 24

Date / Time	Nov 6 (Fri), 15:30-17:00
Room	Room B *(Paradise City)*
Language	English
Chair(s)	Ha Yeon Kim *(Ajou University, Republic of Korea)* Hyewon Oh *(Ewha Womans University, Republic of Korea)*

AP-24-1
2026-0346

Modified Cirrhotic Cardiomyopathy and High-Probability HFpEF as Complementary Predictors of Outcomes After Liver Transplantation: A Multicenter Cohort Study

Hyeun Joon Bae[1], Jun-Gol Song[1*]

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AP-24-2
2026-0260

Preoperative Nonselective Beta-Blocker Use and Hepatocellular Carcinoma Recurrence After Living Donor Liver Transplantation

Sa-Jin Kang[1], Ji-Hye Kwon[2], Jae Hwan Kim[3], Hyeun-Joon Bae[1], Kyoung-Sun Kim[1], Hye-Mee Kwon[1], In-Gu Jun[1], Jun-Gol Song[1*], Gaab Soo Kim[2], Gyu-Sam Hwang[1]

1. Department of Anesthesiology and Pain Medicine, Asan Medical Center, Republic of Korea
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AP-24-3
2026-0551

Revisiting the Diagnostic Criteria for Postreperfusion Syndrome: Incorporating Pulmonary Artery Pressure and Mixed Venous Oxygen Saturation

Suk Hyung Choe[1], Woo-Young Jo[1], Jae-Woo Ju[1], Hyun-Kyu Yoon[1], Ho-Jin Lee[1], YoungRok Choi[2], Kwang-Woong Lee[2], Won Ho Kim[1*]

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2. Surgery, Seoul National University Hospital, Republic of Korea

AP-24-4
2026-0418

Paradoxical Protective Effect of Preoperative Anaemia Versus Perioperative Haemoglobin Decline on Early Allograft Dysfunction and Long-Term Survival After Liver Transplantation: A 14-Year Cohort Study

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AP-24-5
2026-0528

Postoperative Analgesia in Kidney Transplant Recipient Laparotomy: A Comparison of Single-Shot Versus Continuous Quadratus Lumborum Block

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AP-24-6
2026-0168

A Retrospective Analysis of Brain-Dead Lung Transplant Cases at Our Hospital Over the Past 5 Years

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AP-24-7
2026-0056

Comparison of Intrathecal Morphine Versus Transversus Abdominis Plane Block for Postoperative Pain Control in Patients Undergoing Kidney Transplantation: A Prospective Randomised Controlled Study

Saurabh Mittal[1*]

1. Anaesthesia and Critical Care, Punjab Institute of Liver and Biliary Sciences, Mohali, Punjab, India

AP-24-8
2026-0456

Factors Associated with the Use of Pre-Operative Fresh Frozen Plasma and Packed Red Cells in Elective Surgical Patients for Cost-Effectiveness and Workload Reduction

Orarat Karnjanawanichkul[1*], Natthakit Chokprakitsunthorn[1], Asamaporn Puetpaiboon[1], Sirikarn Siripruekpong[1], Supanuch Phetsong[1], Oraree Pechpisan[1], Saranya Hasaran[1]

1. Anesthesiology, Prince of Songkla University, Thailand

AP-24-1 (2026-0346)

Modified Cirrhotic Cardiomyopathy and High-Probability HFpEF as Complementary Predictors of Outcomes After Liver Transplantation: A Multicenter Cohort Study

Hyeun Joon Bae[1], Jun-Gol Song[1*]

1. Department of Anesthesiology and Pain Medicine, Asan Medical Center, Republic of Korea

Background

Cardiovascular disease has emerged as a major contributor to morbidity and mortality after liver transplantation. Cirrhotic cardiomyopathy (CCM) and heart failure with preserved ejection fraction (HFpEF) share several echocardiographic features, and CCM has been proposed as a cirrhosis-related phenotype within the HFpEF spectrum. However, whether CCM and HFpEF criteria identify the same patients, and whether they provide independent or complementary prognostic information, remains unknown. We evaluated modified CCM (mCCM) and high-probability HFpEF, separately and in combination, in a large multicenter liver transplantation cohort.

Methods

This retrospective cohort study included adult primary liver transplant recipients from three centers (n=8,092). To ensure reliable multicenter data extraction, mCCM was defined as ≥2 of 3 core diastolic criteria (e′ <7 cm/s, E/e′ ≥15, TR velocity >2.8 m/s) or LVEF <50%. High-probability HFpEF was defined as an HFA-PEFF score ≥5. Patients were classified into four phenotypes: neither, mCCM-only, HFpEF-only, and overlap. All-cause mortality and graft failure were assessed using Kaplan–Meier analysis, 10-year restricted mean survival time (RMST), and multivariable Cox regression. In a separate mutually adjusted model, mCCM and high-probability HFpEF were entered simultaneously to evaluate their independent prognostic value.

Results

The prevalence of the neither, mCCM-only, HFpEF-only, and overlap phenotypes was 89.4%, 3.9%, 5.0%, and 1.7%. Survival differed significantly across phenotypes for both all-cause mortality and graft failure (both log-rank p<0.001), with the overlap group showing the poorest outcomes. 10-year RMST decreased from 8.4 years in the neither group to 6.9 years in the overlap group. After adjustment, the overlap phenotype was associated with the highest risk of mortality (adjusted hazard ratio [aHR], 1.78; 95% CI, 1.33–2.39) and graft failure (aHR, 1.65; 95% CI, 1.24–2.20). HFpEF-only was independently associated with mortality (aHR, 1.28), whereas mCCM-only showed a borderline association (aHR, 1.21). In mutually adjusted models, both mCCM (aHR, 1.26) and high-probability HFpEF (aHR, 1.32) remained independently associated with mortality.

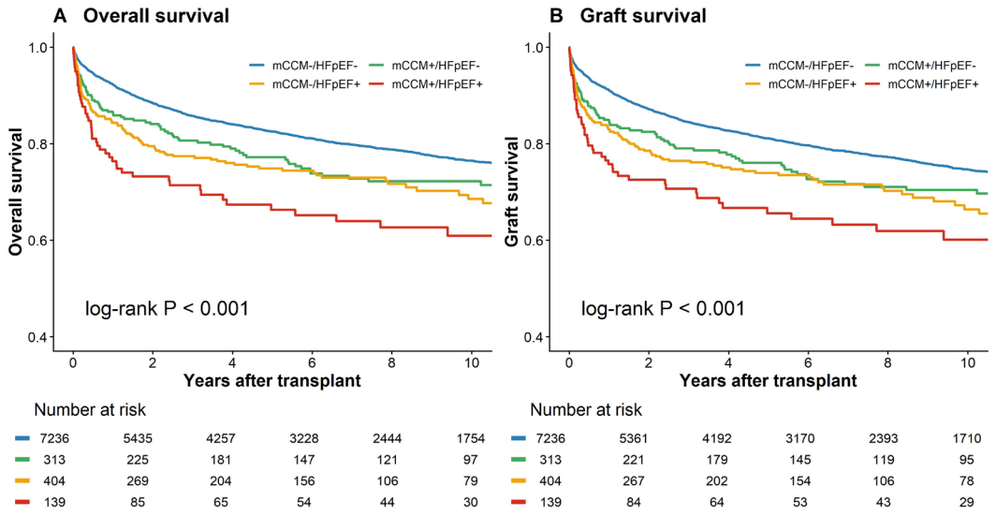
Conclusion

In this multicenter liver transplantation cohort, an mCCM phenotype and high-probability HFpEF provided independent and complementary prognostic information for death and graft failure. Their coexistence identified the highest-risk phenotype, supporting joint assessment of cirrhosis-related myocardial dysfunction and HFpEF probability for pre-transplant risk stratification.

AP-24-1 (2026-0346)

Figure & Table

Figure & Table 1.



ABSTRACT
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AP-24-2 (2026-0260)

Preoperative Nonselective Beta-Blocker Use and Hepatocellular Carcinoma Recurrence After Living Donor Liver Transplantation

Sa-Jin Kang[1], Ji-Hye Kwon[2], Jae Hwan Kim[3], Hyeun-Joon Bae[1], Kyoung-Sun Kim[1], Hye-Mee Kwon[1], In-Gu Jun[1], Jun-Gol Song[1*], Gaab Soo Kim[2], Gyu-Sam Hwang[1]

1. Department of Anesthesiology and Pain Medicine, Asan Medical Center, Republic of Korea
2. Department of Anesthesiology and Pain Medicine, Samsung Medical Center, Republic of Korea
3. Department of Anesthesiology and Pain Medicine, Inje University Haeundae Paik Hospital, Republic of Korea

Background

Experimental data suggest that nonselective beta-blockers (NSBBs) exert anti-tumor effects against hepatocellular carcinoma (HCC). Although observational evidence indicates that NSBB use may reduce the development of primary HCC in patients with cirrhosis, its association with HCC recurrence after liver transplantation remains unclear. Therefore, this study aimed to investigate the association between the preoperative use of NSBBs and post-transplant HCC recurrence in living donor liver transplant (LDLT) recipients.

Methods

This retrospective multicenter study included 3,657 LDLT recipients with a history of HCC. The primary outcome was post-transplant HCC recurrence, with pre-recurrence death treated as a competing risk. Recurrence-free survival (RFS) was a secondary outcome. The primary exposure was preoperative NSBB use (carvedilol or propranolol); selective beta-blockers were also evaluated for class specificity. The principal effect estimate was the adjusted Fine-Gray subdistribution hazard ratio (SHR), reported alongside cause-specific hazard ratios (HRs). Multivariable models were adjusted for recipient, donor, and operative covariates and tumor burden markers (Milan criteria, vascular/lymph-node invasion, log-transformed AFP and PIVKA-II). Analyses were further validated in a 1:1 propensity-score-matched (PSM) cohort.

Results

During a median follow-up of 4.7 years, 794 recurrences and 300 competing deaths occurred. NSBB users (n=975) showed a significantly lower 5-year cumulative incidence of recurrence than non-users (n=2,682): 16.5% vs. 23.5% (Gray's test, p<0.001). The adjusted Fine-Gray SHR was 0.75 (95% CI, 0.63–0.90; p=0.002), consistent with the cause-specific HR (0.74; 95% CI, 0.61–0.89; p=0.001) and post-PSM SHR (0.74; 95% CI, 0.60–0.92; p=0.006). RFS was likewise higher in NSBB users (5-year, 75.7% vs. 70.2%; adjusted HR 0.82; 95% CI, 0.70–0.95; p=0.007). Agent-specific analysis revealed propranolol (n=860) as the primary driver (adjusted SHR 0.77; 95% CI, 0.64–0.93; p=0.007), with carvedilol (n=124) showing directional concordance (SHR 0.66; 95% CI, 0.38–1.12; p=0.126). Selective beta-blockers showed no significant effect (atenolol SHR 0.88; 95% CI, 0.48–1.61; p=0.681; bisoprolol SHR 1.19; 95% CI, 0.65–2.17; p=0.575), demonstrating a class specificity that supports a β2-adrenergic mechanism.

Conclusion

Preoperative NSBB use was independently associated with a reduced risk of HCC recurrence following LDLT. This association was primarily observed with propranolol and remained consistent across competing-risk, cause-specific, and propensity score–matched analyses. These findings suggest a potential adjuvant role for NSBBs in mitigating post-transplant recurrence and warrant prospective validation.

AP-24-2 (2026-0260)

Figure & Table

Figure & Table 1.

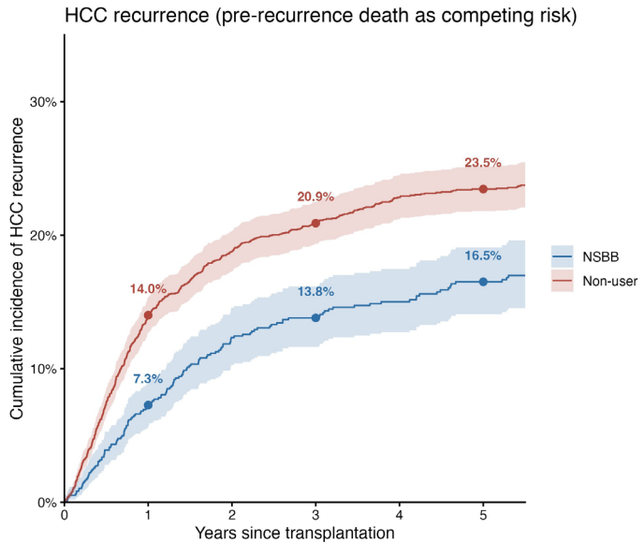
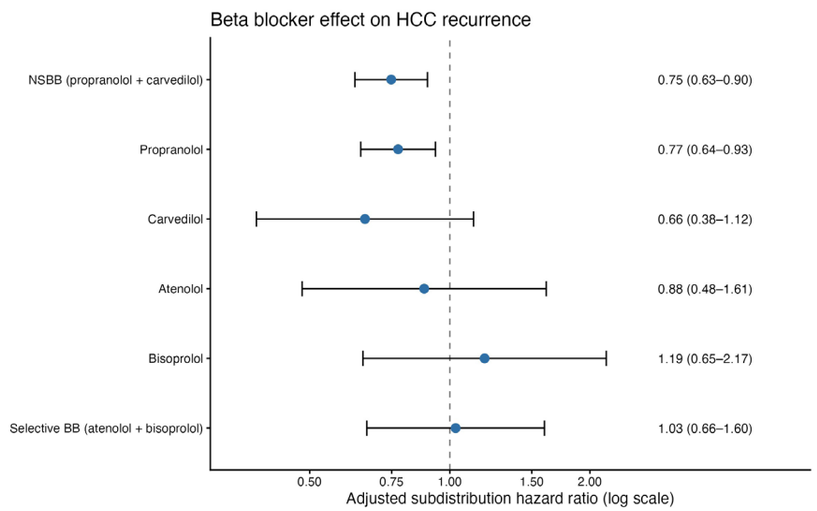


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

AP-24-3 (2026-0551)

Revisiting the Diagnostic Criteria for Postreperfusion Syndrome: Incorporating Pulmonary Artery Pressure and Mixed Venous Oxygen Saturation

Suk Hyung Choe[1], Woo-Young Jo[1], Jae-Woo Ju[1], Hyun-Kyu Yoon[1], Ho-Jin Lee[1], YoungRok Choi[2], Kwang-Woong Lee[2], Won Ho Kim[1*]

1. Anesthesiology, Seoul National University Hospital, Republic of Korea
2. Surgery, Seoul National University Hospital, Republic of Korea

Background

Postreperfusion syndrome (PRS) is conventionally defined as a mean arterial pressure (MAP) decrease ≥30% within 5 minutes of reperfusion. Advanced hemodynamic parameters including mean pulmonary arterial pressure (mPAP) and mixed venous oxygen saturation (SvO_2) are routinely monitored but not incorporated into the PRS definition. We investigated whether their inclusion improves PRS's prognostic value for postoperative organ injury.

Methods

In a single-center retrospective cohort of 1,243 adult living donor liver transplantation (LDLT) recipients monitored with pulmonary artery catheters, we evaluated five PRS definitions in a temporal derivation (2011–2020, n=822) and validation (2021–2025, n=421) design. Definition 1 was MAP decrease ≥30% alone; Definitions 2 and 3 added mPAP increase or SvO_2 decrease ≥30%; Definition 4 required all three; Definition 5 required any one. The primary outcome was acute kidney injury (AKI); EAD was an exploratory secondary outcome given its smaller event count. Derivation-cohort models (17 covariates) were locked and applied to validation.

Results

AKI occurred in 38.4% (derivation) and 31.1% (validation); PRS prevalence ranged from 3.7% (Definition 4) to 69.8% (Definition 5). Definition 5 had the highest derivation area under the receiver operating characteristic curve (AUC: 0.82) and, on validation, the largest adjusted odds ratio (46.69, p<0.001), highest AUC (0.79), and greatest net reclassification index (NRI) over Definition 1 (+0.76); calibration was acceptable (Hosmer-Lemeshow p=0.15–0.48). Definition 4 had the highest specificity (0.96). Exploratory EAD analysis (11.6%/8.1%) showed a similar pattern (validation AUC 0.73, NRI +0.67) but significant miscalibration (p<0.05).

Conclusion

AND-based composites (Definitions 2–4) did not improve AKI discrimination beyond routine clinical variables, and the apparent advantage of the permissive OR-based composite (Definition 5) reflects a small, low-event reference group, not genuine incremental value. mPAP and SvO_2 remain informative reperfusion-specific correlates of AKI, though composite threshold definitions do not robustly improve prediction.

AP-24-3 (2026-0551)

Figure & Table

Figure & Table 1.

Table 1. Performance matrix of definitions to predict postoperative acute kidney injury and early allograft dysfunction (validation cohort, n = 421)

Outcome	Definition	Sensitivity	Specificity	PPV	NPV	Accuracy	Sens+Spec	Bal. Acc	F1
Acute Kidney Injury	Def 1 (n = 120)	0.36 (0.28 to 0.44)	0.75 (0.70 to 0.80)	0.39 (0.31 to 0.48)	0.72 (0.67 to 0.77)	0.627	1.11	0.554	0.375
	Def 2 (n = 54)	0.19 (0.13 to 0.26)	0.90 (0.87 to 0.93)	0.46 (0.33 to 0.60)	0.71 (0.67 to 0.76)	0.679	1.09	0.545	0.270
	Def 3 (n = 36)	0.12 (0.07 to 0.18)	0.93 (0.90 to 0.96)	0.44 (0.28 to 0.61)	0.70 (0.66 to 0.75)	0.679	1.05	0.527	0.192
	Def 4 (n = 19)	0.05 (0.02 to 0.10)	0.96 (0.93 to 0.98)	0.37 (0.15 to 0.61)	0.69 (0.65 to 0.74)	0.677	1.01	0.506	0.093
	Def 5 (n = 292)	0.98 (0.96 to 0.99)	0.44 (0.38 to 0.49)	0.44 (0.39 to 0.50)	0.98 (0.96 to 0.99)	0.608	1.42	0.711	0.610

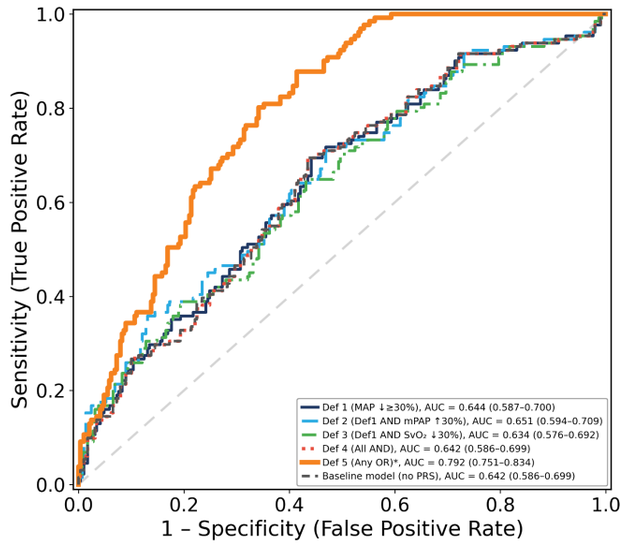
Def 1: MAP fall ≥30% for ≥1 min within 5 min of reperfusion. Def 2: Definition 1 AND mPAP increase ≥30%. Def 3: Definition 1 AND SvO_2 fall ≥30%. Def 4: all three simultaneously. Def 5: any one criterion.

Bootstrap 95% CIs (2,000 iterations). Direct recomputation — no model dependency. Sensitivity, specificity, PPV, NPV, accuracy, and F1 are computed directly from the fixed definitions, with no parameters fit in either cohort.

Bal. Acc = balanced accuracy; CI = confidence interval; Def = definition; F1 = F1 score; MAP = mean arterial pressure; mPAP = mean pulmonary arterial pressure; NPV = negative predictive value; PPV = positive predictive value; Sens+Spec = sensitivity plus specificity; SvO_2 = mixed venous oxygen saturation.

Figure & Table 2.

Figure 1. ROC curves for five definitions of postreperfusion syndrome to predict postoperative acute kidney injury: locked derivation model applied to validation cohort (n=421). Predicted probabilities were computed by applying the LOCKED derivation-cohort logistic model (coefficients fixed, not refit) to validation-cohort covariates. Baseline model denotes the multivariable model containing the same baseline covariates without any PRS definition term. AUC = area under the receiver operating characteristic curve; Def = definition; MAP = mean arterial pressure; mPAP = mean pulmonary arterial pressure; PRS = postreperfusion syndrome; ROC = receiver operating characteristic; SvO_2 = mixed venous oxygen saturation. *p<0.05 vs. Baseline model by DeLong's test.



ABSTRACT
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Paradoxical Protective Effect of Preoperative Anaemia Versus Perioperative Haemoglobin Decline on Early Allograft Dysfunction and Long-Term Survival After Liver Transplantation: A 14-Year Cohort Study

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Background

Preoperative anaemia is common in patients undergoing liver transplantation, yet its prognostic significance remains uncertain and may differ from that observed in non-transplant surgical populations. Acute perioperative haemoglobin decline may more directly reflect operative blood loss, haemodilution, and physiological stress affecting graft oxygen delivery. We examined the associations of preoperative anaemia and perioperative haemoglobin decline with early allograft dysfunction (EAD), hospital length of stay, and long-term mortality.

Methods

This retrospective cohort study included consecutive adults undergoing orthotopic liver transplantation at a high-volume Australian transplant centre between November 2009 and December 2023. Preoperative anaemia was defined by World Health Organization criteria (haemoglobin <130 g/L in males, <120 g/L in females). The primary outcome was early allograft dysfunction (EAD) defined by Olthoff criteria. Secondary outcomes included hospital length of stay, and 5-year all-cause mortality. Multivariable logistic and Cox regression models adjusted for recipient age, sex, disease severity (MELD 3 score), donor characteristics, ischaemia times, and intraoperative transfusion requirements. The Austin Health Human Research Ethics Committee (HREC/36245/Austin-2026) approved this study on 21 August 2026.

Results

Preoperative anaemia affected 792 patients (88.0%) and was associated with higher disease severity (median MELD 3 score 23.2 vs 10.2, p<0.001) and greater transfusion requirements. Paradoxically, anaemia was independently associated with reduced EAD (adjusted OR 0.49, 95% CI 0.30-0.81, p=0.005) and improved 5-year survival (adjusted HR 0.53, 95% CI 0.30-0.94, p=0.029). Conversely, each 10 g/L decline in haemoglobin from baseline to postoperative day 1 independently increased EAD odds (adjusted OR 1.10, 95% CI 1.02-1.19, p=0.015), with consistent associations observed through postoperative day 3 (p=0.003). Donation after circulatory death, prolonged ischaemia times, and fresh frozen plasma transfusion independently predicted EAD.

Conclusion

In liver transplantation, baseline preoperative anaemia does not predict adverse outcomes and paradoxically associates with reduced graft dysfunction and improved survival after adjustment for disease severity. In contrast, the magnitude of haemoglobin decline from baseline to postoperative early days demonstrates consistent dose-dependent associations with early graft dysfunction, suggesting acute intraoperative blood loss and haemodilution, rather than chronic anaemia, determine transplant outcomes. Perioperative strategies should prioritise minimising haemoglobin decline over preoperative anaemia correction alone.

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Figure & Table

Figure & Table 1.

Table 1. Association between preoperative anaemia and early allograft dysfunction

Variable	Term	OR (95% CI) Unadjusted	p-value	OR (95% CI) Adjusted	p-value
Preoperative anaemia	Anaemia vs No anaemia	0.496 (0.328–0.754)	<0.001	0.493 (0.300–0.810)	0.005
Cold ischaemia time	Per unit	1.004 (1.002–1.005)	<0.001	1.003 (1.002–1.005)	<0.001
Warm ischaemia time	Per unit	1.035 (1.021–1.050)	<0.001	1.029 (1.014–1.045)	<0.001
Recipient sex	Male vs Female	1.321 (0.973–1.804)	0.077	1.149 (0.819–1.618)	0.423
Donor risk index	Per unit	1.861 (1.312–2.648)	<0.001	1.121 (0.725–1.726)	0.606
MELD 3 score	Per unit	0.977 (0.960–0.993)	0.006	0.989 (0.968–1.010)	0.288
Recipient age	Per year	1.009 (0.996–1.022)	0.165	1.002 (0.988–1.017)	0.755
Packed red blood cell transfusion	Per unit	1.040 (1.014–1.067)	0.002	1.019 (0.982–1.058)	0.312
Fresh frozen plasma transfusion	Per unit	1.108 (1.057–1.162)	<0.001	1.109 (1.028–1.197)	0.008
Cryoprecipitate transfusion	Per unit	1.019 (1.003–1.035)	0.022	0.978 (0.953–1.002)	0.084
Platelet transfusion	Per unit	1.102 (1.010–1.203)	0.027	1.002 (0.999–NA)	0.753
Donor pathway	DCD vs DBD	2.781 (1.697–4.568)	<0.001	2.646 (1.447–4.856)	0.002

Odds ratios (ORs) were derived from logistic regression models assessing the association between preoperative anaemia and early allograft dysfunction (EAD). Adjusted models included CIT, WIT, sex, donor risk index (DRI), MELD 3 score, age, intraoperative transfusion variables (PRCs, FFP, cryoprecipitate, platelets), and donor pathway. CIT and WIT are expressed per minute increase and transfusion variables per unit administered. Preoperative anaemia was defined per World Health Organization criteria. DBD = donation after brain death; DCD = donation after circulatory death. A two-sided p < 0.05 was considered statistically significant.

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Figure & Table

Figure & Table 2.

Table 2. Association of preoperative anaemia with 5-year mortality

Variable	Term	HR (95% CI) Unadjusted	p-value	HR (95% CI) Adjusted	p-value
Preoperative anaemia	Anaemia vs No anaemia	0.698 (0.427–1.143)	0.153	0.526 (0.296–0.935)	0.029
Cold ischaemia time	Per unit	0.999 (0.997–1.001)	0.215	0.999 (0.997–1.001)	0.192
Warm ischaemia time	Per unit	1.003 (0.991–1.015)	0.664	0.998 (0.984–1.012)	0.767
Recipient sex	Male vs Female	1.023 (0.695–1.507)	0.907	0.991 (0.660–1.487)	0.965
Donor risk index	Per unit	1.008 (0.639–1.589)	0.973	1.102 (0.644–1.887)	0.722
MELD 3 score	Per unit	0.996 (0.975–1.018)	0.745	1.010 (0.984–1.036)	0.461
Recipient age	Per year	1.027 (1.008–1.046)	0.004	1.027 (1.007–1.047)	0.007
Packed red blood cell transfusion	Per unit	1.040 (1.010–1.071)	0.008	1.071 (1.031–1.113)	<0.001
Fresh frozen plasma transfusion	Per unit	1.031 (0.975–1.091)	0.279	1.002 (0.920–1.091)	0.971
Cryoprecipitate transfusion	Per unit	1.003 (0.981–1.024)	0.817	0.980 (0.949–1.012)	0.222
Platelet transfusion	Per unit	1.001 (1.000–1.001)	0.014	1.001 (1.000–1.001)	0.048
Donor pathway	DCD vs DBD	0.984 (0.479–2.019)	0.964	0.839 (0.369–1.908)	0.676

Hazard ratios (HRs) were derived from Cox proportional hazards models assessing the association between preoperative anaemia and 5-year mortality. Adjusted models included CIT, WIT, sex, donor risk index (DRI), MELD 3 score, age, intraoperative transfusion variables (PRCs, FFP, cryoprecipitate, platelets), and donor pathway. CIT and WIT are expressed per minute increase and transfusion variables per unit administered. Preoperative anaemia was defined per World Health Organization criteria. DBD = donation after brain death; DCD = donation after circulatory death. A two-sided p < 0.05 was considered statistically significant.

AP-24-5 (2026-0528)

Postoperative Analgesia in Kidney Transplant Recipient Laparotomy: A Comparison of Single-Shot Versus Continuous Quadratus Lumborum Block

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Background
Adequate analgesia is a key determinant of successful kidney transplantation, yet analgesic options are limited by altered pharmacokinetics in impaired renal function. The quadratus lumborum (QL) block is superior to both TAP block and epidural analgesia, but direct comparisons between single-injection and continuous techniques remain limited.

Methods
This open-label randomised controlled trial enrolled 28 patients (18–65 years, ASA 2–3, BMI ≤35 kg/m^2) undergoing elective laparotomy for kidney transplantation at Dr Cipto Mangunkusumo National General Hospital, February–July 2026, randomised into single-injection (n=14) and continuous (n=14) groups. All subjects received an ultrasound-guided QL catheter with 0.25% isobaric bupivacaine (20–30 mL). The single-injection group received an identical repeat bolus at the end of surgery; the continuous group received 0.125% bupivacaine at 8 mL/hour. NRS at rest and on movement, plus dermatomal coverage, were assessed at 0, 2, 6, 12, and 24 hours; 24-hour PCA fentanyl consumption and adverse events were also recorded. Intention-to-treat analysis used Mann-Whitney U, unpaired t, Fisher exact, linear mixed model and log-rank tests (p<0.05).

Results
Baseline characteristics were comparable (p>0.05). The single-injection group had significantly lower pain scores from hour 0–6 (NRS at rest, hour 2: 0 [0–10] vs 15 [0–25]; p<0.001), with a wider, more cephalad dermatomal spread (T10–T11 vs T12–L1; p<0.001). This difference disappeared by hour 12; at hour 24, the continuous group had lower movement pain scores (20 [20–35] vs 18 [0–20]; p<0.001) with comparable dermatomal coverage (p=0.440). Twenty-four-hour PCA fentanyl consumption and rescue analgesia rates did not differ (p=0.840; p=1.000). Three adverse events occurred, with no motor block or systemic toxicity.

Conclusion
Single-injection QL block provided superior early analgesia (0–6 hours), while continuous block provided more sustained movement analgesia at 24 hours, with equivalent opioid requirements — a time-dependent crossover pattern with no absolute advantage for either technique.

AP-24-6 (2026-0168)

A Retrospective Analysis of Brain-Dead Lung Transplant Cases at Our Hospital Over the Past 5 Years

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Background
Lung transplantation requires multifaceted perioperative management, including not only respiratory and circulatory management, but also prevention of increased pulmonary vascular resistance, extracorporeal membrane oxygenation (ECMO) management, measures to control bleeding and many others. Furthermore, in brain-dead lung transplantation, the start time of procedure is determined based on the progress of donor lung retrieval; therefore, there are significant time constraints, and coordination both within and outside the facility is crucial. In this presentation, we retrospectively reviewed brain-dead lung transplantation cases in our hospital over the past five years to examine the characteristics and challenges of anesthetic management.

Methods
We had 18 cases of brain-dead lung transplantation performed at our hospital between 2021 and 2025. We retrospectively analyzed patient demographics, transplantation procedures, the use of ECMO and inhaled nitric oxide therapy, procedure time, anesthesia duration, blood loss, length of stay at intensive care unit, hospital length of stay, the presence or absence of reoperation, and outcomes.

Results
The mean age of recipient was 49.5 ± 9.6 years; 14 patients were male and 4 were female. The transplantation procedures included 16 single-lung transplants and 2 bilateral lung transplants. The most common underlying condition was idiopathic or collagen-related interstitial pneumonia, observed in 11 patients. ECMO was used in 15 cases, and inhaled nitric oxide therapy was administered in 17 cases. Anesthesia duration was 673.7 ± 118.7 minutes, procedure time was 505.3 ± 127.3 minutes, and blood loss was 2212.9 ± 2516.8 mL, with significant variability observed among cases. Four cases required reoperation, and pulmonary vein anastomotic stenosis was observed in two of these cases. The intensive care unit stay was 13.9 ± 6.7 days, and the hospital stay was 74.6 ± 30.3 days. There were 3 deaths; 2 of these were graft-versus-host disease (GVHD)-related, occurring approximately 2 years postoperatively. No acute perioperative deaths were observed. Furthermore, approximately two-thirds of the cases were performed from Saturday or Sunday afternoon through the early morning of the following day; many cases were managed by 2–3 anesthesiologists on call, and in some instances, care was provided concurrently with other emergency surgeries.

Conclusion
In the anesthetic management of brain-dead lung transplantation, we keenly realized the importance of advanced respiratory and circulatory management, including ECMO, as well as managing bleeding associated with anticoagulation, evaluating pulmonary vascular anastomoses, perioperative management under immunosuppression, establishing an adequate system for anesthesiologists and operating room staff, and prior information sharing among multidisciplinary teams.

AP-24-7 (2026-0056)

Comparison of Intrathecal Morphine Versus Transversus Abdominis Plane Block for Postoperative Pain Control in Patients Undergoing Kidney Transplantation: A Prospective Randomised Controlled Study

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Background
Intrathecal morphine (ITM) or Transverse abdominis plane (TAP) block reduces postsurgical pain in patients who underwent kidney transplantation surgeries. We aimed to compare the effectiveness of both modalities in terms of duration and quality of postoperative analgesia, along with postoperative fentanyl consumption.

Methods
We conducted a randomised study and analysed 60 patients aged 18-60 years posted for elective live related kidney transplantation surgery. They were randomised into two groups. Group M patients received ITM, whereas Group T patients received TAP block. We standardised the postoperative analgesia for both groups with intravenous fentanyl based patient controlled analgesia. The primary outcome was to compare the quality of analgesia using the numerical rating scale score between the groups. The secondary outcome was to observe the effect of both modalities on the duration of analgesia, postoperative fentanyl consumption, rescue analgesics requirement, and any complications.

Results
We found significantly lower pain scores at rest and while coughing in Group M at all time intervals, except at 24 h while coughing. (P=0.16). The mean time to first analgesia requirement was significantly longer in Group M than in Group E (P < 0.05). No significant difference was found in postoperative consumption of total fentanyl (P = 0.064) and rescue analgesia in both groups. In Group M, there was significantly more nausea, vomiting and pruritus (P > 0.05).

Conclusion
ITM provides long lasting postoperative analgesia at the cost of higher side effects than TAP block.

Figure & Table

Figure & Table 1.

Table 1: Demographic characteristics in both groups

Variables	Group M	Group T	P value
Age(years), mean±SD	34.07±11.77	32.71±8.28	0.613
Sex (male:female)	25:5	24:6	0.670
BMI, mean±SD	22.55±3.33	21.05±2.33	0.519
Duration of surgery (min.), mean±SD	173.61±31.44	183.58±27.61	0.30
Duration of anaesthesia (min.), mean±SD	217.01±24.66	215.34±18.76	0.770

Table 2: Static NRS score at different intervals between group T and M:

NRS Score	Group T	Group M	p value
	Mean ± SD	Mean ± SD	
0 hour	2.23 ± 1.43	1.46 ± 1.35	0.04
3 hour	2.40 ± 1.30	1.60 ± 1.50	0.04
6 hour	2.70 ± 1.16	1.50 ± 1.29	0.002
9 hour	2.51 ± 0.90	1.32 ± 1.49	0.001
12 hour	2.01 ± 1.08	1.24 ± 1.48	0.03
18 hour	1.44 ± 1.02	0.59 ± 1.45	0.01
24 hour	0.82 ± 0.83	0.37 ± 0.67	0.01

Table 3: Dynamic NRS score at different intervals between group T and M:

NRS Score	Group T	Group M	p value
	Mean ± SD	Mean ± SD	
0 hour	3.50 ± 2.00	2.00 ± 2.00	0.02
3 hour	3.49 ± 1.69	2.44 ± 2.20	0.03
6 hour	4.01 ± 1.10	3.00 ± 2.0	0.005
9 hour	3.77 ± 1.24	2.39 ± 1.89	0.001
12 hour	3.01 ± 1.39	2.04 ± 2.10	0.03
18 hour	2.29 ± 1.31	1.24 ± 2.35	0.02
24 hour	1.52 ± 1.12	1.10 ± 1.40	0.16

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Figure & Table

Table 4: Perioperative analgesic consumption in both the groups.

Variables	Group T(Mean±SD) (n=30)	Group M(Mean±SD) (n=30)	P value
Time of first analgesia request (min)	33.19±20.74	67.06±42.07	<0.05
Total fentanyl consumption(mcg)	222.66±73.08	186.59±66.89	0.064
Total rescue analgesia consumption (inj PCM in mg)	802.02±663.36	635.35±668.69	0.337

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AP-24-8 (2026-0456)

Factors Associated with the Use of Pre-Operative Fresh Frozen Plasma and Packed Red Cells in Elective Surgical Patients for Cost-Effectiveness and Workload Reduction

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Background

Pre-operative ordering of blood products for elective surgery is often excessive, leading to wasted units, higher costs, and unnecessary blood bank workload. We analyzed five years of institutional data to identify which surgical departments and patient factors account for most of the over-ordering of Fresh Frozen Plasma (FFP) and Packed Red Cells (PRC), and to quantify what it costs.

Methods

A retrospectively reviewed of 13,097 elective surgical cases with pre-booked FFP and/or PRC at Songklanagarind hospital from January 2019 to December 2023, using data from the Hospital Information System and the Department of Anesthesiology database. For each product, we calculated the crossmatch-to-transfusion (CT) ratio and percentage transfusion (%T) by specialty, and built a multivariable logistic regression model (used vs. not used) to identify independent predictors of transfusion.

Results

Overall utilization was low for both products — 29.68% for FFP and 26.44% for PRC — with mean CT ratios of 7.73 and 7.45 and a combined cost of 16,680,735 THB over the study period. General surgery had the poorest FFP performance (CT ratio 10.30, %T 11.15%), and plastic surgery the highest FFP CT ratio overall (11.94). For PRC, gynecology and urology were the least efficient (CT ratios 11.51 and 11.28), while obstetrics achieved the best PRC performance (%T 31.03%). On multivariable analysis (reference: general surgery), higher ASA class, longer operative duration, greater blood loss, and lower pre-operative hematocrit independently predicted transfusion for both products, with markedly higher odds in urology and vascular surgery for FFP, and in orthopedics and vascular surgery for PRC; gynecology showed significantly lower odds for both.

Conclusion

Current blood ordering practice books far more than is used. Department-specific ordering limits, combined with Type and Screen for lower-risk specialties — gynecology being the clearest candidate — could meaningfully cut wastage and blood bank workload without compromising patient safety.

AP-24-8 (2026-0456)

Figure & Table

Figure & Table 1.

Table 2. Multivariable logistic regression for factors associated with PRC use

Variable	Crude OR (95% CI)	Adjusted OR (95% CI)	P (Wald)
Department (ref. General surgery)			
ENT	1.11 (0.89,1.38)	1.10 (0.80,1.51)	0.543
Gynecology	0.70 (0.60,0.82)	0.65 (0.51,0.83)	<0.001
Neurosurgery	1.91 (1.62,2.25)	2.06 (1.60,2.65)	<0.001
Obstetrics	1.22 (0.97,1.54)	0.45 (0.30,0.68)	<0.001
Orthopedics	1.55 (1.36,1.78)	2.60 (2.12,3.19)	<0.001
Pediatric surgery	1.91 (1.44,2.52)	0.88 (0.57,1.35)	0.550
Plastic surgery	1.50 (1.11,2.02)	1.99 (1.32,2.99)	<0.001
Urology	0.78 (0.65,0.93)	1.15 (0.87,1.52)	0.318
Vascular surgery	1.69 (1.40,2.04)	2.60 (1.99,3.41)	<0.001
Duration, per hour	1.29 (1.26,1.31)	1.11 (1.08,1.14)	<0.001
Weight, per kg	0.99 (0.99,0.99)	0.98 (0.97,0.98)	<0.001
Height, per cm	0.99 (0.99,1.00)	0.99 (0.98,0.99)	<0.001
MAP, per mmHg	0.989 (0.985,0.992)	0.994 (0.989,0.999)	0.029
Hematocrit, per %	0.87 (0.86,0.88)	0.77 (0.76,0.78)	<0.001
Blood loss, per mL	1.0032 (1.0030,1.0033)	1.0050 (1.0047,1.0052)	<0.001
ASA class (ref. 1)			
2	2.25 (1.59,3.27)	1.32 (0.78,2.32)	0.320
3	3.88 (2.74,5.65)	2.10 (1.22,3.74)	0.009
4	6.32 (3.77,10.76)	3.70 (1.79,7.82)	<0.001
Dyslipidemia	0.91 (0.83,0.99)	1.16 (1.01,1.33)	0.035
Severe renal insufficiency	2.23 (1.67,2.98)	1.49 (1.01,2.18)	0.042
Severe liver disease	1.87 (1.57,2.24)	1.03 (0.79,1.34)	0.825
Other comorbidity	1.31 (1.21,1.43)	0.99 (0.88,1.12)	0.889

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Table 3. Multivariable logistic regression for factors associated with FFP use

Variable	Crude OR (95% CI)	Adjusted OR (95% CI)	P (Wald)
Male sex	1.82 (1.63,2.03)	1.08 (0.92,1.27)	0.352
Age, per year	1.0053 (1.0026,1.008)	0.998 (0.994,1.003)	0.410
Department (ref. General surgery)			
ENT	0.33 (0.22,0.47)	0.19 (0.12,0.30)	<0.001
Gynecology	0.14 (0.10,0.19)	0.09 (0.06,0.14)	<0.001
Neurosurgery	1.93 (1.59,2.35)	1.33 (1.02,1.73)	0.034
Obstetrics	0.80 (0.58,1.08)	0.47 (0.28,0.76)	0.002
Orthopedics	0.45 (0.37,0.55)	0.33 (0.25,0.42)	<0.001
Pediatric surgery	0.89 (0.61,1.27)	1.07 (0.61,1.86)	0.814
Plastic surgery	0.68 (0.43,1.03)	1.00 (0.59,1.65)	0.987
Urology	1.90 (1.56,2.30)	4.10 (3.21,5.25)	<0.001
Vascular surgery	1.87 (1.51,2.31)	3.08 (2.33,4.08)	<0.001
Duration, per hour	1.36 (1.34,1.39)	1.16 (1.13,1.20)	<0.001
Height, per cm	1.00 (0.999,1.000)	0.994 (0.990,0.999)	0.016
Hematocrit, per %	0.97 (0.96,0.98)	0.95 (0.94,0.96)	<0.001
Blood loss, per mL	1.0017 (1.0016,1.0018)	1.0020 (1.0018,1.0021)	<0.001
ASA class (ref. 1)			
2	6.33 (2.69,20.55)	7.03 (1.96,33.24)	0.007
3	14.23 (6.04,46.17)	11.34 (3.14,53.92)	<0.001
4	20.72 (7.81,71.71)	20.84 (5.15,107.03)	<0.001
Dyslipidemia	1.15 (1.02,1.29)	0.94 (0.79,1.11)	0.443
Severe renal insufficiency	1.49 (1.01,2.15)	0.75 (0.46,1.19)	0.237
History of ischemic heart disease	2.26 (1.56,3.20)	1.96 (1.25,3.00)	0.003
Severe liver disease	2.54 (2.07,3.09)	2.10 (1.61,2.72)	<0.001
Other comorbidity	1.37 (1.22,1.54)	1.07 (0.92,1.24)	0.386

Figure & Table

Figure & Table 2.

Table 4a. Crossmatch-to-transfusion ratio, transfusion probability, and transfusion index by department — PRC

Department	C:T ratio (PRC)	%T (PRC)	Ti (PRC)
ENT	7.41	19.3	0.29
General surgery	8.88	16.1	0.22
Gynecology	11.51	8.8	0.13
Neurosurgery	6.05	31.9	0.55
Obstetrics	5.66	18.3	0.35
Orthopedics	5.87	21.3	0.31
Pediatric surgery	5.76	24.0	0.33
Plastic surgery	6.88	20.7	0.29
Urology	11.28	14.7	0.24
Vascular surgery	5.20	29.1	0.44

Table 4b. Crossmatch-to-transfusion ratio, transfusion probability, and transfusion index by department — FFP

Department	C:T ratio (FFP)	%T (FFP)	Ti (FFP)
ENT	8.48	17.5	0.49
General surgery	10.30	11.1	0.37
Gynecology	6.01	18.0	0.76
Neurosurgery	9.50	16.8	0.49
Obstetrics	5.09	31.0	1.00
Orthopedics	7.44	20.2	0.60
Pediatric surgery	7.24	21.3	0.36
Plastic surgery	11.94	14.5	0.33
Urology	5.73	25.6	0.75
Vascular surgery	5.58	18.7	0.76

Presentation

Abstract Presentation 25

Date / Time	Nov 6 (Fri), 15:30-17:00
Room	Room C *(Paradise City)*
Language	English
Chair(s)	Seunguk Bang *(The Catholic University of Korea, Republic of Korea)* Hyungtae Kim *(University of Ulsan, Republic of Korea)*

AP-25-1
2026-0379

The Dual Mechanism of Dexamethasone in Preventing Rebound Pain After Peripheral Nerve Block: A Mediation and Network Meta-Analysis

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AP-25-2
2026-0458

Scheduled Perioperative Nonsteroidal Anti-inflammatory Drugs and Postoperative Pancreatic Fistula After Pancreatoduodenectomy: A 10-Year Retrospective Interrupted Time-Series Analysis

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AP-25-3
2026-0203

Residual Pain at Post-anaesthesia Care Unit Discharge and Subsequent Opioid Requirement After Gastrectomy in Older Patients: A Secondary Analysis of a Randomised Controlled Trial

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AP-25-4
2026-0236

Comparison of Postoperative Analgesia and Recovery Profiles between Sufentanil–Remimazolam and Remifentanil–Remimazolam Anesthesia for Robot-Assisted Radical Prostatectomy

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AP-25-5
2026-0574

Estimation of Median Effective Volume of 0.5% Levobupivacaine for Ultrasound-Guided Costoclavicular Brachial Plexus Block: A Prospective Dose-Finding Study

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AP-25-6
2026-0306

Ultrasound-Guided Suprazygomatic Maxillary Nerve Block as an Opioid-Sparing Strategy for Maxillary Repair Surgery: A Prospective Randomized-Controlled Trial

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AP-25-8
2026-0430

Effect of Intraoperative Islamic Dzikr on Bispectral Index During Spinal Anaesthesia: A Randomised Controlled Trial

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The Dual Mechanism of Dexamethasone in Preventing Rebound Pain After Peripheral Nerve Block: A Mediation and Network Meta-Analysis

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Background

Rebound pain after brachial plexus block (BPB) is a significant clinical problem affecting up to 50–80% of patients following ambulatory orthopedic surgery. Dexamethasone reliably reduces rebound pain, yet whether this benefit operates through prolonging block duration or via direct systemic anti-inflammatory mechanisms remains unknown. We conducted a systematic review, mediation analysis, and network meta-analysis (NMA) to quantify these pathways.

Methods

We searched MEDLINE, EMBASE, the Cochrane Central Register of Controlled Trials, Web of Science, and Google Scholar databases for RCTs evaluating IV or perineural (PN) dexamethasone as an adjuvant to single-injection BPB in adults undergoing upper extremity orthopedic surgery. Rebound pain incidence and time to first analgesic (TFA) were the primary extracted outcomes. To eliminate between-study baseline heterogeneity, a hierarchical within-study meta-regression utilizing contrast-based delta values (ΔTFA and Δ logit RP) was performed. A frequentist network meta-analysis (NMA) was subsequently conducted to estimate the comparative efficacy of IV versus PN dexamethasone.

Results

Eight RCTs (583 patients) were included. Dexamethasone reduced rebound pain incidence from 58.2% (146/251) in controls to 25.6% (85/332) overall (IV: 23.7% [37/156], PN: 27.3% [48/176]), while prolonging block duration by a mean of 5.0 hours. Hierarchical meta-regression confirmed a massive total protective effect (OR 0.201, $p < 0.001$). Decomposing this effect revealed both a significant indirect prolongation effect (ROR 0.835 per 1-h extension, $p = 0.007$) and a direct systemic effect independent of block duration (OR 0.470 at ΔTFA = 0, $p = 0.038$), contributing 54% and 46% to overall protection, respectively. Route-adjusted model ($p = 0.782$) and NMA (IV vs. PN: OR 0.570, $p = 0.303$) confirmed equivalent clinical efficacy between IV and PN routes.

Conclusion

Dexamethasone prevents rebound pain following BPB through a complementary dual mechanism, driven by both block prolongation and a direct systemic anti-inflammatory effect. Because these two pathways contribute comparably to the overall protective magnitude, IV and PN administration provide equivalent clinical efficacy. This supports prioritizing IV dexamethasone to effectively leverage systemic benefits while avoiding off-label PN administration.

AP-25-1 (2026-0379)

Figure & Table

Figure & Table 1.

Comparison	Number of Studies	Direct Evidence	I2	Random Effects Model	OR	95%-CI
IV_Dexa:Control						
Direct estimate	4	0.82	1.8%		0.18	[0.08; 0.39]
Indirect estimate					0.07	[0.01; 0.36]
Network estimate					0.15	[0.08; 0.31]
PN_Dexa:Control						
Direct estimate	3	0.80	64.9%		0.22	[0.10; 0.50]
Indirect estimate					0.58	[0.11; 3.00]
Network estimate					0.27	[0.13; 0.55]
IV_Dexa:PN_Dexa						
Direct estimate	1	0.38			0.31	[0.07; 1.33]
Indirect estimate					0.82	[0.27; 2.52]
Network estimate					0.57	[0.23; 1.39]

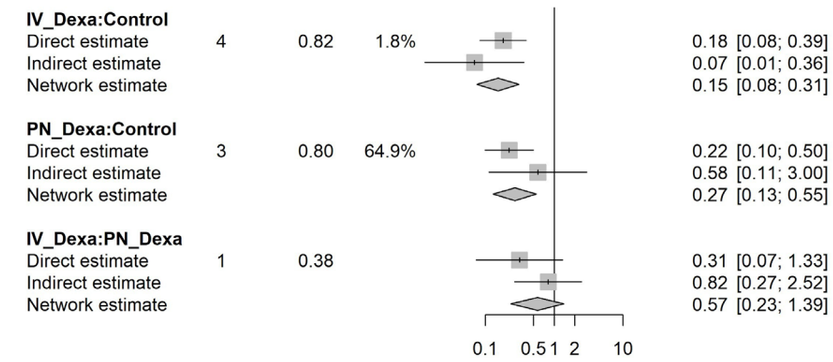
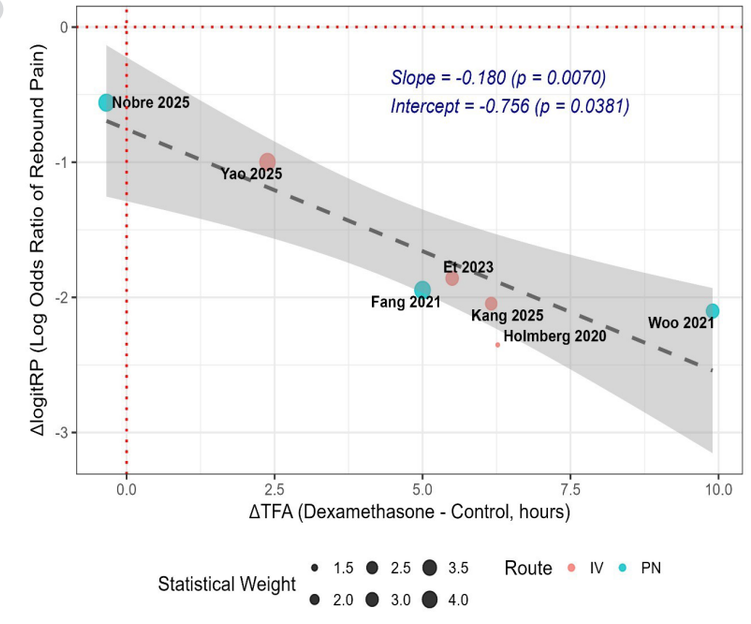


Figure & Table 2.



ABSTRACT
Competition
Presentation
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Scheduled Perioperative Nonsteroidal Anti-inflammatory Drugs and Postoperative Pancreatic Fistula After Pancreatoduodenectomy: A 10-Year Retrospective Interrupted Time-Series Analysis

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Background

The safety of perioperative nonsteroidal anti-inflammatory drugs (NSAIDs) after pancreatoduodenectomy (PD) remains uncertain because of concerns regarding anastomotic healing and postoperative pancreatic fistula (POPF). We evaluated whether implementation of a standardized perioperative analgesic protocol incorporating scheduled NSAIDs was associated with an increase in clinically relevant POPF (CR-POPF) after PD.

Methods

We conducted a retrospective interrupted time-series (ITS) study of consecutive adult patients undergoing elective PD at a tertiary referral hospital between January 2016 and June 2026. July 2024 was defined as the intervention point. Individual-level ITS analyses using generalized estimating equations were performed to estimate immediate level changes in the incidence of CR-POPF, overall POPF, and postoperative acute kidney injury (AKI) following protocol implementation, adjusting for seasonality and prespecified patient and operative characteristics. Complementary patient-level multivariable logistic regression analysis was performed to assess the association between scheduled perioperative NSAID administration and CR-POPF.

Results

Among 2,546 screened patients, 2,449 were included: 1,944 before and 505 after implementation. Protocol implementation substantially increased perioperative NSAID use. After adjustment for seasonality and prespecified covariates, implementation was associated with a lower incidence of CR-POPF (OR, 0.67; 95% CI, 0.48-0.93) but a higher incidence of overall POPF (OR, 1.40; 95% CI, 1.05-1.87). Implementation was not associated with a significant increase in postoperative AKI (OR, 0.57; 95% CI, 0.31-1.04). In complementary patient-level analysis, neither incomplete nor complete scheduled NSAID administration was significantly associated with CR-POPF compared with no scheduled NSAID administration.

Conclusion

Implementation of a standardized perioperative analgesic protocol incorporating scheduled NSAIDs was not associated with increased CR-POPF or postoperative AKI after PD. Although implementation was associated with higher overall POPF, these findings suggest that scheduled perioperative NSAIDs may be feasible as part of multimodal analgesic care after PD.

AP-25-2 (2026-0458)

Figure & Table

Figure & Table 1.

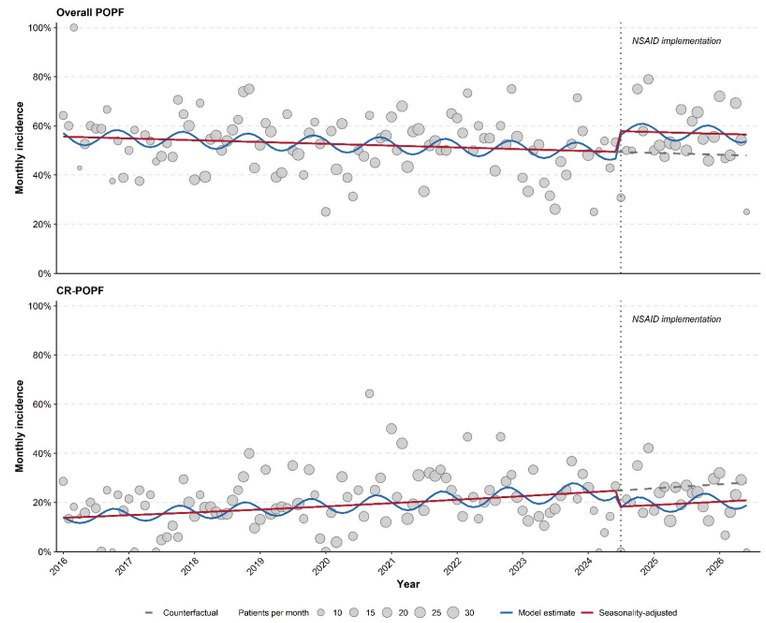


Figure & Table 2.

Table

	Overall POPF		CR-POPF	
	Before adjustment	After adjustment	Before adjustment	After adjustment
Baseline trend	1.00 [0.99, 1.00]	1.00 [0.99, 1.00]	1.01 [1.00, 1.01]	1.01 [1.00, 1.01]
Step change after intervention	1.45 [1.12, 1.88]	1.40 [1.05, 1.87]	0.75 [0.55, 1.01]	0.67 [0.48, 0.93]
Age (years)		1.01 [1.00, 1.02]		1.03 [1.02, 1.04]
ua-FRS probability (%)		1.05 [1.04, 1.05]		1.03 [1.03, 1.04]
Neoadjuvent chemotherapy		0.39 [0.29, 0.53]		0.57 [0.41, 0.81]
PPPD (vs. Whipple or PRPD)		0.97 [0.81, 1.17]		0.98 [0.78, 1.23]
Minimally invasive surgery		1.33 [1.02, 1.73]		0.96 [0.72, 1.27]

Abbreviations: POPF, postoperative pancreatic fistula; CR-POPF, clinically relevant postoperative pancreatic fistula; ua-FRS, updated alternative fistula risk score; PPPD, pylorus-preserving pancreatoduodenectomy; PRPD, pylorus-resecting pancreatoduodenectomy.

Values are odds ratios [95% confidence intervals] from individual-level interrupted time-series analyses using generalized estimating equations, accounting for within-month clustering and seasonality. Adjusted models included age, ua-FRS probability, neoadjuvant chemotherapy, type of pancreatoduodenectomy, and minimally invasive surgery. Baseline trend is modeled per 1-month increase, age per 1-year increase, and ua-FRS probability per 1-percentage-point increase. Step change represents the immediate change after NSAID protocol implementation in July 2024 relative to the counterfactual continuation of the pre-implementation trend.

ABSTRACT
Competition
Presentation
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Residual Pain at Post-anaesthesia Care Unit Discharge and Subsequent Opioid Requirement After Gastrectomy in Older Patients: A Secondary Analysis of a Randomised Controlled Trial

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Background

Acute postoperative pain after abdominal cancer surgery is common in older patients and drives opioid use. Whether the pain trajectory observed in the post-anesthesia care unit (PACU), particularly whether pain has resolved by discharge, is associated with the subsequent postoperative course remains unclear. We examined whether the PACU pain trajectory is associated with subsequent analgesic requirement and recovery in older patients undergoing gastrectomy.

Methods

We studied 432 patients aged 65 years or older who underwent elective gastrectomy and were enrolled in a single-center randomized controlled trial between August 2022 and December 2024. Using only numerical rating scale (NRS) scores recorded by blinded PACU nurses, patients were classified by two summary measures, the peak NRS and the discharge NRS, into three groups: Low (peak NRS <3; n=82), Transient (peak ≥3 but discharge <3; n=177), and Residual (discharge ≥3; n=173). The primary outcome was cumulative patient-controlled analgesia (PCA) oxycodone dose during the 24- to 48-hour postoperative interval. Secondary outcomes were PCA oxycodone during the 0- to 24-hour and 48- to 72-hour intervals, non-PCA rescue analgesic use, quality of recovery (QoR-15), postoperative nausea and vomiting (PONV), and delirium. Contrasts between all three groups were estimated with covariate-adjusted regression.

Results

Among 432 patients (144 women [33.3%]), the Residual group required more oxycodone during the primary 24- to 48-hour interval than both the Low group (adjusted difference, 3.59 mg; 95% CI, 1.58-5.61; P=0.001) and the Transient group (1.71 mg; 95% CI, 0.11-3.32; P=0.037), whereas the Transient and Low groups did not differ (1.88 mg; 95% CI, -0.12 to 3.88; P=0.066). The same pattern was observed in the 0- to 24-hour and 48- to 72-hour intervals. Rescue opioid use over postoperative days 1 to 3 was higher in both the Transient and Residual groups than in the Low group (adjusted odds ratios, 5.16 and 4.76, respectively; both P<0.05). QoR-15, PONV, and delirium did not differ significantly across groups, and all QoR-15 differences were smaller in magnitude than the minimal clinically important difference.

Conclusion

Among older patients undergoing gastrectomy, residual pain at PACU discharge was associated with a greater postoperative opioid requirement over the first 3 postoperative days, without corresponding differences in quality of recovery, PONV, or delirium. Whether pain has resolved by PACU discharge may represent a simple, readily observable pain phenotype associated with subsequent analgesic requirement.

Figure & Table

Figure & Table 1.

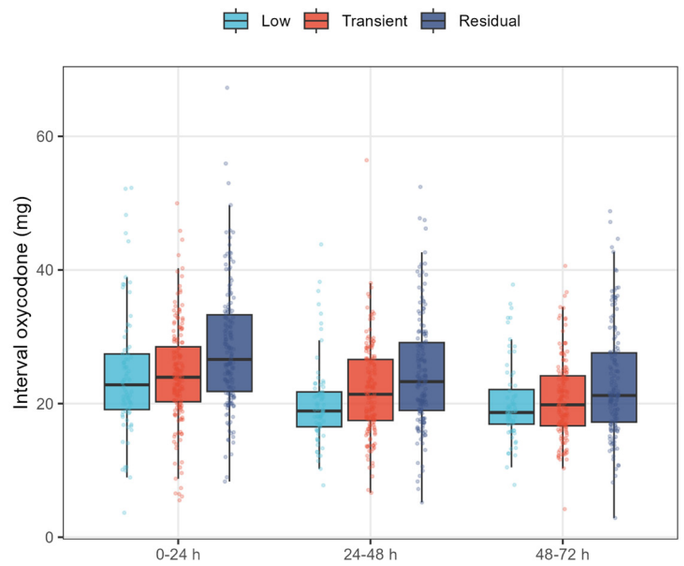
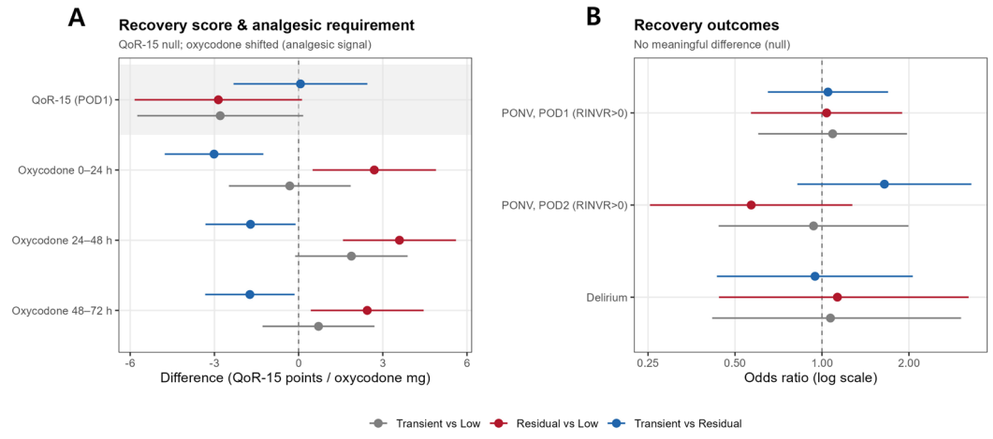


Figure & Table 2.



AP-25-4 (2026-0236)

Comparison of Postoperative Analgesia and Recovery Profiles between Sufentanil–Remimazolam and Remifentanil–Remimazolam Anesthesia for Robot-Assisted Radical Prostatectomy

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Background

Remifentanil enables rapid emergence but provides little residual analgesia, whereas sufentanil may improve early postoperative analgesia at the cost of delayed recovery. We compared postoperative analgesia, recovery profiles, and intraoperative hemodynamic variables between sufentanil–remimazolam and remifentanil–remimazolam anesthesia.

Methods

In this prospective randomized study, 62 patients undergoing robot-assisted radical prostatectomy were assigned to sufentanil–remimazolam (SR, n=31) or remifentanil–remimazolam (RR, n=31) anesthesia. The primary outcome was the time to first rescue analgesic request during the 30-min post-anesthesia care unit (PACU) observation. Secondary outcomes included serial postoperative pain scores, total rescue analgesic consumption, recovery times, intraoperative blood pressure, heart rate and bispectral index, total anesthetic consumption, length of hospital stay, and postoperative complications. Time-to-event data were analyzed with censoring at 30 min.

Results

Rescue analgesia within 30 min was required less frequently in the SR group than in the RR group (5/31 [16.1%] vs. 20/31 [64.5%], P<0.001), and time-to-request distributions differed significantly between groups (log-rank P<0.001). PACU pain scores were lower in the SR group at arrival (median [IQR], 2 [2–3] vs. 7 [4–8]), 10 min (3 [2–3] vs. 6 [3.5–7]), and 20 min (2 [2–3] vs. 4 [3–6]) (all P<0.001). Pain at 1 h was also lower in the SR group (5.1 [3.3–6.9] vs. 6.7 [5.2–8.2], P=0.017), whereas later pain scores were comparable. Extubation (32 [28–38.5] vs. 8 [6–10] min) and orientation recovery (42 [36.5–47.5] vs. 10 [7.5–11.5] min) were delayed in the SR group (both P<0.001).

Conclusion

Sufentanil–remimazolam anesthesia reduced early postoperative pain and rescue analgesic requirement but substantially delayed emergence compared with remifentanil–remimazolam anesthesia. These findings indicate a trade-off between improved early analgesia and slower recovery.

AP-25-4 (2026-0236)

Figure & Table

Figure & Table 1.

Table 1. Major postoperative analgesic and recovery outcomes

Outcome	SR group (n=31)	RR group (n=31)	P value
Rescue analgesia within 30 min, n (%)	5 (16.1)	20 (64.5)	<0.001
PACU NRS at arrival	2 [2–3]	7 [4–8]	<0.001
Extubation time, min	32 [28–38.5]	8 [6–10]	<0.001
Orientation recovery time, min	42 [36.5–47.5]	10 [7.5–11.5]	<0.001

Values are presented as median [interquartile range] or number (%). SR, sufentanil–remimazolam; RR, remifentanil–remimazolam; PACU, post-anesthesia care unit; NRS, numeric rating scale.

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AP-25-5 (2026-0574)

Estimation of Median Effective Volume of 0.5% Levobupivacaine for Ultrasound-Guided Costoclavicular Brachial Plexus Block: A Prospective Dose-Finding Study

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Background
The costoclavicular approach to infraclavicular brachial plexus block provides effective surgical anaesthesia due to the compact clustering of the brachial plexus cords. Ultrasound guidance may allow reduction in local anaesthetic volume while maintaining efficacy, thereby minimizing toxicity chances. However, the median effective volume (MEAV50) of levobupivacaine for this approach remains undefined. We aimed to determine the MEAV50 of 0.5% levobupivacaine for ultrasound-guided costoclavicular brachial plexus block.

Methods
This prospective, single-arm dose-finding study included 40 adult patients (ASA I–II, BMI 18–30 kg/m^2) undergoing elective elbow, forearm, wrist, or hand surgery. A Dixon up-and-down sequential allocation design was used. The initial volume was 26 mL of 0.5% levobupivacaine, with subsequent volumes increased or decreased by 2 mL according to failure or success of the preceding block, respectively. Block efficacy was assessed by an independent observer at 5-minute intervals for 30 minutes. Successful surgical anaesthesia was defined as a composite sensorimotor score ≥14/16 at 30 minutes, with a sensory score ≥7/8. MEAV50 was estimated using the Dixon method and ED95 using logistic regression.

Results
All 40 patients were analysed, with 18 independent success–failure crossovers. The study population had a mean BMI of 21.5 ± 3.2 kg/m^2. The administered volume of 0.5% levobupivacaine ranged from 8 to 26 mL. The MEAV50 of 0.5% levobupivacaine was 15.4 mL (95% CI, 14.3–16.6 mL). Logistic regression estimated an ED50 of 14.6 mL and an ED95 of 22.0 mL. Successful surgical anaesthesia was achieved in 23/40 patients (57.5%). The observed success rates were 25% for 8–13 mL, 50% for 14–17 mL, 89% for 18–21 mL, and 100% for ≥22 mL. Mean block onset time among successful blocks was 23.7 ± 3.9 minutes. No block-related complications were observed; failed blocks were converted to general anaesthesia.

Conclusion
The MEAV50 of 0.5% levobupivacaine for ultrasound-guided costoclavicular brachial plexus block was 15.4 mL, while an ED95 of approximately 22 mL was estimated by logistic regression. These findings provide a dose–response framework for optimizing levobupivacaine volume for effective surgical anaesthesia during costoclavicular brachial plexus block. Our study demonstrates that lower volumes of levobupivacaine are sufficient for effective costoclavicular block under ultrasound guidance. The findings are comparable to previous dose-finding studies using ropivacaine, supporting dose optimization strategies to improve safety and efficacy.

AP-25-5 (2026-0574)

Figure & Table

Figure & Table 1.

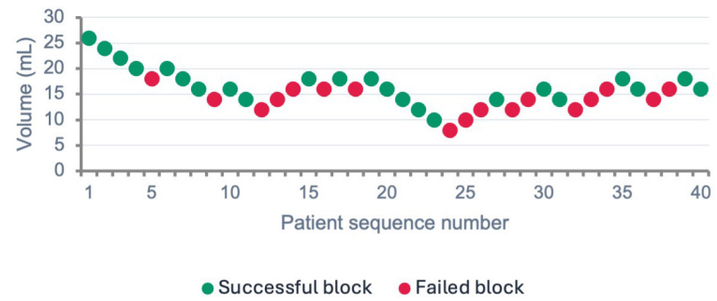
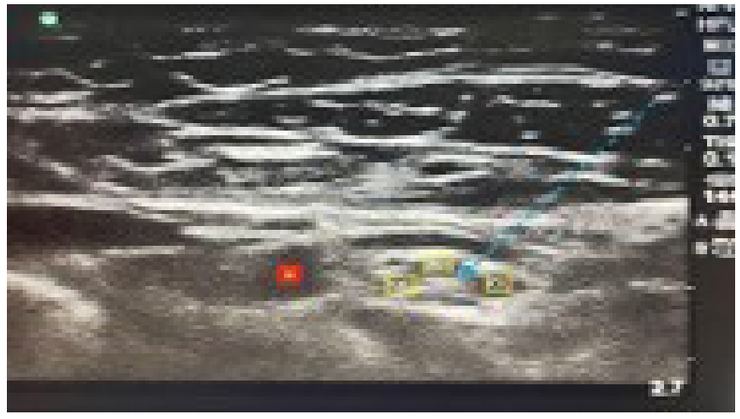


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

AP-25-6 (2026-0306)

Ultrasound-Guided Suprazygomatic Maxillary Nerve Block as an Opioid-Sparing Strategy for Maxillary Repair Surgery: A Prospective Randomized-Controlled Trial

Srujana Suryadevara[1], Devalina Goswami[1,2], Arshad Ayub[1], Babita Gupta[1], Ajoy Roy Chaudhary[2*], Ongkila Bhutia[2]

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Background
The evolution of peri-operative care has shifted towards precision regional anaesthesia,ERAS protocols and opioid-sparing strategies to improve patient outcomes and minimise adverse effects.Ultrasound-guided peripheral nerve blocks are an integral component of multimodal analgesia;Though evidence supporting the Suprazygomatic maxillary nerve block in cleft-palate surgeries is well established,literature regarding its efficacy in maxillary-repair surgeries remains limited.This study evaluated the efficacy of ultrasound-guided suprazygomatic maxillary-nerve block in reducing perioperative opioid consumption and improving postoperative analgesia in patients undergoing maxillary repair surgeries.

Methods
Thirty ASA physical status I–IIpatients aged 18–65years undergoing elective maxillary repair surgery were enrolled in this trial and allocated into two groups(n=15 each).Control group received intravenous acetaminophen alone,while intervention group received ultrasound-guided Suprazygomatic maxillary-nerve block using 0.25%bupivacaine with clonidine(1μg/kg)in addition to intravenous acetaminophen.Intravenous fentanyl was administered intraoperatively when heart rate or systolic blood pressure increased by>20% from baseline despite adequate anaesthetic depth and muscle relaxation.Ketorolac 30mg was used as postoperative rescue analgesia.The primary outcome was intraoperative fentanyl requirement.Secondary outcomes included postoperative rescue analgesic requirement,time to first rescue analgesia and NRS-pain scores at1,4,6,12and24hours.

Results
Demographic characteristics were comparable between groups.Patients receiving the Suprazygomatic-maxillary nerve block demonstrated significantly lower intraoperative fentanyl consumption than controls(5±10.5μgvs41.9±37.2μg;p<0.05).No patient in the intervention group required postoperative rescue analgesia,whereas 14 in control group required it at 56.2±9.3minutes(p<0.05).Total postoperative analgesic consumption and NRS pain scores at all measured postoperative time points were significantly lower in the intervention group.

Conclusion
Ultrasound-guided Suprazygomatic maxillary-nerve block provides effective perioperative analgesia, substantially reduces intraoperative opioid requirements and decreases postoperative analgesic consumption in patients undergoing maxillary-repair surgery.These findings reinforce the expanding role of ultrasound-guided regional anaesthesia as a smart,patient-centred approach to delivering safer perioperative care.

AP-25-6 (2026-0306)

Figure & Table

Figure & Table 1.



AP-25-8 (2026-0430)

Effect of Intraoperative Islamic Dzikr on Bispectral Index During Spinal Anaesthesia: A Randomised Controlled Trial

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Background
Patients undergoing surgery under spinal anaesthesia may experience anxiety and discomfort. Although pharmacological sedation can be effective, it may cause respiratory and haemodynamic adverse effects. This study evaluated whether intraoperative listening to Islamic praises (Dzikr) affected bispectral index (BIS) values and respiratory parameters in Muslim patients undergoing elective surgery under spinal anaesthesia.

Methods
This prospective, single-blind, randomised controlled trial included 74 Muslim adults with (ASA physical status I-II) uundergoing elective surgery under spinal anaesthesia. Participants were assigned to listen to Dzikr through noise-cancelling headphones (Dzikr group, n = 40) or wear identical headphones without audio (control group, n = 34). BIS, respiratory rate (RR), and peripheral oxygen saturation (SpO2) were recorded at baseline and at 10-minute intraoperative intervals. Between-group trends over time were analysed using generalised linear mixed-effects models.

Results
Baseline BIS values were comparable between groups. BIS values were significantly lower in the Dzikr group from 10 minutes intraoperatively onwards; mixed-effects modelling demonstrated significant effects of group, time, and group-by-time interaction (all $p \leq 0.005$). There were no overall between-group differences in RR or SpO2.

Conclusion
Intraoperative Dzikr listening was associated with sustained lower BIS values without evidence of clinically important respiratory or oxygenation compromise. Dzikr may be a culturally appropriate, low-cost, non-pharmacological adjunct for selected Muslim patients undergoing surgery under spinal anaesthesia.

Presentation

Abstract Presentation 26

Date / Time	Nov 6 (Fri), 15:30-17:00
Room	Room E *(Hyatt Regency)*
Language	English
Chair(s)	Soomin Lee *(Chungnam National University, Republic of Korea)* Yoon Ji Choi *(Korea University, Republic of Korea)*

AP-26-1 2026-0389

Effect of Positive End-Expiratory Pressure on the Gastric Volume in Patients Undergoing General Anesthesia with Supraglottic Airway Device: A Prospective Randomized Controlled Non-Inferiority Trial

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AP-26-2 2026-0544

Flexible Fiberscopy Versus Videolaryngoscopy for Tracheal Intubation Under Maximal Airway Assistance in Patients Wearing a Cervical Collar: A Randomized Controlled Non-Inferiority Trial

Seoyoung Ma[1], Donguk Kim[1], Hyongmin Oh[1*], Hee-Pyoung Park[1]

1. Department of Anesthesiology and Pain Medicine, Seoul National University Hospital, Republic of Korea

AP-26-3 2026-0459

Safety of Deferral of Planned ICU Admission After Femoral Fracture Surgery in Older Adults: A Retrospective Cohort Study

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AP-26-4 2026-0517

NIPPV Versus High-Flow Nasal Oxygen for Pre-oxygenation in Morbidly Obese Patients Undergoing Airway Management

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AP-26-5 2026-0040

Morbidity and Mortality Prediction using Emergency Surgical Score (ESS) in Emergency General Surgery Patients at West Visayas State University Medical Center (WVSU-MC): A Retrospective Study

Gineleen Faigani[1*]

1. Anesthesia, West Visayas State University Medical Center, Philippines

AP-26-6 2026-0300

Development of a Novel Fluid Tolerance Index in Patients Undergoing Emergency Laparotomy: An Interim Analysis

Kritikha Rajarajan[1], Harshita Mehrotra[1], Niharika Niharika[1], Priyankar K Datta[1], Sulagna Bhattacharjee[1], Rakesh Kumar[1], Asuri Krishna[2], Virinder K Bansal[2], Vimi Rewari[1], Souvik Maitra[1*]

1. Department of Anaesthesiology, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India
2. Department of Surgical Disciplines, All India Institute of Medical Sciences, New Delhi, India

AP-26-7 2026-0320

Therapeutic Plasma Exchange in Severe Thyrotoxicosis and Thyroid Storm: A Single-Centre Case Series Illustrating Four Distinct Clinical Phenotypes

Jamie Wen Yen Tan[1,2*], Hamsathvani Chandrakanthan[2], Audrey Yeo[1,2], Siti Nuramiera Binti Mustapha[1], Lin Ying Tey[1,3]

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2. Department of Anaesthesiology and Critical Care, University Malaya Medical Centre, Malaysia
3. School of Medicine, University of Liverpool, United Kingdom

AP-26-8 2026-0599

Awake Videolaryngoscopy as Salvage After Failed Fibreoptic Intubation in Rapidly Progressive Malignant Tracheal Compression

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Effect of Positive End-Expiratory Pressure on the Gastric Volume in Patients Undergoing General Anesthesia with Supraglottic Airway Device: A Prospective Randomized Controlled Non-Inferiority Trial

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Background

Positive end-expiratory pressure (PEEP) improves respiratory mechanics and prevents atelectasis. However, concerns remain regarding its use with a supraglottic airway (SGA) because of potential gastric insufflation and an increased aspiration risk. This study aimed to investigate whether applying 5 cmH_2O PEEP during general anesthesia with an SGA is non-inferior to zero PEEP (ZEEP) regarding the post-anesthesia gastric volume (GV).

Methods

In this prospective, randomized controlled non-inferiority trial, patients scheduled for breast surgery under general anesthesia with an SGA were randomly allocated to the ZEEP or PEEP group. GV was calculated from the antral cross-sectional area (CSA) measured by gastric ultrasonography in the supine position before and after anesthesia. The primary outcome was post-anesthesia GV, and analysis of covariance (ANCOVA) was performed to adjust for pre-anesthesia GV. The non-inferiority margin (δ) for the mean difference was 8.48 mL. Secondary outcomes included the change in GV and pre- and post-anesthesia CSA. Intraoperative ventilator and airway seal variables including peak inspiratory pressure, lung compliance, oropharyngeal leak pressure, and leak fraction were assessed at 5, 30, and 60 minutes after induction. Postoperative complications including nausea, vomiting, sore throat, and blood staining on the SGA were also evaluated.

Results

A total of 114 patients were enrolled, and 97 completed the study. The adjusted mean (standard error) post-anesthesia GV was not significantly different between the ZEEP and PEEP groups (20.22 [4.48] mL vs 16.91 [4.43] mL; P = 0.31). The mean difference in gastric volume was -3.31 mL (95% confidence interval [CI], -9.65 to 3.02) with the upper bound of the 95% CI below the prespecified non-inferiority margin (δ = 8.48 mL). Although PIP was slightly higher in the PEEP group at all measured time points by 1.4 to 1.8 cmH_2O (P < 0.05), there were no significant differences in other secondary outcomes.

Conclusion

Applying PEEP of 5 cmH_2O during general anesthesia with an SGA did not increase gastric volume compared with ZEEP. Furthermore, it was not associated with impaired airway seal or increase postoperative complications, supporting its safe application.

AP-26-1 (2026-0389)

Figure & Table

Figure & Table 1.

Table 1. Baseline Characteristics of Patients and Operation-related Data

Variable	ZEEP group (n = 48)	PEEP group (n = 49)	P value
Age (yr)	54.3 ± 12.5	56.4 ±9.0	0.330
Sex (Female), n (%)	47 (97.9%)	49 (100%)	0.992
Height (cm)	159.1 ± 5.9	158.2 ± 4.0	0.406
Weight (kg)	57.0 ± 10.2	57.4 ± 7.0	0.837
ASA-PS			0.833
I	3 (6.3%)	2 (4.1%)	
II	45 (93.7%)	47 (95.9%)	
Operation time (min)	58.4 ± 26.8	60.0 ± 26.7	0.775
Anesthesia time (min)	83.0 ± 28.1	83.5 ± 28.0	0.928

Data are presented as mean ± SD, or number of the patients (proportion)

PEEP, positive end-expiratory pressure; ZEEP, zero PEEP

Figure & Table 2.

Table 2. Gastric volume and cross-sectional area outcomes

Variable	ZEEP group (n = 48)	PEEP group (n = 49)	Difference in means (95% CI)	P value
Pre-anesthesia CSA (cm^2)	3.86 ± 1.24	3.87 ±0.96	0.01 (-04.44 – 0.46)	0.955*
Pre-anesthesia GV (mL)	18.43 ± 16.54	13.77 ± 12.93	-4.66 (-10.66 – 1.34)	0.126*
Post-anesthesia CSA (cm^2)	4.15 ± 1.61	4.08 ± 1.33	-0.07 (-0.67 – 0.53)	0.808
Post-anesthesia GV (mL)	22.09 ± 19.97	15.08 ± 18.83	-7.01 (-14.84 – 0.81)	0.078
Adjusted post-anesthesia GV (mL) Adjusted mean (95% CI)	20.22 (15.75 - 24.70)	16.91 (12.48 – 21.34)	-3.31 (-9.65 – 3.02)	0.301

Values are presented as mean ± standard deviation or adjusted mean (95% CI). Difference in means is presented as PEEP – ZEEP with 95% confidence intervals. Adjusted post-anesthesia gastric volume was estimated by analysis of covariance with pre-anesthesia gastric volume as a covariate. Non-inferiority was defined as an upper bound of the two-sided 95% confidence interval below 8.48 mL

PEEP, positive end-expiratory pressure; ZEEP, zero PEEP; CSA, cross sectional area; GV, gastric volume; CI, confidence interval

ABSTRACT
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Flexible Fiberscopy Versus Videolaryngoscopy for Tracheal Intubation Under Maximal Airway Assistance in Patients Wearing a Cervical Collar: A Randomized Controlled Non-Inferiority Trial

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Background

In patients wearing a cervical collar, tracheal intubation is more difficult, and indirect devices such as the videolaryngoscope and the flexible fiberscope are preferred over the direct laryngoscope. In such patients, when airway assistance was applied only as needed, the fiberscope showed a lower first-attempt success rate, longer intubation time, and greater need for airway assistance than the videolaryngoscope. This study investigated whether the first-attempt success rate of the flexible fiberscope would be non-inferior to that of the videolaryngoscope when maximal airway assistance was applied from the beginning of intubation.

Methods

This single-center, randomized controlled non-inferiority trial enrolled 262 adult patients with a cervical spine lesion undergoing elective spine surgery under general anesthesia, who were randomized 1:1 to the videolaryngoscope (control) group (n = 131) or the fiberscope (study) group (n = 131) while wearing a semi-rigid cervical collar. In both groups, oral suctioning, jaw thrust, external laryngeal manipulation, and tongue retraction were applied from the beginning of intubation. The primary outcome was the first-attempt success rate, with a non-inferiority margin of −5%. Secondary outcomes included intubation time, the number of intubation attempts, final intubation success rate, glottic exposure assessed by the Cormack-Lehane grade and the percentage of glottic opening (POGO) score, changes in mean arterial pressure, heart rate, peripheral oxygen saturation, and the bispectral index, and intubation-related complications.

Results

The first-attempt success rate was 130 (99.2%) in the fiberscope group and 128 (97.7%) in the videolaryngoscope group (difference in percentages [95% CI], 1.5% [−1.4% to 4.5%]), and the lower bound exceeded the −5% margin, confirming non-inferiority. The POGO score was higher in the fiberscope group (100 [100–100] % vs. 50 [30–70] %, p < 0.001), whereas the total intubation time was longer (45.0 [34.0–60.0] s vs. 39.0 [30.0–50.0] s, p = 0.002) and the increase in heart rate after intubation was greater (16.3 vs. 11.0 beats/min, p < 0.001). Blood in the oral cavity (0 [0.0%] vs. 10 [7.7%], p = 0.001) and blood staining on the endotracheal tube (1 [0.8%] vs. 10 [7.7%], p = 0.005) were less frequent in the fiberscope group.

Conclusion

Under maximal airway assistance, the flexible fiberscope was non-inferior to the videolaryngoscope for first-attempt intubation success rate in patients wearing a cervical collar, providing a superior glottic view and less airway trauma at the cost of a modestly longer intubation time. Combined with proactive assistance, the fiberscope is a reliable option for tracheal intubation in this population.

AP-26-2 (2026-0544)

Figure & Table

Figure & Table 1.

Table 1. Comparison of intubation performance between the fiberscope and videolaryngoscope groups

Variable	Fiberscope group (n = 131)	Videolaryngoscope group (n = 131)	Difference in percentages (Two-sided 95% CI)	p-value
Primary outcome				
First-attempt success	130 (99.2%)	128 (97.7%)	1.5% (−1.4% to 4.5%)	0.622
Secondary outcomes				
Final success	131 (100.0%)	130 (99.2%)	0.8% (−0.7% to 2.3%)	1.000
Rescue ventilation	0 (0.0%)	0 (0.0%)	0.0% (0.0% to 0.0%)	1.000
POGO score (%)	100 [100–100]	50 [30–70]	N/A	<0.001
Cormack-Lehane grade*	N/A	2 [2–3]	N/A	
Time measurements (s)				
T1 – T0	10.0 [7.0–19.0]	10.0 [7.0–16.0]	N/A	0.275
T2 – T1	18.0 [11.0–25.0]	15.0 [10.0–19.2]	N/A	0.009
T3 – T2	14.0 [10.0–18.0]	12.0 [9.0–15.0]	N/A	0.006
T3 – T0	45.0 [34.0–60.0]	39.0 [30.0–50.0]	N/A	0.002

Data are presented as number (%) or median [IQR].
T0, device insertion into the oral cavity; T1, glottic visualization; T2, endotracheal tube placement at the optimal depth; T3, end-tidal carbon dioxide waveform appearance after device removal. T1 – T0, time to glottic visualization; T2 – T1, time from glottic visualization to tube placement; T3 – T2, time from tube placement to end-tidal carbon dioxide confirmation; T3 – T0, total intubation time.
* Cormack-Lehane grade was observed only under videolaryngoscopic view.
CI, confidence interval; POGO, percentage of glottic opening; N/A, not applicable; IQR, interquartile range; ETCO2, end-tidal carbon dioxide.

Figure & Table 2.

Table 2. Postoperative complications in the fiberscope and videolaryngoscope groups

Variable	Fiberscope group (n = 131)	Videolaryngoscope group (n = 131)	p-value
Airway trauma			
Blood in oral cavity	0 (0.0%)	10 (7.7%)	0.001
Blood staining on endotracheal tube	1 (0.8%)	10 (7.7%)	0.005
Gum bleeding	0 (0.0%)	0 (0.0%)	1.000
Teeth injury	0 (0.0%)	0 (0.0%)	1.000
Tongue injury	0 (0.0%)	0 (0.0%)	1.000
Lip injury	0 (0.0%)	5 (3.8%)	0.029
Postoperative 1 hour			
Hoarseness	3 (2.3%)	3 (2.3%)	1.000
Sore throat	16 (12.2%)	20 (15.4%)	0.478
Sore throat NRS*	1 [1–2]	1 [1–2]	0.757
Postoperative 24 hours			
Hoarseness	2 (1.5%)	2 (1.6%)	1.000
Sore throat	9 (6.9%)	9 (7.0%)	1.000
Sore throat NRS*	1 [1–1]	1 [1–1]	0.374

Data are presented as number (%) or median [IQR].
* The severity of sore throat was rated on an 11-point numeric rating scale, with 0 indicating no pain and 10 the worst pain imaginable. Severity was compared only among patients with sore throat.
NRS, numeric rating scale; IQR, interquartile range.

ABSTRACT
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Safety of Deferral of Planned ICU Admission After Femoral Fracture Surgery in Older Adults: A Retrospective Cohort Study

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Background
Older adults undergoing femoral fracture surgery are often scheduled for postoperative intensive care unit (ICU) admission. At our institution, ICU admission is requested and approved preoperatively, but the approved admission is sometimes deferred when the intraoperative course proves uneventful. Whether such deferral compromises safety is unknown. We compared outcomes between patients admitted to the ICU as planned and those whose approved admission was deferred.

Methods
We retrospectively reviewed patients aged ≥65 years who underwent femoral fracture surgery at a single center (2015–2024). Patients were classified into four groups by preoperative ICU request and actual disposition: approved and admitted (G1), request denied (G2), approved but deferred (G3), and unplanned admission (G4). The primary comparison was G1 vs. G3. Propensity scores were estimated using the covariate balancing propensity score method, and inverse probability of treatment weighting (IPTW) was applied. IPTW-weighted logistic regression was the primary analysis, with additional adjustment for operation type (which remained imbalanced after weighting); IPTW-weighted Cox regression served as a sensitivity analysis.

Results
Of 359 patients, 209 were in G1, 18 in G2, 124 in G3, and 8 in G4. Among G3 patients, 5 (4.0%) later required ICU admission for clinical deterioration. After IPTW and adjustment, 30-day mortality (odds ratio [OR] 1.033, 95% confidence interval [CI] 0.229–4.656) and 1-year mortality (OR 1.034, 95% CI 0.441–2.428) did not differ between G3 and G1; Cox regression yielded concordant results. Any complication (OR 0.570, p=0.323) and severe complication (OR 0.326, p=0.155) did not differ significantly. Hospital stay was shorter in G3 (median 6 vs. 7 days, p=0.034); discharge destination did not differ (p=0.473).

Conclusion
Deferral of a preoperatively approved ICU admission, based on intraoperative reassessment, was not associated with increased mortality. Crude estimates favoring the deferred group attenuated toward the null after adjustment, indicating baseline differences rather than a protective effect. These findings support individualized reassessment of ICU need in clinically stable patients, with close ward surveillance. Given wide confidence intervals and the single-center retrospective design, results should be regarded as exploratory.

Figure & Table

Figure & Table 1.

Table. Association between group and clinical outcomes (Group 3 vs. Group 1, reference; IPTW-weighted, adjusted for operation type). IPTW: inverse probability of treatment weighting; OR: odds ratio; CI: confidence interval.

Outcome	Adjusted OR (95% CI)	P
30-day mortality	1.033 (0.229–4.656)	0.966
1-year mortality	1.034 (0.441–2.428)	0.938
Any complication	0.570 (0.186–1.742)	0.323
Severe complication	0.326 (0.069–1.534)	0.155

NIPPV Versus High-Flow Nasal Oxygen for Pre-oxygenation in Morbidly Obese Patients Undergoing Airway Management

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Background
Morbidly obese patients undergoing airway management are at elevated risk of peri-intubation hypoxemia because of reduced functional residual capacity and increased closing capacity. Non-invasive positive pressure ventilation (NIPPV) and high-flow nasal oxygen (HFNO) are both used to optimize pre-oxygenation, but direct head-to-head evidence comparing the two is limited and conflicting.

Methods
PubMed/MEDLINE, Scopus, and Cochrane CENTRAL were searched for randomized and post hoc randomized studies comparing NIPPV with HFNO for pre-oxygenation/peri-intubation oxygenation in morbidly obese patients (BMI ≥ 35–40 kg/m^2) undergoing elective or emergency airway management. Screening followed PRISMA 2020. Risk of bias was assessed with Cochrane RoB 2. Because the primary outcome was dichotomous (incidence of desaturation), study-level odds ratios (OR) were pooled using a random-effects (DerSimonian–Laird) inverse-variance model. Given only two eligible studies, a Hartung–Knapp sensitivity analysis was additionally performed.

Results
Of 477 records identified, 445 remained after deduplication and 11 full texts were assessed. Two studies (181 participants) met all eligibility criteria: Vourc'h et al. 2019 (PREOPTIPOP, elective operating room; n=100) and Rodriguez et al. 2021 (post hoc analysis of a multicentre ICU trial; obese subgroup n=91). Pooled analysis showed no significant difference in peri-intubation desaturation between NIPPV and HFNO (OR 0.67, 95% CI 0.17–2.67; p=0.57), with substantial heterogeneity (I^2=76%; Q=4.16, df=1, p=0.04). Vourc'h reported lower desaturation with NIV than HFNC (12% vs 30%; RR 2.5, 95% CI 1.1–5.9), whereas Rodriguez found no significant difference in severe hypoxemia (37% vs 31%; p=0.54). One study was at some concerns and one at high risk of bias.

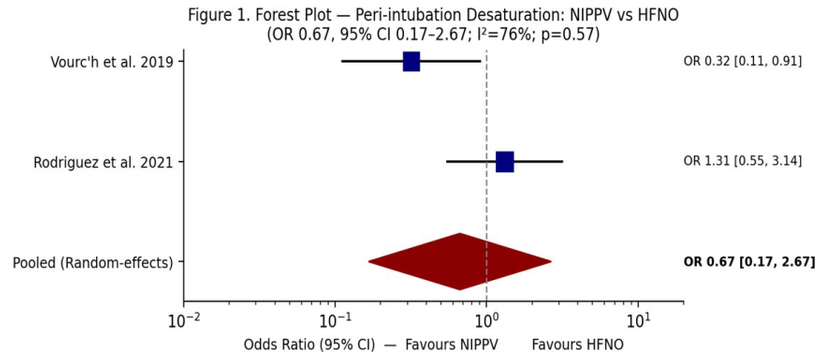
Conclusion
Direct head-to-head evidence comparing NIPPV and HFNO for pre-oxygenation in morbidly obese patients is limited to two small, clinically heterogeneous studies and is inconclusive. Larger, preregistered multicentre RCTs using harmonized desaturation thresholds across elective and emergency/ICU settings are required before either technique can be preferentially recommended.

AP-26-4 (2026-0517)

Figure & Table

Figure & Table 1. **Figure 1.** Forest plot of pooled odds ratio for peri-intubation desaturation (NIPPV vs HFNO).

Supplementary Figures

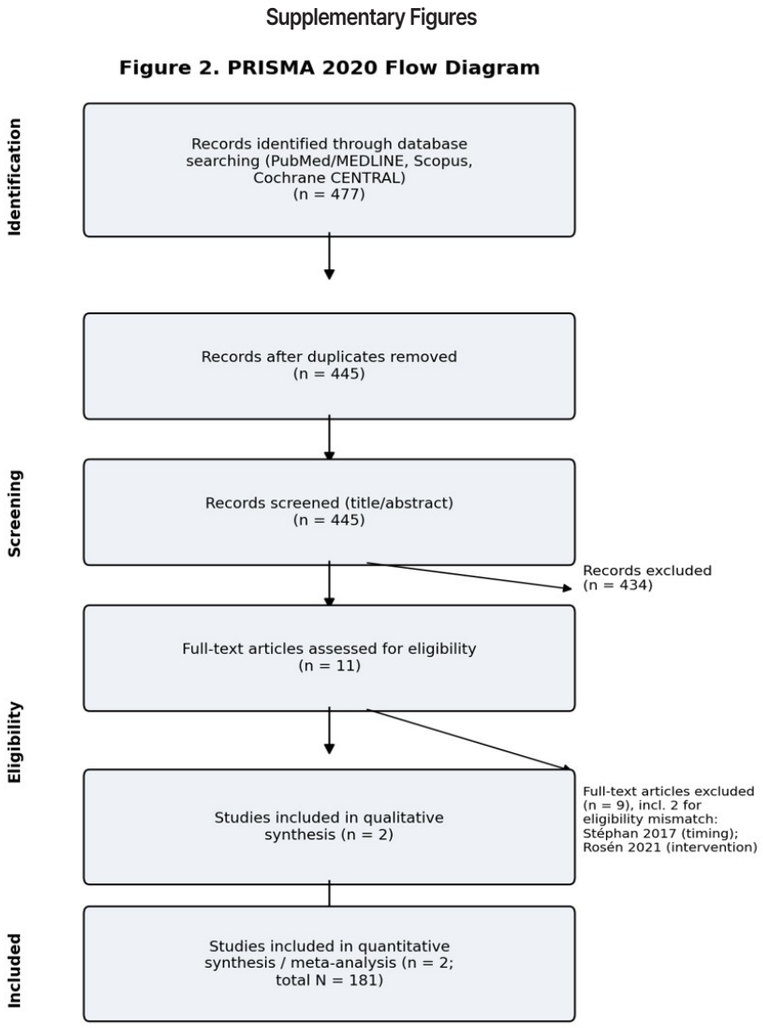


ABSTRACT
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Figure & Table

Figure & Table 2. **Figure 2.** PRISMA 2020 flow diagram of study identification and selection.



AP-26-5 (2026-0040)

Morbidity and Mortality Prediction using Emergency Surgical Score (ESS) in Emergency General Surgery Patients at West Visayas State University Medical Center (WVSU-MC): A Retrospective Study

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Background
Emergency general surgery (EGS) carries substantial postoperative morbidity and mortality. The Emergency Surgery Score (ESS) is a validated preoperative risk-stratification tool, but evidence in Filipino patients remains limited. This study evaluated ESS for predicting postoperative morbidity and 30-day mortality in adult EGS patients.

Methods
This retrospective cross-sectional study included 818 adults who underwent EGS from January 2021 to December 2023. Demographic, clinical, laboratory, ESS, and 30-day outcome data were obtained from medical records. Associations between ESS and outcomes were assessed using chi-square tests, Spearman correlation, receiver operating characteristic (ROC) analysis, and multivariate logistic regression, with $p<0.05$ considered significant.

Results
Mean ESS was 2.74±2.63. Postoperative morbidity occurred in 15.3%, most commonly pneumonia (9.0%) and acute kidney injury (7.9%). ICU admission was 5.1% and 30-day mortality was 2.1%. Each 1-point ESS increase raised the odds of morbidity by 53.8% (adjusted OR 1.538, 95% CI 1.378–1.718, $p<0.001$). ESS showed good discrimination for morbidity (AUC 0.859, 95% CI 0.824–0.895); at a cutoff of 2.5, sensitivity was 88.8% and specificity 66.7%. For mortality, AUC was 0.850 (95% CI 0.767–0.934), with 88.2% sensitivity and 59.2% specificity, although ESS was not an independent mortality predictor. Patients with ESS >2 accounted for 90.5% of ICU admissions, 88.8% of morbidity, and 88.2% of mortality. ESS correlated with morbidity ($r=0.454$) and mortality ($r=0.176$), both $p<0.05$.

Conclusion
ESS demonstrated good predictive performance for postoperative morbidity and was significantly associated with ICU admission and major postoperative complications among Filipino EGS patients. Although ESS showed good discrimination for 30-day mortality, it was not an independent mortality predictor in this cohort. These findings support ESS as a practical preoperative risk-stratification tool for identifying high-risk EGS patients and informing perioperative planning and critical care resource allocation.

Figure & Table

Figure & Table 1.

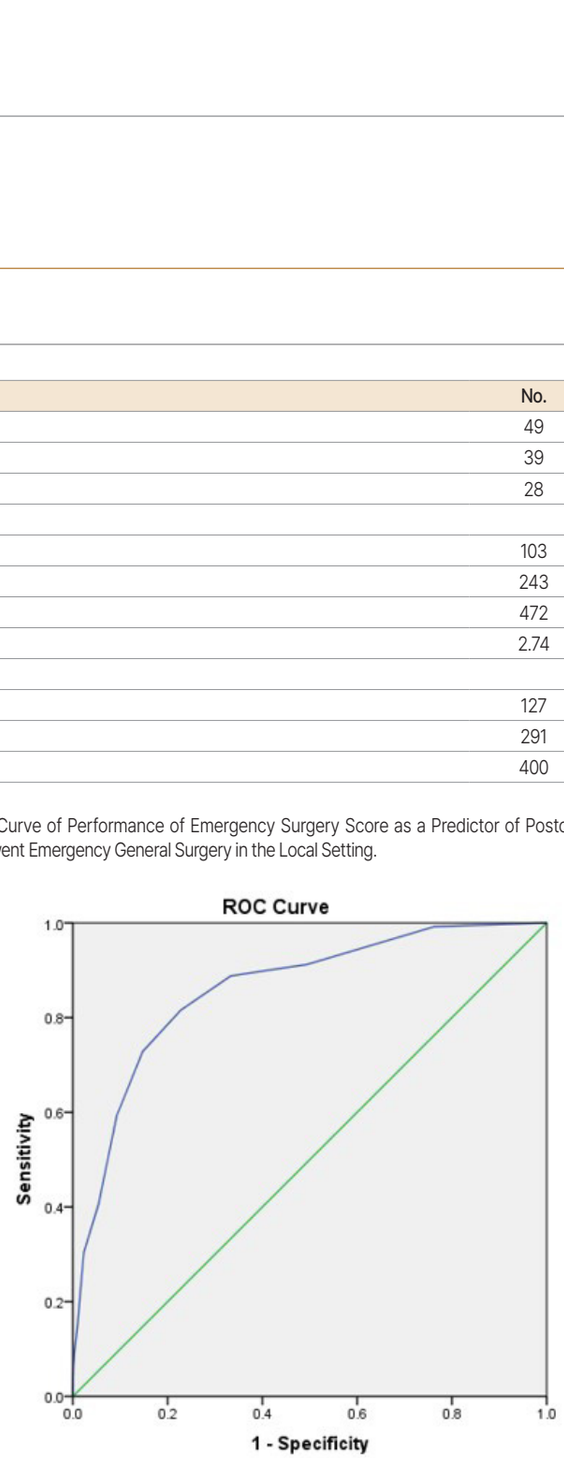
Table 1. Profile of Adult Patients Who Underwent Emergency General Surgery (n=818)

Profile	No.	%
Age		
mean (SD)	45.38	17.79
Median (IQR)	44.00	29.75-60
Age group		
19-39 years	349	42.7%
40-59 years	257	31.4%
60 years and above	212	25.9%
Gender		
Male	263	32.2
Female	555	67.8
Admission source		
ER	707	86.4
IM	26	3.2
OBGYNE	1	.1
TRANSFER	84	10.3
ASA SCORE		
1E	167	20.4
2E	464	56.7
3E	158	19.3
4E	29	3.5
Comorbidities	2	
Hypertension	211	25.8
Diabetes mellitus	90	11.0
COPD	4	.5
Malignancy	51	6.2
Risk factors		
Alcohol drinker	154	18.8
Smoker	154	18.8
Obese	4	.5
Low platelet	16	2.0
Increased creatinine	133	16.3
Increased BUN	117	14.3
Increased SGOT	63	7.7
High Alkaline phosphatase	38	4.6
Hypoalbuminemia	249	30.4
Hypokalemia	40	4.9
Diagnosis		
Appendicitis	256	31.3
Intestinal Obstruction	122	14.9

Figure & Table

Profile	No.	%
Calculous cholecystitis	49	6
Abscess	39	4.8
Cholecystolithiasis	28	3.4
Type of anesthesia		
Combined GA+RA	103	12.6
GA	243	29.7
RA	472	57.7
ESS score, mean (SD)	2.74	2.63
Year		
2021	127	15.5
2022	291	35.6
2023	400	48.9

Figure 1. Receiver Operating Curve of Performance of Emergency Surgery Score as a Predictor of Postoperative Morbidity of Adult Patients who Underwent Emergency General Surgery in the Local Setting.



AP-26-5 (2026-0040)

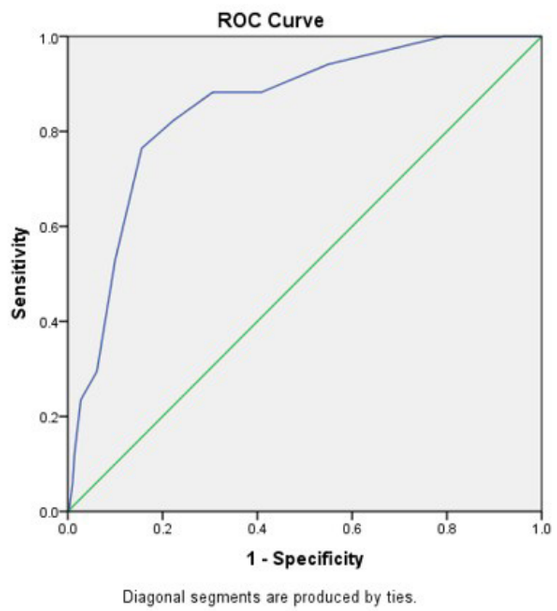
Figure & Table

Figure & Table 2.

Table 2. Clinical Outcomes of Adult Patients Who Underwent Emergency General Surgery (n=818)

Outcomes	No.	%
Postop ICU admission	42	5.1
Postop ICU admission days, mean (SD)	12.15	11.13
Postop complications		
AKI	65	7.9
Pneumonia	74	9.0
Post -op ventilator use > 48 hours	29	3.5
MI	11	1.3
Sepsis/Septic shock	10	1.2
Morbidity (pneumonia, sepsis, MI/cardiac arrest, AKI)	125	15.3
Reoperation		
No	786	96.1
Planned reoperation	23	2.8
Unplanned reoperation	9	1.1
30-day mortality	17	2.1
Number of days postop to mortality, mean (SD)	17.24	22.51
Length of hospital stay, mean (SD)	11.29	15.22

Figure 2. Receiver Operating Curve of Performance of Emergency Surgical Score as a Predictor of Postoperative 30-Day Mortality of Adult Patients who Underwent Emergency General Surgery in the Local Setting.



AP-26-6 (2026-0300)

Development of a Novel Fluid Tolerance Index in Patients Undergoing Emergency Laparotomy: An Interim Analysis

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Background
Fluid therapy is the cornerstone of patient management in the perioperative setting. However, overjealous fluid therapy contributes to major postoperative complications. Extravasation of intravascular fluid is contributed by several factors including endothelial glycocalyx damage from systemic inflammation and reduced colloid oncotic pressure. We hypothesized that a composite index including patient- related factors, amount of fluid balance, degree of systemic inflammation and colloid oncotic pressure will be able to predict major postoperative complications.

Methods
Fluid balance in the first 24h after surgery, serum syndecan-1, neutrophil lymphocyte ratio and serum albumin data were recorded for n=83 adult patients undergoing major emergency surgery. Clavien- Dindo grade IV/ V complications were regarded as 'major postoperative complications'. An elastic net logistic regression model was built to predict major postoperative complications.

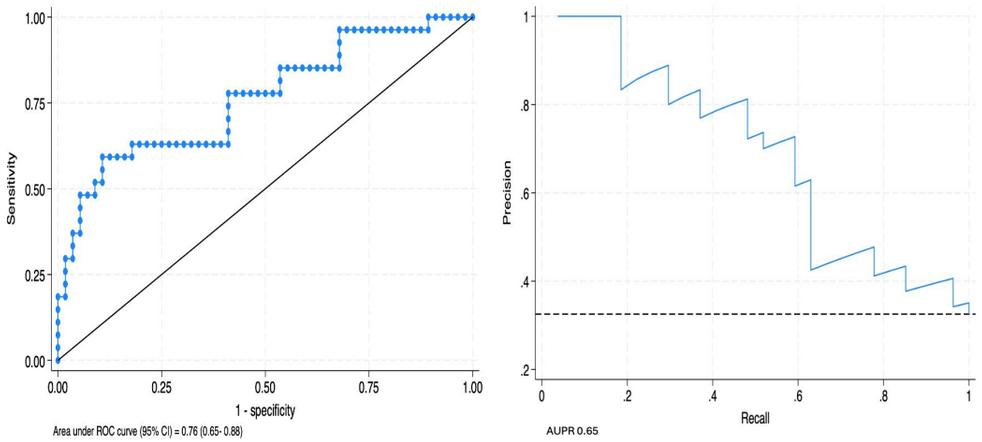
Results
Mean (standard deviation) age of the patients were 44(18)y and 32 patients were female. Within the duration of hospital stay, n=27 patients had major postoperative complications. Elastic net regression (alpha=0, lambda= 0.29) model had decent predictive ability for major postoperative complications with an area under the receiver operating characteristics curve (95% confidence interval, CI) 0.76 (0.65- 0.88) and area under the precision recall curve of 0.65(Figure1).

Conclusion
Interim analysis of this ongoing study reported that our composite index had decent predictive ability, despite of limited number of patients were included in the analysis. Our prediction model needs further validation in external cohort.

AP-26-6 (2026-0300)

Figure & Table

Figure & Table 1.



AP-26-7 (2026-0320)

Therapeutic Plasma Exchange in Severe Thyrotoxicosis and Thyroid Storm: A Single-Centre Case Series Illustrating Four Distinct Clinical Phenotypes

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3. School of Medicine, University of Liverpool, United Kingdom

Introduction

Severe thyrotoxicosis and thyroid storm are life-threatening endocrine emergencies with reported mortality reaching 30% despite conventional anti-thyroid drug (ATD) therapy. Therapeutic plasma exchange (TPE) is recognized by the American Society for Apheresis (ASFA; Category II, Grade 2C) as an effective rescue modality when standard therapy is ineffective, contraindicated, poorly tolerated, or when rapid hormonal control is required prior to definitive treatment. However, published evidence on optimal patient selection, replacement fluid customization and procedural troubleshooting remains limited to isolated case reports.

Case

Between August 2025 and June 2026, four adults received TPE in the tertiary intensive care unit of a university hospital in Malaysia. Median age was 34.5 years (range 23 – 71); two were male and two female. Three presented with thyroid storm and one with severe refractory thyrotoxicosis (Burch-Wartofsky Point Scale 15 – 55). Across all cases, TPE achieved rapid hormone extraction, yielding a median fT4 reduction of 53.6% (45.4% - 64%) and a median fT3 reduction of 47.3% (43.8% - 52.4%). TPE successfully addressed four distinct clinical barriers to standard management:

1. Severe pneumonia and tachycardia-induced cardiomyopathy with hemodynamic instability precluding early definitive therapy;
2. Refractory thyroid storm complicated by cardiogenic shock, NSTEMI and concomitant lithium toxicity (1.68 mmol/L) requiring multimodal extracorporeal support (TPE for hormone extraction and continuous renal replacement therapy for lithium clearance);
3. ATD-induced hepatotoxicity complicated by an immediate anaphylactic reaction to fresh frozen plasma (FFP), necessitating an emergency transition to 5% human albumin as replacement fluid;
4. Extreme thyrotoxicosis (fT4 > 130 pmol/L) with acute liver injury and thyrotoxic hypokalaemic periodic paralysis (K+ nadir 1.7 mmol/L) complicated by recurrent circuit thrombosis during apheresis.

Overall, 75% (3/4) of patients survived to hospital discharge. TPE achieved rapid biochemical reduction of free thyroid hormones and clinical stabilization, bridging three patients to successful definitive treatment – two total thyroidectomies and one radioactive iodine ablation. The single mortality occurred in an elderly patient with refractory cardiogenic shock and multi-organ failure. Procedural complications, including plasma hypersensitivity and circuit clotting were safely managed through individualized fluid replacement strategies and protocol modifications.

Conclusion

TPE is a versatile bridging therapy whose value extends beyond rapid thyroid hormone removal. Each case illustrated different clinical phenotypes complicated with TPE periprocedural challenges. This highlights the clinical value of flexible replacement fluid strategies and the need for prospective data on procedural anticoagulation to address circuit clotting. Early consideration of TPE and protocol customization to individual patient's needs may facilitate safe stabilization and definitive treatment in patients with severe thyrotoxicosis.

Awake Videolaryngoscopy as Salvage After Failed Fibreoptic Intubation in Rapidly Progressive Malignant Tracheal Compression

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Introduction

Central airway obstruction caused by thoracic malignancy may deteriorate rapidly and progress to life-threatening airway compromise. Awake tracheal intubation is often indicated when difficult airway management is anticipated, with awake fibreoptic intubation traditionally regarded as the preferred technique. However, bleeding and secretions may limit fibreoptic visualisation. We report the successful use of awake videolaryngoscopy as a rescue technique after failed awake fibreoptic intubation in a patient with rapidly progressive malignant tracheal compression.

Case

A 59-year-old chronic smoker with no known comorbidities initially presented with haemoptysis. Computed tomography of the thorax demonstrated a right apical lung mass with tracheal compression and mediastinal lymphadenopathy. Initial bronchoscopic biopsy was inconclusive.

He was subsequently readmitted with worsening dyspnoea, orthopnoea, hoarseness, and stridor. Repeat imaging demonstrated rapid tumour progression, measuring 4.6 × 8.2 × 6.6 cm, with marked mid-tracheal compression, leftward tracheal deviation, and tumour thrombus within the brachiocephalic vein. He was transferred urgently to the operating theatre for airway intervention.

A structured multidisciplinary airway strategy was implemented, with otorhinolaryngology support immediately available for emergency surgical airway access. Plan A was awake fibreoptic intubation under topical airway anaesthesia with target-controlled remifentanil infusion. This was abandoned because bloody secretions obscured the endoscopic view and oxygen saturation fell to 75%.

Plan B, awake videolaryngoscopic intubation, was undertaken promptly and secured the trachea without neuromuscular blockade. Post-intubation bronchoscopy demonstrated crescentic narrowing of the mid-trachea and facilitated repositioning of the tracheal tube beyond the compressed segment. Given the rapid disease progression and anticipated ongoing airway risk, surgical tracheostomy was subsequently performed for definitive airway access.

Conclusion

Awake videolaryngoscopy is a valuable rescue technique when awake fibreoptic intubation is unsuccessful because of bleeding, secretions, or impaired endoscopic visualisation. In rapidly progressive malignant central airway obstruction, success depends on a flexible, predefined airway strategy, maintenance of spontaneous ventilation, early recognition of failure, and close multidisciplinary collaboration with immediate capability for surgical airway rescue.

Figure & Table

Figure & Table 1.



Figure 1: Patient's chest radiograph prior to intubation and tracheostomy.

Figure & Table 2.

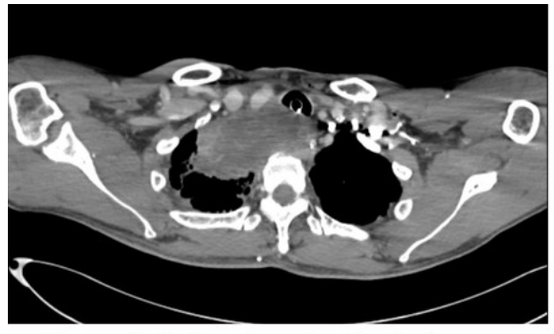


Figure 2: CT imaging of patient's thorax showing narrowing of mid-trachea and bilateral main bronchi.

Presentation

Abstract Presentation 27

Date / Time	Nov 6 (Fri), 15:30-17:00
Room	Room F *(Hyatt Regency)*
Language	English
Chair(s)	Woojin Kwon *(Konyang University, Republic of Korea)* Kibeom Park *(Keimyung University, Republic of Korea)*

AP-27-1 2026-0233

Influence of Opiranserin on Quality of Recovery in Patients Undergoing Thyroid Surgery: A Double-Blind Randomized Controlled Trial

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AP-27-2 2026-0354

Local Anesthetic-Induced Methemoglobinemia: A Systematic Review and Analysis of Published Case Reports

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AP-27-3 2026-0575

Erector Spinae Plane Block for Postoperative Dorsal Pain after First Rib Resection in Patients with Thoracic Outlet Syndrome: A Retrospective Cohort Study

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AP-27-4 2026-0446

Preemptive Dexmedetomidine for Postoperative Pain in Robot-Assisted Urological Surgery: A Retrospective Propensity Score-Matched Study

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AP-27-5 2026-0583

Erector Spinae Plane Block Versus Intravenous Lidocaine for Postoperative Analgesia: A Systematic Review of Randomized Controlled Trials

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AP-27-6 2026-0302

Comparing Inferior Vena Cava Collapsibility Index (IVC-CI) Guided Fluid Management with Carotid Artery Corrected Flow Time (FTc) Guided Fluid Management in Preventing Spinal Anesthesia Induced Hypotension in Elderly Trauma Patients

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AP-27-7 2026-0590

Multimodal General Anesthesia Versus Opioid-Based General Anesthesia in Adult Noncardiac Surgery: A Systematic Review

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AP-27-8 2026-0137

Comparison of Analgesic Efficacy of Modified Thoracoabdominal Nerve Block (MTAPA) and External Oblique Block (EOI) in Patients Undergoing Laparoscopic Cholecystectomy: A Randomized Controlled Trial

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Influence of Opiranserin on Quality of Recovery in Patients Undergoing Thyroid Surgery: A Double-Blind Randomized Controlled Trial

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Background

Non-opioid multimodal analgesia is essential for quality of recovery (QoR) after surgery. Opiranserin (VVZ-149) is a first-in-class non-opioid, non-NSAID analgesic dually inhibiting GlyT2 and serotonin 5-HT_2A. We evaluated whether use of opiranserin as a component of multimodal analgesia improves QoR-15 after thyroidectomy.

Methods

In this double-blind, randomized, placebo-controlled trial, adult patients undergoing thyroidectomy at a single center were randomized 1:1 to receive either opiranserin (160 mg loading over 30 min, followed by 840 mg over 9.5 h) or matched normal saline, administered towards the end of surgery, alongside standard acetaminophen and antiemetic prophylaxis. QoR-15 and anxiety/depression symptoms were assessed preoperatively, on post-operative day (POD) 1, and POD 14. Postoperative pain and nausea scores were evaluated at specific time points (0, 1, 6, 12, and 24 hours), alongside the overall incidence of nausea and vomiting within 24 hours. This interim analysis includes 62 of a planned 134 patients (Opiranserin n=32, Control n=30) enrolled between May and July 2026.

Results

Baseline QoR-15 scores did not differ between the groups. The primary endpoint, POD 1 QoR-15, did not show a statistically significant difference (82.1±15.7 vs. 86.8±10.9, p=0.178), nor did POD 14 QoR-15 (98.5±10.5 vs. 98.7 ±10.3, p=0.957) (Table 1). Wound and throat pain scores trended lower with opiranserin at 1h but did not differ significantly at any timepoint from 1h through 24h (Table 2). Nausea and vomiting incidence trended higher with opiranserin from 1h onward, including any occurrence within 24h (nausea 53.1% vs 43.3%, p=0.460; vomiting 9.4% vs 3.3%, p=0.613), though neither reached statistical significance (Table 2)

Conclusion

In this interim analysis, adjunctive opiranserin did not significantly improve QoR, pain, or nausea/vomiting outcomes at any assessed timepoint. Final conclusions await completion of the planned 134-patient enrollment.

AP-27-1 (2026-0233)

Figure & Table

Figure & Table 1.

Table 1. Quality of Recovery-15 (Interim Analysis, N=62)

QoR-15 (N=62)	Opiranserin (n=32)	Control (n=30)	p-value
Overall			
Baseline QoR-15	100.5 ± 8.7	102.3 ± 6.1	0.349
POD1 QoR-15	82.1 ± 15.7	86.8 ± 10.9	0.178
POD14 QoR-15	98.5 ± 10.5	98.7 ± 10.3	0.957
Δ POD1 − Baseline	-18.4 ± 16.4	-15.6 ± 11.8	0.434
Δ POD14 − Baseline	-3.6 ± 10.9	-3.9 ± 10.5	0.933

Values are mean ± SD; p-values from Welch's t-test. Δ = change from baseline (POD1 or POD14 minus baseline QoR-15).

Figure & Table 2.

Table 2. Wound Pain, Throat Pain, and PONV (Interim Analysis, N=62)

Outcome	Opiranserin (n=32)	Control (n=30)	p-value
A. Wound pain, score — median [IQR]			
1h	6.5 [4.0-7.0]	7.0 [5.0-8.0]	0.330
6h	4.7 [3.0-6.0]	5.0 [3.0-6.0]	0.915
12h	4.0 [2.0-5.0]	3.0 [2.0-5.0]	0.564
24h	3.0 [1.8-4.0]	2.0 [1.2-3.8]	0.384
B. Throat pain, score — median [IQR]			
1h	5.5 [4.0-7.2]	7.0 [5.0-8.0]	0.151
6h	5.0 [3.8-6.2]	5.0 [3.2-7.0]	0.960
12h	4.2 [2.8-6.0]	4.5 [2.0-6.0]	0.787
24h	3.9 [2.0-5.0]	3.0 [1.0-4.9]	0.199
C. Nausea incidence, %			
0-1h	34.4%	40.0%	0.793
1-6h	40.6%	23.3%	0.180
6-12h	37.5%	20.0%	0.166
12-24h	28.1%	10.0%	0.108
Ever (0-24h)	53.1%	43.3%	0.460
D. Vomiting incidence, %			
0-1h	0.0%	3.3%	0.484
1-6h	9.4%	0.0%	0.238
6-12h	3.1%	0.0%	1.000
12-24h	0.0%	0.0%	1.000
Ever (0-24h)	9.4%	3.3%	0.613

Continuous: median [IQR], Mann-Whitney U. Incidence: % of patients, Fisher's exact test.

ABSTRACT
Competition
Presentation
E-Poster

AP-27-2 (2026-0354)

Local Anesthetic-Induced Methemoglobinemia: A Systematic Review and Analysis of Published Case Reports

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Background
Local anesthetics are widely used to provide analgesia during various procedures. Local anesthetic–induced methemoglobinemia is a rare but potentially serious adverse event. Despite the accumulation of case reports, a comprehensive analysis remains lacking. Therefore, this study aimed to systematically analyze published cases of local anesthetic–induced methemoglobinemia.

Methods
Case reports of local anesthetic–induced methemoglobinemia were identified through a PubMed search in accordance with the PRISMA guidelines. Extracted data included age, sex, underlying medical conditions, indication for local anesthetic use, route of administration, clinical manifestations, initial methemoglobin level, treatment, and outcome. Associations between categorical variables were analyzed using the Fisher–Freeman–Halton exact test, followed by post hoc Fisher's exact tests with Holm correction for multiple comparisons.

Results
A total of 222 case reports involving 256 patients were identified. The age distribution was adults (18–64 years, 48.4%), elderly patients (≥65 years, 18.4%), children (1–17 years, 14.5%), and neonates (12.9%). The most frequently implicated local anesthetics were benzocaine (61.3%), prilocaine (30.1%), and lidocaine (3.1%). Indications for local anesthetic use included upper gastrointestinal endoscopic procedures (31.3%), surgical procedures (21.5%), symptom relief (18.4%), airway management (14.1%), and dental and oral surgery (7%). Routes of administration were spray (43.8%), injection (25.0%), and topical application (24.6%). Methylene blue was administered in 72.3% of patients. Most patients recovered completely, whereas mortality occurred in only 1.2% of cases.
Prilocaine and benzocaine were significantly more prevalent than other local anesthetics among neonates and elderly patients, respectively. Upper gastrointestinal endoscopy, surgical procedures, and symptom relief were significantly more common among elderly patients, neonates, and children, respectively. Injection and spray administration predominated in neonates and elderly patients, respectively. Methylene blue treatment was more common in adults but less common in neonates. Spray and injection routes predominated in the benzocaine and prilocaine groups, respectively. Upper gastrointestinal endoscopy was the predominant indication in the benzocaine group, whereas dental and oral surgery, surgical procedures, and cosmetic or dermatologic procedures predominated in the prilocaine group. Initial methemoglobin levels ≥30% were less frequent in the prilocaine group. Methylene blue treatment was more frequent in the benzocaine group but less frequent in the prilocaine group.

Conclusion
These findings suggest that benzocaine administered as a spray is most commonly associated with methemoglobinemia, particularly in elderly patients undergoing upper gastrointestinal endoscopic procedures, and that methylene blue is the most frequently used treatment.

AP-27-3 (2026-0575)

Erector Spinae Plane Block for Postoperative Dorsal Pain after First Rib Resection in Patients with Thoracic Outlet Syndrome: A Retrospective Cohort Study

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Background
First rib resection for thoracic outlet syndrome (TOS) can cause substantial postoperative pain because of the complex innervation of the surgical region. T1 erector spinae plane block (ESPB) may provide analgesia to both dorsal and ventral thoracic regions; however, evidence regarding its effect on postoperative dorsal pain remains limited. This study evaluated the association between T1 ESPB and postoperative dorsal pain after first rib resection for TOS.

Methods
This retrospective cohort study included adults who underwent first rib resection for TOS at a single tertiary hospital. Patients were classified according to whether they received T1 ESPB as an adjunct to standard multimodal analgesia (ESPB group) or standard multimodal analgesia alone (control group). Dorsal and operative-site pain scores were assessed using the numerical rating scale (NRS) at 3, 12, 24, and 48 h postoperatively. Repeated NRS measurements were analyzed using linear mixed-effects models with group, time, and group-by-time interaction as fixed effects and patient as a random effect. Post hoc between-group comparisons were adjusted for multiple comparisons using the Holm method. Secondary outcomes included PCA fentanyl consumption (μg), rescue analgesic use, postoperative nausea and vomiting (PONV), and length of hospital stay. The study was approved by the Institutional Review Board of Ewha Womans University Seoul Hospital (SEUMC 2026-07-015), with a waiver of informed consent.

Results
Fifty-five patients were included in the analysis (ESPB, n=22; control, n=33). Dorsal NRS scores were significantly lower in the ESPB group at all evaluated time points after adjustment for multiple comparisons (3, 12, 24, and 48 h; adjusted P=.005, .020, .006, and .040, respectively; Table 1). In contrast, time-specific between-group differences in operative-site NRS scores were not significant after Holm adjustment. PCA fentanyl consumption was lower in the ESPB group during 24–48 h (182.8 [0–246.0] vs. 244.0 [173.0–323.0] μg, P=.038) and cumulatively over 0–48 h (339.9 [99.6–485.0] vs. 447.0 [350.0–536.0] μg, P=.043). Rescue analgesic use was numerically lower in the ESPB group but did not differ significantly between groups (Table 2).

Conclusion
T1 ESPB was associated with consistently lower dorsal pain during the first 48 h after first rib resection for TOS and lower postoperative fentanyl consumption, whereas time-specific differences in operative-site pain were not significant after adjustment for multiple comparisons. These findings support a potential analgesic benefit of T1 ESPB specifically for postoperative dorsal pain. Further prospective studies are warranted.

AP-27-3 (2026-0575)

Figure & Table

Figure & Table 1.

Table 1. Postoperative dorsal and operative-site pain scores according to ESPB

Pain outcome	Time	ESPB (n=22), median [IQR]	Control (n=33), median [IQR]	Estimated difference (95% CI)	Holm-adjusted P
Dorsal NRS	3 h	6 [6–7]	7 [7–8]	−0.67 (−1.07 to −0.26)	.005
	12 h	7 [6–7]	7 [7–8]	−0.53 (−0.93 to −0.13)	.020
	24 h	6 [5–6]	7 [6–7]	−0.64 (−1.04 to −0.23)	.006
	48 h	6 [5–6]	6 [6–7]	−0.42 (−0.83 to −0.02)	.040
Operative-site NRS	3 h	4 [4–4.5]	4.5 [4–5]	−0.52 (−0.99 to −0.05)	.090
	12 h	5 [4–5]	5 [5–6]	−0.55 (−1.01 to −0.08)	.090
	24 h	5 [4–5]	5 [5–5]	−0.32 (−0.79 to 0.15)	.366
	48 h	5 [4–5]	5 [5–6]	−0.30 (−0.77 to 0.17)	.366

Values are presented as median [IQR]. Estimated differences represent ESPB − control from linear mixed-effects models. Time-specific P values were adjusted for four comparisons within each pain outcome using the Holm method. The 95% CIs shown are unadjusted.

Figure & Table 2.

Table 2. Postoperative analgesic requirements and clinical outcomes

Outcome	ESPB (n=22)	Control (n=33)	P value
PCA fentanyl consumption, 0–24 h, μg	180.3 [93.6–207.8]	175.0 [119.0–242.2]	.226
PCA fentanyl consumption, 24–48 h, μg	182.8 [0–246.0]	244.0 [173.0–323.0]	.038
Total fentanyl consumption, 0–48 h, μg	339.9 [99.6–485.0]	447.0 [350.0–536.0]	.043
Rescue analgesic administrations, n	1 [0–2]	2 [1–4]	.089
Patients requiring rescue analgesia, n (%)	12 (54.5)	25 (75.8)	.144
PONV, n (%)	10 (45.5)	12 (36.4)	.58
Length of stay, days	7 [6–8]	7 [7–9]	.24

Values are presented as median [IQR] or n (%), as appropriate. P values were obtained using the Mann–Whitney U test for continuous variables and Fisher's exact test for categorical variables. PONV, postoperative nausea and vomiting; PCA, patient-controlled analgesia.

AP-27-4 (2026-0446)

Preemptive Dexmedetomidine for Postoperative Pain in Robot-Assisted Urological Surgery: A Retrospective Propensity Score-Matched Study

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Background

Robot-assisted urological surgery is the predominant minimally invasive approach in urology; however, postoperative pain remains a clinical concern. The aim of the study was to examine whether a single pre-incisional dose of dexmedetomidine adds analgesic benefit to a preventive acetaminophen–nefopam regimen in patients who underwent robot-assisted urological surgery

Methods

This retrospective propensity score-matched study was conducted at a single tertiary institution. Patients who underwent robot-assisted urological surgery at our hospital from June 2024 to November 2025 were included. Patients were allocated to a preemptive dexmedetomidine group (dexmedetomidine 0.5 μg/kg before incision) or a control group. All patients received standard preventive analgesia with intravenous acetaminophen–nefopam at robotic system de-docking. After 1:1 propensity score matching, 173 patients remained in each group. The primary outcome was the pain severity distribution at post-anesthesia care unit arrival

Results

The preemptive dexmedetomidine group had a significantly higher proportion of patients with no or mild pain at post-anesthesia care unit arrival (86.7% vs. 64.7%, P<.001) and lower proportions with moderate (9.8% vs. 20.8%, P=.005) and severe pain (3.5% vs. 14.5%, P<.001) than the control group. Opioid-free analgesia rates were higher in the dexmedetomidine group during the post-anesthesia care unit stay (68.2% vs. 39.9%, P<.001) and on postoperative day 1 (52.6% vs. 27.7%, P<.001) than in the control group. Rescue opioid consumption (P<.001) and postoperative nausea and vomiting incidence (1.2% vs. 5.2%, P=.032) were lower in the dexmedetomidine group than in the control group.

Conclusion

A single pre-incisional dose of dexmedetomidine, added to a preventive acetaminophen–nefopam regimen, reduced postoperative pain severity, increased opioid-free analgesia rates, and lowered the postoperative nausea and vomiting incidence after robot-assisted urological surgery.

Figure & Table

Figure & Table 1.

sTable 1. Comparison of demographic data

Variable	Entire cohort (n=538)				After matching (n=346)			
	Preemptive dexmedetomidine (n=210)	Control (n=328)	ASD	p-value	Preemptive dexmedetomidine (n=173)	Control (n=173)	ASD	p-value
Preoperative variables								
Age (years)	65.0 [58.0–70.0]	65.0 [57.0–71.0]	0.046	0.972	65.0 [58.0–70.0]	64.0 [56.0–71.0]	0.126	0.662
Sex (male/female)			0.149	0.130			0.055	0.734
Male	190 (90.5%)	281 (85.7%)			155 (89.6%)	152 (87.9%)		
Female	20 (9.5%)	47 (14.3%)			18 (10.4%)	21 (12.1%)		
Height (cm)	167.7 ± 6.7	167.0 ± 6.7	0.112	0.204	167.5 ± 6.6	168.2 ± 6.3	0.107	0.321
Weight (kg)	70.2 [63.5–76.3]	69.3 [63.0–77.6]	0.037	0.701	70.2 [64.2–76.1]	71.2 [64.8–79.2]	0.113	0.271
BMI (kg/m2)	24.6 [22.9–27.2]	25.1 [23.0–27.2]	0.017	0.418	24.6 [23.1–27.3]	25.5 [23.0–27.6]	0.060	0.331
ASA class			0.127	0.003			0.048	0.667
I	23 (11.0%)	55 (16.8%)			23 (13.3%)	23 (13.3%)		
II	153 (72.9%)	248 (75.6%)			135 (78.0%)	130 (75.1%)		
III	34 (16.2%)	25 (7.6%)			15 (8.7%)	20 (11.6%)		
Diabetes mellitus	36 (17.1%)	62 (18.9%)	0.046	0.688	28 (16.2%)	35 (20.2%)	0.105	0.403
Hypertension	101 (48.1%)	152 (46.3%)	0.035	0.757	85 (49.1%)	89 (51.4%)	0.046	0.747
Intraoperative variables								
Surgery type			0.136	0.137			0.099	0.575
Prostatectomy	127 (60.5%)	176 (53.7%)			105 (60.7%)	95 (54.9%)		
Nephrectomy, Partial	73 (34.8%)	122 (37.2%)			59 (34.1%)	64 (37.0%)		
Nephrectomy, Radical	3 (1.4%)	15 (4.6%)			3 (1.7%)	6 (3.5%)		
Nephroureterectomy	7 (3.3%)	15 (4.6%)			6 (3.5%)	8 (4.6%)		
Surgeon			0.155	0.011			0.110	0.392
Surgeon 1	15 (7.1%)	39 (11.9%)			13 (7.5%)	20 (11.6%)		
Surgeon 2	98 (46.7%)	138 (42.1%)			82 (47.4%)	87 (50.3%)		
Surgeon 3	68 (32.4%)	110 (33.5%)			58 (33.5%)	43 (24.9%)		
Surgeon 4	11 (5.2%)	5 (1.5%)			8 (4.6%)	5 (2.9%)		
Surgeon 5	10 (4.8%)	12 (3.7%)			7 (4.0%)	8 (4.6%)		
Surgeon 6	1 (0.5%)	14 (4.3%)			1 (0.6%)	2 (1.2%)		
Surgeon 7	7 (3.3%)	10 (3.0%)			4 (2.3%)	8 (4.6%)		
Operation time (min)	110.0 [80.0–125.0]	115.0 [85.0–135.0]	0.208	0.055	110.0 [80.0–130.0]	115.0 [95.0–135.0]	0.147	0.154
Anesthesia time (min)	135.0 [110.0–155.0]	140.0 [115.0–165.0]	0.300	0.002	135.0 [110.0–155.0]	140.0 [120.0–160.0]	0.155	0.092
Crystalloids (mL)	550.0 [400.0–700.0]	600.0 [500.0–800.0]	0.307	<0.001	600.0 [400.0–700.0]	600.0 [450.0–800.0]	0.172	0.121
EBL (mL)	0.0 [0.0–50.0]	0.0 [0.0–0.0]	0.010	0.444	0.0 [0.0–50.0]	0.0 [0.0–0.0]	0.123	0.885
Postoperative variables								
PCA dose			0.053	0.612			0.093	0.452
120 mg	115 (54.8%)	171 (52.1%)			92 (53.2%)	84 (48.6%)		
180 mg	95 (45.2%)	157 (47.9%)			81 (46.8%)	89 (51.4%)		

Data are presented as median [Q1–Q3] or number (%). Abbreviations: ASD, absolute standardized difference; BMI, body mass index; ASA, American Society of Anesthesiologists; EBL, estimated blood loss; PCA, patient-controlled analgesia.

Figure & Table

Figure & Table 2.

Table 2. Recovery profiles

Variable	Preemptive dexmedetomidine (n = 173)	Control (n = 173)	P value
PACU			
Rescue opioid consumption	0.0 [0.0–2.5]	2.5 [0.0–5.0]	<0.001
Time to first rescue opioid (min)	25.0 [15.0–979.2]	15.0 [5.0–30.0]	<0.001
Maximal pain score	3.0 [2.0–5.0]	5.0 [3.0–6.0]	<0.001
PONV	2 (1.2%)	9 (5.2%)	0.032
SpO_2 < 95%	37 (19.7%)	36 (20.8%)	0.789
Duration of PACU stay (min)	33.0 [27.0–41.0]	33.0 [28.0–40.0]	0.717
POD 1			
Rescue opioid consumption	0.0 [0.0–10.0]	5.0 [0.0–12.5]	<0.001
	n = 112	n = 114	
Pain score, Rest	2.0 [2.0–3.0]	2.0 [2.0–4.0]	0.194
Pain score, Active	4.0 [3.0–6.0]	4.0 [4.0–6.0]	0.491
	n = 121	n = 127	
PCA consumption (mg)	96.0 [68.9–115.2]	96.0 [72.0–126.0]	0.075

Data are presented as median [Q1–Q3] or number (percentage). Abbreviations: PACU, post-anesthetic care uni

Erector Spinae Plane Block Versus Intravenous Lidocaine for Postoperative Analgesia: A Systematic Review of Randomized Controlled Trials

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Background

The erector spinae plane block (ESPB) is widely used for multimodal analgesia, but its mechanism of action remains debated. Pharmacokinetic studies show substantial systemic absorption of local anesthetic after ESPB, raising the question of whether intravenous (IV) lidocaine provides comparable postoperative analgesia. No prior systematic review has synthesized the direct-comparison randomized evidence.

Methods

Randomized controlled trials (RCTs) directly comparing ESPB with IV lidocaine infusion for postoperative analgesia in adults undergoing surgery were systematically reviewed. PubMed (MEDLINE), CENTRAL, ClinicalTrials.gov, Google Scholar, and backward/forward citation searching were searched from inception to June 11, 2026. The primary outcome was 24-hour postoperative opioid consumption; secondary outcomes included pain scores, postoperative nausea and vomiting (PONV), rescue analgesia, and quality of recovery. Risk of bias was assessed with Cochrane RoB 2 and certainty of evidence with GRADE. Structured narrative synthesis was the primary method; a pre-specified supportive and exploratory random-effects meta-analysis (DerSimonian-Laird; Hedges' g) was performed for the primary outcome, with negative values favoring ESPB. PROSPERO: CRD420261359589.

Results

Four RCTs enrolling 460 adults met inclusion criteria: laparoscopic cholecystectomy (n=84), laparoscopic sleeve gastrectomy (n=277), open cardiac surgery (n=60), and major thoracotomy (n=39). Two trials were double-blind and placebo-controlled; two were open-label. Opioid consumption and pain scores were comparable between techniques across trials. Available data for PONV, rescue analgesia, and quality of recovery also showed no significant differences. The pooled standardized mean difference for 24-hour opioid consumption was +0.01 (95% CI -0.23 to +0.25; p=0.94; I^2=27.1%), with leave-one-out estimates ranging from -0.06 to +0.10. Pooled PONV risk ratio was 0.90 (95% CI 0.72-1.12; I^2=0%; 2 trials). A non-significant subgroup pattern was observed (abdominal g=-0.11; thoracic/cardiac g=+0.32; p=0.058). No serious block-related adverse events occurred. One trial found arterial plasma lidocaine concentrations above 5 ug/mL in both arms during continuous infusion and one ESP-catheter patient developed perioral tingling prompting drug discontinuation. GRADE certainty was LOW.

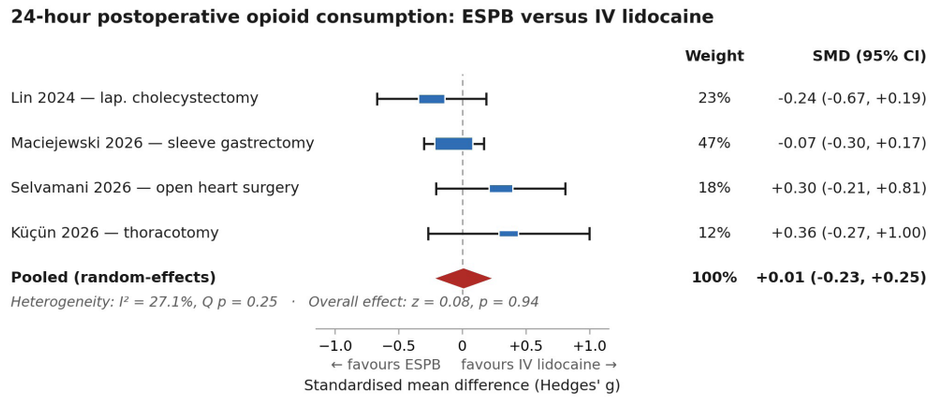
Conclusion

Across four clinically diverse RCTs, ESPB and IV lidocaine provided comparable postoperative analgesia. This pattern is consistent with a contribution of systemic local-anesthetic absorption to ESPB analgesia, although comparable efficacy does not establish mechanism. IV lidocaine may be a resource-accessible alternative where regional anesthesia expertise or equipment is limited. These findings do not demonstrate the superiority of ESPB in reducing postoperative opioid consumption, and the low certainty of evidence precludes a formal clinical recommendation.

AP-27-5 (2026-0583)

Figure & Table

Figure & Table 1.



ABSTRACT
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Comparing Inferior Vena Cava Collapsibility Index (IVC-CI) Guided Fluid Management with Carotid Artery Corrected Flow Time (FTc) Guided Fluid Management in Preventing Spinal Anesthesia Induced Hypotension in Elderly Trauma Patients

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Background

Post-spinal hypotension is a common complication in geriatric patients undergoing lower-limb orthopedic surgeries due to age related changes and reduced cardiovascular-reserve .Ultrasound-based dynamic parameters like Inferior vena cava collapsibility index (IVC-CI) and carotid corrected flow time (FTc) are increasingly used for volume assessment but comparative evidence of their utility in prevention of post spinal hypotension remains limited. This study aimed to compare IVC-CI and carotid FTc-guided fluid optimization for prevention of post-spinal hypotension in geriatric patients undergoing lower-limb surgeries under spinal anesthesia.

Methods

This prospective randomized comparative study included 152 geriatric patients(ASA1-3)undergoing lower limb surgeries under spinal anesthesia. Patients were randomized into IVC-CI and carotid groups.Patients with IVC-CI>42% and FTc <334ms received crystalloid boluses of 5mL/kg over 15-20 minutes followed by repeat assessment.Spinal anesthesia was administered using 0.5%heavy bupivacaine with fentanyl. Hemodynamic parameters were monitored intraoperatively. Hypotension was defined as a decrease in SBP>20% from baseline or MBP<60mmhg following spinal anesthesia.Vasopressors were administered as required for management of hypotension.The primary outcome was prevention of post spinal hypotension. Secondary outcomes included comparison of the predictive performance of IVC-CI and carotid FTc for post-spinal hypotension.

Results

Carotid FTc-guided fluid optimization demonstrated better prevention of post-spinal hypotension compared to IVC-CI-guided fluid optimization(63.16%vs50%),although the difference was not statistically significant(p=0.47). Both modalities demonstrated comparable perioperative hemodynamic outcomes and vasopressor requirements.

Conclusion

Carotid FTc-guided fluid management demonstrated a higher rate of prevention of post-spinal hypotension and higher predictive performance compared to IVC-CI-guided fluid management, although difference was not statistically significant.

AP-27-6 (2026-0302)

Figure & Table

Figure & Table 1.

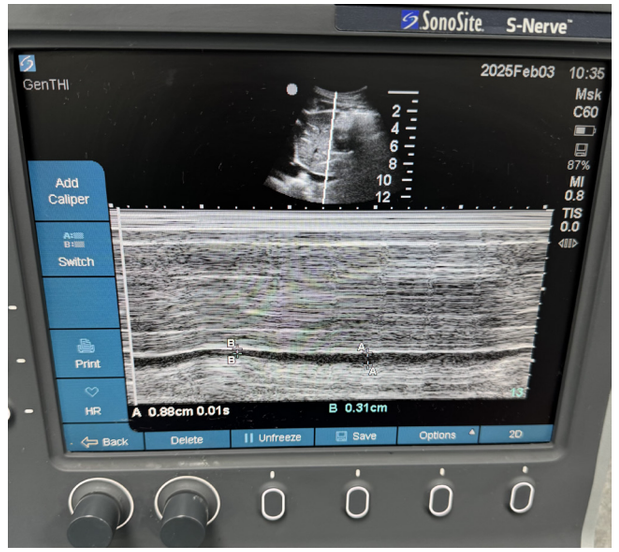
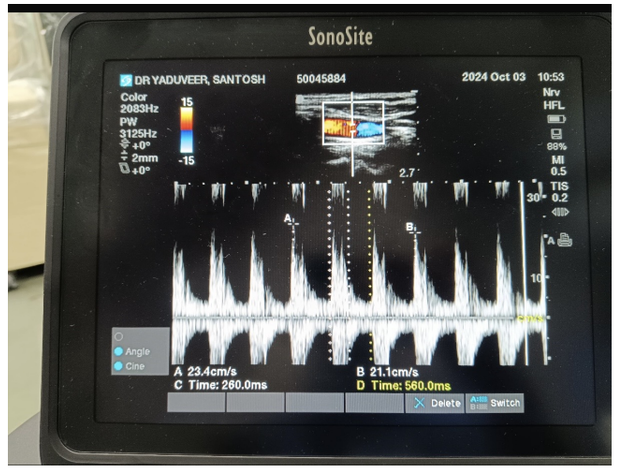


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

AP-27-7 (2026-0590)

Multimodal General Anesthesia Versus Opioid-Based General Anesthesia in Adult Noncardiac Surgery: A Systematic Review

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Background
Opioids have traditionally played a central role in providing intraoperative analgesia during general anesthesia. However, concerns about opioid-related adverse effects have encouraged the use of multimodal general anesthesia, in which agents with different mechanisms are combined to reduce or avoid intraoperative opioids. However, whether these strategies improve analgesia, reduce postoperative nausea and vomiting, and enhance recovery remains uncertain across different surgical procedures.

Methods
We searched PubMed and Cochrane CENTRAL from database inception through November 7, 2025, supplemented by Google Scholar and citation searching. Randomized controlled trials comparing opioid-sparing or opioid-free multimodal general anesthesia with opioid-based anesthesia in adults undergoing noncardiac surgery were eligible. Two reviewers independently screened records and extracted data. We assessed risk of bias using the Cochrane RoB 2 framework. Because the interventions, procedures, outcome definitions, and assessment times differed, we synthesized results narratively.

Results
We included six trials reporting analyses of 639 participants. Observed effects varied by surgical procedure and postoperative time point. In the largest bariatric trial, opioid-free anesthesia did not reduce 24-hour morphine consumption (16 [13-26] versus 15 [10-24] mg; P=.183), although PONV was less frequent (37% versus 59%; P=.005). A second bariatric trial found lower oxycodone use and PONV only during the first postoperative hour, with no 24-hour analgesic advantage and greater ephedrine and fluid requirements. In one abdominal-surgery trial, an opioid-sparing esketamine–dexmedetomidine regimen reduced PACU pain and rescue analgesia but prolonged extubation and increased reports of dream-like experiences. In shoulder arthroscopy, PONV was lower (13.3% versus 40%) and PACU stay was shorter (39.4 versus 48.7 minutes). A thoracoscopic sympathectomy trial found no clinical advantage. The small breast-surgery trial favored opioid-free anesthesia for pain and PONV, although its findings should be interpreted cautiously because of the limited sample size. Outcome-specific risk-of-bias judgments ranged from low risk to high risk.

Conclusion
Current evidence suggests that opioid-sparing or opioid-free anesthesia may reduce PONV in some surgical procedures. However, these approaches did not consistently improve postoperative pain, cumulative 24-hour opioid consumption, or recovery. Some nonopioid regimens were associated with delayed extubation, greater requirements for hemodynamic support, or psychomimetic effects. These findings do not support complete opioid avoidance as a routine goal.

AP-27-7 (2026-0590)

Figure & Table

Figure & Table 1.

Table 2. Summary of postoperative outcomes in the included trials

Study	Postoperative pain or opioid use	PONV, recovery, and other outcomes	Study-specific considerations
Clanet et al. [8]	No reduction in 24-hour morphine consumption	Lower PONV; no difference in QoR-40	PONV was reduced, but morphine consumption and quality of recovery were similar
Mieszczański et al. [9]	Lower oxycodone use during the first hour; no difference over 24 hours	Lower PONV impact score during the first hour	Differences were limited to the first postoperative hour; more ephedrine and intravenous fluid were required
Wang et al. [10]	Lower PACU pain scores and less rescue analgesia; no difference at later assessments	Longer time to extubation; more dream-like experiences	Early differences in pain and rescue analgesia were accompanied by slower emergence
Xue et al. [11]	Not a principal outcome; both groups received an interscalene block	Lower PONV and shorter PACU stay	The interscalene block may have reduced differences in pain attributable to the anesthetic regimen
Liu et al. [12]	No significant difference in postoperative pain	No significant difference in recovery or perioperative complications	No significant differences were found in the assessed clinical outcomes
Aboalsoud et al. [13]	Lower pain scores at rest and during arm movement	Lower PONV and greater patient satisfaction	Small single-center trial; the opioid-free regimen included a thoracic paravertebral block

ABSTRACT
Competition
Presentation
E-Poster

Comparison of Analgesic Efficacy of Modified Thoracoabdominal Nerve Block (MTAPA) and External Oblique Block (EOI) in Patients Undergoing Laparoscopic Cholecystectomy: A Randomized Controlled Trial

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Background
Laparoscopic cholecystectomy is the standard treatment for symptomatic cholelithiasis, but postoperative pain remains common, arising from incisional, visceral, and peritoneal sources. Regional plane blocks such as TAP (Transversus Abdominis Plane block), ESP (Erector Spinae Plane block), and QL (Quadratus Lumborum) blocks are widely used but have limitations related to depth, technique, or proximity to the surgical site. M-TAPA and EOI blocks target the thoracoabdominal nerves (T6-T10) and have individually shown promise, but no trial has directly compared them in laparoscopic cholecystectomy. This study compares the analgesic efficacy of M-TAPA and EOI blocks in this population.

Methods
This single-centre, prospective, randomized controlled trial was conducted at AIIMS Nagpur after Ethics Committee approval. Thirty patients aged 18-65 years, ASA I-II, undergoing elective laparoscopic cholecystectomy were randomized 1:1 to ultrasound-guided M-TAPA (n=15) or EOI block (n=15), each given 20 mL of 0.25% bupivacaine bilaterally. A blinded observer recorded 24-hour opioid consumption (primary outcome), NRS pain scores, haemodynamic parameters, adverse effects, and QoR-15 scores (secondary outcomes)

Results
Mean 24-hour opioid consumption was lower in the M-TAPA group (67.93 mg) than in the EOI group (109.13 mg). Mean QoR-15 recovery scores were higher in the M-TAPA group (131.2) than in the EOI group (109.33), indicating better recovery quality with M-TAPA. No block failures or major complications occurred.

Conclusion
In this cohort of 30 patients, M-TAPA was associated with lower opioid consumption and higher recovery scores than EOI, supporting its role as an effective, opioid-sparing technique for multimodal analgesia in laparoscopic cholecystectomy. Given the small sample size, these findings should be confirmed in larger, adequately powered trials before routine clinical adoption.

Figure & Table

Figure & Table 1.



Figure & Table 2.



Presentation

Abstract Presentation 28

Date / Time	Nov 7 (Sat), 09:00-10:30
Room	Room B *(Paradise City)*
Language	English
Chair(s)	Sun Young Park *(Soonchunhyang University, Republic of Korea)* Hyung Gon Lee *(Chonnam National University, Republic of Korea)*

AP-28-1
2026-0288

Association Between Vitamin D and Postoperative Hemoglobin Recovery After Off-Pump Coronary Artery Bypass Surgery: A Prospective Observational Cohort Study

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AP-28-2
2026-0560

A Retrospective Observational Cohort Study Suggesting That Mildly Prolonged EXTEM Clotting Time Frequently Corrects and Effective Haemostasis Is More Common After ROTEM-Guided Fibrinogen Replacement Without Coagulation Factors

Tony Zhang[1*], Anthony Yap[1], Kanika Chaudhri[2,3], David Chan[4], Luke Levison[1], Oscar Boag-Taylor[1,2], Hawn Trinh[1,2], Keith Kelly[2], Catherine Downs[1,2]

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AP-28-3
2026-0485

Development and External Validation of a Model for Predicting Postoperative Hemoglobin Reduction in Untransfused Patients Undergoing Total Hip Arthroplasty

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AP-28-4
2026-0226

Predicting the Need for Blood Transfusion in Orthognathic Surgery Using Artificial Intelligence: A Retrospective Study

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AP-28-5
2026-0440

Hypophosphatemia After Ferric Carboxymaltose Administration in Patients Who Underwent Total Knee Arthroplasty – A Retrospective Analysis

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AP-28-6
2026-0343

Therapeutic Plasma Exchange (TPE) as an Adjunct to Standard Medical Therapy in Acute-on-Chronic Liver Failure: A Prospective Cohort Study from India

Saurabh Mittal[1], Apalak Garg[2*], Virendra Singh[3], Bisman Khurana[1], Shweta Aghi[1], Nitesh Bassi[3], Tanvi Sood[2], Amandeep Singh[3], Narayana Yaddanapudi[1], Jahnvi Dhar[3], Sayan Malakar[3], Swapnil[3], Kandagaddala Raja Sekhar[4]

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AP-28-7
2026-0534

The Impact of Preoperative Anemia on Postoperative Outcomes after Elective Liver Resection: A Propensity-Score Weighted Analysis

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AP-28-8
2026-0489

Goal-Directed, Gold Standard? 5% Albumin vs. Ringer's Lactate in Major Abdomino-Pelvic Onco-Surgeries for Fluid Therapy

Vasudha Ahuja[1*], Anuja Pandit[2], Saurabh Vig[2], Nishkarsh Gupta[3], Rakesh Garg[3], Prashant Sirohiya[2], Shweta Bhopale[2], Raghav Gupta[2], Brajesh Ratre[3], Sachidanand Jee Bharati[3], Sushma Bhatnagar[1], Seema Mishra[3]

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Association Between Vitamin D and Postoperative Hemoglobin Recovery After Off-Pump Coronary Artery Bypass Surgery: A Prospective Observational Cohort Study

Hee Won Choi[1], Seo Hee Ko[1,2], Jae-Kwang Shim[1,2], Jong-Wook Song[1,2], Yun Ho Roh[3], Young-Lan Kwak[1,2*]

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Background

Vitamin D may influence erythropoiesis and iron metabolism through interactions with inflammatory and iron-regulatory pathways. Although low vitamin D status has been associated with anaemia in chronic inflammatory conditions, its influence on postoperative Hb recovery after cardiac surgery remains unclear. We investigated the association between preoperative vitamin D status and postoperative Hb recovery in patients undergoing off-pump coronary artery bypass surgery (OPCAB), a surgical model that avoids the marked hemodilutional and inflammatory perturbations associated with cardiopulmonary bypass, thereby enabling a clearer evaluation of the relationship between vitamin D status and postoperative Hb recovery.

Methods

In this prospective observational cohort study, 158 adults undergoing elective OPCAB were categorized into tertiles according to their preoperative 25-hydroxyvitamin D (25(OH)D) concentration. Hb levels were measured at six time points: preoperatively, 24 and 48 h postoperatively, and at nadir, discharge, and first outpatient visit. The primary endpoint was Hb level at the first outpatient visit (HbOPD). Longitudinal Hb trajectories were evaluated using linear mixed-effects models (LMM). 1,25-dihydroxyvitamin D3 ($1,25(OH)_2D_3$), inflammatory and iron-regulatory biomarkers (hepcidin, erythroferrone, fibroblast growth factor-23, erythropoietin, and interleukin-6), and clinical outcomes, including postoperative complications, were analyzed concomitantly.

Results

HbOPD did not differ significantly across 25(OH)D tertiles (P = 0.490). Patients in the lowest tertile had lower preoperative Hb levels than those in the highest tertile (P =0.002). The Hb levels at other time points did not differ significantly (all P > 0.05). Postoperative Hb trajectories were similar across the tertiles in the LMM (time×group interaction: unadjusted, P = 0.488; adjusted, P = 0.288). Both 25(OH)D and $1,25(OH)_2D_3$ decreased substantially from preoperative values after OPCAB (P < 0.001), whereas all measured inflammatory and iron-regulatory biomarkers increased postoperatively. Among the postoperative biomarkers evaluated, only hepcidin (beta = 0.113, P = 0.025) and interleukin 6 (beta = −0.056, P = 0.015) were independently associated with HbOPD. Postoperative complications were similar across tertiles.

Conclusion

Lower preoperative vitamin D status was associated with lower baseline Hb levels; however, this association was not maintained after surgery. Postoperative Hb recovery appeared to be determined predominantly by perioperative inflammatory and iron-regulatory responses rather than baseline vitamin D status.

AP-28-1 (2026-0288)

Figure & Table

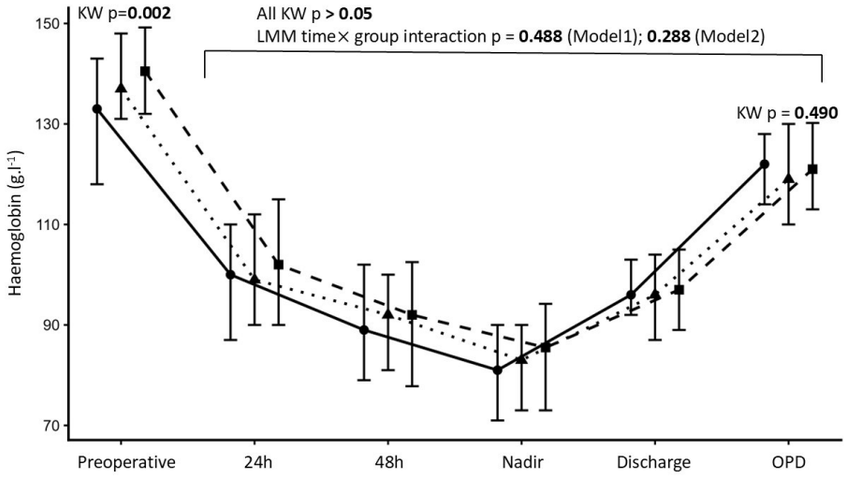
Figure & Table 1.

Table. Univariate and multivariate linear regression analyses of postoperative biomarkers in relation to hemoglobin at outpatient follow-up.

	Univariate			Multivariate*		
	beta	95% CI	P-value	beta	95% CI	P-value
Hepcidin; $ng.ml^{-1}$	0.183	0.078 to 0.288	**<0.001**	0.113	0.015 to 0.212	**0.025**
Erythroferrone; $ng.ml^{-1}$	-1.071	-11.078 to 8.937	0.833	6.597	-2.528 to 15.723	0.155
Fibroblast growth factor 23, C-terminal assay; $RU.ml^{-1}$	-0.003	-0.006 to 0.000	0.067	-0.001	-0.004 to 0.003	0.624
Erythropoietin; $mIU.ml^{-1}$	-0.035	-0.083 to 0.012	0.141	0.011	-0.041 to 0.064	0.668
Interleukin-6; $pg.ml^{-1}$	-0.053	-0.100 to -0.005	**0.030**	-0.056	-0.100 to -0.011	**0.015**

* Multivariable linear regression analyses adjusted for preoperative hemoglobin.

Figure & Table 2.



ABSTRACT
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A Retrospective Observational Cohort Study Suggesting That Mildly Prolonged EXTEM Clotting Time Frequently Corrects and Effective Haemostasis Is More Common After ROTEM-Guided Fibrinogen Replacement Without Coagulation Factors

Tony Zhang[1*], Anthony Yap[1], Kanika Chaudhri[2,3], David Chan[4], Luke Levison[1], Oscar Boag-Taylor[1,2], Hawn Trinh[1,2], Keith Kelly[2], Catherine Downs[1,2]

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Background
ROTEM-guided bleeding algorithms use variable EXTEM clotting time (CT) thresholds ranging from >80 to ≥ 111 seconds to trigger coagulation factor replacement such as prothrombin complex concentrate (PCC) or fresh frozen plasma (FFP)[1]. When prolonged EXTEM CT coexists with hypofibrinogenaemia, treatment sequencing is not clearly defined[2]. Therefore, we assessed fibrinogen replacement (fibrinogen concentrate [FC] or cryoprecipitate) without factor replacement to evaluate: (1) the biochemical response measured by EXTEM CT correction to the local threshold; and (2) the relationship between baseline EXTEM CT and effective haemostasis.

Methods
This retrospective study (ethics 2019/ETH11664) screened adult ROTEM sigma tests at Randwick Hospitals Campus, Australia, from 1 January 2024 to 31 March 2026. Eligible patients were clinically bleeding, had an initial ROTEM triggering local algorithm thresholds for fibrinogen (FIBTEM A5 <12 mm) and factor replacement (EXTEM CT >85 s), received fibrinogen replacement (FC or cryoprecipitate) only, and underwent repeat ROTEM during the same bleeding episode. Only the first eligible pair per patient was included. The primary biochemical outcome was EXTEM CT correction to ≤85 s on repeat testing. The secondary clinical outcome of effective haemostasis required the absence of (1) further clotting product administration between 1 and 24 hours post-fibrinogen administration, (2) re-operation for bleeding, or (3) death within 24 hours. Receiver operating characteristic (ROC) analysis assessed the ability of baseline EXTEM CT to predict two outcomes after fibrinogen replacement: persistent EXTEM CT prolongation on repeat testing and ineffective haemostasis.

Results
Of 75 eligible patients with initially prolonged EXTEM CT, 86.7% (65/75) corrected on repeat ROTEM testing after fibrinogen supplementation only. Baseline EXTEM CT was able to predict both patients with persistent EXTEM CT prolongation on repeat testing (area under the curve (AUC) 0.77, 95% CI 0.63–0.91; p<0.001) and persistent bleeding (AUC 0.64, 95% CI 0.51–0.77; p=0.03). For each ROC analysis, exploratory cutoffs were selected using the maximum Youden index. Figure 1A shows that EXTEM CT corrected on repeat ROTEM testing in 95.7% (45/47) patients with baseline EXTEM CT 86–102 s versus 71.4% (20/28) with baseline EXTEM CT ≥103 s. Figure 1B shows that haemostasis occurred in 47.7% (21/44) patients with baseline EXTEM CT 86–101 s versus 22.6% (7/31) with baseline EXTEM CT ≥102 s.

Conclusion
In cases where the initial ROTEM met thresholds for both fibrinogen and factor replacement, fibrinogen without factor replacement corrected the prolonged EXTEM CT in most cases. This was particularly evident with mild EXTEM CT prolongation (86-101 s), where fibrinogen replacement alone was more likely to correct EXTEM CT and was associated with more frequent haemostasis. These findings support stepwise fibrinogen replacement followed by repeat ROTEM testing before factor administration - potentially improving patient safety by reducing unnecessary exposure to factors and its associated thromboembolic risks and costs.

AP-28-2 (2026-0560)

Figure & Table

Figure & Table 1.

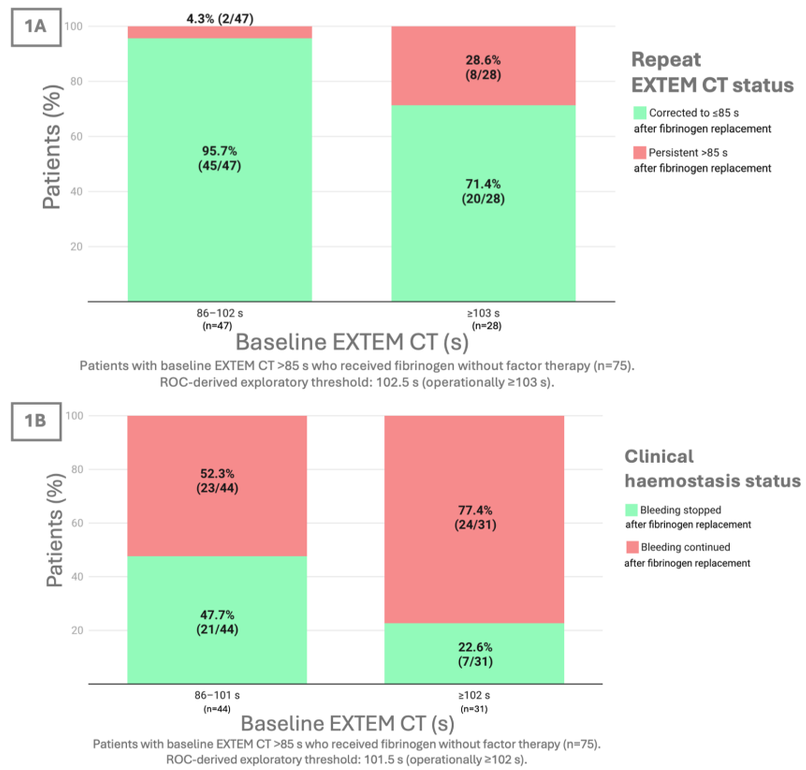


Figure 1. Repeat EXTEM clotting time (CT) and clinical haemostasis status after fibrinogen replacement, stratified by exploratory ROC-derived baseline EXTEM CT thresholds. Among 75 patients meeting local algorithm-defined thresholds for both fibrinogen (FIBTEM A5 <12 mm) and factor (EXTEM CT >85 s) replacement who received fibrinogen only, **(1A)** EXTEM CT correction on repeat ROTEM was more frequent with baseline EXTEM CT 86–102 s than ≥103 s (95.7% [45/47] vs 71.4% [20/28]). Despite the lower correction rate at baseline EXTEM CT ≥103 s, most patients above this exploratory threshold still corrected after fibrinogen replacement without factors. **(1B)** Ineffective haemostasis was more frequent with baseline EXTEM CT ≥102 s than 86–101 s (77.4% [24/31] vs 52.3% [23/44]). Notably, the separately derived exploratory thresholds for persistent EXTEM CT prolongation (103 s) and persistent bleeding (102 s) were very similar, suggesting that fibrinogen replacement alone may be less likely to correct EXTEM CT and achieve effective haemostasis when baseline EXTEM CT exceeds 100 s. These thresholds were selected using the maximum Youden index.

ABSTRACT
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Presentation
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Development and External Validation of a Model for Predicting Postoperative Hemoglobin Reduction in Untransfused Patients Undergoing Total Hip Arthroplasty

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Background

To predict postoperative blood loss after total hip arthroplasty (THA), existing predictive models use dependent variables with limitations (blood transfusion or amount of blood loss) and lack external validation. We aimed to develop a model predicting postoperative hemoglobin reduction and to externally validate it.

Methods

We retrospectively analyzed data from 568 patients who underwent primary THA at Daegu Catholic University Medical Center (DCUMC) for model development and performed 5-fold cross-validation. Postoperative hemoglobin reduction was defined as the difference between preoperative hemoglobin level and the lowest hemoglobin level recorded during the 1st postoperative week. The best-performing model was chosen among machine learning, deep learning, and regression models using their average rankings based on three performance parameters. Absolute SHapley Additive exPlanations values and standardized coefficients determined feature importance. The chosen model underwent external validation and recalibration using independent datasets from Chungnam National University Hospital (CNUH) (n=264) and Chung-Ang University Gwangmyeong Hospital (CAUH) (n=55).

Results

The ridge regression model performed best, with a coefficient of determination (R^2) ± SD of 0.474 ± 0.045, and was used as the final model. A longer duration of surgery, a lower body mass index, female sex, and older age were identified as major predictors of greater postoperative hemoglobin reduction. The poor performance of the model, as shown by external validation (R^2 = −0.298 and −1.234 for CNUH and CAUH, respectively) was improved by recalibration (R^2 = 0.193 and 0.202, respectively).

Conclusion

The ridge regression model showed the best performance in predicting postoperative hemoglobin reduction, demonstrating that prolonged surgery, a low body mass index, female sex, and advanced age contribute to greater postoperative hemoglobin reduction.

AP-28-3 (2026-0485)

Figure & Table

Figure & Table 1.

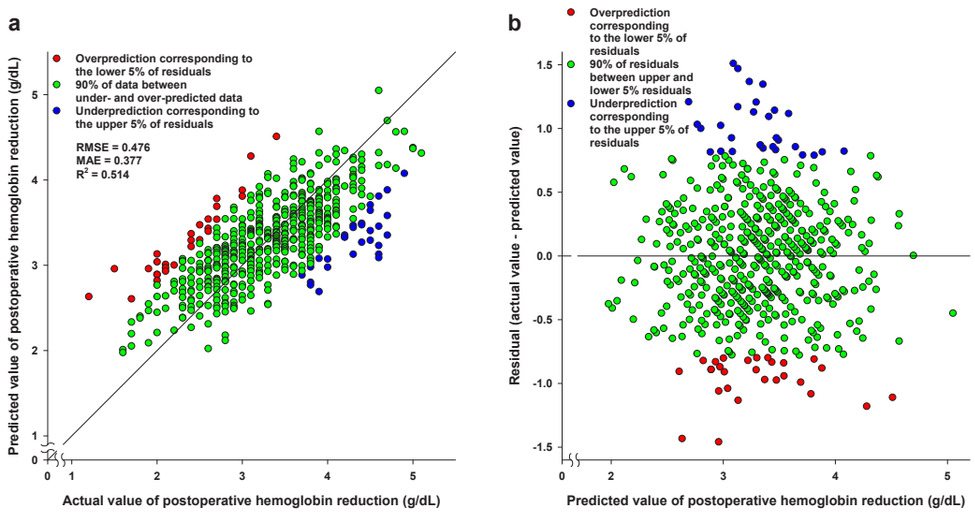
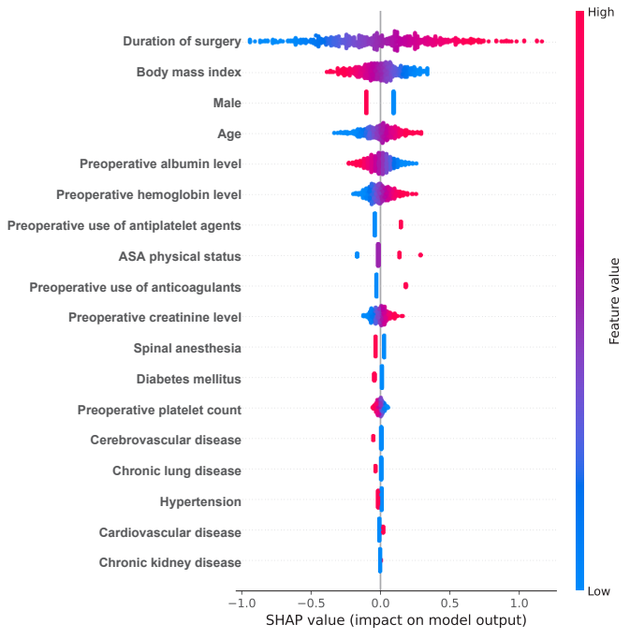


Figure & Table 2.



Predicting the Need for Blood Transfusion in Orthognathic Surgery Using Artificial Intelligence: A Retrospective Study

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Background
Perioperative allogeneic transfusion is an important concern in orthognathic surgery because it affects patient safety, blood product preparation, preoperative anemia correction, autologous blood donation planning, and patient counseling. Accurate preoperative identification of patients at high risk of transfusion may therefore support individualized perioperative blood management. This study aimed to develop and compare machine learning models using only preoperative variables to predict perioperative allogeneic transfusion in patients undergoing orthognathic surgery.

Methods
This retrospective study included 860 patients who underwent orthognathic surgery, of whom 141 (16.4%) received perioperative allogeneic transfusion. Predictors comprised preoperative demographic, surgery-related, and laboratory variables, including predicted blood volume (PBV). Logistic Regression, Support Vector Classifier (SVC), Random Forest, and XGBoost models were developed. To prevent data leakage, missing-value imputation, standardization, and one-hot encoding were performed within each cross-validation fold using Pipeline and ColumnTransformer. Model performance was evaluated using 5-fold stratified cross-validation. Because the transfusion group represented a minority class, the final threshold for each model was selected as the threshold with the highest specificity among those achieving sensitivity ≥0.60.

Results
Logistic Regression showed the highest overall discriminative performance (area under the receiver operating characteristic curve [AUC], 0.740). After threshold optimization, SVC showed the most balanced classification performance, with sensitivity of 0.624, specificity of 0.751, accuracy of 0.730, and precision of 0.330. Random Forest and XGBoost achieved AUCs of 0.729 and 0.707, respectively. Across multiple models, preoperative hemoglobin, hematocrit, and PBV were consistently identified as important predictors of perioperative allogeneic transfusion.

Conclusion
Machine learning models using only preoperative variables demonstrated moderate predictive performance for perioperative allogeneic transfusion in patients undergoing orthognathic surgery. Logistic Regression showed the highest overall discriminative ability, whereas SVC showed the most balanced classification performance after threshold optimization. Preoperative hemoglobin, hematocrit, and PBV were consistently identified as important predictors. These findings suggest that machine learning-based preoperative risk stratification may support individualized perioperative blood management and transfusion planning before orthognathic surgery.

AP-28-4 (2026-0226)

Figure & Table

Figure & Table 1.

Table. Performance of machine learning models for predicting perioperative allogeneic transfusion

Model	Threshold	Sensitivity	Specificity	Accuracy	Precision	AUC
Logistic Regression	0.54	0.617	0.734	0.715	0.313	0.740
SVC	0.18	0.624	0.751	0.730	0.330	0.735
Random Forest	0.42	0.610	0.720	0.702	0.300	0.729
XGBoost	0.32	0.610	0.727	0.708	0.305	0.707

AUC, area under the receiver operating characteristic curve.

ABSTRACT
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AP-28-5 (2026-0440)

Hypophosphatemia After Ferric Carboxymaltose Administration in Patients Who Underwent Total Knee Arthroplasty – A Retrospective Analysis

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Background

Background: Intravenous iron is frequently used during the perioperative period to correct anemia or facilitate recovery from anemia after major surgery. However, administration of intravenous iron is associated with the occurrence of hypophosphatemia, particularly with ferric carboxymaltose (FCM). Therefore, this retrospective study evaluated serum phosphorus levels in total knee arthroplasty (TKA) patients who received FCM.

Methods

Methods: Patients who underwent TKA between 2019 and 2026 were divided into those receiving IV FCM 1000 mg from 14 days before surgery through postoperative day 1, and controls. Patients without phosphorus measurements, baseline hypophosphatemia (< 2.5 mg/dL), or missing POD 15–60 phosphorus values were excluded. The primary outcome was the between group difference in hypophosphatemia incidence, based on the lowest phosphorus level during PODs 2–10. Hypophosphatemia was classified as mild (2.0–<2.5 mg/dl), moderate (1.0–<2.0 mg/dl), or severe <1.0 mg/dl). Categorical variables were compared using chi-square or Fisher's exact test, with risk ratio (RR) and 95% confidence interval (CI).

Results

Results: Each group included 609 (control) and 770 (FCM) patients with comparable age and sex. Hypophosphatemia occurred more frequently in the FCM group than in the control group (RR 1.83, 95% CI 1.53–2.18, P<0.001). The risk of moderate hypophosphatemia was also higher in the FCM group (RR, 4.31, 95% CI 2.77–6.71, P<0.001), whereas no severe hypophosphatemia was observed. At PODs 15–60, hypophosphatemia remained present in 50 of 770 patients (6.5%) in the FCM group and 3 of 609 patients (0.5%) in the control group. Among patients who developed hypophosphatemia during PODs 2–10, phosphorus levels normalized by PODs 15–60 in 83.2% in the FCM group and 97.7% in the control group (p<0.001).

Conclusion

Conclusion: Perioperative IV FCM administration in patients undergoing TKA was associated with a higher incidence of hypophosphatemia than in controls. Although hypophosphatemia mostly resolved by PODs 15–60, a small proportion of patients in the FCM group had persistent hypophosphatemia

AP-28-5 (2026-0440)

Figure & Table

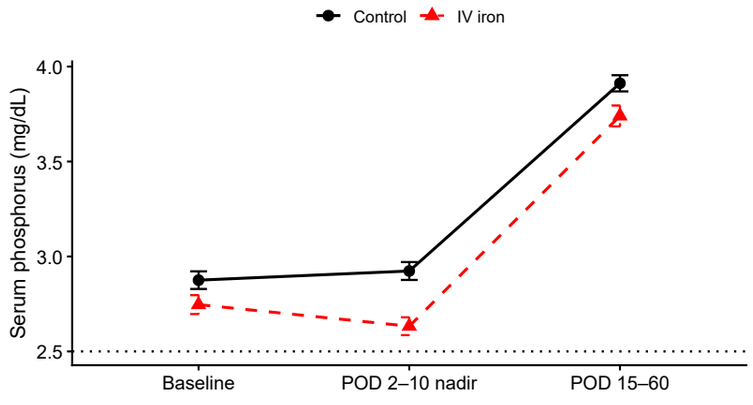
Figure & Table 1.

Table 1. Incidence and severity of hypophosphatemia in each group

	Control N = 609	FCM N = 770	Risk ratio	95% confidence interval	P
Hypophosphatemia incidence					
POD 2–10	129 (21.2%)	298 (38.7%)	1.83	1.53-2.18	<0.001
POD 30	3 (0.49%)	50 (6.49%)	13.18	1.13-42.06	<0.001
Moderate hypophosphatemia					
POD 2–10	22 (3.6%)	120 (15.6%)	4.31	2.77-6.71	<0.001
POD 30	0	23 (2.98%)	NA	NA	NA

POD, postoperative days; NA, not applicable

Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

Therapeutic Plasma Exchange (TPE) as an Adjunct to Standard Medical Therapy in Acute-on-Chronic Liver Failure: A Prospective Cohort Study from India

Saurabh Mittal[1], Apalak Garg[2*], Virendra Singh[3], Bisman Khurana[1], Shweta Aghi[1], Nitesh Bassi[3], Tanvi Sood[2], Amandeep Singh[3], Narayana Yaddanapudi[1], Jahnvi Dhar[3], Sayan Malakar[3], Swapnil[3], Kandagaddala Raja Sekhar[4]

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Background

Acute-on-chronic liver failure (ACLF) is characterised by severe systemic inflammation, multi-organ dysfunction, and high short-term mortality. Therapeutic plasma exchange (TPE) has emerged as a potential adjunctive therapy because of its ability to remove inflammatory mediators and circulating toxins, particularly in developing countries where immediate liver transplantation is often unavailable. A study was conducted at a tertiary care liver institute. Ninety-two patients diagnosed with ACLF were enrolled and divided into SMT (n=46) and SMT+TPE (n=46) groups. Baseline demographic, clinical, laboratory, prognostic, and organ failure parameters were analysed. The primary outcomes were 28-day and 90-day mortality

Methods

Standard-volume TPE was performed using a centrifugal apheresis technique with exchange of 1.5 times the estimated plasma volume per session. Univariate and multivariate logistic regression analyses were performed to identify predictors of mortality. Absolute risk reduction (ARR), relative risk (RR), and relative risk reduction (RRR) were calculated to assess survival benefit. The incidence of sepsis and other TPE-related complications was also evaluated A total of 92 patients with ACLF were included in the study. Alcohol was the predominant etiology in both groups (91.3% in SMT vs 93.5% in SMT+TPE).

Results

Despite baseline severity the SMT+TPE group demonstrated lower mortality at 28 days (21.7% vs 30.4%) and 90 days (37.0% vs 47.8%). Survival benefit analysis showed an ARR of 4.3%, RR of 0.87, and RRR of 13.3%. Univariate analysis, elevated serum creatinine (OR 1.83, p=0.005) and systemic inflammatory response syndrome (SIRS) (OR 5.29, p=0.005) were significant predictors of mortality. Multivariate analysis, SIRS emerged as the strongest independent predictor of mortality (adjusted OR 8.04, 95% CI 2.11–30.62, p=0.002). TPE-related adverse events were generally mild and manageable, with fever, shivering, and electrolyte abnormalities being the most common complications. Sepsis is a major concern with extracorporeal therapies, including TPE; however, the incidence of sepsis in our cohort was relatively low (15%), which may be attributed to strict adherence to aseptic precautions and meticulous infection-control practices

Conclusion

Therapeutic plasma exchange demonstrated a favourable trend toward improved short-term survival in patients with ACLF despite significantly greater baseline hepatic and renal dysfunction in the TPE cohort. Systemic inflammation was the strongest independent determinant of mortality.

AP-28-6 (2026-0343)

Figure & Table

Figure & Table 1.

Table 1: Comparison of study participants from the SMT and SMT plus TPE cohorts

Variables	Overall cohort (N=92)	SMT (n=46)	SMT plus TPE (n=46)
Age (years)	48.8 ± 12.9	56.0 ± 11.8	40.5 ± 12.7
Male	85(92.4%)	42(91.3%)	43(93.5%)
Female	7(7.6%)	4(8.7%)	3(6.5%)
Etiology			
Alcohol	85 (92.4%)	42 (91.3%)	43 (93.5%)
HCV	76 (82.6%)	40 (87.0%)	36 (78.3%)
Hematological and Biochemical Parameters			
Hemoglobin (g/dL)	9.1 ± 1.8	8.9 ± 1.9	9.3 ± 1.6
TLC (×10⁹/L)	11.2 ± 5.9	8.7 ± 4.2	13.6 ± 6.3
Platelets (×10³/mm³)	148.2 ± 74.5	112.4 ± 61.8	184.1 ± 72.6
Bilirubin (mg/dL)	19.7 ± 10.3	12.8 ± 6.1	26.6 ± 9.2
INR	2.1 ± 0.6	1.8 ± 0.4	2.3 ± 0.6
Creatinine (mg/dL)	2.1 ± 1.2	1.8 ± 1.0	2.4 ± 1.3
CRP (mg/L)	39.8 ± 21.5	34.2 ± 18.4	45.4 ± 23.1
Procalcitonin (ng/mL)	0.92 ± 0.54	0.76 ± 0.41	1.08 ± 0.61
Sodium (mEq/L)	130.8 ± 5.9	131.6 ± 5.3	129.9 ± 6.2
Prognostic Scores			
MELD score	31.5 ± 6.8	28.9 ± 5.7	34.1 ± 6.5
CLIF-C ACLF score	47.9 ± 8.1	46.3 ± 7.2	49.5 ± 8.6
AARC score	10.7 ± 2.1	9.8 ± 1.8	11.5 ± 2.0
Child–Pugh score	11.2 ± 1.5	10.6 ± 1.3	11.8 ± 1.4
Grade of ACLF			
Grade 1	14 (15.2%)	9 (19.6%)	5 (10.9%)
Grade 1A	3 (3.3%)	2 (4.3%)	1 (2.2%)
Grade 1B	18 (19.6%)	11 (23.9%)	7 (15.2%)
Grade 2	39 (42.4%)	18 (39.1%)	21 (45.7%)
Grade 3A	13 (14.1%)	5 (10.9%)	8 (17.4%)
Organ Failure(s)			
Hepatic failure	72 (78.3%)	26 (56.5%)	46 (100.0%)
Coagulation failure	47 (51.1%)	21 (45.7%)	26 (56.5%)
Renal failure	20 (21.7%)	6 (13.0%)	14 (30.4%)
Cerebral failure	12 (13.0%)	9 (19.6%)	3 (6.5%)
Mortality Outcomes			
28-day mortality	24 (26.1%)	14 (30.4%)	10 (21.7%)
90-day mortality	39 (42.4%)	22 (47.8%)	17 (37.0%)

Abbreviations: HCV, Hepatitis C virus; TLC, Total Leucocyte Count; INR, International Normalized Ratio; CRP, C-Reactive Protein; MELD, Model for End-Stage Liver Disease; CLIF-C ACLF, Chronic Liver Failure Consortium Acute-on-Chronic Liver Failure; AARC, APASL ACLF Research Consortium;

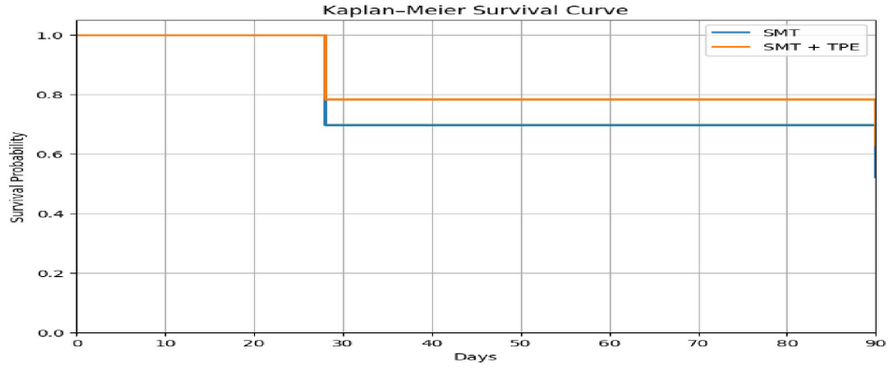


Figure 1. Kaplan-Meier survival curves comparing SMT and SMT plus TPE groups in patients with Acute-on-chronic liver failure. Survival analysis at 28 and 90 days demonstrated lower mortality trends in patients receiving therapeutic plasma exchange in addition to standard medical therapy.

ABSTRACT
Competition
Presentation
E-Poster

AP-28-7 (2026-0534)

The Impact of Preoperative Anemia on Postoperative Outcomes after Elective Liver Resection: A Propensity-Score Weighted Analysis

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Background

Preoperative anemia is associated with adverse postoperative outcomes, but its independent association with major complications after liver resection remains uncertain.

Methods

We retrospectively studied adults undergoing elective liver resection at a university hospital from 2015 to 2025. Anemia was defined from the last preoperative hemoglobin measurement according to World Health Organization thresholds (<13 g/dL in men and <12 g/dL in women). The primary outcome was a major postoperative complication, defined as Clavien-Dindo grade IIIa or higher. The primary analysis was doubly robust, combining inverse-probability-of-treatment weighting for the average treatment effect among the treated, with weights truncated at the 95th percentile, and covariate-adjusted outcome regression. Standard errors were clustered by patient. Sensitivity analyses included weighting alone, multivariable logistic regression, 1:1 propensity-score matching, alternative outcome definitions, and stabilized weighting for the average treatment effect.

Results

Among 605 operations in 596 patients, 302 (49.9%) were performed in patients with preoperative anemia. Major complications occurred in 14.2% of operations in the anemia group and 7.9% in the non-anemia group (unadjusted risk difference, 6.3 percentage points; P=0.014). After doubly robust adjustment, the association was attenuated (odds ratio, 1.27; 95% CI, 0.73 to 2.19; adjusted risk difference, 2.7 percentage points; 95% CI, -3.8 to 9.3). Sensitivity analyses yielded similar, statistically inconclusive estimates; for CCI >40, the adjusted odds ratio was 1.54 (95% CI, 0.76 to 3.14). Odds-ratio point estimates increased across anemia severity categories (mild, 1.39 [95% CI, 0.77 to 2.54]; moderate, 1.67 [95% CI, 0.86 to 3.24]; severe, 2.03 [95% CI, 0.41 to 9.91]).

Conclusion

Preoperative anemia was common and was associated with a higher unadjusted incidence of major complications after elective liver resection. This association was attenuated after adjustment for measured confounders, and the estimates were imprecise. These data did not establish an independent association between preoperative anemia and major postoperative complications.

AP-28-7 (2026-0534)

Figure & Table

Figure & Table 1.

Table 4. Primary and sensitivity analyses for Clavien-Dindo ≥ IIIa

Analysis	Effect measure	Estimate (95% CI)	P value	Diagnostic/comment
Primary analysis: stabilized ATE-IPTW				
ATE-IPTW	Risk difference, percentage points	0.97 (-4.91 to 6.04)	0.715	1,000 HN-cluster bootstrap replicates
ATE-IPTW	Risk ratio	1.11 (0.64 to 2.06)	0.723	Weighted risks: 10.0% vs 9.0%
ATE-IPTW	Odds ratio	1.12 (0.60 to 2.20)	0.722	Max |SMD| among model terms = 0.114
Sensitivity analyses				
ATT-IPW	Odds ratio	1.47 (0.61 to 4.25)	0.419	ATT control ESS approximately 84
Multivariable logistic regression	Adjusted odds ratio	1.23 (0.66 to 2.31)	0.513	HN-cluster robust standard errors
ATT-IPW plus outcome regression	Adjusted odds ratio	1.34 (0.63 to 2.84)	0.449	Doubly adjusted sensitivity
1:1 propensity-score matching; 184 pairs	Risk difference, percentage points	1.63 (-4.50 to 7.76)	0.602	0.2-SD logit-PS caliper
1:1 propensity-score matching; 184 pairs	Matched odds ratio	1.20 (0.60 to 2.38)	0.602	Max post-match |SMD| = 0.145

ATE = average treatment effect; ATT = average treatment effect among operations with anemia; ESS = effective sample size; HN = hospital number; PS = propensity score. ATE and ATT target different populations and need not give identical estimates.

Figure & Table 2.

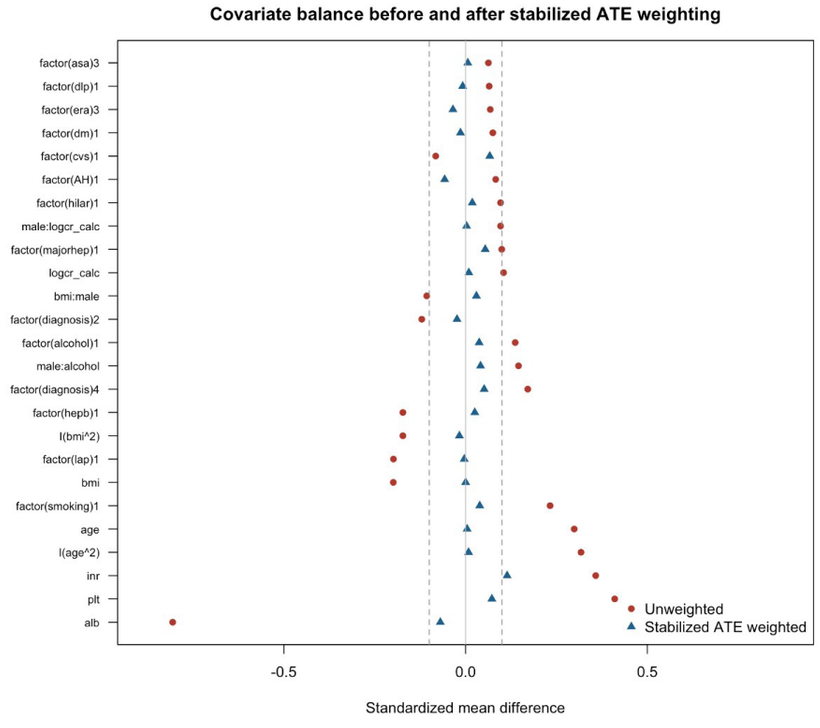


Figure 2. Standardized mean differences before and after stabilized ATE weighting; dashed lines indicate ±0.10.

AP-28-8 (2026-0489)

Goal-Directed, Gold Standard? 5% Albumin vs. Ringer's Lactate in Major Abdomino-Pelvic Onco-Surgeries for Fluid Therapy

Vasudha Ahuja[1*], Anuja Pandit[2], Saurabh Vig[2], Nishkarsh Gupta[3], Rakesh Garg[3], Prashant Sirohiya[2], Shweta Bhopale[2], Raghav Gupta[2], Brajesh Ratre[3], Sachidanand Jee Bharati[3], Sushma Bhatnagar[1], Seema Mishra[3]

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Background
Goal-directed fluid therapy (GDFT) is a structured approach to perioperative fluid management that optimises tissue perfusion using dynamic hemodynamic parameters.
Crystalloids get redistributed into the intracellular and interstitial compartments, provide limited hemodynamic support and increase tissue oedema if used in excess. Colloids, specifically Albumin offers oncotic, endothelial-protective, and antioxidant benefits over crystalloids, but few studies compare the two in oncologic surgery. Hence, we compared lactated Ringer's solution and 5% albumin as the GDFT bolus fluid in major abdomino-pelvic oncological surgery.

Methods
In this randomized controlled trial, 170 ASA physical status I–III patients undergoing elective major abdomino-pelvic oncological surgery received either lactated Ringer's (Group RL) or 5% albumin (Group AL) as 200ml boluses, guided by a dynamic-parameter fluid therapy algorithm; maintenance fluid was lactated Ringer's at 4 mL/kg/h in both groups. The primary outcome was the Postoperative Morbidity Survey (POMS) score on postoperative day 2. Secondary outcomes included intraoperative hemodynamics, fluid and blood administration, vasopressor/inotrope use, postoperative laboratory parameters, complications, and length of hospital and ICU stay.

Results
The median POMS score on POD-2 was lower in the albumin group [3 (2–5)] than in the Ringer's group [4 (3–5)] ($P = 0.027$). Intraoperative pulse pressure variation (PPV) and stroke volume variation (SVV) were lower and cardiac output and cardiac index were higher ($P < 0.001$) in Group AL. Group RL required significantly higher total IV fluid volumes, more fluid boluses, and had a higher net fluid balance. Time of initiation of inotropes was earlier in group RL. However, blood loss, blood transfusions, vasopressor/inotrope use, post operative ABG (pH, lactates, base excess), ICU and hospital stay and postoperative complications showed no statistical difference across both groups.

Conclusion
Intraoperative 5% albumin in GDFT statistically improved hemodynamic stability, reduced fluid requirements, and reduced early postoperative morbidity compared to lactated Ringer's solution in major abdomino-pelvic oncologic surgeries. However, most postoperative complications and major clinical outcomes remained comparable between the two groups, emphasizing that perioperative fluid therapy should be individualized and guided by patient physiology and the surgical context. The potential clinical benefits of albumin must be weighed against its cost-effectiveness and availability.

AP-28-8 (2026-0489)

Figure & Table

Figure & Table 1. **Table 1: Descriptive Analysis (Demographic Details)**

Variable	Group AL (n = 85)	Group RL (n = 85)
Age (years), mean ± SD	53.25 ± 12.39	52.64 ± 11.97
Female sex, n (%)	51 (60.0)	55 (64.7)
Weight (kg), mean ± SD	56.77 ± 11.11	57.94 ± 10.07
BMI (kg/m²), mean ± SD	22.55 ± 4.12	23.44 ± 4.21
ASA physical status, n (%)	10 (11.8)/ 51 (60.0)/ 24	8 (9.4)/ 55 (64.7)/ 22 (25.9)
I/II/III	(28.2)	
Pre-op albumin (g/dL)	4.04 ± 0.58	3.94 ± 0.50
Surgical duration (min), mean ± SD	340.59 ± 112.22	324 ± 101.0
Surgical procedure, n (%)		
Cytoreductive surgery	28 (32.9)	26 (30.6)
Staging laparotomy	18 (21.2)	17 (20.0)
Hemicolectomy / APR	8 (9.4)	14 (16.5)
Other	31 (36.5)	28 (32.9)

APR = abdominoperineal resection; BMI = body mass index; IQR = interquartile range; pre-op = preoperative; SD = standard deviation

ABSTRACT
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AP-28-8 (2026-0489)

Figure & Table

Figure & Table 2. **Table 2: POMS (POD-2), Intraoperative Haemodynamic parameters, fluid administration, fluid balance, and vasopressor/inotrope use [median (IQR) or mean ± SD].**

Parameter	Group AL (n = 85)	Group RL (n = 85)	P value	95% CI
PRIMARY OUTCOME				
POMS score, Day-2	3 (2–5)	4 (3–5)	0.027	−0.39 (−0.85 to 0.07)
INTRAOPERATIVE HAEMODYNAMICS				
Heart Rate (bpm)†	91.5 ± 15.0	93.2 ± 15.3	0.470	−1.68 (−6.27 to 2.90)
Mean Arterial Pressure (mmHg)†	83.6 ± 10.1	82.5 ± 9.9	0.507	1.02 (−2.01 to 4.06)
PPV (%)	11.4 (9.6–16.3)	15.0 (11–19)	0.005	−2.15 (−3.56 to −0.73)
SVV (%)	11.8 (9–15.8)	15.6 (10.4–18.9)	0.001	−2.50 (−3.96 to −1.04)
Cardiac Output (L/min)†	5.81 ± 1.17	4.78 ± 1.20	<0.001	1.02 (0.66 to 1.38)
Cardiac Index (L/min/m²)	3.57 (3.19–4.08)	2.92 (2.55–3.46)	<0.001	0.68 (0.44 to 0.93)
FLUID ADMINISTRATION				
Total Maintenance Fluid (mL)	1300 (1000–1600)	1300 (1000–1550)	0.742	−13.76 (−141.57 to 114.04)
Test Fluid (mL)	600 (400–800)	800 (600–1000)	<0.001	−230.59 (−298.10 to −163.08)
Test Fluid Boluses (n)	3 (2–4)	4 (3–5)	<0.001	−1.14 (−1.48 to −0.80)
Blood Products Volume (mL)	300 (280–640)	320 (300–790)	0.321	0.73 (−161.25 to 162.71)
Total Input (mL/kg/hr)	6.67 (5.71–7.90)	7.76 (6.67–8.81)	<0.001	−1.20 (−1.75 to −0.65)
Urine Output (mL)	400 (300–540)	400 (300–500)	0.856	17.18 (−37.47 to 71.82)
Blood Loss (mL)	500 (350–800)	600 (400–800)	0.406	−19.76 (−137.89 to 98.36)
Net Fluid Balance (mL)	1050 (800–1340)	1350 (1100–1640)	<0.001	−431.47 (−612.42 to −250.53)
VASOPRESSORS AND INOTROPES				
Vasopressor used, n (%)	70 (80.0)	74 (84.7)	0.547	−4.71% (−16.15% to 6.73%)
Inotrope used, n (%)	34 (38.8)	38 (44.7)	0.534	−5.88% (−20.68% to 8.92%)
Time to Inotrope initiation (min)	270 (240–300)	240 (180–270)	0.038	38.76 (0.46 to 77.06)

†Normally distributed; expressed as mean ± SD, compared by independent samples t-test; 95% CI reported as difference in means. Variables: Heart Rate, Mean Arterial Pressure, Cardiac Output. All other continuous variables are non-normally distributed; expressed as median (IQR), compared by Wilcoxon–Mann–Whitney U test; 95% CI reported as Hodges–Lehmann location shift estimate. Categorical variables expressed as n (%), compared by chi-square or Fisher's exact test; 95% CI reported as difference in proportions.

POMS = Postoperative Morbidity Survey; PPV = pulse pressure variation; SVV = stroke volume variation; IQR = interquartile range; SD = standard deviation; CI = confidence interval; POD-2 = postoperative day 2.

Presentation

Abstract Presentation 29

Date / Time	Nov 7 (Sat), 09:00-10:30
Room	Room D *(Paradise City)*
Language	English
Chair(s)	Jong Wook Song *(Yonsei University, Republic of Korea)* Woojin Kwon *(Konyang University, Republic of Korea)*

AP-29-1
2026-0504

Timing of Intraoperative Hypotension and Postoperative Acute Kidney Injury: A Retrospective Cohort Study with External Validation

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AP-29-2
2026-0421

Early Leukocytosis After Cardiopulmonary Bypass in the Oldest Old: A Binational Multicentre Retrospective Cohort Study

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AP-29-3
2026-0393

Remimazolam Versus Dexmedetomidine-Based Sedation for Transcatheter Aortic Valve Implantation: Hemodynamic Stability and Early Clinical Outcomes

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AP-29-4
2026-0298

Correlation Between Inter-Device Variability in Activated Clotting Time Measurements and Preoperative Factors in Cardiac Surgery

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AP-29-5
2026-0516

Who Gets Cold, and How Cold? A Risk Score and Time-Weighted Thermal Burden Analysis for Endovascular Aortic Repair in the Hybrid Room

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AP-29-6
2026-0413

Patient–Device Anatomical Mismatch During Intra-Aortic Balloon Pump Support in a Short-Statured Asian Patient

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AP-29-7
2026-0543

Effects of Abdominal Sagging on Hemodynamics After Supine-to-Prone Positioning on a Jackson Table for Spine Surgery: A Prospective Observational Study

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AP-29-8
2026-0069

A Challenge of the Anesthetic Management Using Remimazolam in a Patient with Severely Depressed Left Ventricular Function Caused by Triglyceride Deposit Cardiomyovasculopathy

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Timing of Intraoperative Hypotension and Postoperative Acute Kidney Injury: A Retrospective Cohort Study with External Validation

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Background

Intraoperative hypotension is an established risk factor for postoperative acute kidney injury (AKI), but exposure is usually summarized as a single cumulative burden over the whole case. Hypotension immediately after induction arises largely from anesthetic-induced vasodilation and/or myocardial depression, before surgical stimulation, fluid shifts, and inflammation contribute. If early and late hypotension are mechanistically distinct, their association with organ injury need not be the same.

Methods

In this single-center retrospective cohort study of adults undergoing elective noncardiac surgery of at least 2 hours under general anesthesia, hypotension (mean arterial pressure <65 mmHg) was split into an early phase (first 30 min after induction) and a late phase (thereafter). The outcome was KDIGO AKI within 7 days. Logistic regression models were adjusted for demographics, comorbidities, preoperative laboratory values, surgery category, and anesthesia duration. Three models were fitted: early exposure alone, late exposure with early adjustment, and both together for formal comparison of the coefficients; in the third model, late duration was capped at 30 min — the maximum attainable early exposure — so that both coefficients span the same range. Coefficient equality was tested by Wald statistic. The identical pipeline was applied to the open INSPIRE dataset.

Results

Of 17,210 cases, 800 (4.6%) developed AKI. Early-phase hypotension did not differ by AKI status, either in the proportion exposed (35.0% vs 32.2%; P = 0.11) or in duration (both medians 0 min; P = 0.10). Late-phase hypotension differed in both: the proportion exposed (71.0% vs 58.6%) and duration (10 [IQR 0–35] vs 5 [0–20] min) were higher in patients who developed AKI (both P < 0.001). Per 10 min, the adjusted odds ratio (aOR) was 0.99 (95% CI, 0.85–1.14) for early exposure alone and 1.04 (1.01–1.06) for late exposure (Figure 1). Over the same 0–30-min range, the two coefficients differed (early 0.90 [0.77–1.05], late 1.15 [1.08–1.23]; P = 0.008), whereas the difference was not detected when the late phase was left unrestricted (P = 0.22). External validation in 27,112 cases (AKI 4.1%) reproduced this pattern (early 0.90 [0.81–1.00], late 1.21 [1.14–1.28]; P < 0.001). The difference persisted in both cohorts when the analysis was restricted to patients whose late exposure never exceeded 30 min, after excluding patients with chronic kidney disease, and across early-phase definitions from 20 to 60 min (Figure 2).

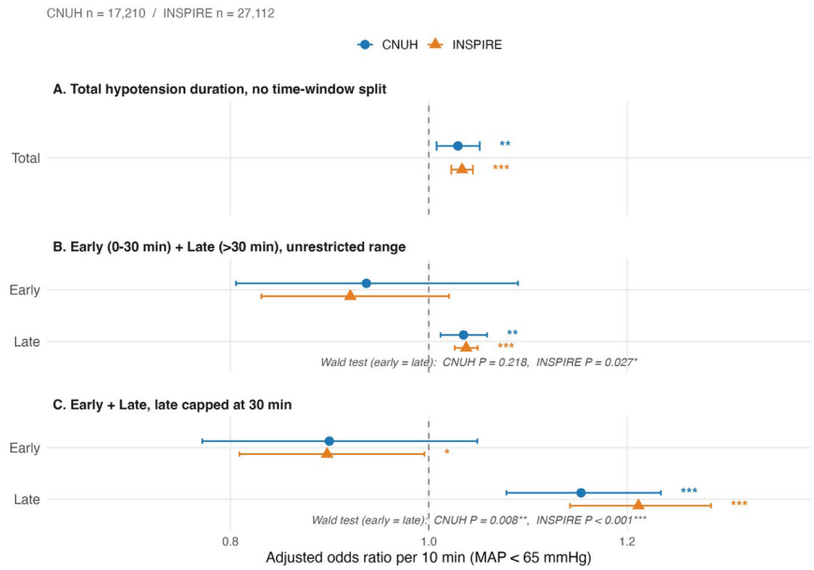
Conclusion

The association between intraoperative hypotension and postoperative AKI differs by when it occurs. Only late-phase exposure was associated with increased risk, and the two phases differed significantly for the same exposure duration. Total exposure alone may not capture renal risk without clinical context.

Figure & Table

Figure & Table 1.

Figure 1. Phase-specific association of intraoperative hypotension with postoperative acute kidney injury in two cohorts



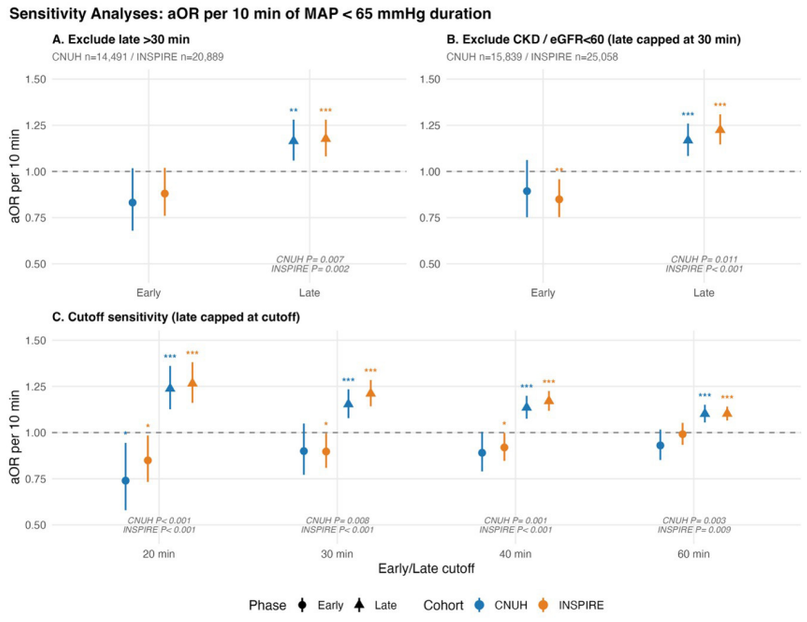
Adjusted odds ratios for acute kidney injury per 10 minutes of intraoperative hypotension (mean arterial pressure <65 mmHg), with 95% confidence intervals. Circles denote the derivation cohort (CNUH, n = 17,210); triangles denote the external validation cohort (INSPIRE, n = 27,112). (A) Total hypotension duration entered as a single exposure, without distinguishing when it occurred. (B) Early (first 30 minutes after induction) and late (thereafter) exposure entered simultaneously over their full observed ranges. (C) The same model with late duration capped at 30 minutes, the maximum duration attainable in the early phase, so that both coefficients are estimated over the same exposure range. Equality of the early and late coefficients was tested by Wald statistic; the resulting P values are shown within each panel. *P < 0.05, **P < 0.01, ***P < 0.001.

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Figure & Table

Figure & Table 2.

Figure 2. Sensitivity of the phase comparison to cohort restriction and to the definition of the early window



Adjusted odds ratios per 10 minutes of hypotension, with 95% confidence intervals, in the derivation (CNUH) and external validation (INSPIRE) cohorts. **(A)** Analysis restricted to patients whose late-phase exposure never exceeded 30 minutes, in which no observation is reassigned to the boundary by capping. **(B)** Patients with chronic kidney disease or eGFR <60 ml/min/1.73 m^2 excluded, with late duration capped at 30 minutes. **(C)** The early/late boundary set at 20, 30, 40, or 60 minutes after induction, with late duration capped at the corresponding value; the 30-minute cutoff corresponds to the primary analysis. P values are for the Wald test of coefficient equality. *P < 0.05, **P < 0.01, ***P < 0.001.

AP-29-2 (2026-0421)

Early Leukocytosis After Cardiopulmonary Bypass in the Oldest Old: A Binational Multicentre Retrospective Cohort Study

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Background
Cardiopulmonary bypass triggers an immediate systemic inflammatory response through blood–artificial surface contact, ischaemia–reperfusion injury, and surgical trauma. In patients of very advanced age, age-related immune dysregulation may alter this early postoperative response, making leukocytosis in the first hours after surgery a potential marker of perioperative physiological stress rather than simply a nonspecific postoperative finding. However, the prognostic significance of this immediate postoperative leukocyte response in nonagenarians and centenarians undergoing cardiopulmonary bypass is unknown. We therefore examined the association between early postoperative leukocytosis on the operative day and subsequent mortality and length of stay.

Methods
We conducted a retrospective binational multicentre cohort study using the Australian and New Zealand Intensive Care Society Adult Patient Database. Nonagenarian and centenarian patients admitted to intensive care following cardiac surgery requiring CPB were included. Ethical approval was granted by the Alfred Hospital Human Research Ethics Committee (project 253/24), with informed consent waived owing to the use of de-identified registry data. Moderate or severe leukocytosis was defined a priori as peak postoperative day-1 white cell count (WCC) >15 $\times 10^9$/L. Multivariable models adjusted for age, sex, surgical urgency, APACHE III score, SOFA score, and comorbidities.

Results
Among 681 patients, 159 (23.3%) had early postoperative WCC >15 $\times 10^9$/L and 522 (76.7%) had WCC ≤15 $\times 10^9$/L. Patients with leukocytosis had longer ICU stay (74 [IQR 45–122] vs 43 [24–72] hours; p<0.001) and hospital stay (360 [246–578] vs 240 [148–390] hours; p<0.001), and higher hospital mortality (12.0% vs 2.9%; p<0.001). After multivariable adjustment, WCC >15 $\times 10^9$/L remained independently associated with hospital mortality (adjusted HR 2.22, 95% CI 1.06–4.66; p=0.035), prolonged ICU stay (adjusted OR 1.44, 95% CI 1.26–1.65; p<0.001), and prolonged hospital stay (adjusted OR 1.35, 95% CI 1.19–1.54; p<0.001). When WCC was analysed continuously, each 1 $\times 10^9$/L increase in peak WCC was associated with greater hospital mortality (adjusted HR 1.03, 95% CI 1.01–1.05; p<0.01), while each 1 $\times 10^9$/L increase in the lowest postoperative WCC was also associated with hospital mortality (adjusted HR 1.08, 95% CI 1.04–1.12; p<0.01).

Conclusion
Early leukocytosis following CPB was independently associated with hospital mortality and prolonged ICU and hospital stay in patients of very advanced age. Day-1 WCC may represent a readily available marker of the inflammatory and physiological burden of CPB and could complement established measures of postoperative illness severity.

Figure & Table

Figure & Table 1.

Table 1. Univariable and multivariable associations between leukocytosis and ICU and hospital mortality

Variable	Univariable HR (95% CI)	p	Multivariable HR (95% CI)	p
ICU Mortality				
WCC >15 ×10⁹/L (vs ≤15)	3.49 (1.34–9.06)	0.010	1.08 (0.35–3.36)	0.893
Age (per year)	0.76 (0.53–1.08)	0.129	0.77 (0.52–1.12)	0.172
Male sex	1.68 (0.59–4.76)	0.332	1.30 (0.45–3.80)	0.626
Elective surgery	0.20 (0.07–0.57)	0.003	0.37 (0.11–1.28)	0.117
APACHE III score (per point)	1.07 (1.05–1.10)	<0.001	1.05 (1.01–1.09)	0.019
SOFA score (per point)	1.61 (1.36–1.91)	<0.001	1.14 (0.87–1.49)	0.342
Hospital Mortality				
WCC >15 ×10⁹/L (vs ≤15)	4.03 (2.06–7.88)	<0.001	2.22 (1.06–4.66)	0.035
Age (per year)	0.94 (0.78–1.13)	0.500	0.99 (0.82–1.20)	0.936
Male sex	0.94 (0.48–1.84)	0.856	0.90 (0.46–1.78)	0.763
Elective surgery	0.52 (0.20–1.33)	0.170	0.94 (0.33–2.63)	0.900
APACHE III score (per point)	1.06 (1.04–1.08)	<0.001	1.05 (1.03–1.08)	<0.001
SOFA score (per point)	1.38 (1.21–1.58)	<0.001	1.01 (0.84–1.21)	0.947

Hazard ratios were estimated using Cox proportional hazards regression. Multivariable models were adjusted for age, sex, surgical urgency (elective vs non-elective), APACHE III score, SOFA score, and pre-existing comorbidities. Comorbidity covariates were included in the multivariable models but are not presented, as none demonstrated independent associations with ICU or hospital mortality.

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Figure & Table

Figure & Table 2.

Table 2. Univariable and multivariable associations between leukocytosis and prolonged ICU and hospital length of stay

Variable	Univariable OR (95% CI)	p value	Multivariable OR (95% CI)	p value
ICU LOS				
Moderate or severe leukocytosis (WCCHI >15 vs <15)	1.670 (1.460–1.911)	<0.001	1.437 (1.255–1.645)	<0.001
Age (per year)	0.980 (0.953–1.007)	0.139	0.989 (0.964–1.014)	0.393
APACHE III score (per point)	1.019 (1.015–1.023)	<0.001	1.010 (1.004–1.015)	<0.001
SOFA score (per point)	1.122 (1.092–1.152)	<0.001	1.061 (1.026–1.097)	<0.001
Male sex	1.083 (0.960–1.222)	0.193	1.050 (0.940–1.173)	0.389
Elective surgery	0.836 (0.668–1.046)	0.117	0.987 (0.800–1.217)	0.899
Chronic cardiovascular disease	0.949 (0.826–1.089)	0.454	0.954 (0.839–1.085)	0.474
Chronic respiratory disease	0.940 (0.731–1.209)	0.631	1.008 (0.793–1.281)	0.947
Chronic renal disease	0.964 (0.653–1.424)	0.853	1.046 (0.723–1.513)	0.810
Chronic liver disease	0.427 (0.091–1.997)	0.279	0.529 (0.129–2.164)	0.375
Hospital LOS				
Moderate or severe leukocytosis (WCCHI >15 vs <15)	1.517 (1.337–1.720)	<0.001	1.349 (1.185–1.536)	<0.001
Age (per year)	0.984 (0.960–1.010)	0.219	0.993 (0.969–1.017)	0.567
APACHE III score (per point)	1.015 (1.011–1.019)	<0.001	1.007 (1.003–1.012)	0.003
SOFA score (per point)	1.098 (1.071–1.127)	<0.001	1.051 (1.017–1.085)	0.003
Male sex	1.049 (0.938–1.173)	0.401	1.029 (0.926–1.144)	0.597
Elective surgery	0.994 (0.804–1.229)	0.957	1.111 (0.907–1.360)	0.308
Chronic cardiovascular disease	1.008 (0.887–1.146)	0.898	1.019 (0.901–1.152)	0.767
Chronic respiratory disease	0.931 (0.738–1.175)	0.548	1.003 (0.798–1.262)	0.977
Chronic renal disease	0.747 (0.521–1.071)	0.112	0.779 (0.547–1.109)	0.165
Chronic liver disease	0.351 (0.084–1.462)	0.150	0.418 (0.109–1.612)	0.205

Odds ratios (ORs) were estimated using logistic regression models for prolonged ICU and hospital length of stay. Multivariable models were adjusted for age, sex, surgical urgency (elective vs non-elective), APACHE III score, SOFA score, and pre-existing comorbidities (chronic cardiovascular, respiratory, renal, and liver disease). Odds ratios are presented per unit increase for continuous variables.

AP-29-3 (2026-0393)

Remimazolam Versus Dexmedetomidine-Based Sedation for Transcatheter Aortic Valve Implantation: Hemodynamic Stability and Early Clinical Outcomes

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Background

Monitored anesthesia care (MAC) is increasingly used as part of minimalist transcatheter aortic valve implantation (TAVI) pathways, but evidence directly comparing remimazolam- and dexmedetomidine-based MAC with respect to intraprocedural hemodynamic stability and early clinical outcomes remains limited.

Methods

In this retrospective, single-center, propensity score-matched cohort study, 433 patients who underwent TAVI under MAC between January 2021 and May 2026 were identified. After 1:1 propensity score matching, 264 patients were included, with 132 patients in each group. The primary outcome was intraoperative hemodynamic instability, defined as bradycardia requiring anticholinergic treatment or hypotension requiring vasoactive treatment. Other outcomes included rescue midazolam use, respiratory adverse events, and early postoperative clinical outcomes.

Results

Remimazolam-based MAC was associated with less intraprocedural hemodynamic instability than dexmedetomidine-based MAC (53.8% vs. 69.7%; adjusted OR, 0.50; 95% CI, 0.31–0.82; P = 0.006), primarily reflecting less frequent vasoactive treatment for hypotension (50.8% vs. 67.4%; adjusted OR, 0.49; 95% CI, 0.30–0.81; P = 0.005). Bradycardia requiring anticholinergic treatment was numerically lower but not statistically significant. Rescue midazolam use was markedly lower with remimazolam (1.5% vs. 43.2%; P < 0.001). Respiratory adverse events, conversion to general anesthesia, postoperative delirium, length of stay, and 30-day clinical outcomes did not differ significantly between groups.

Conclusion

In patients undergoing TAVI under MAC, remimazolam-based sedation was associated with a lower incidence of intraprocedural hemodynamic instability and less frequent rescue midazolam administration than dexmedetomidine sedation, without significant differences in early postoperative clinical outcomes.

AP-29-3 (2026-0393)

Figure & Table

Figure & Table 1.

Table 1. Primary and Secondary Outcomes in the Matched Cohort

Outcome	Dex (n=132)	Remima (n=132)	Effect estimate [95% CI]	P value
PRIMARY				
Hemodynamic instability	92/132 (69.7%)	71/132 (53.8%)	0.50 [0.31–0.82]	0.006[a]
COMPONENTS OF THE PRIMARY OUTCOME				
Bradycardia	11/132 (8.3%)	5/132 (3.8%)	0.43 [0.14–1.25]	0.121[a]
Vasoactive treatment for hypotension	89/132 (67.4%)	67/132 (50.8%)	0.49 [0.30–0.81]	0.005[a]
SECONDARY (binary)				
Composite hemodynamic outcome	98/132 (74.2%)	82/132 (62.1%)	0.56 [0.34–0.94]	0.027[a]
Rescue midazolam	57/132 (43.2%)	2/132 (1.5%)	—	<0.001[b]
GA conversion	3/132 (2.3%)	4/132 (3.0%)	—	1.000[b]
Delirium	20/132 (15.2%)	15/132 (11.4%)	0.75 [0.37–1.53]	0.434[a]
SECONDARY (continuous)				
Anesthesia duration, min	99 [91, 111]	92 [82, 105]	−7.95 [−12.40, −3.51]	0.001[c]
Time to anesthesia offset, min	8 [6, 12]	7 [6, 10]	−1.30 [−2.42, −0.19]	0.022[c]
ICU LOS, h	6 [6, 20]	6 [6, 19]	−0.83 [−6.89, 5.24]	0.788[c]
Hospital LOS, days	5 [3, 8]	4 [3, 7]	−0.87 [−2.28, 0.54]	0.227[c]

Effect estimates are for remimazolam versus dexmedetomidine (reference). The composite hemodynamic outcome comprised intraoperative bradycardia, intraoperative hypotension, temporary pacemaker requirement, postoperative hypotension, or postoperative vasoactive drug use. [a]Adjusted odds ratio (logistic regression with cluster-robust standard errors accounting for matched subclasses). [b]Exact McNemar test on discordant pairs; effect estimate not estimable. [c]Adjusted mean difference (linear regression with cluster-robust standard errors); medians [IQR] shown descriptively. Models a and c were adjusted for hemoglobin, hypertension, chronic kidney disease, and coronary artery disease. P values other than that for the primary outcome were not adjusted for multiple comparisons and are exploratory. Dex, dexmedetomidine; Remima, remimazolam; GA, general anesthesia; ICU, intensive care unit; LOS, length of stay.

ABSTRACT
Competition
Presentation
E-Poster

AP-29-4 (2026-0298)

Correlation Between Inter-Device Variability in Activated Clotting Time Measurements and Preoperative Factors in Cardiac Surgery

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Background
It is known that activated clotting time (ACT) varies depending on the measuring device used. However, the extent of these differences between devices and their clinical significance have not been fully elucidated. In this study, we compared measurements obtained using three types of ACT measuring devices available in Japan and examined preoperative factors associated with ACT.

Methods
With approval from our university's ethics committee (R-88-7J), we enrolled 131 adult patients who underwent cardiovascular surgery using the cardiopulmonary bypass in our hospital between April 2022 and April 2026. ACT was measured using the Actalyke MINI II (Group A), Hemochron Signature Elite (Group H), and i-STAT (Group I) before heparin administration, 3 minutes after administration, 30 minutes after administration, after protamine administration, and upon leaving the operating room. Differences in ACT among the devices and at each measurement time point were analyzed using two-way analysis of variance. Furthermore, the relationship between ACT 3 minutes after heparin administration and preoperative albumin (Alb), hemoglobin (Hgb), antithrombin III (ATIII), platelet count (Plt), and fibrinogen (Fbg) was examined using Pearson's correlation coefficient.

Results
ACT prior to heparin administration was significantly prolonged in Group I compared with the other groups (Group A: 134 ± 16 sec, Group I: 146 ± 13 sec, Group H: 106 ± 13 sec; $P < 0.05$). Even 3 minutes after administration of heparin, ACT in Group I was significantly longer than in the other groups (Group A: 547 ± 172 sec, Group I: 653 ± 189 sec, Group H: 580 ± 148 sec; $P < 0.05$). Thirty minutes after administration of heparin, the ACT in Group A was significantly shorter than that in the other groups (Group A: 623 ± 189 sec, Group I: 762 ± 186 sec, Group H: 671 ± 200 sec, $P < 0.05$). Furthermore, regarding ACT 3 minutes after heparin administration, significant correlations were observed with Alb, Hgb, and Fbg in all groups (Alb: Group A $r = 0.24$, Group I $r = 0.25$, Group H $r = 0.21$; Hgb: Group A $r = 0.35$, Group I $r = 0.36$, Group H $r = 0.28$; Fbg: Group A $r = -0.35$, Group I $r = -0.23$, Group H $r = -0.33$; $P < 0.05$). Only in Group H Plt showed a significant negative correlation with ACT ($r = -0.28$, $P < 0.05$).

Conclusion
In our study, significant differences in ACT values were observed among the three types of ACT measurement devices. When managing anticoagulation based on ACT values, it is necessary to consider the characteristics of each device and the inter-device differences. Furthermore, although preoperative Alb, Hb, and Fbg were shown to be potentially associated with ACT values after heparin administration. Further investigation should be needed regarding their clinical utility.

AP-29-5 (2026-0516)

Who Gets Cold, and How Cold? A Risk Score and Time-Weighted Thermal Burden Analysis for Endovascular Aortic Repair in the Hybrid Room

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Background
Intraoperative hypothermia is an important concern in hybrid operating room, where prolonged endovascular procedures, patient exposure, and constraints on active warming may promote heat loss and hinder restoration of normothermia. Early risk identification may therefore facilitate preventive thermal management. However, binary classification captures hypothermia occurrence without reflecting its depth or duration. We aimed to identify predictors of intraoperative hypothermia, develop a simple preoperative risk score, and characterize hypothermia burden using time-weighted average temperature deficit (TWAD).

Methods
We analyzed 480 adults undergoing endovascular procedures in a hybrid operating room. Hypothermia was defined as temperature <36°C. Multivariable logistic regression identified factors associated with hypothermia occurrence. Among hypothermic patients (n=293), TWAD was calculated as cumulative temperature deficit below 36°C using trapezoidal integration, divided by observed temperature time. Factors associated with TWAD were evaluated using Gamma regression with a log link and reported as adjusted mean ratios (MRs). A preoperative risk score was developed and internally validated using 1,000 bootstrap replicates.

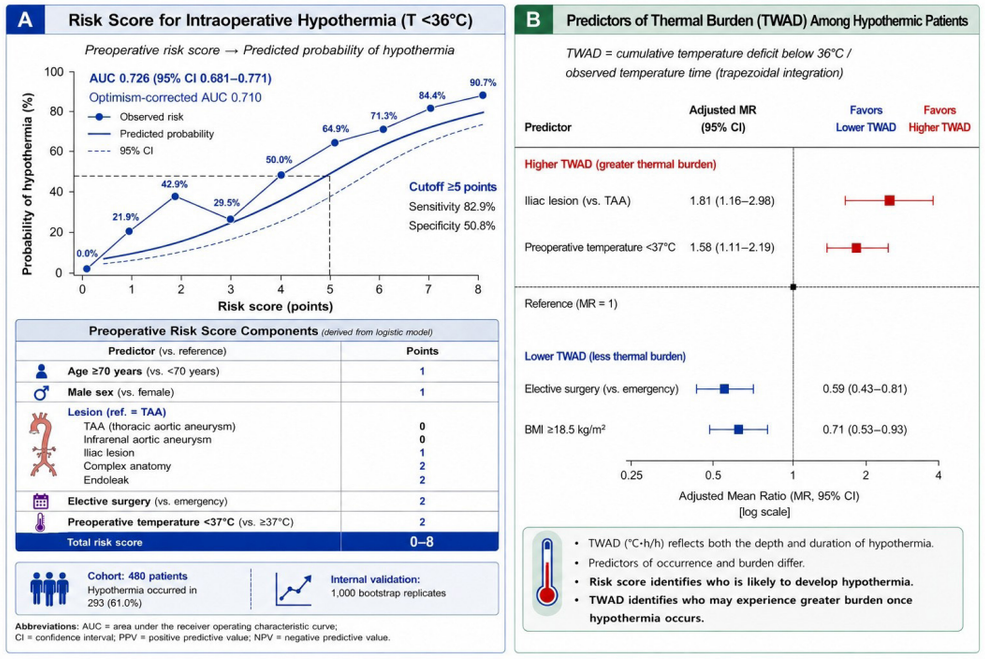
Results
Hypothermia occurred in 293 patients (61.0%). Complex anatomy (adjusted odds ratio [aOR] 3.40, 95% CI 1.76–6.86), elective surgery (aOR 2.81, 95% CI 1.70–4.69), and preoperative temperature <37°C (aOR 2.62, 95% CI 1.53–4.54) were independently associated with hypothermia. The risk score showed moderate discrimination (AUC 0.726, 95% CI 0.681–0.771; optimism-corrected AUC 0.710). At a cutoff ≥5, sensitivity was 82.9% and specificity 50.8%. Among hypothermic patients, iliac pathology (MR 1.81, 95% CI 1.16–2.98) and preoperative temperature <37°C (MR 1.58, 95% CI 1.11–2.19) were associated with higher TWAD, whereas elective surgery (MR 0.59, 95% CI 0.43–0.81) and BMI ≥18.5 kg/m² (MR 0.71, 95% CI 0.53–0.93) were associated with lower TWAD.

Conclusion
A simple preoperative risk score showed moderate discrimination and may support early targeted thermal management. TWAD provided complementary information on hypothermia burden, with factors associated with occurrence and burden differing in part. Together, these approaches identify both who is likely to develop hypothermia and, once it occurs, who may experience a greater burden.

AP-29-5 (2026-0516)

Figure & Table

Figure & Table 1.



AP-29-6 (2026-0413)

Patient–Device Anatomical Mismatch During Intra-Aortic Balloon Pump Support in a Short-Statured Asian Patient

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Introduction

Intra-aortic balloon pump (IABP) counter-pulsation provides temporary mechanical circulatory support but may be complicated by limb or visceral ischaemia. Patient height commonly guides balloon selection; however, it may not accurately reflect individual aortic anatomy. CT studies in Asian populations suggest that commercially recommended IABP sizes may overlap with the origins of the coeliac or renal arteries in some patients. We describe a short-statured Asian patient with distal IABP extension towards the visceral arteries and transient limb hypoperfusion.

Case

A 63-year-old Chinese man (150cm, 69kg) with hypertension, hyperlipidaemia and type 2 diabetes presented with an evolved anterolateral myocardial infarction complicated by acute pulmonary oedema, ventricular septal rupture (VSR) and cardiogenic shock. Following percutaneous coronary intervention, a 40mL IABP was inserted. Creatinine increased from approximately 200 to >500 µmol/L, requiring sustained low-efficiency dialysis. CT abdomen/pelvis performed with the 40mL IABP in situ demonstrated the balloon extending to the level of the coeliac trunk and superior mesenteric artery (SMA), with the inferior tip marker below the renal arteries. Readjustment was advised. Concurrent lower limb ischaemia also raised concern for impaired distal perfusion. The 40mL IABP was exchanged for a 25mL device, following which the lower limb ischemia resolved. The patient underwent successful surgical repair of the VSR, renal function eventually improved and was discharged home.

Conclusion

IABP-related vascular complications are well recognised in literature. In this case report, the 40mL balloon extended to the level of the coeliac trunk and SMA despite height-based device selection. Concurrent lower limb schema, which resolved following exchange to a 25mL device, further raises concern for device-related vascular compromise. Renal dysfunction was likely multifactorial and cannot be attributed solely to IABP-related hypoperfusion. Height-based recommendations are commonly used to guide IABP selection. However, patient height is an imperfect surrogate and may inadequately reflect aortic length and visceral arterial anatomy, particularly in Asian populations.

Our case provides a clinical example of this potential anatomical mismatch and highlights the limitations of a one-dimensional approach to device selection. Individualised device selection incorporating body habitus, aortic and peripheral vascular anatomy, and careful radiographic confirmation of balloon position may complement conventional height-based recommendations. The case also raises a practical systems consideration. Appropriate individualisation of mechanical circulatory support depends not only on clinical decision-making but also on institutional availability of devices across a suitable range of sizes. Centres serving populations with smaller body dimensions may therefore need to consider access to smaller-volume IABP devices to improve patient outcomes.

AP-29-6 (2026-0413)

Figure & Table

Figure & Table 1.



Figure 1: CT scan of patient with 40ml IABP in-situ. The yellow arrow points to the inferior aspect of the balloon extending to the level of the coeliac trunk and SMA. The inferior tip marker of the balloon is just below the level of the renal arteries.

AP-29-7 (2026-0543)

Effects of Abdominal Sagging on Hemodynamics After Supine-to-Prone Positioning on a Jackson Table for Spine Surgery: A Prospective Observational Study

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Background

Prone positioning for spine surgery is frequently accompanied by hemodynamic instability, and hypotension after supine-to-prone positional change often necessitates additional vasopressor and fluid administration. Downward displacement of the abdomen after prone positioning, referred to as abdominal sagging, has been proposed to reduce venous return and preload. We investigated whether the degree of abdominal sagging is independently associated with hypotension after supine-to-prone positioning in patients undergoing spine surgery on a Jackson table.

Methods

In this prospective observational study, adult patients undergoing spine surgery on a Jackson table were enrolled. Hypotension after prone positioning was defined as a ≥20% reduction in mean arterial pressure (MAP) from the baseline measured 1 minute before positioning, or an absolute MAP <60 mmHg, within 10 minutes after positioning. Abdominal sagging length was measured as the vertical distance from the upper surface of the table pad to the most dependent point of the abdomen. The primary outcome was the incidence of hypotension. Secondary outcomes included hemodynamic and respiratory parameters, and abdominal and positional measurements after prone positioning. Risk factors for hypotension after prone positioning were identified using univariable and multivariable logistic regression.

Results

Of 130 patients, hypotension occurred in 58 (44.6%), most commonly between 5 and 10 minutes after prone positioning (60.3%). Abdominal sagging length was the only abdominal or positional measurement that differed significantly between the hypotension and no-hypotension groups (median [Interquartile range] 17.0 [14.2–19.0] vs. 15.0 [13.0–17.0] cm, $p < 0.001$). In multivariable analysis, height (Odds ratio [95% Confidence interval] 0.946 [0.902–0.992] per cm, $p = 0.021$), preoperative mean blood pressure (0.946 [0.915–0.978] per mmHg, $p < 0.001$), pre-positioning stroke volume index (0.949 [0.913–0.987] per mL/m^2, $p = 0.008$), and abdominal sagging length (1.271 [1.113–1.452] per cm, $p < 0.001$) were independently associated with hypotension after prone positioning. Adding abdominal sagging length significantly improved model fit (likelihood ratio test, $p < 0.001$). The area under the receiver operating characteristic curve for abdominal sagging length alone was 0.668, with an optimal cutoff of 16.5 cm (sensitivity 60.3%, specificity 68.1%). Patients with an abdominal sagging length ≥16.5 cm showed a more pronounced decline in MAP and stroke volume index and a greater rise in stroke volume variation over 10 minutes after prone positioning (p for interaction = 0.014, 0.015, and < 0.001, respectively).

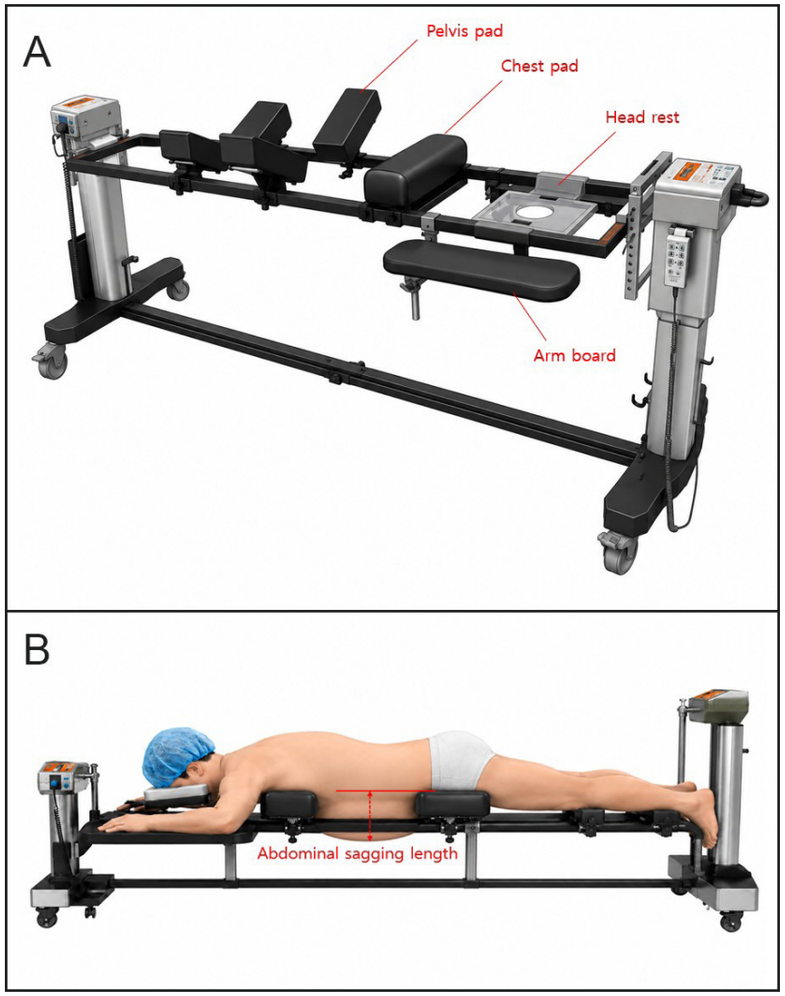
Conclusion

Hypotension after supine-to-prone positional change occurred in approximately 45% of patients undergoing spine surgery on a Jackson table. A greater abdominal sagging length was independently associated with hypotension and with more pronounced hemodynamic deterioration after prone positioning. As it can be measured immediately after positioning, sagging length may help anticipate impending hypotension and identify at-risk patients.

AP-29-7 (2026-0543)

Figure & Table

Figure & Table 1.



AP-29-8 (2026-0069)

A Challenge of the Anesthetic Management Using Remimazolam in a Patient with Severely Depressed Left Ventricular Function Caused by Triglyceride Deposit Cardiomyovasculopathy

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Introduction
The hemodynamic instability occurs during general anesthesia frequently in patients with severe cardiac dysfunction. Remimazolam provides better hemodynamic stability during induction and maintenance of anesthesia than other anesthetics. However, no clinical reports have described a challenge of the anesthetic management using remimazolam in patients with severely depressed left ventricular function. We report the anesthetic management using remimazolam for emergent appendectomy in a patient with severely depressed left ventricular function caused by triglyceride deposit cardiomyovasculopathy.

Case
A 52-year-old man (height, 170 cm; weight, 54.7 kg) on maintenance hemodialysis was admitted with perforated appendicitis, and emergent laparoscopic appendectomy was planned. One year earlier, he had been diagnosed with triglyceride deposit cardiomyovasculopathy, a rare adult-onset metabolic disorder that was first reported in Japanese patients with heart failure requiring cardiac transplantation. The latest regular transthoracic echocardiography performed 1 month before surgery showed severe cardiac dysfunction with a left ventricular ejection fraction of 10.9%. General anesthesia was induced with fentanyl 100 μg, remifentanil 0.2 μg kg−1 min−1, remimazolam 1 mg kg−1 h−1, and rocuronium 40 mg, with continuous infusions of both norepinephrine 0.02 μg kg −1 min−1 and dobutamine 2 μg kg−1 min−1. After loss of consciousness, remimazolam was reduced to 0.6 mg kg −1 h−1. During anesthetic induction, hemodynamics remained stable. Neither tachycardia nor hypertension was shown during and after tracheal intubation. Laparoscopic appendectomy with peritoneal lavage and drainage was performed uneventfully under total intravenous anesthesia using remimazolam, remifentanil, fentanyl, and rocuronium. Intraoperative hemodynamics also exhibited stable without tachycardia and hypertension, and mean arterial pressure was maintained above 65 mmHg. His postoperative course was stable except marked elevation of transaminases and lactate dehydrogenase, which was ultimately attributed to acetaminophen-induced hepatocellular injury based on the drug-induced lymphocyte stimulation test performed on postoperative day 19. The patient was discharged home on postoperative day 36 without cardiovascular events.

Conclusion
Titrated administration of remimazolam has played a vital role in maintaining stable hemodynamics during emergent laparoscopic appendectomy in a patient with severely depressed left ventricular systolic function caused by triglyceride deposit cardiomyovasculopathy. Even in an emergent surgery where the utility of diagnostic equipment is limited, remimazolam may be a promising anesthetic agent because of its favorable hemodynamic profile.

Presentation

Abstract Presentation 30

Date / Time	Nov 7 (Sat), 11:00-12:30
Room	Room B *(Paradise City)*
Language	English
Chair(s)	Kyu Nam Kim *(Hanyang University, Republic of Korea)* Ha Yeon Kim *(Ajou University, Republic of Korea)*
AP-30-2 2026-0577	Predictive Factors for Apnoeic Oxygenation Failure During High-Flow Nasal Oxygen-Assisted Anaesthesia Induction: A Retrospective Observational Study Myungjong Shin[1], Chahyun Oh[1], Woolim Min[2], Juyeon Kim[1], Chan Noh[1], Boohwi Hong[1*] 1. Department of Anesthesiology and Pain Medicine, Chungnam National University Hospital, Republic of Korea 2. Department of Nursing, Chungnam National University College of Nursing, Republic of Korea
AP-30-3 2026-0564	Modified Versus Conventional Stylet Removal Technique during Videolaryngoscope-Guided Tracheal Intubation: A Randomized Controlled Trial Keum O Lee[1], Jiyoun Lee[1], Jin-Woo Park[1*], Jin-Hee Kim[1], Sunghee Han[1], Ji-Hyeon Lee[1], Ji-Yun Han[1] 1. Anesthesiology and Pain Medicine, Seoul National University Bundang Hospital, Republic of Korea
AP-30-5 2026-0605	Unplanned Reintubation at a Taiwanese Tertiary Medical Center Emily Tzu-Jung Kuo[1*], Wei-Hsuan Wu[1] 1. Department of Anesthesiology, Taichung Veterans General Hospital, Taiwan
AP-30-7 2026-0351	Unexpected Resistance During Endotracheal Tube Removal: A Structured Approach to Safe Extubation Sai Dharani Turaka[1], Rajeeb Kumar Mishra[1*], Ramesh J Venkatapura[1] 1. Department of Neuroanesthesia and Neurocritical Care, National Institute of Mental Health and Neuro Sciences (NIMHANS), Bengaluru, India
AP-30-8 2026-0506	Grading the Level of Extracorporeal Standby in Critical Central Airway Obstruction: A Proposed Framework Illustrated by Three Cases Ahmad Fariz Elias[1], Mohd Fitry Zainal Abidin[1*], Sarah Aliah Mohd Azman[2] 1. Anaesthesiology, Universiti Malaya, Malaysia 2. Anaesthesiology, Universiti Malaya Medical Centre, Malaysia

Predictive Factors for Apnoeic Oxygenation Failure During High-Flow Nasal Oxygen-Assisted Anaesthesia Induction: A Retrospective Observational Study

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Background
High-flow nasal oxygen (HFNO) provides continuous oxygen delivery during apnoea and may prolong safe apnoea time during anaesthesia induction. However, its effectiveness during routine general anaesthesia induction remains unclear. The Oxygen Reserve Index (ORI) may detect oxygen reserve depletion before conventional pulse oximetry. We evaluated the incidence and predictors of apnoeic oxygenation failure during routine HFNO-assisted induction.

Methods
We retrospectively analysed consecutive adults undergoing HFNO-assisted general anaesthesia induction at a single centre between September 2023 and June 2025. Patients were preoxygenated with 100% oxygen via HFNO at 20 L min^{-1} in a 15–20° head-up position; after loss of consciousness, flow was increased to 60–70 L min^{-1} until tracheal intubation. ORI was continuously monitored. The primary outcome was HFNO-only oxygenation failure, defined as ORI = 0 at intubation or the need for positive-pressure ventilation before intubation. Predictors of failure were evaluated using logistic regression and bootstrap-based conditional inference trees.

Results
Among 601 eligible records, 515 patients were included. HFNO-only oxygenation failure occurred in 55 patients (10.7%): 30 had ORI = 0 at intubation and 25 required mask ventilation. Lower peak ORI, higher BMI, chronic kidney disease, and lower preoperative haemoglobin were independently associated with failure. Peak ORI and BMI were the most robust predictors in bootstrap analyses and formed a two-variable risk-stratification model (AUROC 0.752). Using peak ORI 0.3 and BMI 30 kg m^{-2} as cut-offs, failure rates were 76.2% (16/21), 26.0% (13/50), and 5.9% (26/444) in the high-, intermediate-, and low-risk groups, respectively. SpO_2 immediately before intubation was lower in the failure group (98% [96–99%] vs 100% [100–100%], P < 0.001).

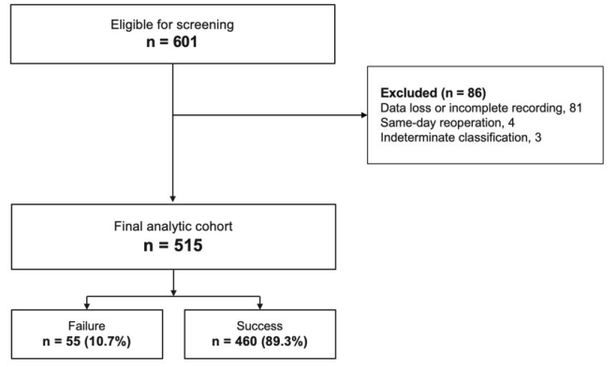
Conclusion
Apnoeic oxygenation failure occurred in approximately one in ten patients, indicating that HFNO does not uniformly preserve oxygen reserve during routine anaesthesia induction. Peak ORI during preoxygenation and BMI identified groups with markedly different failure risks and may facilitate risk stratification and preparation for rescue ventilation. External validation is required before clinical application of these thresholds.

AP-30-2 (2026-0577)

Figure & Table

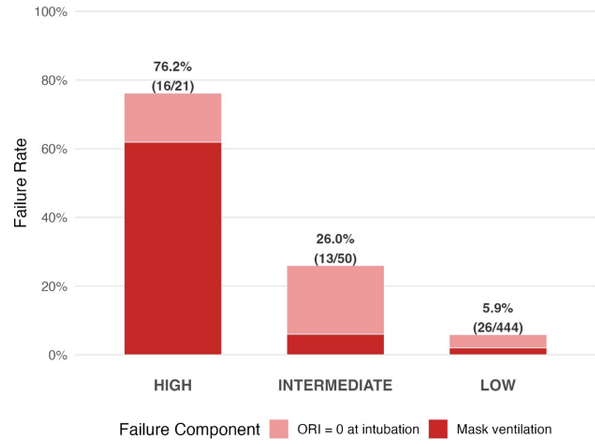
Figure & Table 1.

Figure 1. Patient flow diagram



Reason-level counts sum to 88 because some patients met more than one exclusion criterion; 86 unique patients were excluded. Failure was defined as an oxygen reserve index of zero at the time of intubation or the need for mask ventilation before intubation.

Figure 2. Tier-specific failure rates and composition of the composite outcome

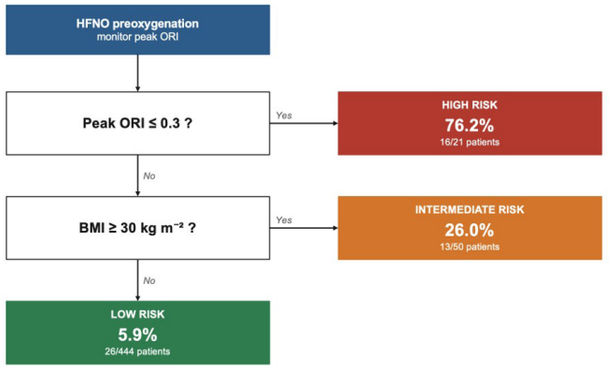


Failure rates for the three risk tiers derived from the conditional inference tree (HIGH, peak ORI ≤ 0.3; INTERMEDIATE, peak ORI > 0.3 with BMI ≥ 30 kg m^{-2}; LOW, peak ORI > 0.3 with BMI < 30 kg m^{-2}). Each bar is divided into the two components of the composite outcome: patients who required mask ventilation before intubation (dark) and those whose oxygen reserve index reached zero at intubation without mask ventilation (light). Values above each bar are the overall failure rate with the number of failures and patients in that tier. Mask ventilation alone, which is independent of the ORI signal, occurred in 61.9%, 6.0% and 2.0% of patients in the high-, intermediate- and low-risk tiers respectively. ORI, oxygen reserve index; BMI, body mass index.

ABSTRACT
Competition
Presentation
E-Poster

Figure & Table

Figure 3. Clinical decision algorithm for risk stratification during high-flow nasal oxygen preoxygenation



Split points were derived from the conditional inference tree. Percentages are the observed failure rates within each tier, with the number of failures and patients shown below. Because both the split points and the tier-specific rates were derived from the same cohort, these rates are likely to be optimistic and require external validation before clinical use. HFNO, high-flow nasal oxygen; ORI, oxygen reserve index; BMI, body mass index.

Figure & Table 2.

Table 1. Patient characteristics stratified by apnoeic oxygenation outcome during high-flow nasal oxygen preoxygenation

Variables	Overall (n = 515)	Success (n = 460)	Failure (n = 55)	P
Age (yr)	63.0 [49.0, 71.0]	63.0 [49.0, 71.0]	64.0 [53.0, 74.0]	0.516
Sex (M)	259 (50.3)	227 (49.3)	32 (58.2)	0.273
BMI (kg/m²)	24.4 [21.7, 27.0]	24.2 [21.6, 26.6]	26.5 [23.4, 30.0]	<0.001
ASA-PS (≥ 3)	171 (33.2)	153 (33.3%)	18 (32.7)	1.000
Non-elective surgery	40 (7.8)	32 (7.0)	8 (14.5)	0.060
Hypertension	155 (30.1)	136 (29.6)	19 (34.5)	0.545
Diabetes mellitus	93 (18.1)	81 (17.6)	12 (21.8)	0.561
COPD	10 (1.9)	10 (2.2)	0 (0.0)	0.610
Asthma	4 (0.8)	4 (0.9)	0 (0.0)	1.000
CKD	17 (3.3)	12 (2.6)	5 (9.1)	0.026
Ever smoker	146 (28.3)	131 (28.5)	15 (27.3)	0.977
Preop hemoglobin (g/dL)	13.4 [12.3, 14.4]	13.4 [12.3, 14.4]	13.5 [10.4, 14.4]	0.257
Peak ORI	0.7 [0.6, 1.0]	0.7 [0.6, 1.0]	0.6 [0.3, 0.8]	<0.001
ORI at intubation	0.4 [0.3, 0.6]	0.5 [0.3, 0.7]	0.0 [0.0, 0.2]	<0.001

Values are median [IQR] or n (%). BMI = body mass index; ASA = American Society of Anesthesiologists; COPD = chronic obstructive pulmonary disease; ENT = ear, nose, throat. Bold p-values indicate p < 0.05.

Figure & Table

Table 2. Factors associated with apnoeic oxygenation failure during high-flow nasal oxygen preoxygenation

Variable	Univariable		Multivariable		Bootstrap tree
	OR (95% CI)	P	OR (95% CI)	P	Split frequency (%)
Peak ORI	0.03 (0.01–0.09)	<0.001	0.02 (0.01–0.09)	<0.001	99.5
BMI (kg/m²)	1.12 (1.06–1.20)	<0.001	1.15 (1.07–1.23)	<0.001	95.4
CKD	3.91 (1.27–10.66)	0.020	3.79 (1.17–12.33)	0.027	44.6
Haemoglobin (g/dL)	0.86 (0.74–0.99)	0.042	0.82 (0.70–0.97)	0.018	19.7
Non-elective surgery	2.36 (0.99–5.12)	0.053	1.81 (0.68–4.84)	0.237	24.3
Sex (M)	1.42 (0.81–2.51)	0.219	NA	NA	11.3
Diabetes mellitus	1.34 (0.66–2.55)	0.406	NA	NA	18.3
Hypertension	1.27 (0.70–2.26)	0.428	NA	NA	5.4
Age (yr)	1.01 (0.99–1.03)	0.444	NA	NA	6.5
COPD	0.39 (0.00–3.07)	0.449	NA	NA	0
Ever smoker	0.96 (0.50–1.75)	0.894	NA	NA	2.8
Asthma	0.91 (0.01–8.74)	0.951	NA	NA	0
ASA ≥ 3	0.99 (0.54–1.76)	0.969	NA	NA	2.8

OR, odds ratio; CI, confidence interval; BMI, body mass index; ASA, American Society of Anesthesiologists; COPD, chronic obstructive pulmonary disease; NA, not available. Variables with P < 0.10 in the univariable analysis were considered for inclusion in the multivariable model.

Table 3. Discrimination of candidate logistic regression models for apnoeic oxygenation failure

Model	Variables	AUROC (95% CI)	DeLong P
Model 1	Peak ORI	0.689 (0.605–0.772)	NA
Model 2	Peak ORI + BMI	0.752 (0.678–0.827)	0.003
Model 3	Peak ORI + BMI + CKD + Hb	0.783 (0.715–0.850)	0.125

AUROC, area under the receiver operating characteristic curve; CI, confidence interval; ORI, oxygen reserve index; BMI, body mass index; CKD, chronic kidney disease; Hb, preoperative haemoglobin. Peak ORI and BMI were analysed as continuous variables. P values are from DeLong's test comparing each model with the preceding model.

Modified Versus Conventional Stylet Removal Technique during Videolaryngoscope-Guided Tracheal Intubation: A Randomized Controlled Trial

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Background
Videolaryngoscopes (VLs) improve glottic visualization but do not facilitate tube advancement, often requiring a pre-shaped stylet to guide the endotracheal tube (ETT) toward the glottis. Conventionally, the stylet is removed after the ETT tip enters the vocal cords. We evaluated a modified technique in which the stylet is removed before vocal cord entry, with subsequent tube advancement using a sliding, over-the-stylet motion.

Methods
In this randomized controlled trial, patients undergoing elective surgery requiring VL-guided intubation were allocated to either the conventional group (Group C; stylet removed after the ETT tip entered the vocal cord inlet) or the modified group (Group M; stylet withdrawn before vocal cord entry, with subsequent tube advancement maintaining the preformed curvature). The primary outcome was total tracheal intubation time (TTI). Secondary outcomes included modified Cormack–Lehane grade, number of attempts, ease of intubation (VAS), need for external laryngeal manipulation, and postoperative sore throat (POST) and oral mucosal injury at 1 hour.

Results
Sixty-three patients completed the study. TTI did not differ significantly between groups (Group M: 25.48±5.31 s vs. Group C: 26.30±8.48 s; p=0.646). Cormack–Lehane grade, number of attempts, need for external manipulation, and VAS ease scores were comparable between groups. However, POST incidence and severity were significantly lower in Group M than in Group C (2.22±1.66 vs. 3.61±2.29; p=0.008). No significant difference was observed in oral mucosal bleeding.

Conclusion
The modified stylet removal technique did not significantly shorten TTI but significantly reduced the incidence and severity of postoperative sore throat without increasing other complications, suggesting it may be a safer alternative during videolaryngoscope-guided intubation.

Figure & Table

Figure & Table 1.

Table 1. Demographic data

Characteristics	Group C (n=31)	Group M (n=32)	p-value
Age (years)	57.40 ± 9.30	57.09 ± 11.30	0.902
Gender			
Male	21 (67.7)	19 (59.4)	0.490
Female	10 (32.3)	13 (40.6)	
BMI (kg/m^2)	24.26 ± 3.23	23.91 ± 2.42	0.956
Mallampati grade			
1	6 (19.4)	7 (21.9)	0.536
2	23 (74.2)	19 (59.4)	
3	2 (6.5)	6 (18.8)	
Thyromental distance (cm)	7.90 ± 1.08	7.98 ± 0.94	0.779
Interincisor distance (cm)	3.60 ± 0.53	3.61 ± 0.51	0.943
Type of surgery			
Coil embolization	28 (90.3)	26 (81.2)	0.474
Others	3 (9.6)	6 (18.6)	
Anesthesia time (min)	65.0 (50.0–70.0)	65.0 (53.8–95.0)	0.294
Estimated blood loss (mL)	0 (0–0)	0 (0–0)	0.576
Fluid administered (mL)	250 (225–375)	350 (237.5–412.5)	0.093
Transfusion, n (%)	0 (0.0)	1 (3.1)	1.000

Values are presented as mean ± standard deviation or number (%). BMI, body mass index.

AP-30-3 (2026-0564)

Figure & Table

Figure & Table 2.

Table 2. Intubation profiles

Characteristics	Group C (n=31)	Group M (n=32)	p-value
Total intubation time (sec)	26.30 ± 8.48	25.48 ± 5.31	0.646
Number of intubation attempts	1.16 ± 0.52	1.25 ± 0.51	0.234
1	28 (90.3)	25 (78.1)	
2	1 (3.2)	6 (18.8)	
3	2 (6.5)	1 (3.1)	
Modified Cormack–Lehane grade, n (%)			0.402
Grade I	24 (77.4)	20 (62.5)	
Grade IIa	3 (9.7)	4 (12.5)	
Grade IIb	4 (12.9)	8 (25.0)	
Grade III	0 (0.0)	0 (0.0)	
Grade IV	0 (0.0)	0 (0.0)	
Ease of intubation (VAS)	2.39 ± 1.41	3.03 ± 1.53	0.072
External laryngeal manipulation			0.974
Required	2 (6.5)	2 (6.3)	
Not required	29 (93.5)	30 (93.8)	
Postoperative sore throat (NRS)	3.61 ± 2.29	2.22 ± 1.66	0.008
Oral mucosal bleeding			0.306
Absent	30 (96.8)	32 (100)	
Present	1 (3.2)	0 (0)	

Values are presented as mean ± standard deviation or number (%). VAS, visual analog scale; NRS, numerical rating scale.

AP-30-5 (2026-0605)

Unplanned Reintubation at a Taiwanese Tertiary Medical Center

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Background
Unplanned postoperative reintubation (UPR) is an important indicator of perioperative safety and is associated with increased morbidity, mortality, and healthcare utilization. Its reported incidence varies widely because of differences in outcome definitions and observation periods. Early reintubation after extubation is commonly related to residual anesthetic or neuromuscular effects and acute airway compromise.
We examined patients with unplanned postoperative reintubation before discharge from the post-anesthesia care unit (PACU) between July 2024 and May 2026. We assessed the incidence, patient and anesthetic characteristics, and differences between reintubations occurring in the operating room and PACU.

Methods
This retrospective observational study was conducted at a tertiary medical center. The study was approved by the Institutional Review Board of Taichung Veterans General Hospital (CE26682B), with a waiver of informed consent.
We included adult patients undergoing general anesthesia who required unplanned reintubation before discharge from the PACU. Planned postoperative intubation and reintubation as part of a staged procedure were excluded. Demographic, perioperative, anesthetic, and reintubation-related variables were obtained from anesthesia and PACU records. Continuous variables are presented as mean (standard deviation) or median (interquartile range), as appropriate, and categorical variables as n (%). Patients reintubated in the OR and PACU were compared using the Mann–Whitney U test and Fisher's exact test, as appropriate. Reintubation incidence was reported with exact 95% confidence intervals. All tests were two-sided, and $P < 0.05$ was considered statistically significant.

Results
32 unplanned reintubations occurred among 51,098 general anesthetics, corresponding to an incidence of 6.3 per 10,000 (95% CI, 4.3–8.8) in 23 months. Median age was 67 years, 66% were male, and 75% had ASA physical status III or higher. Quantitative train-of-four monitoring was documented in 22% of patients.
9 patients (28%) were reintubated in the OR and 23 (72%) in the PACU. Extubation-to-reintubation time was available in 28 patients since 4 patients were extubated in the PACU. Among these patients, reintubation occurred significantly earlier in the OR than in the PACU (20 [15–30] vs 115 [50–162] min; $P < 0.001$). Other demographic, surgical, and anesthetic characteristics were similar between groups.

Conclusion
Unplanned reintubation before PACU discharge occurred in approximately 1 in 1,600 general anesthetics, with most events occurring within 180 minutes after extubation and in the PACU. These findings underscore the importance of vigilant PACU surveillance and identify quantitative neuromuscular monitoring as a practical target for quality improvement.

AP-30-5 (2026-0605)

Figure & Table

Figure & Table 1.

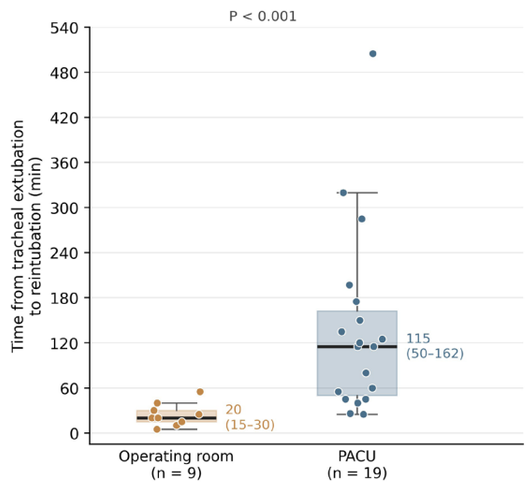


Figure & Table 2.

Table 1. Characteristics of patients reintubated

Characteristic	All patients (n = 32)	OR reintubation (n = 9)	PACU reintubation (n = 23)	P value
Demographics				
Age, years	67 (56–75)	71 (59–76)	67 (55–74)	0.737
Male sex	21 (66)	5 (56)	16 (70)	0.681
Body mass index, kg/m²	24 (21–30)	25 (23–26)	24 (21–30)	1.000
Preoperative status				
ASA physical status ≥ III	24 (75)	5 (56)	19 (83)	0.176
Emergency surgery	3 (9)	1 (11)	2 (9)	1.000
Preoperative SpO_2, %	98 (97–99)	99 (98–99)	98 (96–99)	0.207
Surgery and anesthesia				
Surgical specialty				0.213
Neurosurgery	5 (16)	0 (0)	5 (22)	
ENT	5 (16)	3 (33)	2 (9)	
Urology	4 (12)	1 (11)	3 (13)	
Chest surgery	4 (12)	2 (22)	2 (9)	
Others	14 (44)	3 (33)	11 (48)	
Endotracheal tube (vs. supraglottic airway)	27 (84)	7 (78)	20 (87)	0.604
First extubated in the PACU	4 (12)	0 (0)	4 (17)	0.303
Anesthesia duration, min	270 (169–416)	175 (145–400)	275 (215–450)	0.402
Off-office hours case	16 (50)	4 (44)	12 (52)	1.000
Neuromuscular blockade				
Neuromuscular blocking agent				0.413
Rocuronium	24 (75)	6 (67)	18 (78)	
Cisatracurium	5 (16)	2 (22)	3 (13)	
Succinylcholine + rocuronium	2 (6)	0 (0)	2 (9)	
Succinylcholine	1 (3)	1 (11)	0 (0)	
Reversal agent				1.000
Neostigmine	20 (62)	6 (67)	14 (61)	
Sugammadex	6 (19)	2 (22)	4 (17)	
Neostigmine + sugammadex	1 (3)	0 (0)	1 (4)	
None	5 (16)	1 (11)	4 (17)	
Quantitative TOF monitoring documented	7 (22)	3 (33)	4 (17)	0.370
Postoperative course				
Extubation to reintubation, min	55 (26–128)	20 (15–30)	115 (50–162)	<0.001
Lowest PACU SpO_2, %	88 (80–95)	96 (95–97)	84 (78–88)	<0.001
PACU length of stay, min	350 (220–628)	230 (220–395)	375 (215–630)	0.426

AP-30-7 (2026-0351)

Unexpected Resistance During Endotracheal Tube Removal: A Structured Approach to Safe Extubation

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Introduction

Unexpected resistance during endotracheal tube (ETT) removal is an uncommon but potentially hazardous airway event. Resistance during ETT removal maybe due to mechanical factors like incomplete cuff deflation, cuff or pilot-tube malfunction, cuff impingement, tube fixation or suture entrapment, as well as anatomical factors like airway edema.1-6 Forceful extraction may result in airway injury and should be avoided. A systematic evaluation to identify the cause and airway visualization is essential for safe management. We report a case of difficult ETT removal following prolonged postoperative ventilation and propose a practical algorithm for its evaluation and management.

Case

A 70-year-old woman with well-controlled diabetes mellitus and hypertension underwent right retromastoid suboccipital craniotomy and subtotal excision of a left vestibular schwannoma. Preoperatively she had isolated left vestibulocochlear nerve involvement, manifesting as left-sided partial hearing loss. Postoperatively she remained electively ventilated with a cuffed 7.0-mm ETT. On postoperative day (POD) 2, she was extubated but respiratory distress 6 hours later necessitated reintubation (atraumatic). Another extubation attempt on POD7 encountered significant resistance despite complete cuff deflation. Direct laryngoscopy revealed marked vocal cord edema. Intravenous hydrocortisone and nebulized adrenaline (via facemask) were started. Owing to previous failed extubation and residual disease posing a high risk of future lower cranial nerve involvement elective tracheostomy was planned. Check videolaryngoscopy (VL) under propofol anesthesia on POD8 demonstrated severe false vocal cord edema with a narrowed anterior commissure (Figure 1). The vocal cord movement was difficult to assess due to airway edema and presence of ETT. Flexible bronchoscopy (FOB) showed dynamic ballooning of the tracheal mucosa with transient prolapse into the Murphy's eye without other significant abnormalities. After four more days of anti-edema therapy, repeat VL showed resolution of edema, allowing uncomplicated ETT removal and a successful tracheostomy. This case highlights the importance of avoiding forceful extubation and adopting a systematic approach. We therefore propose a practical stepwise algorithm for the evaluation and safe management of resistance encountered during extubation.(Figure 2)

Conclusion

Resistance during endotracheal tube removal should never be managed by forceful extraction. Although individual causes and management strategies have been reported, a standardized approach to this uncommon airway challenge is lacking. Thus, the team should recognize the situation and follow a stepwise management algorithm of evaluation and safe management of such unusual conditions.

AP-30-7 (2026-0351)

Figure & Table

Figure & Table 1. **Figure 1:** Video-laryngoscopy view of airway of the patient. A- Epiglottis, B-False vocal cords, C-True vocal cords, D-Aryepigottis folds, E-Endotracheal tube

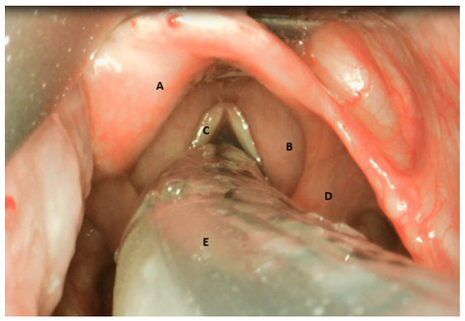
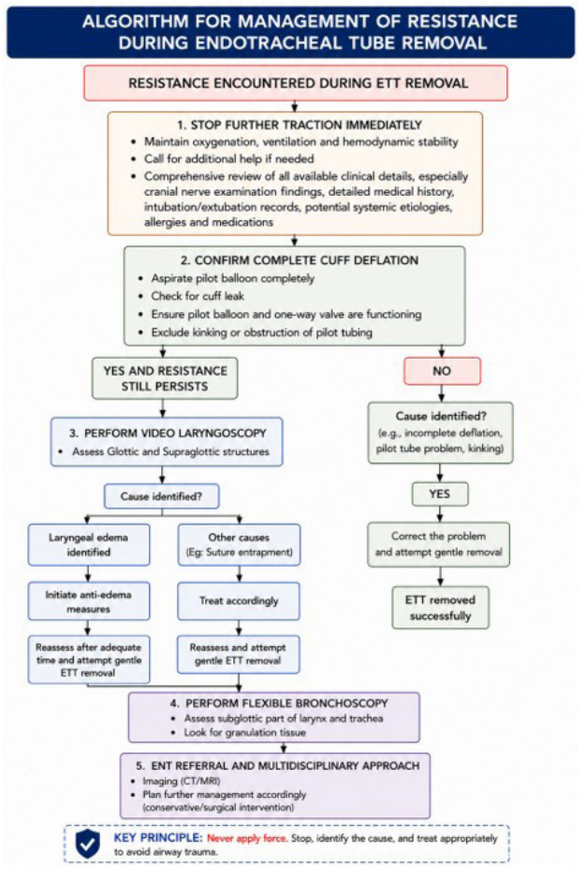


Figure & Table 2. **Figure 2:** Stepwise algorithm for the management of a non-removable endotracheal tube during extubation.



AP-30-8 (2026-0506)

Grading the Level of Extracorporeal Standby in Critical Central Airway Obstruction: A Proposed Framework Illustrated by Three Cases

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Introduction

Extracorporeal membrane oxygenation (ECMO) is embedded in difficult airway algorithms, and its use for airway procedures is divided into elective, standby and rescue support. 'Standby', however, is a single label applied to states of readiness that differ by more than an order of magnitude in the time required to achieve flow, ranging from a team that is merely contactable to a patient already sheathed with a primed circuit at the bedside. Because the value of standby depends entirely on whether extracorporeal flow can be established before hypoxic injury occurs, a term that conceals this interval is unsafe.

Case

We propose an explicit five-level grading, from Level 0 (under discussion) to Level 4 (pre-emptive initiation before induction), with an indicative latency attached to each level, and a rule for selecting the level. The level should follow two sequential judgements: the probability that Plan A will secure a definitive airway, and the effectiveness with which Plan B will maintain oxygenation. The latency of the level selected must be shorter than the period for which Plan B can sustain oxygenation. We illustrate the framework in three patients with critical central airway obstruction managed at a single tertiary centre and graded at Levels 2, 1 and 4: an anterior mediastinal germ cell tumour, a malignant extrinsic tracheal stenosis, and a retrosternal multinodular goitre with superior vena cava obstruction.

Conclusion

Grading makes an implicit judgement explicit, exposes the latency that 'standby' conceals, and provides shared language for multidisciplinary planning, escalation and inter-hospital referral.

AP-30-8 (2026-0506)

Figure & Table

Figure & Table 1.

Table 1. Proposed grading of extracorporeal standby for the anticipated critical airway. Latency estimates are indicative and should be measured and calibrated locally.

Level	Designation	What is in place	Indicative latency to full flow	Principal cost or risk
0	Under discussion	Referral made or multidisciplinary discussion initiated. No commitment to extracorporeal support and no patient-specific preparation.	Days to weeks	None to the patient. Risk of the discussion substituting for a decision.
1	Capability available	Trained personnel, console, disposables and perfusion cover confirmed to be available within the institution and aware of the case. Nothing patient-specific has been done.	30–60 min	Minimal. Principal hazard is false reassurance.
2	Vascular access reserved	Small-calibre sheath or Angiocath™ in a femoral vein, artery, or both, sited under local anaesthesia; console present but unprimed; perfusionist at the bedside; cannulae selected, sized and opened.	10–20 min	Vascular puncture, sheath dislodgement or kinking, minor bleeding, personnel opportunity cost.
3	Circuit ready	Definitive ECMO cannulae in situ with tip position confirmed, circuit primed and clamped, perfusionist at the console. Flow not established.	1–3 min	Large-bore cannulation, heparinisation, vascular injury, circuit stasis if the delay before initiation is prolonged.
4	Pre-emptive initiation	ECMO established and flow confirmed before induction of anaesthesia, usually awake under local anaesthesia with sedation and high-flow nasal oxygen.	Zero	All the risks of Level 3, plus the consequences of committing every patient in the category to extracorporeal support including those who would not have needed it.

Figure & Table 2.

Table 3. Summary of the three cases, the two judgements underpinning the level, and the configuration selected.

Case	Pathology and airway	Plan A / Plan B assessment	Level	Configuration and outcome
1	12-year-old; anterior mediastinal germ cell tumour T1–T10; trachea 0.2 × 2.0 cm at T3/T4; SVC 0.3 cm; pericardial effusion	Plan A moderate–good (short lesion, tube anchorable above stenosis). Plan B reliable (slit lumen, area equivalent to ~6 mm; mask ventilation feasible)	2	Veno-arterial standby with femoral sheaths. ECMO not required; intubation and resection uneventful
2	56-year-old; malignant extrinsic tracheal stenosis from left paratracheal node; moderate residual lumen; short segment	Plan A high (rigid bronchoscope both secures and relieves). Plan B reliable (normoxic in air, no orthopnoea, leak pressures adequate)	1	Capability confirmed only. THRIVE and jet ventilation; stent deployed without desaturation
3	58-year-old; retrosternal multinodular goitre encasing arch and branches; trachea 0.5 cm C7–T1; SVC obstruction; NIV-dependent	Plan A low (tracheostomy through and below the mass). Plan B absent (long critical segment; NIV-dependent awake; posture-dependent)	4	Veno-venous, initiated pre-emptively. Collapse on supine positioning; debulking and tracheostomy completed at 30°. VA or V-VA would be preferred on review

Presentation

Abstract Presentation 31

Date / Time	Nov 7 (Sat), 11:00-12:30
Room	Room D *(Paradise City)*
Language	English
Chair(s)	Woosuk Chung *(Chungnam National University, Republic of Korea)* Heeseung Lee *(Ewha Womans University, Republic of Korea)*

AP-31-1 2026-0546

Peripheral Immune Profiling in Patients with and without Postoperative Delirium Using Abseq Single-Cell Multi-Omics

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AP-31-2 2026-0187

Association Between Preoperative Prognostic Nutritional Index and Postoperative Outcomes After Surgery for Spinal Metastasis: A Propensity Score-Matched Study

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AP-31-3 2026-0034

Total Intravenous Anesthesia Versus Inhalational Anesthesia: Impact on Neuronal and Systemic Inflammatory Markers in Supratentorial Glioma Resection and Postoperative Cognition – A Randomized Controlled Trial: TINSI Trial

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AP-31-4 2026-0559

Intranasal Atomised Ketodex vs Midazolam as Premedication: A Randomized, Double-Blind Trial in Children Undergoing Spinal Dysraphism Surgery

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AP-31-6 2026-0342

Awake Spine Surgery Without Regional Blockade: Preserving Real-Time Intra-operative Neurological Monitoring with Sedation and Local Infiltration Analgesia

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AP-31-7 2026-0494

Physiology-Guided Staged Cesarean Delivery and Postpartum Craniotomy for Giant Sphenoid Wing Meningioma in Late Pregnancy: A Neuro-Obstetric Framework

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AP-31-8 2026-0301

When Awake Fibreoptic Intubation Fails: Supraglottic Airway as a Rescue Conduit in a Severely Distorted Difficult Airway

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AP-31-1 (2026-0546)

Peripheral Immune Profiling in Patients with and without Postoperative Delirium Using Abseq Single-Cell Multi-Omics

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Background
Postoperative delirium (POD) is a common neurocognitive complication in older surgical patients, but its peripheral immune basis is poorly understood. We used Abseq single-cell multi-omics to profile peripheral blood mononuclear cells (PBMCs) before and after surgery in patients who did and did not develop delirium.

Methods
Sixteen elderly orthopedic surgery patients were enrolled (delirium, n=9; non-delirium, n=7). Blood was collected preoperatively (Pre) and postoperatively (Post). PBMCs were analyzed by Abseq, yielding 76,399 cells across 20 immune cell types. We compared cell-type proportions, differential gene expression, pathway enrichment (GO, GSEA), transcription factor/regulon activity (decoupleR + CollecTRI), and cell-cell interactions (CellChat) between groups. Milo was used for differential abundance, and ROC analysis assessed predictive performance. Delirium severity was measured by K-DRS-R-98.

Results
Preoperatively, delirium patients showed higher cytotoxic CD8+ T cell proportions ($p<0.01$) and, despite a lower monocyte fraction, monocytes were transcriptionally primed. CD14+ and S100A8/A9+ inflammatory monocytes displayed features of emergency myelopoiesis and trained immunity–like reprogramming, already present at baseline and further enhanced postoperatively. GSEA confirmed enrichment of TNFα/NF-κB signaling, inflammatory response, and trained immunity signatures in monocytes. Regulon analysis showed increased activity of trained immunity–associated (AP1, NF-κB, CEBPB, XBP1) and emergency myelopoiesis–associated (CEBPB, SPI1, STAT3, FLI1) transcription factors in delirium monocytes. Postoperatively, cytotoxic T cell–monocyte interactions were strengthened in delirium, driven by the CCL5–CCR1 axis, suggesting monocyte recruitment. ROC-based models identified predictive markers, including preoperative cytotoxic CD8+ T cells and CD1C+ cDC (both AUC=0.857, $p=0.016$). Delirium severity correlated with cytotoxic CD4+ T cell proportions (Pre and Post) and with the postoperative increase (ΔPost–Pre) in the SASP/inflammaging signature within cytotoxic CD8+ T cells (Spearman $\rho=0.85$, $p=0.004$).

Conclusion
Delirium patients exhibit a distinct peripheral immune signature marked by expanded cytotoxic T cells and pre-primed inflammatory monocytes bearing emergency myelopoiesis and trained immunity features. Enhanced cytotoxic T cell–monocyte crosstalk via CCL5–CCR1 may drive postoperative neuroinflammation. These findings offer candidate biomarkers for POD prediction and mechanistic insight into its immune pathophysiology.

AP-31-2 (2026-0187)

Association Between Preoperative Prognostic Nutritional Index and Postoperative Outcomes After Surgery for Spinal Metastasis: A Propensity Score-Matched Study

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Background
Patients undergoing surgery for spinal metastases are at substantial risk of postoperative complications and mortality, and reliable preoperative prognostic markers are needed. Although a low prognostic nutritional index (PNI) has been associated with poor outcomes in various malignancies, its prognostic significance in spinal metastasis surgery remains uncertain. We investigated the prognostic value of preoperative PNI for mortality and postoperative complications in patients undergoing surgery for spinal metastases.

Methods
This retrospective study included 259 patients who underwent surgery for spinal metastases between March 2006 and March 2020. Patients were divided into low and high PNI groups according to the optimal cutoff determined by receiver operating characteristic (ROC) analysis, and 1:2 propensity score matching (PSM) was performed to balance baseline characteristics. The primary outcome was 90-day mortality; secondary outcomes were 30-day, 180-day, and 1-year mortality and postoperative complications. Cox and logistic regression analyses were used to evaluate the association of preoperative PNI with these outcomes, with PNI modeled both dichotomously and as a continuous variable.

Results
The optimal PNI cutoff for predicting 90-day mortality was 33.8. After 1:2 PSM, 89 patients were in the high PNI group (≥33.8) and 53 in the low PNI group (<33.8). The low PNI group had significantly higher 30-day mortality (17.0% vs. 2.2%, P=0.001), 90-day mortality (56.6% vs. 22.5%, P<0.001), and overall postoperative complications (37.7% vs. 18.0%, P=0.009). In multivariable Cox analysis, PNI <33.8 was an independent risk factor for 90-day mortality (hazard ratio [HR] 3.63, 95% confidence interval [CI] 2.14–6.16, P<0.001), together with preoperative chemotherapy (HR 3.05, 95% CI 1.69–5.49, P<0.001) and high-risk primary cancer of the liver, lung, or stomach (HR 1.73, 95% CI 1.04–2.90, P=0.035). When modeled as a continuous variable, each 1-point increase in PNI was independently associated with lower 90-day mortality (HR 0.92, 95% CI 0.88–0.96, P<0.001), 180-day mortality (HR 0.95, 95% CI 0.92–0.98, P=0.002), 1-year mortality (HR 0.96, 95% CI 0.93–0.99, P=0.002), and postoperative complications (odds ratio 0.94, 95% CI 0.89–0.99, P=0.016); findings were consistent in the PSM cohort.

Conclusion
A lower preoperative PNI (<33.8) was independently associated with higher mortality and more postoperative complications in patients undergoing surgery for spinal metastases. Incorporating PNI into routine preoperative assessment may facilitate risk stratification and guide individualized perioperative optimization.

AP-31-2 (2026-0187)

Figure & Table

Figure & Table 1.

Table 1. Surgical outcomes adjusted by continuous PNI

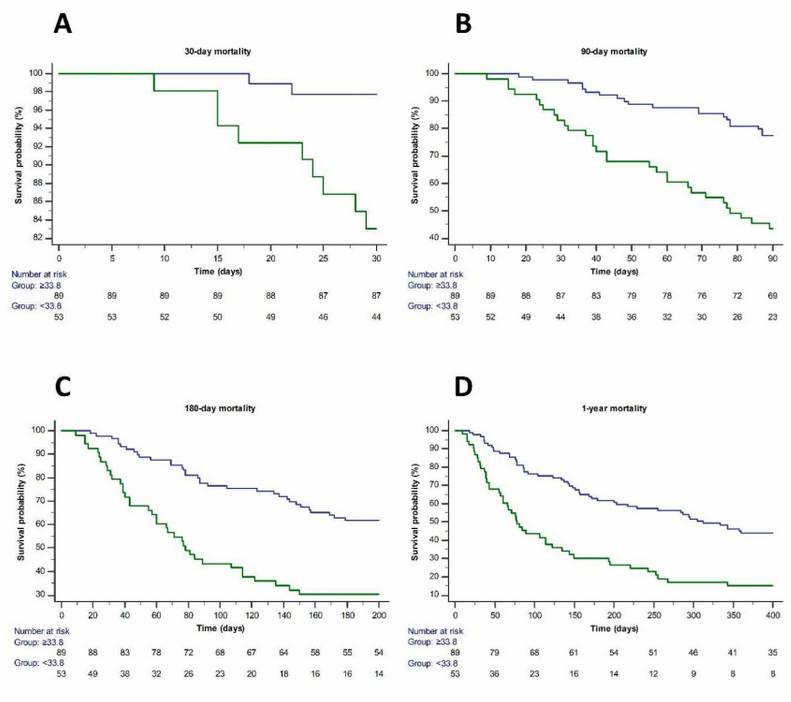
	Crude			Multivariable*			PS matching		
	HR	95% CI	*P*	HR	95% CI	*P*	HR	95% CI	*P*
Surgical outcomes									
90-day mortality	0.90	0.86–0.93	<0.001	0.92	0.88–0.96	<0.001	0.93	0.89–0.97	<0.001
180-day mortality	0.93	0.91–0.96	<0.001	0.95	0.92–0.98	0.002	0.94	0.91–0.98	<0.001
1-year mortality	0.94	0.92–0.96	<0.001	0.96	0.93–0.99	0.002	0.95	0.92–0.97	<0.001
Postoperative complications	0.91	0.87–0.96	<0.001	0.94	0.89–0.99	0.016	0.93	0.88–0.99	0.019

*Multivariable Cox regression models were adjusted for covariates with a univariable association (P < 0.10) with each outcome. For postoperative complications, a multivariable logistic regression model was used instead.

PNI, prognostic nutritional index; HR, hazards ratio; CI, confidence interval; PS, propensity score

Figure & Table 2.

Figure 1. Kaplan–Meier survival curves according to preoperative PNI groups.



AP-31-3 (2026-0034)

Total Intravenous Anesthesia Versus Inhalational Anesthesia: Impact on Neuronal and Systemic Inflammatory Markers in Supratentorial Glioma Resection and Postoperative Cognition – A Randomized Controlled Trial: TINSI Tria

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Background

There is currently a limited body of literature addressing the impact of anesthetic agents on neuronal and systemic inflammation in neurosurgical settings and their influence on the development of postoperative neurocognitive dysfunction. The primary objective of this study was to compare the effects of propofol total intravenous anesthesia (TIVA) versus sevoflurane inhalational anesthesia (INHA) on perioperative inflammatory markers, specifically neuron-specific enolase (NSE) and interleukin-6 (IL-6), in patients undergoing craniotomy for supratentorial tumor. The secondary objective was to find correlation between these markers and postoperative neurocognitive dysfunction incidence and functional outcomes in patients receiving TIVA versus INHA.

Methods

This prospective, randomized, single-center, funded trial was approved by Institutional Ethics Committee and registered with Clinical Trials Registry of India. Patients were randomly assigned to the TIVA or INHA group using a computer-generated block randomization method.

TIVA group: Anesthesia induced & maintained using a TCI of propofol (Schneider model), to maintain a BIS value of 40–60.

INHA group: Anesthesia was induced with thiopentone and maintained with sevoflurane (0.7–1.1MAC), titrated to same BIS

We measured NSE and IL-6 levels pre and post anesthesia exposure, along with Confusion Assessment Method for ICU (CAM-ICU), the Montreal Cognitive Assessment (MoCA) during hospital stay, Brief Screen for Cognitive impairment (BSCI) post discharge and the Glasgow Outcome Score (GOS) at discharge and at three months.

Results

Postoperative IL-6 levels decreased in both propofol & sevoflurane group however, reduction was significant only in the propofol group (p = 0.001). NSE levels increased postoperatively in both propofol and sevoflurane group, with significant increase only in the sevoflurane group (p = 0.001). CAM-ICU score and MOCA showed favourable trend in the propofol group. The groups had no significant differences in delayed neurocognitive recovery (BSCI) and functional outcome at 3 months (GOS).

Conclusion

The significant reduction in IL-6 levels in the propofol group suggests a potential systemic anti-inflammatory effect. The decrease in IL-6 aligns with prior evidence of propofol's immunomodulatory effects (1,2) .The significant increase in NSE in the INHA group suggests greater neuronal stress or injury with sevoflurane, possibly linked to its effects on excitotoxicity, or oxidative stress, as demonstrated in preclinical models (3,4). Compared to sevoflurane, propofol may better stabilize neuronal integrity, potentially through its antioxidant properties or by enhancing gamma-aminobutyric acid mediated inhibition, thereby reducing excitotoxic damage in patients undergoing neurosurgery.

AP-31-3 (2026-0034)

Figure & Table

Figure & Table 1.

Intragroup analysis								
Group	Preop IL-6 (pg/ml) Median (IQR)	Postop IL-6 (pg/ml) Median (IQR)	Wilcoxon signed rank Z	P value	Preop NSE (µg/L) Median (IQR)	Postop NSE (µg/L) Median (IQR)	Wilcoxon signed rank Z	P value
Propofol	9.21 (4.96)	7.88 (2.97)	-3.73	0.001**	12.34 (5.36)	13.1 (5.44)	-1.174	0.24
Sevoflurane	9.88(4.68)	7.89 (4.88)	-1.77	0.23	14.21 (4.020	14.54 (4.96)	-3.973	0.001**
Intergroup analysis								
Mann–Whitney U	1091	358	-	-	1155	535.5	-	-
P value	.526	<0.001**	-	-	.25	<0.001**	--	-

IL-6 – interleukin 6 **NSE**- neuron specific enolase, **IQR**- interquartile range *P<0.05,** P<0.001

Table Showing Preoperative and postoperative levels of Interleukin- 6 and Neuron Specific Enolase

Figure & Table 2.

Analysis of the incidence of delirium in patients during their stay in the intensive care unit in both groups

CAM-ICU		POD 1			POD2			POD3		
Component	Score	Sevoflurane (n=45)	Propofol (n=45)	P value	Sevoflurane (n=40)	Propofol (n=36)	P value	Sevoflurane (n=15)	Propofol (n=10)	P-value
Fluctuation in mental status	0	0	0		0	0		0	0	
	1	45	45	0.99	40	36	0.99	15	10	0.99
Inattention	0	0	0		0	0		0	0	
	1	36	38	0.552	30	32	0.032	11	8	0.024*
	2	9	7	0.564	10	4	0.041	4	2	0.041*
Altered LOC	0	4	2	0.678	0	0		0	0	
	1	41	43	0.821	40	36	0.98	15	10	0.99
	2	0	0		0	0		0	0	
Disorganised thinking	0	0	0		0	0		0	0	
	1	39	41	0.448	32	33	0.002	14	9	<0.001**
	2	6	4	0.612	8	3	0.124	1	1	0.99

CAM-ICU-Confusion assessment method in intensive care unit, **POD**-post operative day, **LOC**- level of consciousness
*P<0.05,** P<0.001

AP-31-4 (2026-0559)

Intranasal Atomised Ketodex vs Midazolam as Premedication: A Randomized, Double-Blind Trial in Children Undergoing Spinal Dysraphism Surgery

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Background
Preoperative anxiety remains a major hurdle in paediatric anaesthesia. Effective, child-friendly premedication strategies are therefore vital to improving paediatric perioperative outcomes.
Both Ketodex and Midazolam possess anxiolytic properties and are widely used for paediatric premedication. Although several studies have evaluated intranasal formulations, results remain inconsistent, and no study has compared intranasal atomised Ketodex with intranasal atomised Midazolam in children up to 10 years of age undergoing spinal dysraphism surgery. Therefore, the objective of this study is to compare the effectiveness of intranasal atomised Ketodex (dexmedetomidine 1 µg/kg + ketamine 3 mg/kg) with intranasal atomised Midazolam (0.4 mg/kg) as premedication in children aged ≤10 years undergoing spinal dysraphism surgery. We hypothesise that intranasal atomised Ketodex will be non- inferior to intranasal atomised Midazolam as a premedication for anxiolysis and sedation in this population.

Methods
70 ASA I and II patients undergoing spinal dysraphism surgery were divided randomly into groups KD and M receiving Intranasal atomised Ketodex (Dexmedetomidine 1 µg/kg + Ketamine 3 mg/kg) and Midazolam (0.4 mg/kg) respectively 30 min prior to induction. The drug was diluted with 0.9 percent NS in a 2ml syringe and administered via atomiser in each nostril. Sedation score was assessed at 10, 20 and 30 min using The University of Michigan Sedation Scale (UMSS). Other scores like Parental Separation Anxiety Scale (PSAS), Groningen Distress Rating Scale (GDRS), Mask Acceptance Scale (MAS), WATCHA and Mod Aldrete were also assessed.

Results
1. The mean UMSS sedation scores after 20 minutes (2.17 ± 0.51 vs. 1.14 ± 0.36, p < 0.001) and 30 minutes (2.66 ± 0.59 vs. 1.66 ± 0.48, p < 0.001) following premedication were significantly higher in the Ketodex group than in the Midazolam group.
2. After 30 minutes of premedication, the Ketodex group had considerably better parental separation as measured by PSAS score than the Midazolam group (1.14 ± 0.36 vs. 1.83 ± 0.38, p < 0.001).
3. The Ketodex group was considerably better than the Midazolam group in response to venous cannulation as measured by the GDRS scale (1.17 ± 0.38 vs. 2.06 ± 0.24, p < 0.001).
4. The Ketodex group had significantly higher mask acceptance as measured by the MAS scale than the Midazolam group (1.14 ± 0.36 vs. 2.17 ± 0.51, p < 0.001).
5. The Metodex group had a reduced incidence of postoperative emergence agitation in the PACU as measured by the WATCHA scale than the Midazolam group (1.23 ± 0.43 vs. 1.66 ± 0.73, p = 0.007).
6. The Modified Aldrete Score for postoperative recovery and the PACU discharge time were similar for both groups.

Conclusion
Thus, compared to intranasal atomised Midazolam (0.4 mg/kg), intranasal atomised Ketodex (Dexmedetomidine 1 µg/kg + Ketamine 3 mg/kg) offers better sedation quality, better parental separation, improved venous cannulation response, and enhanced mask acceptance. For anxiolysis and sedation in children aged 1-10 years having spinal dysraphism surgery, intranasal atomised Ketodex is a safer and more effective premedicant.

AP-31-4 (2026-0559)

Figure & Table

Figure & Table 1.

TABLE 2A: INTER-GROUP UMSS SEDATION SCORE OF STUDY POPULATION.

	GROUP KD (n=35) MEAN±SD	GROUP M (n=35) MEAN±SD	p-value
BASELINE UMSS SCORE	0	0	
UMSS SCORE AFTER 10MINS	0.11±0.32	0.06±0.24	0.403
UMSS SCORE AFTER 20MINS	2.17±0.51	1.14±0.36	0.001*
UMSS SCORE AFTER 30MINS	2.66±0.59	1.66±0.48	0.001*

Values expressed as mean ± SD and analysed by the Mann-Whitney U test.
* Indicates values were statistically significant.

AP-31-6 (2026-0342)

Awake Spine Surgery Without Regional Blockade: Preserving Real-Time Intra-operative Neurological Monitoring with Sedation and Local Infiltration Analgesia

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Introduction

Awake spine surgery is increasingly favored for its minimally invasive nature and avoidance of general anesthesia in vulnerable populations. Regional techniques such as neuraxial or regional blocks with sedation allow for an immobile surgical field whilst ensuring patient cooperation during such surgeries. However, regional techniques abolish motor and sensory pathways and spinal reflexes, eliminating the benefit of an awake patient as the best form of neuromonitoring.

We present a patient undergoing awake endoscopic multilevel lumbar spine surgery under sedation and local infiltration analgesia (LIA). Neuraxial and regional blocks were deliberately avoided to allow for on-table assessment of his neurological symptoms.

Case

A 77.7kg 73-year-old cognitively intact male with significant cardiovascular risk factors underwent an awake endoscopic left L3-5 unilateral laminectomy and bilateral decompression and L4-5 discectomy. He had L3-S1 degenerative disc disease with severe stenosis and L3-4 and L5-S1 cauda equina nerve root compression confirmed radiologically.

The patient had lumbar back pain and bilateral lower limb radiculopathy. He had bilateral reduced motor power of 4+ for ankle dorsiflexion and reduced knee reflexes. Lower limb power and sensation were otherwise full. He ambulated with a walking frame and was independent for his activities of daily living but was prone to recurrent falls. He was counselled and consented for awake surgery.

TCI propofol (Schneider model) was started at 0.7mcg/ml and 1mg midazolam was given on turning the patient prone for the surgery. Supplemental oxygen was provided via nasal prongs. 20mg ketamine, 30mcg fentanyl and LIA were given prior to knife to skin. During surgery, sedation was titrated with TCI propofol between 1.8-2.4mcg/ml to keep patient moderately sedated, with fentanyl boluses for analgesia. 20ml of 0.5% bupivacaine with adrenaline 0.0005% was given by the surgeon in aliquots as LIA.

Three hours into surgery, during decompression, TCI propofol was reduced to 0.1mcg/ml from 2mcg/ml to allow for assessment of patient's radicular symptoms, which he reported had resolved. On completion of the assessment, TCI propofol was increased to 2mcg/ml. Surgery lasted 4 hours and was uneventful, with a total of 160mcg fentanyl, 20mg ketamine and 1g paracetamol given for analgesia. Lower limb power was preserved when tested intra-operatively. Throughout the surgery, patient had no desaturations and tolerated the procedure well.

Post operatively, formal neurological assessment showed complete resolution of the patient's radiculopathy and back pain with full power in bilateral lower limbs. He reported that he had felt minimal pain and was comfortable intra-operatively. He was discharged on post-operative day four after physiotherapy clearance.

Conclusion

Sedation with LIA without neuraxial or regional blockade preserves the benefit of real time intra-operative neurological monitoring in awake spine surgery. This technique may offer an alternative option for physiologically vulnerable patients deemed unsuitable for multi-level spinal decompression under general anaesthesia.

Physiology-Guided Staged Cesarean Delivery and Postpartum Craniotomy for Giant Sphenoid Wing Meningioma in Late Pregnancy: A Neuro-Obstetric Framework

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Introduction

Intracranial tumors during pregnancy are rare but pose significant anesthetic challenges due to competing maternal and fetal physiologic priorities.15-17 Optimal management requires integration of cerebral perfusion, intracranial pressure (ICP) control, and uteroplacental perfusion (UPP) while accounting for uterine and postpartum physiology.14,17-19 However, existing literature largely addresses these measures in isolation, with limited integrative frameworks to guide perioperative care.

Case

We report a 43-year-old gravida 7 para 6 at 32 weeks' gestation, with chronic hypertension and type 2 diabetes mellitus, who presented with progressive neurologic deterioration secondary to a large frontotemporoparietal meningioma with substantial mass effect and midline shift. Because of declining neurologic status and pulmonary congestion, neuroprotective cesarean delivery was followed by postpartum stabilization and craniotomy. Cesarean delivery was performed under general anesthesia using modified rapid-sequence induction and propofol–remifentanil target-controlled infusions. Neuraxial anesthesia was avoided because ventricular compression, cisternal effacement, and radiographic concern for herniation raised concern for an adverse ICP gradient after dural puncture.[11] Anesthetic goals included preservation of cerebral perfusion, avoidance of ICP surges, maintenance of normocapnia and UPP before delivery, and adequate uterine tone after delivery. Postpartum management included continued airway protection, vasopressor-supported hemodynamic management, cautious fluid administration, and dexmedetomidine sedation at 0.2–0.4 μg/kg/h. Craniotomy was performed 18 hours later using a predominantly intravenous anesthetic technique with propofol–remifentanil target-controlled infusions, atracurium, bilateral scalp blocks, low-dose volatile anesthesia, and controlled lumbar CSF drainage to facilitate brain relaxation and microsurgical dissection. MAP was maintained at 80–95 mmHg and $PaCO_2$ at 32–35 mmHg. Cautious balanced-crystalloid administration, laboratory- and hemodynamic-guided blood-product replacement, and lung-protective ventilation were employed. The patient was extubated with a GCS of 15 on postoperative day 2 and discharged with her neonate on postoperative day 20.

Conclusion

A staged, physiology-guided neuro-obstetric approach integrating maternal cerebral physiology, UPP, uterine physiology, and the immediate postpartum hemodynamic transition may assist perioperative decision-making in selected patients with complex intracranial pathology during pregnancy. This phase-specific framework provides a practical model for balancing competing maternal, fetal, and neurosurgical priorities.

Figure & Table

Figure & Table 1.

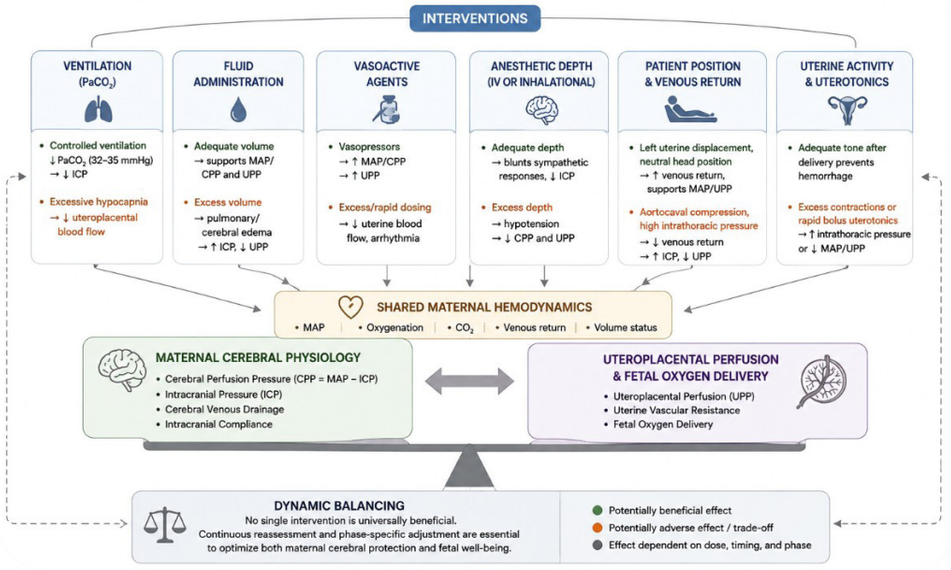
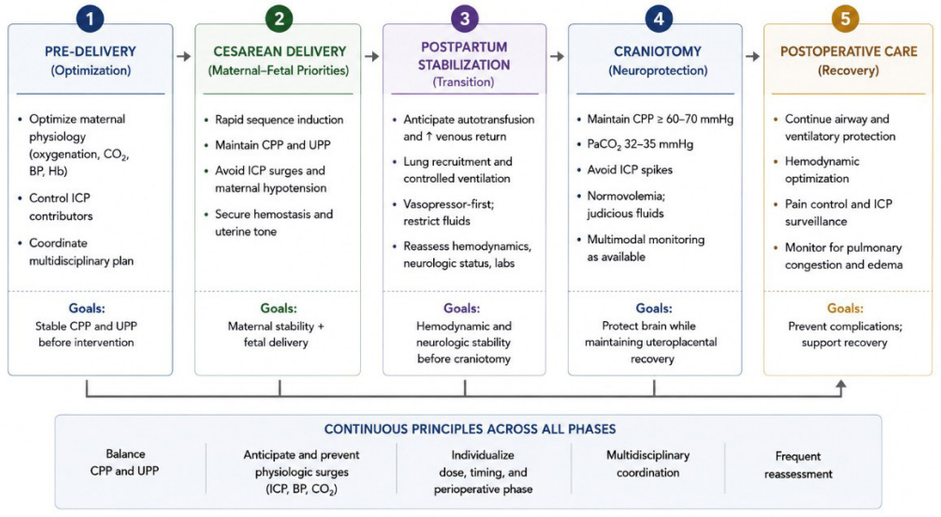


Figure & Table 2.



When Awake Fibreoptic Intubation Fails: Supraglottic Airway as a Rescue Conduit in a Severely Distorted Difficult Airway

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Introduction
Difficult airways caused by extensive head and neck pathology can make conventional awake fibreoptic intubation unsuccessful. We describe a case of failed awake fibreoptic intubation in a patient with massive cervical lymphoma and impending airway obstruction, successfully rescued using a supraglottic airway as a conduit for fibreoptic-guided intubation.

Case
A 45-year-old man with a massive cervical diffuse large B-cell lymphoma presented with impending airway obstruction shortly after midnight. Awake fibreoptic intubation was attempted, but both nasal and oral approaches failed due to severe anatomical distortion, with subsequent desaturation and hypercapnia. Thereafter, awake intubation via videolaryngoscopy also failed to visualise the glottis. A third-generation supraglottic airway was inserted as a rescue conduit, achieving effective ventilation and facilitating successful fibreoptic-guided railroading of a size 6 endotracheal tube.

Conclusion
This case highlights the potential role of a supraglottic airway as a rescue conduit when awake fibreoptic intubation fails in a severely distorted difficult airway, providing a means to restore ventilation and facilitate definitive tracheal intubation.

Figure & Table

Figure & Table 1.



Figure & Table 2.



Presentation

Abstract Presentation 32

Date / Time	Nov 7 (Sat), 13:30-15:00
Room	Room B *(Paradise City)*
Language	English
Chair(s)	Seounghun Lee *(Chungnam National University, Republic of Korea)* Jae Hun Kim *(Konkuk University, Republic of Korea)*

AP-32-1
2026-0483

Effect Of Manual Skin Traction On Local Anesthetic Injection Pain Before Lumbar Transforaminal Epidural Injection: A Randomized Within-Patient Study

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AP-32-2
2026-0344

Effect of Intraoperative Lidocaine Infusion on Postoperative Pain in Patients Undergoing Robotic-Assisted Radical Prostatectomy: A Randomised Controlled Trial

Winitha Nilwong[1], Ratikorn Boonchai[1*], Sarayuth Boonchai[2], Worapat Attawettayanon[2], Tanan Bejrananda[2], Virote Chalieopanyarwong[2], Sirikarn Siripruekpong[1], Sasikaan Nimmaanrat[1]

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AP-32-5
2026-0283

Preoperative Oral Carbohydrate Loading in Patients with Diabetes: Systematic Review and Meta-Analysis with Trial Sequential Analysis

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AP-32-6
2026-0319

Intravenous Maxigesic Versus Acetaminophen for Postoperative Pain After Ambulatory Gynecologic Surgery: A Randomized Controlled Trial

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AP-32-7
2026-0600

Is Fasting Gastric Volume Increased in Women Undergoing Oocyte Retrieval: Results from Interim analysis of a Prospective Observational Study using Gastric Ultrasound

Dr. Tejaswi Chennubhotla[1], Dr. Heena Garg[1*], Prof. Vimi Rewari[1], Dr. Shailendra Kumar[1], Dr. Mritunjay Kumar[1], Dr. Amit Kumar[1], Dr. Dhruv Jain[1], Prof. Neena Malhotra[2], Prof. Reeta Mahey[2]

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AP-32-8
2026-0445

Anesthetic Management for Repeated Oocyte Retrieval in a Patient With Hereditary Spastic Paraplegia: A Case Report

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Effect Of Manual Skin Traction On Local Anesthetic Injection Pain Before Lumbar Transforaminal Epidural Injection: A Randomized Within-Patient Study

Ji Young Kim[1], Shin Hyung Kim[1], Kyung Bong Yoon[1], Dong Hu Kim[1], Hee Jung Kim[1*]

1. Department of Anesthesiology and Pain Medicine, Anesthesia and Pain Research Institute, Severance Hospital, Republic of Korea

Background
Pain during local anesthetic infiltration is a common source of discomfort during interventional spine procedures. Although several techniques have been proposed to reduce injection-related pain, many require additional equipment or modifications to routine workflow. Simple procedural techniques that can be easily incorporated into routine practice may therefore have clinical value. We evaluated whether manual skin traction reduces immediate injection pain during local anesthetic infiltration prior to selective transforaminal epidural block (STEB).

Methods
After Institutional Review Board approval, we conducted a prospective randomized within-subject trial in adults undergoing bilateral fluoroscopy-guided lumbar transforaminal epidural injection for lumbar radicular pain. Each participant received local anesthetic infiltration on both sides during a single procedure session. One side was randomly assigned to manual skin traction and the contralateral side served as the control. The primary outcome was immediate injection pain measured using an 11-point numeric rating scale (NRS). Secondary outcomes included injection-related unpleasantness, behavioral pain assessed using the Pain Assessment in Advanced Dementia (PAINAD) scale, and injection-site soreness at 4 weeks.

Results
A total of 104 participants were included in the analysis. Immediate injection pain was significantly lower with manual skin traction compared with the conventional technique (median [IQR], 3 [2–4] vs 4 [3–5]; P < 0.001). Injection-related unpleasantness and PAINAD behavioral pain scores also differed significantly between conditions (both P = 0.003). In paired comparisons, lower pain scores were more frequently observed on the manual skin-traction side than on the control side. At 4-week follow-up (n = 98), injection-site soreness occurred in 7.1% of the skin-traction condition and 9.2% of the control condition (P = 0.500). No serious adverse events were observed.

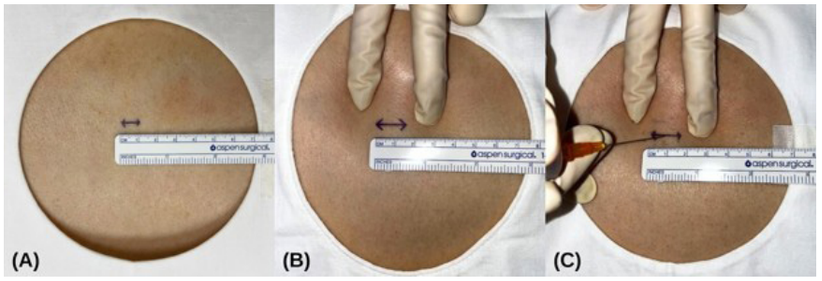
Conclusion
Manual skin traction during local anesthetic infiltration significantly reduced immediate injection pain without increasing delayed soreness. This simple, cost-free maneuver may offer a practical strategy to improve patient comfort during interventional spine procedures.

AP-32-1 (2026-0483)

Figure & Table

Figure & Table 1.

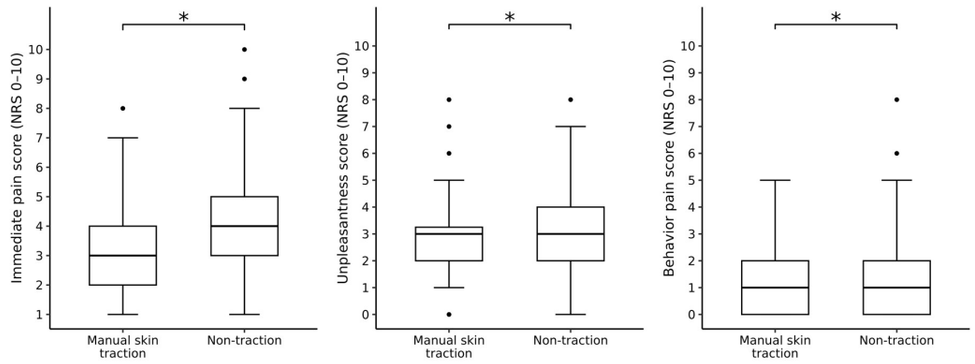
Figure 1. Illustration of non-traction and manual skin traction techniques for local anesthetic injection.



(A) Baseline skin marking without traction, with a reference distance of 1 cm between two points. (B) Manual skin traction applied to achieve 50% skin elongation (1.5 cm between reference points). (C) Local anesthetic infiltration performed during maintained skin traction. Arrows indicate the direction and extent of skin displacement.

Figure & Table 2.

Figure 2. Pain-related outcomes following non-traction and manual skin traction local anesthetic injection.



ABSTRACT
Competition
Presentation
E-Poster

Effect of Intraoperative Lidocaine Infusion on Postoperative Pain in Patients Undergoing Robotic-Assisted Radical Prostatectomy: A Randomised Controlled Trial

Winitha Nilwong[1], Ratikorn Boonchai[1*], Sarayuth Boonchai[2], Worapat Attawettayanon[2], Tanan Bejrananda[2], Virote Chalieopanyarwong[2], Sirikarn Siripruekpong[1], Sasikaan Nimmaanrat[1]

1. Anesthesiology, Songklanagarind Hospital, Thailand
2. Urology, Songklanagarind Hospital, Thailand

Background
Robotic-assisted radical prostatectomy (RARP) is a gold-standard surgical treatment for localized prostate cancer. However, patients often report moderate-to-severe early postoperative pain. Intravenous lidocaine has analgesic, anti-inflammatory and opioid-sparing effects in laparoscopic surgery, but its role in RARP is unestablished. We evaluated whether intraoperative lidocaine reduces postoperative pain and fentanyl consumption and improves gastrointestinal recovery, length of stay and recovery quality.

Methods
In this randomised, double-blind trial, adults (ASA I–III) undergoing elective RARP were block-randomised to intravenous lidocaine or placebo. The lidocaine group received 1.5 mg/kg IV at induction then 1.5 mg/kg/h throughout surgery; controls received equal-volume placebo. All received IV fentanyl PCA (0.2 mcg/kg bolus, 5-min lockout) for 48 h. The primary outcome was postoperative pain (VNRS) at rest and on exertion over 0–48 h. Secondary outcomes were cumulative and total 48-h fentanyl consumption, time to first flatus, length of stay, PONV and QoR-15 at 24 h. Continuous data used the t-test or Mann–Whitney U test and categorical data chi-square or Fisher exact test.

Results
Thirty-eight patients were analysed (lidocaine n = 21, placebo n = 17). Pain at rest declined in both groups without significant difference, except at 36 h favouring lidocaine (p = 0.045). Pain on exertion did not differ. Total 48-h fentanyl consumption was similar (426 mcg vs 380; p = 0.60), as were time to first flatus (1645 vs 1577 min; p = 0.80) and length of stay (6 [5–6] vs 6 [5–7] days; p = 0.43). QoR-15 was higher with lidocaine but non-significant (126 [118–136] vs 122 [111–131]; p = 0.17). Bradycardia (3/21 vs 2/17; p = 1.00) and PONV (4/21 vs 2/17; p = 0.67) did not differ. Intraoperative hypotension was significantly more frequent with lidocaine (76.2% vs 35.3%; p = 0.027), though vasopressor requirements did not differ (ephedrine, p = 0.12; norepinephrine, p = 0.06). No serious adverse events occurred.

Conclusion
Intraoperative lidocaine did not reduce postoperative pain or opioid consumption and did not improve gastrointestinal recovery, shorten length of stay or reduce PONV after RARP, but caused more frequent intraoperative hypotension. These preliminary findings do not support routine intraoperative lidocaine infusion for RARP.

AP-32-2 (2026-0344)

Figure & Table

Figure & Table 1.

Table 1: Demographic and baseline data

	Lidocaine (n = 21)	Placebo (n = 17)	p value
Age, years [mean (SD)]	69.10 (6.49)	69.18 (6.18)	0.97
Height, cm [mean (SD)]	163.67 (5.55)	165.24 (7.81)	0.47
Weight, kg [median (IQR)]	62 (59–65)	66 (58–70)	0.28
BMI, kg/m² [median (IQR)]	23.05 (21.94–24.22)	24.22 (22.62–25.28)	0.15
ASA II / III [n]	21 / 0	15 / 2	0.19
Diabetes mellitus [n (%)]	2 (9.5)	2 (11.8)	1.00
Hypertension [n (%)]	13 (61.9)	7 (41.2)	0.34
Dyslipidaemia [n (%)]	10 (47.6)	9 (52.9)	1.00

Figure & Table 2.

Table 2: Outcomes

	Lidocaine (n = 21)	Placebo (n = 17)	p value
Total fentanyl, mcg [median (IQR)]	426 (144–681)	380 (315–528)	0.60
Time to first flatus, min [mean (SD)]	1645 (834)	1577 (771)	0.80
PONV [n (%)]	4 (19.0)	2 (11.8)	0.67
Length of stay, days [median (IQR)]	6 (5–6)	6 (5–7)	0.43
QoR-15 score [median (IQR)]	126 (118–136)	122 (111–131)	0.17
QoR-15 category [n (%)]			0.37
Excellent (>135)	6 (28.6)	1 (5.9)	
Good (122–135)	8 (38.1)	8 (47.1)	
Moderate (90–121)	6 (28.6)	6 (35.3)	
Poor (<90)	1 (4.8)	2 (11.8)	
Hypotension [n (%)]	16 (76.2)	6 (35.3)	0.027
Bradycardia [n (%)]	3 (14.3)	2 (11.8)	1.00
Ephedrine, mg [mean (SD)]	7.86 (6.33)	6 (10.17)	0.12
Norepinephrine, mcg [mean (SD)]	6.81 (19.12)	0 (0–0)	0.06
Atropine, mg [mean (SD)]	0.05 (0.15)	0.05 (0.16)	0.89

ABSTRACT
Competition
Presentation
E-Poster

AP-32-5 (2026-0283)

Preoperative Oral Carbohydrate Loading in Patients with Diabetes: Systematic Review and Meta-Analysis with Trial Sequential Analysis

Ha Young Kim[1], Jihye Park[1], Geun Joo Choi[1], Hwa Yong Shin[1], Hyun Kang[1*]

1. Anesthesiology and Pain Medicine, Chung-Ang University, Republic of Korea

Background

Carbohydrate loading reduces postoperative discomfort, preserves lean body mass, and lowers insulin resistance in non-diabetic patients, rendering it a key enhanced recovery after surgery (ERAS) strategy. However, evidence in patients with diabetes remains lim-ited. We aimed to systematically evaluate, through meta-analysis and trial sequential analysis(TSA), the efficacy and safety of preoperative carbohydrate loading in such pa-tients.

Methods

Five research databases were searched for studies in which preoperative carbohydrate loading and conventional fasting in patients with diabetes were compared. The primary outcome was blood glucose levels measured across multiple time points and at individual time points. Secondary outcomes included glycemic variability, insulin requirements, hy-perglycemic episodes, insulin and gastric parameters, infection, postoperative nausea and vomiting(PONV), the hospital stay, and the readmission rate.

Results

Twenty-one studies were included in the meta-analysis. In experimental studies, blood glucose levels across all time points did not differ between the groups (mean difference [MD]= 1.574; 95% confidence interval [CI] = -5.012 to 8.161), although preoperative blood glucose levels were higher in the carbohydrate-loading group (MD=21.488; 95% CI=10.226 to 35.750). Glycemic variability, insulin requirements, hyperglycemic episodes, serum in-sulin levels, gastric residual volumes, postoperative infection rates, hospital stays, PONV, and readmission rates were comparable between the groups. Upon TSA, the evidence for elevated preoperative blood glucose levels crossed the monitoring boundary, whereas findings for other metabolic and clinical outcomes remained inconclusive.

Conclusion

Preoperative carbohydrate loading appears safe and metabolically neutral in patients with well-controlled diabetes. Except for a transient rise in preoperative glucose levels, no significant differences were observed in glycemic control, insulin requirements, gastric parameters, or postoperative outcomes. Gastric residual volume remained comparable to that of standard fasting, supporting the gastric safety of carbohydrate loading in this pop-ulation. Further well-designed trials are needed to validate these findings and refine ERAS recommendations for patients with diabetes.

AP-32-5 (2026-0283)

Figure & Table

Figure & Table 1.

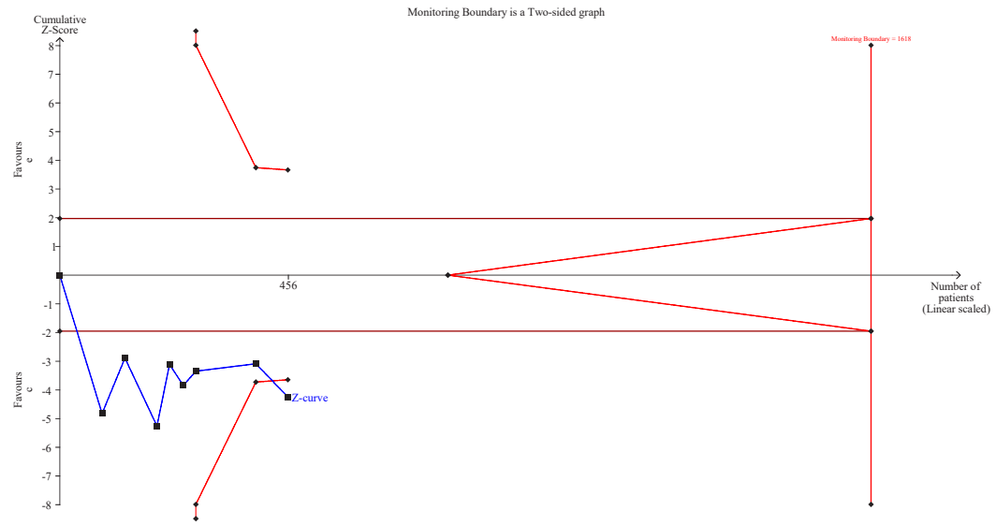
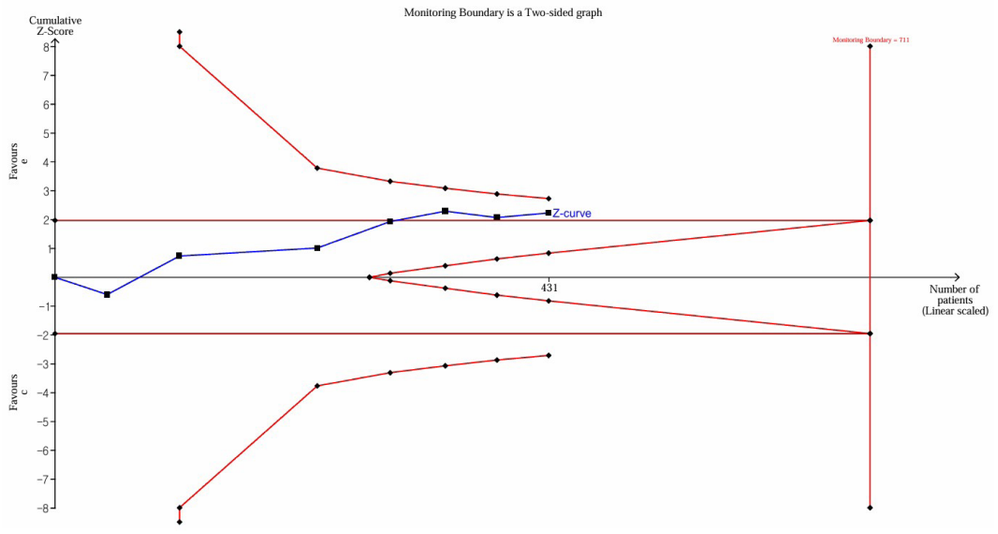


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

AP-32-6 (2026-0319)

Intravenous Maxigesic Versus Acetaminophen for Postoperative Pain After Ambulatory Gynecologic Surgery: A Randomized Controlled Trial

Gyuho Nahm[1], In-Jeong Jeon[1], Byung-Hoon Yoo[1], Sangseok Lee[1*]

1. Department of Anesthesiology and Pain Medicine, Inje University, Republic of Korea

Background
Effective postoperative analgesia is important for successful ambulatory gynecologic surgery. This randomized controlled trial evaluated whether intravenous Maxigesic, a fixed-dose combination of acetaminophen and a nonsteroidal anti-inflammatory drug, improves postoperative pain and recovery compared with intravenous acetaminophen alone.

Methods
Female patients undergoing ambulatory gynecologic surgery under general anesthesia were randomized to receive intravenous Maxigesic or acetaminophen during anesthetic induction. Standardized anesthetic, rescue analgesic, and antiemetic protocols were used. The primary outcome was resting pain assessed with an 11-point numeric rating scale (NRS) at post-anesthesia care unit arrival, 10 min, 30 min, 1 h, 2 h, and discharge. The primary analysis used a linear mixed model including group, time, and the group × time interaction. Secondary outcomes included cough-evoked pain, nausea score, postoperative nausea and vomiting, vasopressor use, and adverse events.

Results
Among 82 enrolled patients, 81 were analyzed: 40 in the acetaminophen group and 41 in the Maxigesic group. Baseline demographic characteristics were similar, although operation type, anesthesia time, fluid input, and estimated blood loss differed. The resting NRS trajectory differed significantly between groups (group × time interaction, P = 0.014), whereas the overall group effect was not significant (P = 0.558). Pain scores decreased significantly from 30 min in the Maxigesic group and from 2 h in the acetaminophen group. This interaction remained significant after adjustment for operation type and anesthesia time (P = 0.014). Individual between-group differences at each time point were not significant, although NRS values were consistently lower in the Maxigesic group from 30 min onward. Nausea score trajectories also differed significantly (group × time interaction, P = 0.030), with lower scores in the Maxigesic group at 10 and 30 min. Cough-evoked pain, categorical postoperative nausea and vomiting, vasopressor use, and adverse events showed no significant between-group differences.

Conclusion
Intravenous Maxigesic was associated with earlier postoperative pain reduction and lower early nausea scores than acetaminophen alone in ambulatory gynecologic surgery. However, individual time-point pain comparisons and categorical recovery or safety outcomes were not statistically significant. These findings suggest a potential role for Maxigesic in early multimodal recovery, but the magnitude of benefit should be interpreted cautiously.

AP-32-6 (2026-0319)

Figure & Table

Figure & Table 1.

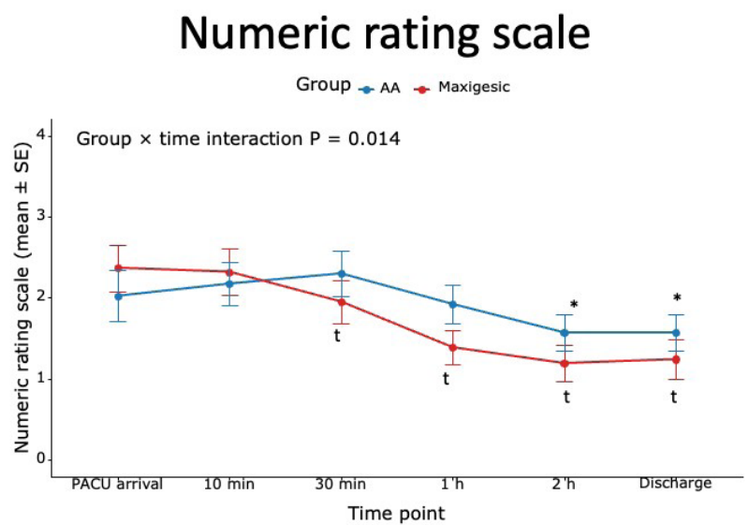
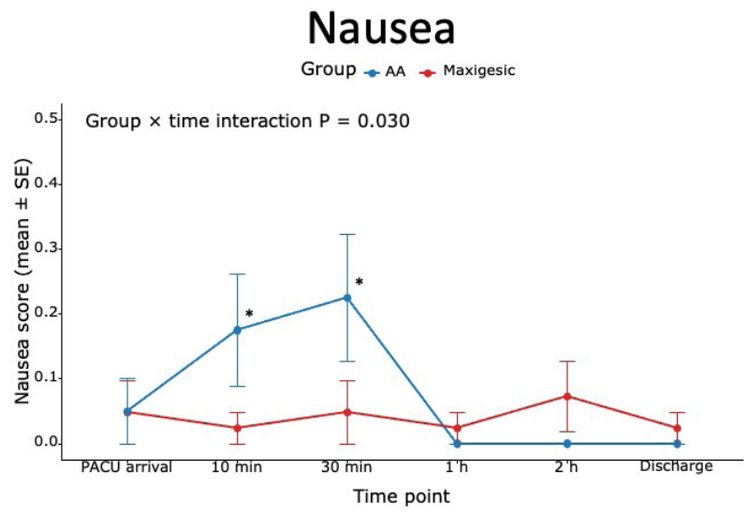


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

Is Fasting Gastric Volume Increased in Women Undergoing Oocyte Retrieval: Results from Interim analysis of a Prospective Observational Study using Gastric Ultrasound

Dr. Tejaswi Chennubhotla[1], Dr. Heena Garg[1*], Prof. Vimi Rewari[1], Dr. Shailendra Kumar[1], Dr. Mritunjay Kumar[1], Dr. Amit Kumar[1], Dr. Dhruv Jain[1], Prof. Neena Malhotra[2], Prof. Reeta Mahey[2]

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Background

Ovarian stimulation for in-vitro fertilisation (IVF) involves high-dose gonadotropin-releasing hormone (GnRH) analogues, gonadotropins, and human chorionic gonadotropin (hCG), which have been linked to delayed gastric emptying via effects on the enteric nervous system (1). Circulating sex hormones independently influence gastrointestinal (GI) motility. This study qualitatively and quantitatively assessed ultrasound-guided fasting gastric volume (GV) in women undergoing oocyte retrieval.

Methods

This prospective observational study enrolled ASA I-II women undergoing oocyte retrieval from a period of August 2025 - November 2025. Gastric ultrasound was performed using a GE VolusonTM E6 ultrasound system with a curved, low frequency transducer of 2-5 Hz. The antrum was scanned in supine position followed by right lateral decubitus(RLD). The antrum was graded as 0-2 using standardised predefined criteria. Antero- posterior(AP) and crania-caudal (CC) diameters were measured in both the positions to calculate the cross-sectional area (CSA) . RLD CSA was used to estimate the GV using a validated formula(2). A GV of >1.5 ml/kg or >100 ml was considered clinically significant.

Results

103 patients were enrolled and scanned for the ultrasound analysis. The demographic and fasting details together with the gastric ultrasonographic measurements, antral grades, gastrointestinal symptom , and gastric-volume thresholds, are presented in Table 1. Gastric USG showed Grade 0, Grade 1, and Grade 2 antral appearances in 17 (16.5%), 59 (57.3%), and 27 (26.2%) patients, respectively. The mean estimated gastric volume was 64.76 ± 27.27 mL (1.12 ± 0.49 mL/kg); 12 (11.7%) 103 patients were enrolled and scanned for the ultrasound analysis. Gastric ultrasound showed Grade 0, Grade 1, and Grade 2 antral appearances in 17 (16.5%), 59 (57.3%), and 27 (26.2%) patients, respectively. The mean estimated gastric volume was 64.76 ± 27.27 mL (1.12 ± 0.49 mL/kg); 12 (11.7%) patients had a gastric volume >100 mL and 19 (18.4%) had a gastric volume >1.5 mL/kg. During the drug-treatment phase, 25 (24.3%) patients reported at least one gastrointestinal symptom, with bloating in 15 (14.6%), abdominal pain in 6 (5.8%), vomiting in 3 (2.9%), and nausea in 1 (1.0%).Individual symptoms showed no statistically significant association with Grade 2 antral appearance or elevated gastric-volume categories.

Conclusion

Despite adherence to standard fasting guidelines, a higher antral grade and GV was observed in women undergoing oocyte retrieval. Overall, these results suggest that gastric ultrasonography can provide additional objective information during pre-anaesthetic assessment. These are the interim findings in an ongoing single-centre study. Further large scale multicentric studies are needed to validate our findings.

AP-32-7 (2026-0600)

Figure & Table

Figure & Table 1.

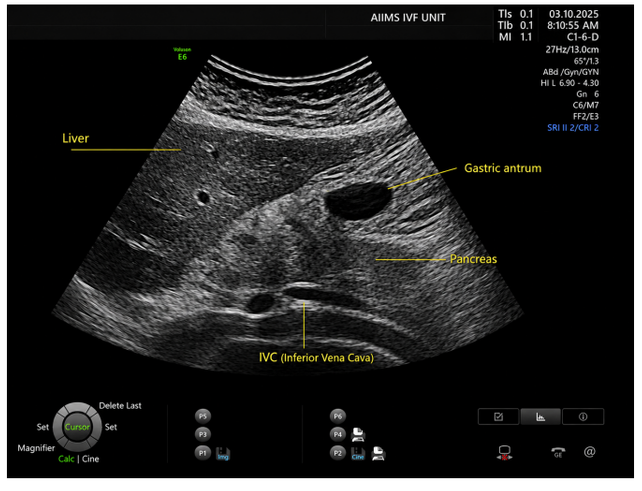
Table 1. Summary of demographic, fasting and gastric ultrasound variables

Study population: n = 103

Variable	Mean (SD)	Count (%)
Age (years)	31.80 (4.25)	
BMI (kg/m²)	24.30 (2.73)	
Fasting interval – solids (hours)	10.26 (0.97)	
Fasting interval – clear liquids (hours)	4.30 (3.23)	
CSA Supine (cm²)	4.30 (2.04)	
CSA RLD (cm²)	5.37 (1.89)	
Gastric volume (mL)	64.76 (27.27)	
Gastric volume (mL/kg)	1.12 (0.49)	
USG Antral Grade – Grade 0		17 (16.50%)
USG Antral Grade – Grade 1		59 (57.28%)
USG Antral Grade – Grade 2		27 (26.21%)
Gastrointestinal symptom		25 (24.27%)
Bloating		15 (14.56%)
Abdominal pain		6 (5.83%)
Vomiting		3 (2.91%)
Nausea		1 (0.97%)
Gastric volume ≤1.5 mL/kg		84 (81.55%)
Gastric volume >1.5 mL/kg		19 (18.45%)
Gastric volume ≤100 mL		91 (88.35%)
Gastric volume >100 mL		12 (11.65%)

Note: Continuous variables are presented as mean (SD); categorical variables are presented as count (%).
Abbreviations: SD, standard deviation; CSA, cross-sectional area; RLD, right lateral decubitus; USG, ultrasonography.

Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

AP-32-8 (2026-0445)

Anesthetic Management for Repeated Oocyte Retrieval in a Patient With Hereditary Spastic Paraplegia: A Case Report

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Introduction
Hereditary spastic paraplegia (HSP) is a rare neurodegenerative disorder characterized by progressive lower extremity spasticity, and anesthetic management in these patients remains poorly standardized. Published reports have focused primarily on invasive procedures, such as cesarean delivery, labor analgesia, and spinal surgery, whereas anesthetic management for brief ambulatory procedures has not been described. Oocyte pick-up (OPU) is a short outpatient procedure requiring rapid recovery, and the influence of anesthetic depth on stimulus-induced spasticity remains unknown. We report, to our knowledge, the first case of repeated OPU in a patient with HSP performed under two different anesthetic regimens.

Case
A woman in her thirties with HSP who had a history of lower extremity spasticity triggered by mental tension underwent OPU on two occasions. During the first procedure, anesthesia was maintained with fentanyl 100 μg alone. At the time of surgical draping, the patient reported right lower extremity spasticity, and propofol(60mg) was administered as rescue therapy without an inhalational agent. Postoperatively, the patient reported that she had not been fully asleep and had been aware of ambient sounds during the procedure. During the second procedure, the anesthetic plan was modified based on the previous experience: a higher dose of propofol(90mg) together with fentanyl 50 μg was administered, and low-concentration desflurane was added. No clinically observed or patient-reported lower extremity spasticity occurred during or after the procedure.

Conclusion
In this patient with HSP, stimulus-induced lower extremity spasticity occurred under opioid-based sedation with insufficient anesthetic depth. However, no lower extremity spasticity occurred when deeper anesthesia was achieved with the addition of an inhalation agent. The present case suggests that ensuring adequate anesthetic depth—rather than avoiding specific agents such as volatile anesthetics—may help prevent stimulus-induced spasticity during brief outpatient procedures in HSP patients.

E-poster

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2026-0036	Case Report: Intracardiac Thrombus during VA ECMO Support Following Elective Double Valve Surgery Siah Lee Wee[1], Yew Ewe Ng[2*] 1. Anaesthesia & Critical Care, Hospital Kuala Lumpur, Malaysia 2. Cardiothoracic Anaesthesiology & Perfusion, Hospital Sultan Idris Shah, Selangor, Malaysia
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2026-0058	Awake Fibreoptic Intubation Following Incidental Recognition of Cervical Fusion Anomalies Suggestive of Klippel–Feil Syndrome Hazel Ho[1*], Felicia Tan[1] 1. Anaesthesia, Khoo Teck Puat Hospital (Singapore), Singapore

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2026-0070	Anaesthesia Management for a Patient with Moderate-Severe Mitral Regurgitation Undergoing Non-Cardiac Surgery Frederick Lee[1*] 1. Department of Anaesthesiology, Singapore General Hospital, Singapore
2026-0072	Complex Airway Management: 'Tubeless' Ventilation Techniques in a Patient with a Tracheostome Undergoing Airway Surgery. Sarah Hui Kar Chua[1,2*], Jonathan Ricky Li Qi Leow[2] 1. Anaesthesiology, Intensive Care and Pain Medicine, Tan Tock Seng Hospital, Singapore 2. Anaesthesiology, Intensive Care and Pain Medicine, NHG Health, Singapore
2026-0076	Inadvertent Cannulation of Central Venous Catheter to Left Lumbar Vein via Left Femoral Route Chieh Yin Ooi[1], Kwong Ming Leong[2*] 1. Department of Anaesthesiology, Intensive Care and Pain Medicine, National Healthcare Group, Singapore 2. Department of Anaesthesiology, Intensive Care and Pain Medicine, Tan Tock Seng Hospital, Singapore
2026-0077	Rethinking the Default — Continuous Spinal Anaesthesia Enabling Opioid-Free ERAS in Major Abdominal Oncosurgery Mallika Ganesh[1*] 1. Department of Anesthesiology, Sri Shankara Cancer Hospital and Research Centre, India
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2026-0080	Multimodal Ultrasound-Guided Regional Anesthesia for Opioid-Sparing Recovery After Forequarter Amputation in a Patient with Proximal Humeral Osteosarcoma John Mark Villena[1*], Jade Duhaylongsod[1] 1. Department of Anesthesiology, Quirino Memorial Medical Center, Philippines
2026-0081	Peripartum Anaesthetic Management of Parturient with Tuberous Sclerosis Complex and Stage 5 Chronic Kidney Disease Yen Ni Toh[1*], Walter Huang[1] 1. Anaesthesiology and Perioperative Medicine, Singapore General Hospital, Singapore
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2026-0104	Anaesthesia Management of a Parturient with Cardiac Sarcoidosis Going for Caesarean Section: A Rare Case Report Intan Syafiqah Binti Ikram Shah[1], Nur Azreen Hussain[1], Nabilah Abdul Ghani[2*] 1. Anaesthesiology, Universiti Malaya Medical Centre, Malaysia 2. Anaesthesiology, University Malaya, Malaysia

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2026-0120	Effect of Intraoperative Low Dose Ketamine Bolus Versus Infusion on Postoperative Pain in Patients Undergoing Laparoscopic Cholecystectomy: A Randomised Controlled Study Pei Hwa Cheng[1], Shamsul Kamalrujan Hassan[1*], Kamaruddin Ibrahim[1] 1. Anaesthesiology and Intensive Care Unit, Department of Anaesthesiology and Intensive Care, School of Medical Sciences, Hospital Pakar Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia
2026-0125	The Unexpected Knot: Cherry Knot Formation in Indwelling Medical Equipment Yong Hong Tan[1*] 1. Anaesthesia, Singapore General Hospital, Singapore
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2026-0134	Anaesthetic Considerations for Bleomycin Electrosclerotherapy (BEST) of a Facial Veno-Lymphatic Malformation: Airway Management for a Novel Procedure in a Remote Location Renci Zeng[1*], Rachel Leong[1] 1. Department of Anaesthesiology, Singapore General Hospital, Singapore
2026-0136	Ultrasound Guided Peripheral Nerve Blocks for Surgical Anaesthesia in a High-Risk Patient Undergoing Hip Surgery Tze Siang Adrian Foo[1], Simon Yong Sheng Tan[1*] 1. Anaesthesiology, Intensive Care and Pain Medicine, Tan Tock Seng Hospital, Singapore
2026-0139	Utility of Point-of-Care-Ultrasound (POCUS) in Differentiating Neurogenic Pulmonary Edema from Cardiogenic Pulmonary Edema Secondary to Neurogenic Myocardial Stunning, in a Patient with Intracranial Hemorrhage in the Intensive Care Unit (ICU) Yin Wen Chong[1], Sheila Wee[1*] 1. Anesthesiology, Khoo Teck Puat Hospital, Singapore
2026-0144	Spontaneous Respiration Using Intravenous Anesthesia and High-Flow Nasal Oxygen (STRIVE Hi) for Microlaryngeal Surgery: A Case Report Beatrice Yip[1], Emma Du[1*], Christopher Mathew[1], Walter Huang[1] 1. Division of Anesthesiology and Perioperative Medicine, Singapore General Hospital, Singapore
2026-0145	When Postpartum Headache Is Not Post-Dural Puncture Headache: Acute Bilateral Intracranial Subdural Haematoma After Labour Epidural Analgesia Kit Mun Mak[1,2], Yew Ching Lee[1*] 1. Anaesthesiology and Critical Care Unit, Hospital Kuala Lumpur, Malaysia 2. Anaesthesiology and Critical Care Unit, Hospital Shah Alam, Malaysia

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2026-0149	Beyond a Rare Diagnosis: Anesthetic Considerations for Dural Puncture Epidural Labor Analgesia in Mirror Syndrome with Cardiopulmonary Compromise Doddy Setiawan[1*], Ratih Kumala Fajar Apsari[1] 1. Anesthesiology and Intensive Therapy, Gadjah Mada University, Indonesia
2026-0150	Postpartum Intracerebral Hemorrhage in Severe Preeclampsia and Chronic Kidney Disease: Neurocritical and Dialysis Challenges in a Non-Ideal Setting Lila Tri Harjana[1*], Arif Ikhwandi[1], Ratih Kumala Fajar Apsari[1], Pinter Hartono[1] 1. Anesthesiology and Intensive Therapy, Faculty of Medicine, Public Health, and Nursing(FK-KMK) Universitas Gadjah Mada Yogyakarta Indonesia, Indonesia
2026-0160	Association of Intraoperative Oxygen Concentration with Longitudinal Cognitive Outcomes and Exploratory Circulating microRNA Expression in Older Adults Undergoing Non-Cardiac Surgery Puneet Khanna[1*], Ankita Maheshwari[1], Ishita Dhyani[1] 1. Anesthesiology, Pain Medicine and Critical Care, Aiims, New Delhi, India
2026-0161	Effects of Opioid-Free and Opioid-Based Anaesthesia on Neurocognition and Cerebral Oxygenation Puneet Khanna[1*], Dipayan Mistry[1] 1. Anesthesiology, Pain Medicine and Critical Care, AIIMS, New Delhi, India
2026-0165	No Breath Shall Be Wasted: Femoro-Femoral Bypass-Assisted Awake Tracheostomy for Advanced Thyroid Carcinoma Vjanka Janela Ompoy Amador[1], Philip Valencia[1*], Lady Jean Cantero[1], Althaea Marie Benignos[1] 1. Anesthesiology, Southern Philippines Medical Center, Philippines
2026-0169	Effect of Ultrasound-Guided Regional Anesthesia on Postoperative Analgesia After Orbitotomy: A Pilot Prospective Randomized Controlled Trial Vinay Kain[1], Arshad Ayub[1*], Anagha Suresh[1] 1. Anaesthesia, Pain Medicine and Critical Care, All India Institute of Medical Sciences, New Delhi, India
2026-0170	Efficacy of Clonidine as an Adjuvant to 0.5% Ropivacaine in Erector Spinae Plane Block for Postoperative Analgesia in Breast Surgeries : A Randomized Controlled Trial Shreya Neogy[1*] 1. Anaesthesiology and Critical Care, Aiims Jodhpur, India
2026-0180	Severe Hypophosphatemia Presenting as Isolated Depressed Consciousness During Treatment of Diabetic Ketoacidosis Xin Yee Chin[1*] 1. Department of Anaesthesiology, Singapore General Hospital, Singapore
2026-0183	Successful Videolaryngoscopic Intubation Following Failed Awake Fibreoptic Intubation in an Acromegalic Patient with Predicted Difficult Airway Nurhidayatul Husna Shamsul Azmi[1], Siti Nasuha Hamzah[1*], Nabilah Athirah Mohd Sazali[1], Nur Qamilah Mohamad[1], Zirwatul Alia Abdul Rahman[2], Naeema S.Masohood[3] 1. Department of Anaesthesiology and Critical Care, Sultan Ahmad Shah Medical Centre @IIUM (SASMEC @IIUM), Kuantan, Pahang, Malaysia 2. Department of Anaesthesiology and Critical Care, Hospital Sungai Buloh, Sungai Buloh, Selangor, Malaysia 3. Department of Anaesthesiology and Critical Care, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia
2026-0189	Management of an Obstetric Patient with Osteogenesis Imperfecta Undergoing Cesarean Delivery Siti Nurul Ain Ibrahim[1*], Benny Lim Yen Huei[1], Thohiroh Abdul Razak[1], Nora Azura Dintan[1], Rahimah Abdul Rahim[1] 1. Anesthesiology, Hospital Tunku Azizah, Kuala Lumpur, Malaysia
2026-0192	The Effect of Intraoperative Intravenous (IV)Magnesium Sulphate (MgSO4) on Postoperative Pain in Adult Patients Undergoing Laparoscopic Cholecystectomy under General Anaesthesia (GA)- a Systematic Review of Randomised Trials Yu Chin Kong[1], Wing Yan Chan[2*] 1. Anaesthesia, Intensive Care and Pain Medicine, Tan Tock Seng Hospital, Singapore 2. Anaesthesia, Private Practice, Singapore
2026-0193	Predicting Respiratory Failure and Outcome in Guillain-Barré Syndrome Using EGRIS and mEGOS Scores: A Case Series of ICU Patients Dikho Atmanagara[1*], Calcarina FR Wisudarti[1] 1. Anesthesia and Intensive Care, Faculty of Medicine, Public Health and Nursing Gadjah Mada University/Sardjito General Hospital, Indonesia
2026-0197	Acute Macroglossia Following Oropharyngeal Packing. Joshua Janwar[1*], Clarabella Liew[1] 1. Department of Anaesthesiology, Intensive Care and Pain Medicine, Tan Tock Seng Hospital, Singapore
2026-0200	Comparison of the Effect of Ketofol and Ketodex as Procedural Sedation and Analgesia for Oocyte Retrieval During In Vitro Fertilisation Procedures: A Randomised Controlled Pilot Study Sainath Veeranki[1*], Shailendra Kumar[1], Dhruv Jain[1] 1. Anesthesiology, All India Institute of Medical Sciences New Delhi, India

E-poster

2026-0201	Reactive Airway Dysfunction Syndrome (RADS) in Paediatric Burns: Unraveling a Rare Consequence of Inhalational Injury with Management Guidelines Sainath Veeranki[1*], Rupavath Ramkumar[1] 1. Anesthesiology, All India Institute of Medical Sciences New Delhi, India
2026-0202	Intraoperative Analgesia Nociception Index (ANI)-Guided Remifentanil Administration in Elderly Patients Undergoing Hip Fracture Surgery: A Randomized Controlled Trial Yae Lin Jeon[1*], Min Hee Heo[1] 1. Department of Anesthesiology and Pain Medicine, Ilsan Paik Hospital, Republic of Korea
2026-0204	Critical Care Management of Severe Systemic Lupus Erythematosus Flares Requiring Mechanical Ventilation: A Case Series Bagus Fajar Rochman[1*], Calcarina Fitriani Retno Wisudarti[1] 1. Anesthesiology and Intensive Care, Faculty of Medicine, Public Health and Nursing, Dr. Sardjito General Hospital/ Gadjah Mada University, Indonesia
2026-0205	Delayed but Progressive Epidural Anesthesia for Cesarean Delivery in Severe Congenital Scoliosis with Patent Ductus Arteriosus and Pulmonary Hypertension Otniel Adrians Labobar[1*] 1. Anesthesiology and Intensive Therapy, Universitas Gadjah Mada, Indonesia
2026-0206	Perioperative Opioid-Induced Sensitization and Its Role in The Development of Chronic Postsurgical Pain: A Systematic Review of Current Evidence Abid Hussain[1*], Omar Abdul Hameed Alradhwan[1] 1. Anesthesiology & Pain Medicine, Royal Commission Health Services Program Jubail Saudi Arabia, Saudi Arabia
2026-0213	Perioperative Anesthetic Management and Early Outcomes of Pediatric Congenital Heart Surgery Under Cardiopulmonary Bypass: Initial Experience at a Tertiary Pediatric Center in Mongolia M. Batchimeg[1] [1]Department of Anesthesiology and Intensive Care, National Center for Maternal and Child Health, Ulaanbaatar, Mongolia; School of Medicine, Mongolian National University of Medical Sciences (MNUMS), Ulaanbaatar, Mongolia. Batchimeg Myagmartseren[1*] 1. Department of Anesthesiology and Intensive Care Medicine, Department of Anesthesiology and Intensive Care, National Center for Maternal and Child Health (NCMC), Mongolia
2026-0214	TAVI on Your Toes: Teamwork, Timing, Technology. Dr. Geyasree Muchivolu[1*], Dr. Rajashree Agaskar[2] 1. Resident, Department of Anaesthesiology, Jaslok Hospital and Research Centre, India 2. Senior Consultant and Additional Director, Dept of Anaesthesiology, Jaslok Hospital and Research Centre, India
2026-0216	Dural Puncture Epidural Analgesia for Second-Trimester Pregnancy Termination in a Patient with Eisenmenger Syndrome: A Case Report Yosy Budi Setiawan[1*], Ratih Kumala Fajar Apsari[1], Yusmein Uyun[1] 1. Department of Anesthesiology, Faculty of Medicine, Public Health, and Nursing, Gadjah Mada University, Indonesia
2026-0222	The Forgotten Right Ventricle: Bedside Critical Care Echocardiography-Guided Right Ventricular Hemodynamic Phenotyping in Critically Ill Patients with Acute Exacerbation of COPD Nurul Huda[1*], Calcarina FR Wisudarti[1] 1. Anesthesiology and Intensive Care, Faculty of Medicine, Public Health and Nursing Gadjah Mada University/Sardjito General Hospital, Indonesia
2026-0227	Landmark-Guided Spinal Anesthesia for Cesarean Delivery in a Parturient With Limb-Girdle Muscular Dystrophy Phenotype and Scoliosis: A Resource-Limited Case Report Taufik Saputra[1*], Taufan Pramadika[1] 1. Department of Anesthesia and Intensive Therapy, Faculty of Medicine, Universitas Diponegoro, Semarang, Indonesia
2026-0229	The Impact of Fear of Malpractice on Defensive Medicine Practices Among Malaysian Anaesthesiologists Eugene Jun Zheng Lai[1], Syarifah Noor Nazihah Sayed Masri[1*] 1. Anaesthesiology and Intensive Care, Hospital Canselor Tuanku Muhriz, National University of Malaysia, Malaysia
2026-0230	Fatal Rhabdomyolysis Following Severe Traumatic Subarachnoid and Intraparenchymal Haemorrhage: A Case Report Amiruddin Bin Amran[1], Umairah Binti Esa[1*], Laila Binti Mukmin[1] 1. Department of Anaesthesiology and Critical Care, Universiti Sains Malaysia, Malaysia
2026-0231	Multidisciplinary Neurocritical Care Management of Delayed Cerebral Vasospasm Following Microsurgical Clipping of a Ruptured Distal Anterior Cerebral Artery Aneurysm: A Case Report Zeynep Lee[1], Hatice Sıla Boyacıoğlu[1], Gökhan Sertçakacılar[1,2*] 1. Anesthesiology and Reanimation, University of Health Sciences Türkiye, Bakırköy Dr. Sadi Konuk Training and Research Hospital, Türkiye 2. Researcher, Outcomes Research Consortium, Houston, Texas, USA
2026-0240	Anaesthetic Dilemma in Emergency Caesarean for Severe Chorioamnionitis Yi Foong Chia[1*] 1. Singapore General Hospital, SingHealth Anaesthesiology Residency Programme, Singapore
2026-0242	Comparative Efficacy of Different Doses of Dexamethasone as an Adjuvant to Ropivacaine in Axillary Brachial Plexus Block for Forearm and Hand Surgery: A Double-Blind Randomized Controlled Trial Irvinne Keith Simbe[1*] 1. Anesthesiology, Region 2 Trauma and Medical Center, Philippines

E-poster

2026-0243	Unexpected Prolonged Apnea after Succinylcholine Administration: A Case of Butyrylcholinesterase Deficiency. Todor Krapeshki[1*], Gergana Ivanova[1,3], Margarita Atanasova[1,3], Ivelin Ganev[1], Rostislav Enev[1], Zaharinka Makshutova[2], Magdalena Aleksieva[2], Georgi Yankov[2], Georgi Gergov[2] 1. "Anesthesiology and Intensive Care Unit", University Hospital "Saint Ivan Rilski", Bulgaria 2. "Thoracic Surgery", University Hospital "Saint Ivan Rilski", Bulgaria 3. "Anesthesiology and Intensive Care Unit", Medical University Sofia, Bulgaria
2026-0244	Ruptured Appendicitis in an Adolescent With Double-Inlet Left Ventricle Managed Under General Endotracheal Anesthesia: A Case Report Juan Miguel Santos[1], Al Joseph Sayas[1], Niña Bella[1*] 1. Anesthesiology, Batangas Medical Center, Philippines
2026-0255	Bridging the Anemic Brain: A Case Report of Physiology-Guided Neuroanesthesia After Massive Neurosurgical Hemorrhage Abegail Balmes[1*] 1. Anesthesiology, Jose R. Reyes Memorial Medical Center, Philippines
2026-0256	Defying the ROX Index: High-Flow Nasal Cannula for Severe ARDS in Weil's Disease with Multiorgan Dysfunction and Iatrogenic Pneumothorax Nadhila Atsari[1*], Calcarina Fitriani Retno Wisudarti[1] 1. Anesthesiology and Intensive Care / Faculty of Medicine, Public Health and Nursing, Dr. Sardjito General Hospital / Universitas Gadjah Mada, Indonesia
2026-0259	Early High-Flow Nasal Cannula for Prevention of High-Risk Reintubation Following Extended Pancoast Tumor Resection and Chest Wall Reconstruction. Ivelin Ganev[1*], Todor Krapeshki[1], Rostislav Enev[1], Gergana Ivanova[1,3], Margarita Atanasova[1,3], Georgi Yankov[2], Magdalena Aleksieva[2], Georgi Gergov[2], Zaharinka Makshutova[2] 1. Anesthesiology and Intensive Care Unit, University Hospital "Saint Ivan Rilski", Bulgaria 2. Thoracic Surgery Department, University Hospital "Saint Ivan Rilski", Bulgaria 3. Anesthesiology and Intensive Care Unit, Medical University Sofia, Bulgaria
2026-0261	Anaesthetic Management of Aspiration of a Video Capsule During Endoscopic Placement Under Deep Sedation in a Paediatric Patient Jasper Goh[1*] 1. Anesthesia, Singapore General Hospital, Singapore
2026-0262	Severe Epistaxis Following Nasal Instrumentation Under General Anaesthesia: Looking Beyond Direct Trauma Christopher Mathew[1*], Ashley Lee[1], Emma Du[1] 1. Anaesthesiology, Singapore General Hospital, Singapore
2026-0264	Perioperative Challenges: SGLT2-Associated Euglycemic Diabetic Ketoacidosis and Pulmonary Embolism in a Patient with Femoral Neck Fracture Elnara Gurbanova[1*], Natalya Bekmagambetova[1], Zaure Mynbayeva[1] 1. Anesthesiology and ICU, National Scientific Center of Traumatology and Orthopedics Named after Academician N.D. Batpenov, Kazakhstan
2026-0270	Comparison of Manometer-Guided and Conventional Clinical Techniques for Endotracheal Tube Cuff Inflation and Postoperative Sore Throat in a Tertiary Hospital in Manila, Philippines: A Prospective Cohort Hannah Patricia Del Carmen[1], Rosaldro Biasbas[1*], Numeriano Samar, Jr.[1], Riggs Justin Dizon[1] 1. Department of Anesthesiology, Ospital ng Maynila Medical Center, Philippines
2026-0277	Status Epilepticus with Persistent Fetal Bradycardia Caused by Previously Undiagnosed Brain Metastases in a Term Parturient Requiring Emergency Cesarean Delivery Yuka Suzuki[1*], Kiyoyuki Miyasaka[1], Seiki Abe[1] 1. Department of Anesthesiology, St. Luke's International Hospital, Japan
2026-0278	Delayed Emergence Unresponsive to Flumazenil After Remimazolam-Based General Anesthesia in an Elderly Patient With Pre-Existing Cerebrovascular Disease: A Case Report Jaewoo Kim[1], Yeon Jae Song[1], Kyungmi Kim[1*] 1. Anesthesiology and Pain Medicine, Anam Hospital, College of Medicine, Korea University, Republic of Korea
2026-0279	Comparative Evaluation of Virtual Reality and Augmented Reality as Distraction Techniques on Preoperative Anxiety in Paediatric Patients Dr. Garvita Bhatnagar[1*], Dr. Kapil Chaudhary[2] 1. Anaesthesia and Critical Care, AIIMS, New Delhi, India 2. Anaesthesia and Critical Care, Maulana Azad Medical College, India
2026-0290	Anesthetic Induction in Patients With Compromised Respiratory Physiology Undergoing Diagnostic Thoracic Procedures: A Case Series Using a Remifentanil-Based Strategy Farhan Kurniawan[1*], Taufik Saputra[1], Widya Istanto Nurcahyo[2] 1. Department of Anesthesia and Intensive Therapy, Faculty of Medicine, Diponegoro University, Semarang, Indonesia 2. Department of Anesthesia and Intensive Therapy, Dr. Kariadi General Hospital Medical Center, Semarang, Indonesia
2026-0291	Accidental Dural Puncture with a Spinal Introducer Needle During Labour Epidural Insertion Chi Feng[1*], Sandy Lim[1] 1. KK Hospital Women's Anaesthesia, SingHealth Anaesthesiology, Singapore
2026-0293	When the Spine Bends and the Diaphragm Fails: A Case of High-Risk Anesthesia in Dual Anatomic Anomalies Stephanie Arah Jasmin[1], Rosaldro Biasbas[1*], Allen Dominic Geronimo[1], Numeriano Samar Jr[1] 1. Department of Anesthesiology, Ospital ng Maynila Medical Center, Philippines

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2026-0294	**Beyond Kratom Toxicity: Severe Methanol Poisoning Following Alleged Co-Ingestion of Kratom and Locally Distilled Alcohol** Leonard Immanuel Nathan[1], Aaron Wilson[1*] 1. Department of Anaesthesiology and Critical Care, Duchess of Kent Hospital, Sandakan, Malaysia
2026-0296	**When the BIS Lies: Electromyographic Interference Mimicking Inadequate Anaesthetic Depth During Microvascular Decompression, A Case Report** Victoria Chin Wai Ting[1*], Azarinah Binti Izaham[1], Siti Nidzwani Binti Mohamad Mahdi[1], Jegan A/L Thanabalan[1] 1. Anesthesiology and Critical Care, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia, Malaysia
2026-0304	**Total Intravenous Anaesthesia and Multimodal Analgesia in a Neuromuscular Blockade Agent - Allergic Patient Undergoing Appendicectomy: A Case Report** Fairuz Nasiha Solahudin[1,2], Mun Thing Liew[1], Janice Tze Mei Goh[1], Jo Sheng Ng[1*], Maya Mardiana Nazlan[1] 1. Department of Anaesthesia and Critical Care, Hospital Kuala Lumpur, Malaysia 2. Department of Anaesthesia and Critical Care, Faculty of Medicine, Universiti Teknologi MARA, Malaysia
2026-0308	**Hemodynamic Management of Refractory Mixed Obstructive and Vasoplegic Shock Post-Pulmonary Thrombectomy** Izzuddin Azaharuddin[1], Mohd Wafiq Irfan Zawawi[1*], Low Ren Geng[1] 1. Anaesthesiology and Intensive Care, National University of Malaysia, Malaysia
2026-0309	**Case Report: Intensive Care Management of Disseminated Klebsiella pneumoniae Syndrome Originating from a Bartholin's Abscess** Izzuddin Azaharuddin[1*], Low Ren Geng[1] 1. Anesthesiology and Intensive Care, National University of Malaysia, Malaysia
2026-0311	**Atypical Extra-Pancreatic Tracking and Vascular Complications in Severe Acute Necrotizing Pancreatitis: A Radiological Perspective** Mohd Wafiq Irfan Zawawi[1], Izzuddin Azaharuddin[1*] 1. Anaesthesiology and Intensive Care, National University of Malaysia, Malaysia
2026-0313	**When Low Volume Is Still Too Much: A Case Report of Reversible Retinal Striae Following Peribulbar Anaesthesia** Taufan Pramadika[1*], Taufik Saputra[1], Afrisal Hari Kurniawan[2] 1. Department of Anesthesiology and Intensive Therapy, Faculty of Medicine, Universitas Diponegoro, Semarang, Indonesia 2. Department of Vitreoretinal, JEC Semarang Eye Hospital, Semarang, Indonesia
2026-0314	**It Just Won't Fit: A Case Report on the Airway Management of a Pediatric Patient with Congenital Tracheal Stenosis** Nichole Chua[1*], Fideliz Gutierrez[1] 1. Anesthesia, St Luke's Medical Center, Philippines
2026-0316	**Beyond the Opioid Ceiling: Continuous Dexmedetomidine Infusion for Management of Refractory Cancer Pain and Opioid-Induced Hyperalgesia** Kriscia Anne Cajigal[1*] 1. Multidisciplinary Pain Management Clinic, Perpetual Help Medical Center Las Pinas, Philippines
2026-0321	**When Hypotension Does Not Lead to Emesis: A Case Series of Intrathecal Atropine in Cesarean Spinal Anesthesia** Andy Andy[1*], Ratih Kumala Fajar Apsari[1], Pinter Hartono[1] 1. Obstetric Anesthesia Division, Department of Anesthesiology and Intensive Care, Universitas Gadjah Mada, Indonesia
2026-0324	**Anesthetic Challenges for Cesarean Section in a Morbidly Obese Parturient with Rare New-Onset Atrial Fibrillation: A Case Report** Low Ren Geng[1*], Izzuddin Azaharuddin[1], Goh Kay Vee[2], Suzaliatun Kasbolah[3], Raja Liza Raja Alias @ Raja Khalid[3] 1. Department of Anaesthesia & Intensive Care, Faculty of Medicine, National University of Malaysia, Malaysia 2. Department of Anaesthesia & Critical Care, Hospital Sultanah Aminah, Johor Bahru, Malaysia 3. Department of Anaesthesia & Critical Care, Hospital Pakar Sultanah Fatimah, Muar, Johor, Malaysia
2026-0333	**Comparative Evaluation of the Effect of an Eye Mask and Music on Midazolam Requirement for Bispectral Index (BIS) Guided Sedation during Spinal Anaesthesia** Anuradha Dialani[1*] 1. Anaesthesiology, Maulana Azad Medical College Delhi India, India
2026-0334	**Organ Procurement from Brain-Dead Donors on VA-ECMO with Concurrent IABP Support** Evelyn lixuan Cheng[1*] 1. Anaesthesia, Singapore General Hospital, Singapore
2026-0337	**Association of Clinicodemographic Profile and Occurrence of Post Operative Nausea and Vomiting Among Patients Undergoing Ophthalmic Surgery Under General Anesthesia with Supraglottic Airway** Jesusa Cuyong[1*] 1. Anesthesiology, Western Visayas Medical Center, Philippines
2026-0339	**Low-Volume Ultrasound-Guided Interscalene Block with Dexmedetomidine Sedation for Prolonged Arthroscopic Rotator Cuff Repair in an Obese Patient: A Case Report** Elijah Villaruz[1*] 1. Anesthesiology, Batangas Medical Center, Philippines
2026-0345	**Nearly One Million Critical Illness Admissions in Indonesia: Tertiary Care and Severity Emerge as Key Cost Drivers** I Made Prema Putra[1*], Putu Herdita Sudiantara[1], Anak Agung Ngurah Aryawangsa[1], Marilaeta Cindryani[1], Made Agus Kresna Sucandra[1], Putu Agus Surya Panji[1], Tjokorda Gde Agung Senapathi[1] 1. Anesthesiology and Intensive Therapy, Udayana University, Indonesia

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2026-0349	Awake Epidural Anesthesia Without Sedation for Prone Percutaneous Stenoscopic Lumbar Decompression in a Morbidly Obese Patient with Untreated Obstructive Sleep Apnea: A Case Report Erdeneoyun Baatar[1*] 1. Anesthesiology, Grandmed Hospital, Mongolia
2026-0355	Navigating the Infant Airway: Multi-Level Compression from a Cervicofacial Lymphatic Malformation - A Case Report Bernadette Claire Pelayo[1*] 1. Anesthesiology, St. Luke's Medical Center - Quezon City, Philippines
2026-0356	Chronic Post-Surgical Neuropathic Pain After Laparoscopic Cholecystectomy: A Case Report Emphasizing Mechanism-Based Multimodal Management Kriscia Anne Cajigal[1*] 1. Department of Anesthesiology, Perpetual Help Medical Center Las Pinas, Philippines
2026-0359	Unanticipated Difficult Airway Management and Supraglottic Airway Failure Associated with Relative Macroglossia in a Parturient with MSSA Bacteremia: A Case Report Sunwoo Kim[1], Hyun Joong Kim[1*], Eun Su Choi[1], Yoon Sook Lee[1], Woon Young Kim[1], Jae Hwan Kim[1], Yoon Ji Choi[1] 1. Anesthesia and Pain Medicine, Korea University Ansan Hospital, Republic of Korea
2026-0362	Awake Shoulder Replacement Under Regional Anaesthesia and High-Flow Nasal Oxygen in a Patient with Fibrotic Lung Disease and Pulmonary Hypertension Suraj Jayasundera[1*], Khathija Hasan[1] 1. Anaesthesia, RIPAS Hospital, Brunei Darussalam
2026-0364	Comparison of Autonomic and Hemodynamic Responses Following Ketamine Administration With or Without Sevoflurane Anesthesia: A Prospective Cohort Study Jae Wook Baeg[2], Sou Hyun Lee[1,2*] 1. Anesthesiology and Pain Medicine, Kyungpook National University School of Medicine, Republic of Korea 2. Anesthesiology and Pain Medicine, Kyungpook National University Hospital, Republic of Korea
2026-0365	Microvascular-Macrovascular Dissociation Detected by Nirs and Tcd Monitoring Following Traumatic Brain Injury and Aneurysmal Rupture Farrell Tanoto[1*], Radian Ahmad Halimi[1] 1. Anesthesiology and Intensive Care - Neuroanesthesia and Critical Care, Padjadjaran University, Indonesia
2026-0366	The Frozen Airway and Fragile Body: An Anesthetic Case Report of Advanced Systemic Sclerosis with Massive Bilateral Pleural Effusions Undergoing Bilateral Chest Tube Thoracostomy and Left Hip Disarticulation Kirsten Gil Herico[1*] 1. Anesthesiology, Perpetual Help Medical Center - Las Pinas, Philippines
2026-0370	Effect of Oral Melatonin Premedication on Bispectral Index-Guided Sevoflurane Consumption in Children: A Double-Blind Randomized Controlled Trial Pulkit Johar[1], Yashwant Singh Payal[1*], Mridul Dhar[1] 1. Anaesthesiology, AIIMS Rishikesh, India
2026-0372	Cardiac Tamponade with Secondary Abdominal Compartment Syndrome: A Case of Multi-Organ Dysfunction following Pericardial Effusion Wei Yi Lam[1], Jonathan Cheng[2*] 1. Anaesthesiology, National University Hospital, Singapore 2. Anaesthesiology, Singapore General Hospital, Singapore
2026-0374	Into the Blue Storm: Anaesthetizing an Unrepaired Tetralogy of Fallot Through Three Stages of Anorectal Malformation Surgery Before Corrective Cardiac Surgery Jing Hooi Koey[1], Kean Seng Yeoh[1*], Rufinah Teoh[1,2] 1. Anaesthesia Unit, Hospital Tunku Ampuan Besar Tuanku Aishah Rohani, Kuala Lumpur, Malaysia 2. Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia
2026-0378	Preoperative Nutritional-Inflammatory Phenotypes for Risk stratification of Postoperative Delirium After Hip Surgery Jong Woan Kim[1], Minju Kim[1], Wonjung Hwang[1*] 1. Dep of Anesthesiology, Seoul St Mary's Hospital, Republic of Korea
2026-0381	Maintaining Cerebral Perfusion During Thymectomy in a Child with Severe Ectopic ACTH Syndrome (EAS) and Complex Neurological Complications: A Case Report Low Joe An[1], Nirawanti Mohamad Said[2*] 1. Anaesthesiology and Critical Care, Hospital Tunku Azizah, Malaysia 2. Anaesthesiology and Critical Care, Hospital Tunku Azizah, Malaysia
2026-0382	Management of an Anticipated Difficult Airway in a Post-Irradiated Airway Presenting for Endolaryngeal Microsurgery: A Case Report Eunice Kok[1*] 1. Anaesthesiology, Singapore General Hospital, Singapore

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2026-0383

Development and Feasibility Evaluation of a Culturally and Linguistically Adapted Immersive Preoperative Virtual Reality (IMProVR) Intervention for Reducing Perioperative Anxiety in Paediatric Patients: A Multi-Phase Evaluation with Healthcare Providers and Child End-Users

Asmah Azizeh[1,2*], Sakinah Idris[3,8], Norsaidatul Nadriah Ahmad Shuhiamy Ahmad Shuhiamy[7,9], Nabila Aimi Mohamed Ghazali[5], Izzati Mohd Bashir[3,8], Wan Nor Raihan Wan Ramli[4], Nik Atilla Atasha Shamsuddin[6]

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8. Department of Psychiatry (Clinical Psychology Unit), Hospital Al-Sultan Abdullah UiTM, Malaysia
9. Department of Orthopaedic Surgery & Traumatology, Hospital Al-Sultan Abdullah UiTM, Malaysia

2026-0387

A Ticking Time Bomb Meticulously Handled - Double Lumen Intubation for Temporary Stenting in a Compressed Airway

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2026-0390

Anaesthetic Management for Caesarean Delivery in a Parturient With Huntington Disease and Significant Choreiform Movements: A Case Report

Chong Win Chua[1], Santha Letchumi Parameswaran[1*], Suhana Zainal Abidin[1]

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2026-0391

Delivering Through Dengue: Anesthetic Insights from a High-Risk Pregnancy – A Case Report

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2026-0395

Thoracic Epidural Anaesthesia: A Viable Alternative to General Anaesthesia for High-Risk Upper Abdominal Surgery

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2026-0398

Navigating an Anticipated Difficult Airway in a Child with Treacher Collins Syndrome for CochlearTM OSIA 2® Implant: A Case Report

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2026-0400

Balancing Airway and Haemodynamic Risk: Ultrasound-Assisted Spinal Anaesthesia for Emergency Perineal Surgery in a Patient with Severe Obesity and Possible Hypertrophic Cardiomyopathy Physiology

Xinhui Li[1*]

1. Department of Anaesthesiology, Intensive Care and Pain Medicine, Tan Tock Seng Hospital, Singapore

2026-0402

Suspected Transient Horner's Syndrome Accompanying Local Anesthetic Systemic Toxicity after Ultrasound-Guided Axillary Brachial Plexus Block

Young Ha Park[1], Sang Min Yoon[1], Eun Su Choi[1], Yoon Ji Choi[1], Yoon Sook Lee[1], Woon Young Kim[1], Jae Hwan Kim[1], Hyun Joong Kim[1*]

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2026-0403

When Blood Loss Exceeds Twice the Blood Volume: Anaesthetic Management of a Neonatal Pancreatic Head Teratoma

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2026-0404

Postoperative Pain Management Using Bolus Doses Through an Adductor Canal Catheter Placed with an Epidural Catheter Set Following Total Knee Arthroplasty: A Case Report

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2026-0409

Enhancing Airway Evaluation and Management by POCUS

Prof. (Dr.) Aruna Bharti[1*]

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2026-0422

A Case Report of Severe Anaphylactic Reaction to Sugammadex with Cardiac Arrest and Neurological Sequelae Following Robot-Assisted Partial Nephrectomy

Ohyun Kim[1], Boo-young Hwang[1*]

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2026-0428

Acute Kidney Injury Is Associated with Prolonged ICU Stay and Renal Replacement Therapy after Living-Donor Liver Transplantation: A Single-Center Cohort Study

Solongo Magsar[1*], Chingunjav Batbayar[1], Suvd Sumiya[1], Mandkhai Badmaanyambuu[1], Unurjargal Myagmarsuren[1]

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2026-0429

The Diagnostic Accuracy of Thyromental Height Test as a New Anatomical Airway Measurement for Predicting Difficult Laryngoscopy in Surgical Patients

Syakila Izrah Dato' Amir Firdaus[1], Zawiah Kassim[1*], Fauziah Ahmad[1], Afifah Samsudin[1]

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2026-0434	**Upper-Limb Compartment Syndrome Following Rapid Infusion Catheter Extravasation During Orthotopic Liver Transplantation** Je Min Suh[1], Laurence Weinberg[1,2*], Haoran Liu[1], Daniel Laas[1], Nattaya Raykateeraroj[3] 1. Department of Anaesthesia, Austin Health, Australia 2. Department of Critical Care, University of Melbourne, Australia 3. Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand
2026-0438	**Case Report: Plasmapheresis in Treatment and Medications of Tetanus** Juan Carson Roy Nathanael Marbun[1*], Faradila Ramadian Triananda[2], Noor Hafidz[2], Inggar Nastiti Aifunan[2] 1. Anesthesiology and Intensive Care, University of Indonesia, Indonesia 2. Anesthesiology and Intensive Care, University of Indonesia Hospital, Indonesia
2026-0442	**Perioperative Management of a 1-Month-Old with Cyanotic Congenital Heart Disease for Emergent Myelomeningocele Closure** Maria Raisa Carla Opulencia[1*], Marcel Young III[1] 1. Anesthesiology, Batangas Medical Center, Philippines
2026-0444	**Occurrence and Impact of Back Pain on the Quality of Life of Healthcare Workers** Altantuya Luvsandorj[1*], Dagvajantsan Byambasuren[1], Yerkyebulan Mukhtar[2], Nergui Altangerel[1] 1. Integrated Anesthesiology and Surgical Department, The First Central Hospital of Mongolia, Mongolia 2. Research Center for Health Statistics and GIS, Mongolian National University of Mongolia, Mongolia
2026-0449	**Unexpected Failure of Videolaryngoscopy Due to Lingual Tonsillar Hypertrophy in a Patient with Crouzon Syndrome and Ankylosing Spondylitis : A Case Report** Sung Mi Ji[1], Jae Gyok Song[1*], Min A Kwon[1], Tae Won Heo[1], Chang Hoon Seong[1] 1. Anesthesiology and Pain Medicine, Dankook University Hospital, Republic of Korea
2026-0453	**Navigating a Minefield: Scoliosis Correction Surgery in a Patient with Noonan Syndrome, Pulmonary Hypertension, Type 2 Von Willebrand Disease and History of Anaphylactic Shock to Fresh Frozen Plasma** Wai Kay Wong[1], Suer Ker Soo[2*], Sook Hui Chaw[1], Nithiakalyanee Subramaniam[2], Muhammad Aisamuddin Zulkifli[1], Chris Yin Wei Chan[3] 1. Department of Anaesthesia, Universiti Malaya, Malaysia 2. Department of Anaesthesia, Universiti Malaya Medical Centre, Malaysia 3. Department of Orthopedic Surgery, Universiti Malaya, Malaysia
2026-0454	**Pulsed Ventricular Tachycardia Associated with Local Epinephrine Infiltration during Anterior Colporrhaphy** Undral Jargalsaikhan[1], Ankhzaya Baljinnyam[2*] 1. Department of Anesthesiology, MNUMS Graduate School of Medical Science, Mongolia 2. Anesthesia and Surgical Department, Mongolia-Japan Hospital of MNUMS, Mongolia
2026-0455	**Successful Hemodynamic Recovery Using Flumazenil in a Case of Suspected Remimazolam-Induced Anaphylaxis: A Case Report** Hyunzu Kim[1*], Jimyeong Jeong[1], Hyun Kyoung Lim[1], Seung Ku Han[1], Bokyung Park[1], Nahee Kil[1] 1. Anesthesiology and Pain Medicine, Inha University Hospital, Republic of Korea
2026-0466	**Ventilation-Induced Gastric Rupture after Extubation in the ICU: A Case Report** Haewon Seo[1], Joo Yong Lee[1*] 1. Department of Anesthesiology and Pain Medicine, Chungbuk National University Hospital, Republic of Korea
2026-0469	**Veno-Venous Extracorporeal Membrane Oxygenation-Assisted Tube Exchange for Unexpected Blood Clot Obstruction of a Double-Lumen Tube during Thoracoabdominal Aortic Surgery: A Case Report** Chaeeun Han[1], Juseok Oh[1], Seunghee Ki[1*] 1. Department of Anesthesiology and Pain Medicine, Busan Paik Hospital, Republic of Korea
2026-0471	**Early Bronchoscopic Confirmation of Acute Noncardiogenic Pulmonary Edema Presenting as Unexplained Extubation Failure: A Case Report** Youngkwan Eum[1], Joo Yong Lee[1*] 1. Department of Anesthesiology and Pain Medicine, Chungbuk National University Hospital, Republic of Korea
2026-0472	**Femoral–Femoral VV-ECMO for Prolonged Apneic General Anesthesia in Severe Tracheal Obstruction: A Case Report** Sou Hyun Lee[1*], Yeongun Kim[1] 1. Anesthesiology and Pain Medicine, Kyungpook National University Hospital, Republic of Korea
2026-0488	**Anesthetic Management of an Infant with Ornithine Transcarbamylase Deficiency Undergoing Emergency Re-Liver Transplantation for Primary Graft Nonfunction** Jatiya Wanachotphawet[1*], Pipat Sae-Yup[1] 1. Department of Anesthesiology, King Chulalongkorn Memorial Hospital, Chulalongkorn University, Thailand
2026-0492	**Spinal Anaesthesia in a Parturient With Previous Transverse Myelitis and Complete Neurological Recovery: A Case Report** Santha Letchumi Parameswaran[1], Chong Win Chua[1*], Ainaa Ismail[1] 1. Anesthesiology Department, Seberang Jaya Hospital, Ministry of Health Malaysia, 13700 Penang, Malaysia
2026-0502	**Venoarterial Extracorporeal Membrane Oxygenation as a Bridge to Surgical Repair in Penetrating Cardiac Injury with Tamponade: A Case Report** Sung Mi Ji[1], Jaegyok Song[1*], Min A Kwon[1], Sun Han[2], Sharon Hwang[1], Da Hyeon Jang[1] 1. Department of Anesthesiology and Pain Medicine, Dankook University Hospital, Republic of Korea 2. Department of Cardiothoracic Surgery, Dankook University Hospital, Republic of Korea

E-poster

2026-0503	A Survey of Knowledge and Behavior of Neuromuscular Blocking Agents, Reversal Agents and Neuromuscular Monitoring among Anesthesia Personnel in Thailand Aphichat Suphathamwit[1], Sivakorn Siriponlai[1], Chiraprapa Charoenkijwattanakul[1*] 1. Anesthesia, Siriraj Hospital, Mahidol University, Thailand
2026-0505	Intraoperative Awareness during Remimazolam-Based Anesthesia in a Patient with Long-Term Benzodiazepine Use and Obesity: A Case Report Yujin Lee[1], Sejong Jin[1*] 1. Department of Anesthesiology and Pain Medicine, Korea University Anam Hospital, Republic of Korea
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E-poster

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2026-0004

A Questionnaire Survey of Patients' Concerns and Knowledge Towards Anaesthesia and Anaesthetists in Hospital Selayang, Malaysia

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Background
This study aimed to evaluate patients' knowledge and concerns regarding anaesthesia and the roles of anaesthetists, and to determine the association between these outcomes and patients' demographic factors.

Methods
A prospective, cross-sectional observational study was conducted at the pre-anaesthesia assessment clinic in Hospital Selayang. Using consecutive sampling, questionnaire adapted from validated sources was distributed to adult patients prior to elective surgery. Data from 420 completed questionnaires were processed and analyzed using SPSS version 22, employing Fisher's exact tests for categorical associations.

Results
The overall knowledge regarding anaesthesia and anaesthetists was poor, with only 38% of the population achieving a good knowledge score (≥6/10). Notably, only 53% of patients could correctly identify an anaesthetist as a doctor. Statistical analysis revealed that while higher education levels and prior anaesthetic experience significantly correlate with better knowledge and the correct identification of anaesthetists ($P<0.05$) as doctor, they do not significantly reduce preoperative anxieties. Concerns such as the fear of waking up during surgery remained prevalent regardless of the patient's educational background or prior anaesthetic history.

Conclusion
A significant knowledge deficit exists regarding anaesthesia and the role of anaesthetists, with misconceptions remaining common despite prior anaesthetic exposure. Although higher education levels and previous anaesthetic experience were associated with better knowledge, preoperative anxieties remained prevalent across all demographic groups. These findings highlight the need for accessible preoperative educational strategies, including brochures and public awareness initiatives, to improve patient engagement with pre-anaesthesia assessment services, enhance informed decision-making, reduce clinic default rates, and ultimately improve perioperative safety and patient care.

2026-0007

Fighting Nemo: A Case of a Penetrating Neck Injury by a Needlefish

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Introduction
The needlefish, known locally by names such as balo, bilaan or balao, is a group of fish found throughout the Philippine archipelago. These fish are characterized by their elongated, slender bodies and narrow jaws filled with sharp teeth. They are seen in a wide range of aquatic environments, from the open sea to brackish estuaries and even freshwater lakes.
These fish are capable of leaping out of the water at high speeds, sometimes with fatal consequences. Although considered "extremely rare" by fisheries researchers, penetrating injuries caused by needlefish—particularly to the neck and torso—represent a unique form of penetrating trauma that has been documented repeatedly in the Philippines. A consistent risk factor identified across multiple cases is light attraction. It was reported in April 2024, that an incident occurred resulting in the death of a 59-year-old fisherman from Tigbauan, Iloilo, after being pierced in the stomach by a needlefish. This was recorded as the first needlefish fatality in the region.
This report will detail the incident of a fisherman in Occidental Mindoro who survived a neck impalement caused by a needlefish.

Case
This is a case of a 44-year-old patient who came in due to a penetrating maritime injury. He was spearfishing when a needle fish jumped out of the water and struck him on his neck. He only complained of dysphagia and dysphonia post injury. Physical examination revealed a needle fish head on the patient's neck with no active bleeding, swelling, or tenderness. Airway assessment was difficult due to the limited mouth opening and neck movements. Other physical assessments and laboratory results were unremarkable.

The patient was induced under general anesthesia via rapid sequence induction and intubation with manual inline stabilization after an attempt with friberoptic bronchoscopy. He underwent emergency esophagoduodenoscopy, bronchoscopy, and manual extraction of foreign body under direct visualization, with no remarkable intraoperative events. Intraoperative findings included no airway and esophageal injuries.

Post-operatively, the patient had stable vital signs, and with no observable post operative complications noted. The patient was sent home after 7 days, improved, but with a prolonged recovery period.

Conclusion
Needlefish penetrating neck injuries in the Philippines, though infrequent, carry significant morbidity and mortality risk. This case demonstrates that with prompt surgical intervention and appropriate postoperative care, survival is possible even with trans-cervical penetration.

2026-0007

Figure & Table

Figure & Table 1.



Figure & Table 2.



2026-0008

Difficult Airway Management in a 1-Month-Old Infant with Multiple Congenital Anomalies: A Case Report

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Introduction

Pediatric airway differs significantly from the adult which may impact airway management. These differences are most pronounced at birth and the most unfamiliar (non adult like) airway is encountered in neonates and infants under 1 year of age. Many pediatric syndromes are known to be associated with a difficult airway. A high index of suspicion for a difficult airway should be maintained in children with dysmorphic facial features and known syndromic conditions.

A structured plan for airway management is required before induction of anesthesia. It must consider the choice of airway, the need for an emergency airway, mode of ventilation as well as intraoperative monitoring. Multiple attempts at intubation may traumatize the airway and cause edema, which may make it impossible to intubate. In cases of "cannot intubate, cannot ventilate", it may be challenging in the pediatric population due to the anatomical differences with adults. With this in mind, it may be more appropriate to perform a surgical airway, when rescue techniques fail.

Case

This is a case of 1-month-old who was born with multiple congenital anomalies who was delivered via cesarean delivery, and underwent endoscopic guided ventriculoperitoneal shunt insertion for congenital hydrocephalus. During preoperative evaluation, patient weighed 3735grams, with a head circumference of 52cm, and with a left club foot, while airway assessment revealed a small mouth opening, approximately one finger-breadth using the fifth digit, significantly receding chin, and a cleft palate.

Patient was induced under general anesthesia via video laryngoscopy after 2 failed attempts with direct laryngoscopy and a bougie-assisted video laryngoscopy attempt. The patient was spontaneously breathing, with no relaxant used during induction. Once intubation was achieved, muscle relaxant was given, and the patient was positioned and prepped for surgery. The procedure concluded with no remarkable events, and the patient was extubated fully awake, crying, with spontaneous movements of extremities and spontaneously breathing. Immediate postoperative period was unremarkable. However, the patient deteriorated on postoperative day 3 and eventually demised.

Conclusion

The airway of the pediatric patient has significant differences when compared to the adult airway and presents some challenges. Awareness of the differences, important pathological conditions affecting children, and a knowledge of the available airway techniques and tools will allow the anesthesiologist to formulate and execute safe and effective management of the pediatric airway. This case underscored the absolute necessity of thorough preoperative planning, a team-based approach, and having a clear, structured algorithm for managing the pediatric difficult airway.

2026-0008

Figure & Table

Figure & Table 1.



Figure & Table 2.



2026-0010

Delivering through Disease: Anesthetic Management of Cesarean Section in the Setting of Cervical Cancer

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Introduction

Cervical cancer in pregnancy is defined as diagnosis of cervical cancer during pregnancy and during the immediate postpartum period. It is considered rare, as its incidence ranges from 0.1 to 12 per 10,000 pregnancies. Cervical cancer is the most common gynecologic malignancy encountered during pregnancy, and is usually diagnosed during the early stages due to prenatal screening. However, patient's symptoms may be masked since they resemble pregnancy-related symptoms or conditions which may delay diagnosis as well as treatment.

Treating pregnant patients with cervical cancer may pose challenges, which may include ethical ones. A pregnant woman should be given complete autonomy and has the right to make informed consent with regards to her treatment. Interventions should avoid unnecessary harm to both mother and fetus. Physicians must carefully weigh the risks of delaying treatment against the risk of fetal health. The safety of administering chemotherapy during pregnancy may pose threats to fetal well being.

In treating pregnant patients with cervical cancer, a multidisciplinary approach should be done, individualized treatment must be planned, and support of fetal and maternal well being should be advocated.

Case

This is a case of a 34-year-old Gravida 7 Para 6 (6003) who at 22 weeks age of gestation presented with vaginal bleeding. Patient had previous unremarkable medical and surgical histories. Work ups revealed a cervical mass confirmed to be High grade Squamous Cell Carcinoma. Neoadjuvant chemotherapy was started with Carboplatin and Paclitaxel and done every 3 weeks. Prior to her elective primary classical cesarean section at 36 weeks of gestation, she had received 3 cycles of chemotherapy, all of which were well tolerated with no symptoms noted.

The patient was admitted at 36 weeks of gestation for elective classical cesarean section. Preoperative evaluation were unremarkable, and with stable vital signs. Patient's weight was 74.75kg, height of 152cm, and a BMI of 32.4kg/m2. Airway assessment revealed a mouth opening of more than 4cm, Mallampati score of 3, slightly short neck, and a thyromental distance of 3cm. All other physical examinations were normal. Laboratory work ups were also unremarkable.

During this admission, she underwent Primary Classical Cesarean Section with Bilateral Salpingectomy, which was 3 weeks after her last chemotherapy session. Patient was induced under Combined Spinal-Epidural Anesthesia. The procedure concluded with no remarkable events. Epidural Catheter was maintained for postoperative pain management. Patient remained admitted for 2 more days and was sent home, improved, with a plan of concurrent chemoradiation therapy.

Conclusion

This case underscores the importance of individualized, multidisciplinary care in pregnant patients with cervical cancer. With thorough planning and coordinated efforts, safe anesthesia and delivery were achieved without compromising oncologic treatment. Regional anesthesia, particularly combined spinal-epidural anesthesia, proved to be a safe and effective choice in a high-risk patient, highlighting the value of tailored anesthetic strategies in complex obstetric oncology cases.

2026-0016

Veno-Arterial ECMO as a Bridge in Pulmonary Hypertension Crisis Presenting as Intraoperative Maternal Collapse

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Introduction
Pulmonary hypertension in pregnancy carries high maternal mortality, particularly when complicated by acute right ventricular failure. Maternal collapse during caesarean delivery presents a major diagnostic and management challenge requiring rapid multidisciplinary intervention.

Case
A 25-year-old primigravida underwent emergency caesarean section under spinal anaesthesia for fetal growth restriction. Shortly after delivery, she developed sudden hypotension, hypoxaemia, metabolic acidosis and reduced consciousness despite minimal blood loss. Initial differential diagnoses included pulmonary embolism and amniotic fluid embolism. Computed tomography pulmonary angiography excluded pulmonary embolism but demonstrated marked right heart dilatation suggestive of pulmonary hypertension. Echocardiography subsequently revealed severe right ventricular dilatation and systolic dysfunction with pressure overload physiology.
Despite vasopressors, inhaled nitric oxide, pulmonary vasodilator therapy and mechanical ventilation, she progressed to refractory right ventricular failure with cardiogenic shock. Peripheral veno-arterial extracorporeal membrane oxygenation (VA-ECMO) was initiated, resulting in right ventricular decompression and restoration of systemic perfusion. VA-ECMO was utilised as a bridge to optimisation of targeted pulmonary vasodilator therapy and definitive right-heart decompression strategies, including interatrial septal fenestration. Following prolonged multidisciplinary management, she was successfully weaned from ECMO and subsequently decannulated.

Conclusion
Pulmonary hypertension crisis should be considered in unexplained maternal collapse during caesarean delivery, particularly when pulmonary embolism has been excluded. Early echocardiographic assessment is crucial for identifying right ventricular failure and guiding management. In refractory right ventricular failure secondary to pulmonary hypertension crisis, VA-ECMO may provide a life-saving bridge by restoring systemic perfusion, unloading the failing right ventricle, and allowing optimisation of targeted pulmonary vasodilator therapy until recovery or definitive intervention can be achieved.

2026-0017

Sleep Health Among Anaesthesia Personnel: Insights from a Pittsburgh Sleep Quality Index-Based Survey

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Background
Sleep deprivation among healthcare workers has been associated with impaired cognitive performance, reduced vigilance, increased medical errors, and burnout. Anaesthesia personnel are particularly vulnerable due to frequent night shifts, prolonged working hours, and the need for sustained attention in high-acuity clinical environments. Despite increasing recognition of clinician wellbeing as a patient safety issue, data on sleep quality among anaesthesia personnel in Malaysian public hospitals remain limited. This study aimed to evaluate sleep quality among anaesthesia personnel at Hospital Selayang using the Pittsburgh Sleep Quality Index (PSQI) and to explore its association with demographic and work-related factors.

Methods
A single-centre cross-sectional study was conducted among anaesthesia personnel at Hospital Selayang between August and October 2025. Data were collected using an anonymous self-administered online questionnaire comprising demographic and work-related variables together with the validated PSQI. Poor sleep quality was defined as a PSQI global score >5. A universal sampling approach was adopted, and all eligible anaesthesia personnel were invited to participate. Associations between sleep quality and selected demographic and work-related factors were analysed using Fisher's exact test, with $p<0.05$ considered statistically significant.

Results
A total of 55 anaesthesia personnel participated. Poor sleep quality was identified in 41 participants, corresponding to a prevalence of 74.5%. No statistically significant associations were observed between sleep quality and age, gender, designation, years of experience, or frequency of night shifts ($p>0.05$). However, poor sleep quality remained consistently prevalent across all subgroups. Participants performing 6–8 night shifts per month demonstrated the highest proportion of poor sleep quality, although this did not reach statistical significance.

Conclusion
Poor sleep quality was highly prevalent among anaesthesia personnel, affecting nearly three-quarters of respondents. The consistently elevated burden across all subgroups suggests that sleep disturbance may represent a widespread occupational issue within anaesthesia practice rather than being confined to specific demographic or work-related factors. Given the critical role of anaesthesia personnel in maintaining vigilance and supporting patient safety, strategies aimed at fatigue mitigation, sleep health awareness, and optimisation of work schedules should be considered. Further multicentre studies are warranted to better inform sustainable workforce wellbeing initiatives within anaesthesia services.

2026-0022

Takedown of Arteriovenous Fistula in a Patient with Chronic Kidney Disease under Supraclavicular Brachial Plexus Block and Intercostobrachial Nerve Block: A Case Report

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Introduction
Patients with chronic kidney disease (CKD) undergoing vascular access surgery present substantial anesthetic challenges due to hemodynamic lability, altered pharmacokinetics, and increased perioperative risk. Regional anesthesia offers distinct advantages in this population by minimizing airway manipulation, reducing opioid consumption, and supporting Enhanced Recovery After Surgery (ERAS) principles.

Case
A 35-year-old male with CKD Stage V on regular hemodialysis (ASA III) presented with a large aneurysmal dilation of a right upper extremity AVF. Following comprehensive preoperative optimization, the patient underwent anesthesia with combined ultrasound-guided SCBPB (20 mL of 0.5% ropivacaine with epinephrine) and IBN block (10 mL of 0.5% ropivacaine with epinephrine), supplemented with minimal sedation (2 mg midazolam).
Adequate sensory blockade was achieved within 15 minutes; motor blockade developed within 30 minutes. The 125-minute procedure proceeded without conversion to general anesthesia. Intraoperative hemodynamics remained stable despite transient hypertension managed with a single dose of nicardipine (0.3 mg IV). Notably, no perioperative opioids were administered. Postoperatively, pain control was excellent (VAS 0–1 at 24 hours) without rescue analgesics or complications.

Conclusion
Combined SCBPB and IBN block provided safe, effective, and opioid-free anesthesia for complex vascular surgery in a high-risk CKD patient. This ERAS-aligned regional anesthetic strategy achieved superior intraoperative stability and prolonged analgesia while avoiding the physiologic stress and complications of general anesthesia.

2026-0029

Preserved Oxygenation Does Not Equate to Airway Stability: Near-Catastrophic Airway Loss in Adult Supraglottitis

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Introduction
Adult supraglottitis is a potentially life-threatening condition with unpredictable progression. Although high-flow nasal cannula (HFNC) may transiently maintain oxygenation, progressive upper airway obstruction may still culminate in sudden airway collapse. We report a case of acute supraglottitis complicated with near-catastrophic airway loss despite preserved oxygenation on HFNC.

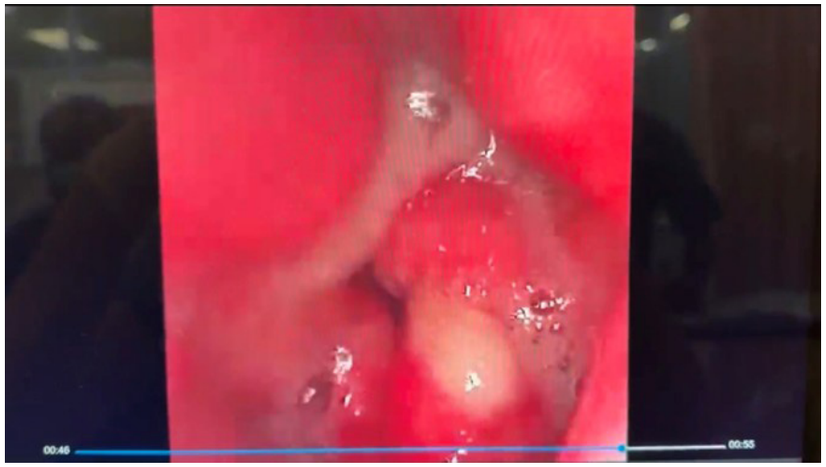
Case
A 55-year-old woman with underlying hypertension and dyslipidaemia presented with fever, upper respiratory tract symptoms, dysphagia, odynophagia, voice changes, stridor, and left neck swelling. Flexible nasopharyngolaryngoscopy demonstrated severe supraglottic swelling with inability to visualise the vocal cords. She was treated with intravenous antibiotics, dexamethasone, nebulised adrenaline, and HFNC while being monitored closely by the ENT and Intensive Care Unit team, with plans for early airway intervention should deterioration occur. Following transfer to the intensive care unit, interruption of HFNC support precipitated sudden deterioration with reduced consciousness and severe hypoxaemia. Bag mask ventilation successfully restored oxygenation. Subsequent videolaryngoscopy using a CMAC D-blade failed due to grossly oedematous and distorted supraglottic anatomy, with inability to identify the epiglottis or vocal cords. While preparations for emergency front-of-neck access were underway, the ENT team performed an emergency bedside tracheostomy. The patient subsequently underwent drainage of an epiglottic abscess, was successfully weaned from ventilatory support, decannulated, and discharged well.

Conclusion
Preserved oxygen saturation does not equate to airway stability in acute supraglottitis. HFNC may temporarily maintain oxygenation while masking progressive mechanical airway obstruction. Early multidisciplinary airway planning, including consideration of definitive surgical airway, is essential in patients with evolving upper airway compromise.
This case highlights the dynamic nature of adult supraglottitis and the limitations of relying solely on oxygenation parameters to assess airway stability. Severe supraglottic oedema may render videolaryngoscopy ineffective despite adequate preoxygenation. Early anticipation of difficult airway management, multidisciplinary coordination, and readiness for emergency surgical airway are crucial in preventing catastrophic outcomes.

2026-0029

Figure & Table

Figure & Table 1.



2026-0031

Bilateral Vocal Cord Neuropraxia Post Total Thyroidectomy: A Case Report

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Introduction

Total thyroidectomy is a common procedure for benign thyroid disease and thyroid cancer. Although generally safe, recurrent laryngeal nerve (RLN) injury remains a significant complication because it can impair airway patency and vocal cord function. RLN injury occurs in 1–5% of cases, with transient neuropraxia more common than permanent paralysis. While most cases resolve spontaneously, the immediate postoperative period may present critical airway challenges.

Post-extubation airway obstruction can mimic bronchospasm, laryngospasm, or residual neuromuscular blockade, making prompt diagnosis essential. Persistent symptoms despite standard treatment should raise suspicion for vocal cord neuropraxia. This case highlights the importance of recognizing RLN injury as a cause of postoperative airway compromise and the need for timely airway management, including reintubation or emergency tracheostomy when indicated.

Case

A 41-year-old Filipino male with a thyroid nodule and no other comorbidities was scheduled for total thyroidectomy. He denied weight loss, palpitations, dyspnea, dysphagia, odynophagia, and hoarseness. Airway assessment was unremarkable, with Mallampati II classification and thyromental distance >3 fingerbreadths.

General anesthesia using total intravenous anesthesia was induced. Direct laryngoscopy with a Macintosh blade size 4 allowed successful first-attempt intubation using a 7.5-mm endotracheal tube secured at 21 cm. Bilateral breath sounds were equal and clear. The procedure lasted 4 hours and 15 minutes, with stable intraoperative hemodynamics.

Deep extubation was performed. Within 5 minutes, the patient developed wheezing, stridor, and oxygen desaturation to 88%. Initial management included 100% oxygen, assisted ventilation, salbutamol inhalation, and hydrocortisone, improving oxygen saturation to 99–100%; however, stridor persisted. Residual neuromuscular blockade was considered and neostigmine administered without improvement. Laryngospasm was then suspected and treated, resulting in temporary resolution.

Stridor recurred during inhalational anesthesia titration. High-flow nasal cannula at 15 L/min was initiated, but recurrent desaturation to 88% required assisted ventilation. Flexible fiberoptic laryngoscopy revealed right vocal cord paralysis with partial left vocal cord paresis. The surgical team confirmed intact recurrent laryngeal nerves, suggesting transient vocal cord neuropraxia. Following laryngoscopy, the patient again desaturated to 88% and required bag-mask ventilation. Rapid-sequence reintubation was performed, and the patient was transferred to the intensive care unit on SIMV.

Conclusion

This case underscores the need for prompt evaluation of post-extubation airway obstruction after thyroidectomy. While common causes such as laryngospasm, bronchospasm, and residual neuromuscular blockade should be addressed, recurrent laryngeal nerve injury must also be considered. Early recognition, timely airway intervention, and diagnostic confirmation with laryngoscopy are essential to ensure patient safety and optimize outcomes.

2026-0031

Figure & Table

Figure & Table 1.



2026-0032

Anesthetic Management for Cesarean Delivery in a Parturient with Rhizomelia: A Case Report

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Introduction

Rhizomelia is defined as the disproportionate shortening of the proximal limb segments, most commonly see in skeletal dysplasias such as achondroplasia. reported incidence of 1 in 20,000 to 30,000 live births (2) While orthopedic and pediatric implications are well recognized, anesthetic management in pregnant patients remains scarcely reported.

This report describes the successful spinal anesthetic management of a parturient with rhizomelia who underwent an emergency cesarean section. It underscores the importance of individualized anesthetic planning, multidisciplinary coordination, and awareness of altered anatomy and physiology in such patients.

Case

A 20-year-old primigravid at 38 weeks' gestation presented with labor pains. She had no significant medical or surgical history aside from rhizomelic shortening of both lower limbs. Vital signs were stable, and fetal heart tones were within normal limits. She was initially managed with labor progression monitoring; however, persistent early decelerations prompted an emergency cesarean section.

Preoperative Assessment revealed a height of 130 cm and weight of 55 kg. Physical examination revealed the following: Glasgow coma scale of 15, no signs of cardiorespiratory distress, pink palpebral conjunctivae, adynamic precordium without murmurs, symmetrical chest expansion, and clear breath sounds. Airway evaluation showed: Mallampati Class II, mouth opening of 6.5 cm, and thyromental distance > 3 fingerbreadths. No craniofacial abnormalities were noted.

Anesthetic plan was spinal anesthesia. In the operating room, after standard monitoring and preloading with intravenous fluids, the patient was placed in a sitting position. Two midline attempts at the L3-L4 interspace encountered bony resistance; the subarachnoid space successfully accessed using a paramedian approach with a 23-gauge Quincke needle. Free flow of cerebrospinal fluid was observed, and 8 mg of 0.5% hyperbaric bupivacaine with 150 mcg morphine sulfate was injected intrathecally. A sensory block to the T4 level developed within 2 minutes. Surgery proceeded uneventfully with estimated blood loss of 400 mL. Hemodynamic parameters remained stable without episodes of hypotension or desaturation. A healthy neonate was delivered with Apgar scores of 9 and 9 at 1 and 5 minutes, respectively.

Postoperative pain control (Paracetamol and NSAIDs) was adequate with Visual Analogue Pain Score of 2/10, and the patient recovered uneventfully. She was discharged on postoperative day 2 in good condition.

Conclusion

Spinal anesthesia can be safely and effectively administered to parturients with rhizomelia undergoing cesarean section, even in emergency conditions. Key success factors included thorough preoperative evaluation, dose adjustment based on body hiatus, precise technique, and multidisciplinary coordination. This case contributes to the limited literature and supports spinal anesthesia as a viable first-line option in selected patients with skeletal dysplasias.

2026-0032

Figure & Table

Figure & Table 1.



2026-0035

Work Practices of Anaesthesiology Doctors in Hospital Kuala Lumpur (HKL)

Siah Lee Wee[1*]

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Background
Operating room is high-risk area for medical error. So, anaesthesiology is of relevant risk and medicolegal vulnerability. This study is to survey the working practices of anaesthesiology doctors in HKL (the biggest public tertiary hospital in Malaysia) and determine the most commonly overlooked aspects perioperatively.

Methods
This observational cross-sectional study, approved by MREC and CRC, was conducted in Department of Anaesthesia and Critical Care, HKL from Oct-Nov 2024. Universal Sampling and self-reporting questionnaire were employed. A validated questionnaire was adopted from Questionnaire Survey of Work practices among anaesthesiologists in India. Data was analysed using SPSS version 27 and qualitative data was measured using Pearson's chi square test with Fisher's exact. P value < 0.05 was used as having statistical significance.

Results
There is 100% response rate. The most overlooked practice is not confirming defibrillator availability (89%), followed by not arranging special anaesthetic equipment before induction (83%), not checking drug expiry (64%), not confirming oxygen cylinder availability (46%), and not checking soda lime exhaustion (42%). Many are unaware of WHO checklist parts (40%) with statistically significant relation that seniors are more aware of it (p value=0.032). 40% also do not discuss adverse events with surgeon while 39% do not complete anaesthesia notes.

Conclusion
The most commonly overlooked undesired practice is equipment related. Human factor relating to equipment or drugs is entirely preventable. As checklist is major supplementary tool, juniors should be educated for its effective implementation. AI integrated checklist, workstation and holistic system is future vision. Also, interdisciplinary communication must not be neglected. Above seemingly trivial yet impactful factors need to be addressed. By enforcing and promoting good practices, workplace standards or checklists, perioperative medical errors can be notably prevented.

2026-0035

Figure & Table

Figure & Table 1.

Table 1. Response received: “Undesirable Practices” and their overall incidence

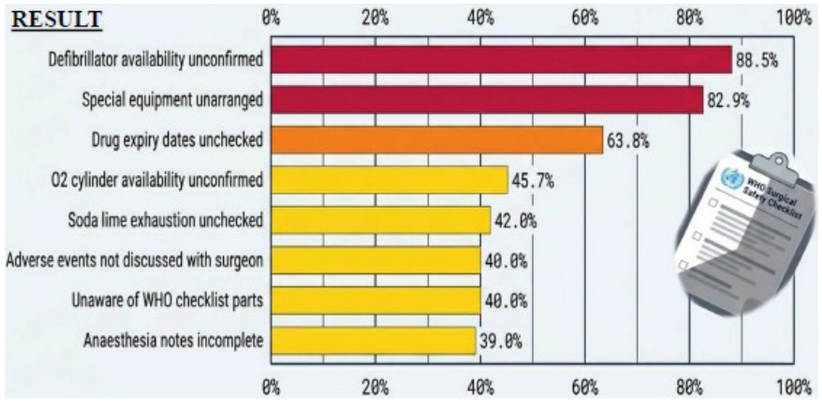
Undesirable Practices	Overall Incidence (%)
Preoperative phase	
Practice related	
Reach OR just on time	1.0
Take <5 minutes to prepare OR	1.9
PAC on day of surgery alone	5.7
Patient accompanied by nursing/tech staff alone	40
Fasting status not confirmed	2.9
Consent not checked	8.6
Identity and site of surgery not checked	6.7
Equipment related	
Anaesthesia machine check done by technician alone	24.8
Machine check (by technician) not confirmed by anaesthesiologist	31.4
Do not confirm availability of oxygen cylinder	45.7
Do not confirm availability of defibrillator	88.5
Special anaesthetic equipment not arranged before induction	82.9
Do not check exhaustion of soda lime	42
Drug safety	
Do not check expiry dates of drugs	63.8
Do not confirm status of morning medications	23.8
Checklist related	
Do not use WHO checklist	1.9
Do not fill WHO checklist at appropriate time	6.7
WHO not read out in presence of all required personnel	28.6
Unawareness of WHO checklist parts	40
Do not follow ASA pre anaesthesia checkout recommendations	5.7

2026-0035

Figure & Table

Intraoperative phase	
Practice related	
Do not discuss adverse events with surgeon	40
Do not recheck blood before transfusing	1.0
Record keeping	
Do not have standard anaesthesia proforma	39
No/minimal anaesthesia record-keeping	11.4
Do not document neurological status in anaesthesia notes	30.5
Do not complete anaesthesia notes	39
Postoperative phase	
Practice related	
Do not check ventilator settings	1.0
Do not check patients ‘vitals after shifting	1.0
Record keeping	
Do not write proper postoperative advice	22.9
Equipment related	
Do not apply appropriate monitors while shifting	1.0

Figure & Table 2



2026-0036

Case Report: Intracardiac Thrombus during VA ECMO Support Following Elective Double Valve Surgery

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Introduction

Veno-Arterial Extracorporeal Membrane Oxygenation (VA ECMO) has evolved over time as a crucial modality for cardiopulmonary support, particularly in circulatory failure. But it is fraught with complications, notably intracardiac thrombus (ICT), which carries a mortality rate near 100% in published series. Early recognition is of priority, as the management remains a complex challenge.

Case

29 years old lady with underlying mitral stenosis diagnosed at the age of 17 (during screening for basic military training) post mitral valve repair was still having moderate mitral stenosis and moderate aortic stenosis based on her surveillance ECHO. She was asymptomatic, and keen for pregnancy. Surgery was advised and so she underwent redo-sternotomy, mitral valve and aortic valve replacement on 5/3/2026. Pre cardiopulmonary bypass (CPB) transoesophageal echocardiogram (TOE) showed LVEF 60% and TAPSE 1.9cm. CPB and aortic cross-clamp time were prolonged (529min and 313min respectively) for adhesions and severe paravalvular leak with severe MR, requiring change of size. In fact, she had depressed biventricular function with hemodynamic instability upon trial of coming off CPB. Central VA ECMO was decided with LV vent inserted at LA. IVI heparin was started as per protocol. ECMO was able to go at good flow and speed with inotropic support, after multiple cycles of transfusion as indicated by ROTEM. Postop day 2, TOE revealed LV was barely contracting with LV clot seen, LV decompressed and no forward flow across LVOT as confirmed with doppler; right ventricle also decompressed with poor contractility. Subsequently postop day 4, she underwent mitral valve explantation, clot evacuation and mitral valve replacement with #25mm magna ease. No obvious residual clot was seen via the aid of fibreoptic bronchoscope. LV vent was advanced into LV. TOE after 2 days again showed LV with clot within and both ventricles not contracting. Even so, her blood parameters were not significantly deranged and cerebral oximeter was maintained within 20% of baseline throughout. In view of the futile prognosis, after MDT discussion with family, bedside decannulation and termination of ECMO was done on 13/3/26 and she passed on.

Conclusion

High risk complex surgery poses major hazard to ICT formation during ECMO through multifactorial mechanism. Nevertheless, management of ICT formation remains a significant challenge to clinicians. While surgical and thrombolytic options exist, they are often limited by bleeding risks and ineffectiveness. Hence, apart from having high index of suspicion, more efforts should be made on early recognition of ICT via echocardiography while further studies on proactive preventive strategies are strongly recommended to avoid disastrous outcomes.

2026-0036

Figure & Table

Figure & Table 1.

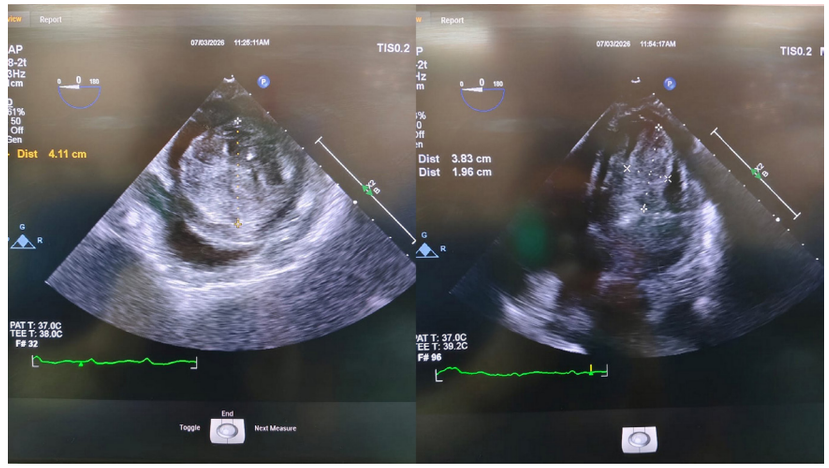
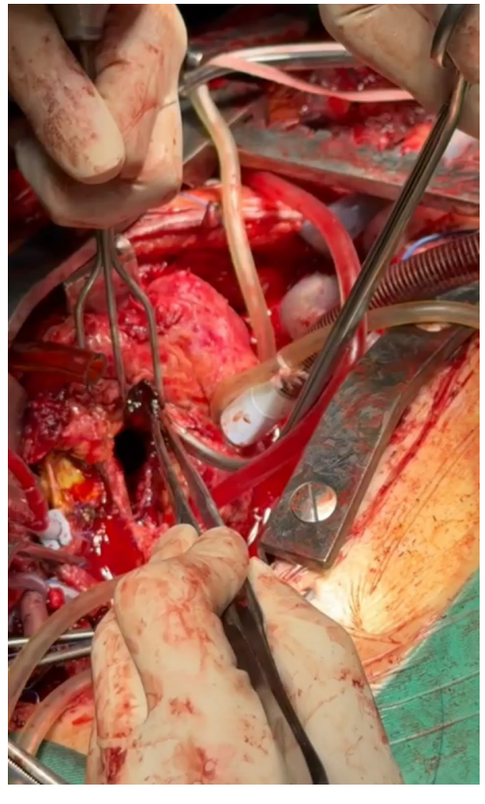


Figure & Table 2.



2026-0037

Case Report on Massive Pulmonary Embolism with ECMO Support

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Introduction

Pulmonary embolism (PE) is a medical emergency with high risk of morbidity and mortality. We must promptly identify the risk factors, diagnose the problem and treat in a timely manner so as to prevent the serious complications of developing PE. Venous arterial extracorporeal membrane oxygenation (VA-ECMO) can be used as bridging therapy to recovery for surgically treated PE, but there are limited reports on that. Most ECMO are not without associated complications and thus, the decision for ECMO remains a dilemma in managing life threatening PE post surgical embolectomy.

Case

A 44-year-old lady with no comorbidities presented with acute onset of shortness of breath. On examination, she was tachypnic, tachycardic and borderline hypotensive. Her blood gas showed hypoxemia with severe mixed metabolic and respiratory acidosis. On further history, she had been taking oral contraceptive pill for 12 years and had history of recent long travel distance. D-dimer result was 16.48. With Well score of 4.5, she was proceeded with emergency CTPA, showing extensive thrombus within left and right pulmonary artery and its branches. She was intubated for severe acidosis, requiring high inotropic support as well. On the same day, she underwent emergency open pulmonary embolectomy which was rather stormy as she developed asystole on table prior to operation and ROSC after 1 cycle of CPR. Intraoperatively, blood clot within the left and right main pulmonary arteries extending into segmental branches were removed. Pre-bypass TOE revealed dilated RV with poor contractility whereas postop RV remained dilated but contractility improved. Inotropes were still high after coming off bypass. Postoperatively, she also had thrombocytopenia with coagulopathy, impaired liver function and renal profile. She further deteriorated on postop day 2 with maximum ventilatory and inotropic support, at which VA-ECMO was initiated then. Subsequently, inotropes could be tapered down while her other organs' function also gradually improved. After total 12 days on VA-ECMO, she was stable enough to be taken off ECMO. However, she did not regain GCS whereby unfortunately she developed cerebral haemorrhage with obstructive hydrocephalus and nosocomial sepsis kicked in as well. Eventually she succumbed on postop day 27.

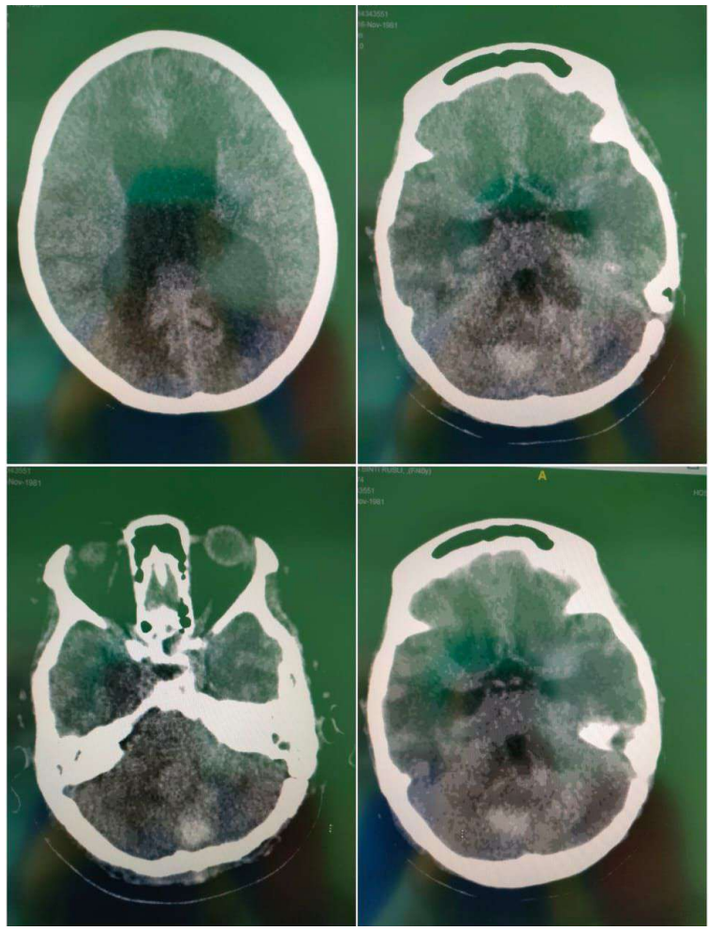
Conclusion

Knowing that PE is a common yet fatal disease, efforts should be made to raise awareness among the society to recognize the illness and the risk factors. Lifestyle modifications are believed to be useful in preventing PE because of those preventable risk factors. VA-ECMO may improve outcomes in acute life-threatening massive PE in addition to surgical embolectomy. However, this treatment modality requires more diverse studies tailored to individualized circumstances in order to prove its favourable roles in managing massive PE post surgical embolectomy after balancing the bleeding and thrombotic risk.

2026-0037

Figure & Table

Figure & Table 1.



ABSTRACT
Competition
Presentation
E-Poster

2026-0042

Suspected Neuroleptic Malignant Syndrome Following Haloperidol Administration in a Postoperative Neurosurgical Patient Initially Misdiagnosed as Delirium Tremens and Pneumonia

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Introduction

Neuroleptic malignant syndrome (NMS) is a rare but potentially life-threatening adverse reaction to dopamine receptor antagonists. Typical manifestations include hyperthermia, altered mental status, autonomic instability, muscle rigidity, and elevated CK. However, early diagnosis is often challenging because its clinical features overlap with systemic infection, alcohol withdrawal syndrome, malignant hyperthermia (MH), and other hyperthermic disorders. Chronic alcohol abuse, acute brain injury, dehydration, and systemic infection are recognized predisposing factors. We report a postoperative neurosurgical patient with multiple risk factors whose diagnosis was initially obscured by concomitant pneumonia and suspected delirium tremens (DT).

Case

A 63-year-old man with hypertension, acute cerebral infarction, a 50-pack-year smoking history, and chronic alcohol abuse underwent general anesthesia for superficial temporal artery-middle cerebral artery bypass surgery for symptomatic left internal carotid artery occlusion.

On postoperative day (POD) 2, despite initial neurological improvement, he developed agitation, diaphoresis, tachycardia, tachypnea, and persistent hyperthermia. Because of his alcohol abuse history and worsening bilateral pneumonia, DT with severe pneumonia was initially suspected. Hyperthermia progressed despite repeated intravenous acetaminophen and lorazepam, reaching 40.3°C (Table 1), with respiratory failure requiring endotracheal intubation and mechanical ventilation. Following haloperidol administration for uncontrolled delirium, laboratory evaluation revealed marked rhabdomyolysis (peak CK 33,582 U/L, myoglobin >1,000 ng/mL), elevated liver enzymes, and leukocytosis. Although generalized muscle rigidity was absent, the patient fulfilled major diagnostic features of NMS, including recent neuroleptic exposure, hyperthermia, altered mental status, autonomic instability, marked CK elevation with myoglobinemia, and leukocytosis. Malignant hyperthermia was considered unlikely because there was no personal or family history of MH, while the persistent hyperthermia and severe rhabdomyolysis were disproportionate to pneumonia alone. Intravenous dantrolene was initiated on POD 4, resulting in rapid defervescence and subsequent clinical improvement. He was discharged in stable condition on POD 38.

Conclusion

This case highlights that NMS should be considered in patients receiving neuroleptic agents who develop unexplained hyperthermia, autonomic instability, and marked CK elevation, even without generalized muscle rigidity. In our patient, generalized muscle rigidity was neither documented nor observed, making the diagnosis less straightforward. Early recognition, prompt discontinuation of the offending neuroleptic, and timely dantrolene treatment may improve outcomes. Although bromocriptine is generally recommended for NMS, it could not be administered because it was unavailable at our institution. This case suggests that dantrolene monotherapy may be a reasonable treatment option for NMS when bromocriptine is unavailable.

2026-0042

Figure & Table

Figure & Table 1.

Table 1. Perioperative Clinical Parameters, Chest Radiographic Findings, and Therapeutic Interventions

Parameter	Pre-op	POD#1 (4/25)	POD#2 (4/26)	POD#3 (4/27)	POD#4 (4/28)	POD#5 (4/29)	POD#6 (4/30)	POD#7 (5/1)
CK (U/L)	-	1,103	-	25,127	-	33,582	19,909	15,465
Myoglobin (ng/mL)	-	-	-	>1,000	>1,000	>1,000	>1,000	>1,000
Tmax (°C)	36.5	36.5	39.9	40.3	37.7	37.6	37.2	-
AST/ALT (U/L)	27 / 27	-	-	669 / 369	645 / 303	647 / 306	453 / 243	343 / 223
Creatinine (mg/dL)	0.89	0.82	-	1.21	1.14	1.01	0.68	0.74
Na / K / Ca / P	139 / 3.5 / 1.8	140 / 3.6 / 1.8	-	145 / 4.1 / 1.0	147 / 3.6 / 1.1	141 / 3.8 / 1.6	143 / 3.9 / 1.6	-
WBC (×10³/μL)	15.62	18.47	-	7.82	6.75	16.65	17.14	13.75
CRP (mg/L)	-	-	-	318.8	-	152.4	-	47.4
Lactate (mmol/L)	-	4.5	-	1.6	1.5	2.5	1.9	1.3
Chest X-ray	Cardiomegaly, Mild both lung edema	Cardiomegaly	Pneumonic infiltration in RUL, Cardiomegaly, Diffuse mild both lung edema	Multifocal pneumonic consolidations both lungs aggravated; both pleural effusions; diffuse mild pulmonary edema	Aggravated left pleural effusion; consolidations aggravated in BLLs	Resolving multifocal consolidations in right lung	Resolving edema/ pneumonia both lungs	Resolving bilateral pulmonary edema and pneumonia
Medication	-	-	Denogan q4h (07:00 start)	-	Dantrolene IV 3V (11:00) / PO (22:00)	Dantrolene IV 3V (18:00)	Dantrolene IV 3V (00:00 / 06:00 / 12:00)	-

ABSTRACT
Competition
Presentation
E-Poster

2026-0047

Playing Heart-to-Get: A Near Miss Case of a Penetrating Thoracic Injury

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Introduction

Penetrating thoracic injuries represent a diagnostic and therapeutic challenge, with the potential to rapidly progress from a stable presentation to a life-threatening one. The management of such injuries is predicted on a high index of suspicion for occult cardiopulmonary lesions, particularly when the trajectory of the object involves the precordial and parasternal regions. In these cases, even patients who appears hemodynamically stable may harbor injuries to the heart or great vessels requiring timely surgical intervention to prevent catastrophic outcomes.

Case

This is a case of a 26-year-old, classified as American Society of Anesthesiologists (ASA) physical status III due to tobacco and alcohol use, and the existing thoracic trauma, who presented five hors after sustaining a stab wound to the left chest during an altercation. On examination, the knife remained impaled at the left parasternal border, second to third intercostal space. Although the patient was not in acute distress and had stable vital signs, the finding of muffled heart sounds raised immediate concerns. Preoperative workup confirmed a left pneumothorax and mild anemia, with preserved coagulation parameters.

Patient was induced under general anesthesia – rapid sequence induction and intubation using a double-lumen tube via video laryngoscopy. Fiberoptic bronchoscopy was done to assess the level of the tube. Patient underwent left anterolateral thoracotomy, cardiorrhaphy, pneumorrhaphy, and closed tube thoracostomy of the left lung. Intraoperative findings revealed approximately 600cc of hematoma, 1cm laceration left ventricular myocardial laceration, a 3cm laceration at the anterior portion and a 1cm laceration at the posterior portion of the superior lobe of the left lung. Patient remained stable intraoperatively, and was extubated smoothly and fully awake. He was transferred to the surgical ICU postoperatively for close monitoring, and was sent home improved after 9 days with no postoperative complications.

Conclusion

This case demonstrates that patients with penetrating parasternal thoracic injuries may present with deceptive hemodynamic stability despite significant cardiopulmonary trauma. Successful management required coordinated rapid sequence induction, double-lumen tube intubation for lung isolation, and prompt surgical management. Surgical repair – cardiorrhaphy, pneumorrhaphy, and tube thoracostomy – resulted in an uneventful postoperative course, with the patient extubated immediately after surgery and discharged fully recovered on postoperative day nine. This case underscores that a low threshold fo anesthetic management and surgical exploration in stable patients with high risk penetrating thoracic trauma can lead to excellent outcomes.

2026-0047

Figure & Table

Figure & Table 1.

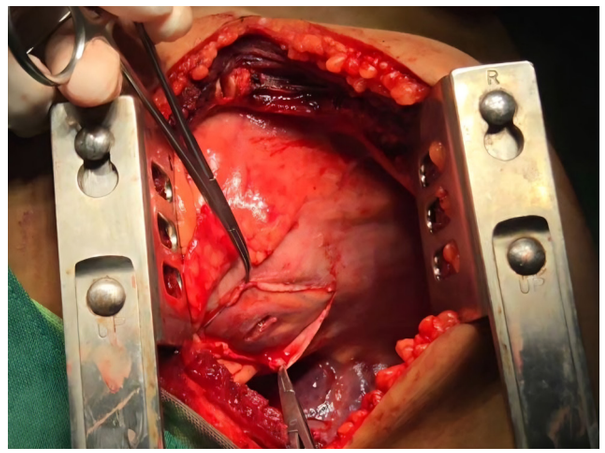
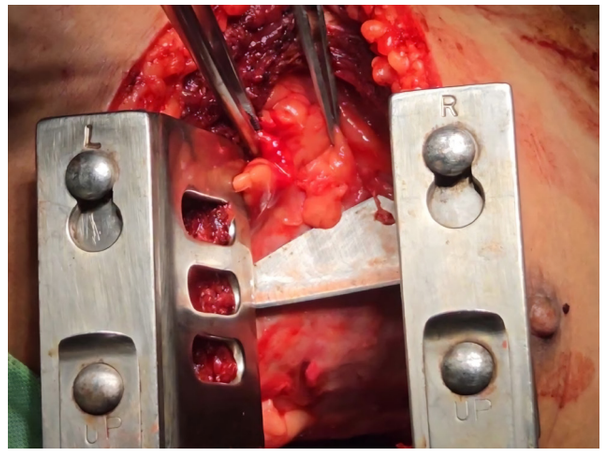


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0057

Anesthesia Residuals or Stroke: A Case Report

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Introduction
Delayed emergence from general anesthesia may present with neurologic findings that mimic acute cerebrovascular events, creating a diagnostic challenge in the immediate postoperative period. Prompt differentiation between perioperative stroke and reversible anesthesia-related causes is essential to guide appropriate management and avoid unnecessary interventions.

Case
A 64-year-old male with hypertensive atherosclerotic cardiovascular disease and type 2 diabetes mellitus underwent exploratory laparotomy, adhesiolysis, bowel resection, and excision of an enterocutaneous fistula under general anesthesia. The procedure lasted 15.5 hours and anesthetic management included sevoflurane maintenance and continuous dexmedetomidine infusion. Postoperatively, arterial blood gas analysis confirmed hypocapnia without significant hypoxemia or severe metabolic derangement. Shortly after surgery, the patient developed profound neurologic depression characterized by a Glasgow Coma Scale score of 4, fixed dilated pupils, and decorticate posturing, prompting activation of the Brain Attack Team. Emergent neuroimaging with computed tomography followed by magnetic resonance imaging demonstrated no evidence of acute infarction or intracranial hemorrhage. The patient demonstrated significant neurologic recovery within 24 hours without residual focal deficits.

Conclusion
The clinical presentation was most consistent with multifactorial delayed emergence mimicking acute stroke, likely related to prolonged anesthesia, dexmedetomidine infusion, advanced age, and significant hypocapnia. This case highlights the importance of a systematic diagnostic approach to postoperative neurologic deterioration, emphasizing the need to promptly exclude true cerebrovascular events while recognizing reversible anesthesia-related causes of delayed emergence.

2026-0058

Awake Fibreoptic Intubation Following Incidental Recognition of Cervical Fusion Anomalies Suggestive of Klippel–Feil Syndrome

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Introduction
Klippel-Feil syndrome (KFS) is characterised by congenital fusion of cervical vertebrae, resulting in restricted cervical mobility and an increased likelihood of difficult airway management. Airway manipulation carries an increased risk of neurological injury. Incidental radiological findings, when correlated with clinical examination, may necessitate modification of standard airway strategies even in the absence of a formal diagnosis.

Case
A 38-year-old man with baseline cognitive impairment presented after an unwitnessed fall with a right intertrochanteric femoral fracture requiring operative fixation. He had no known congenital or syndromic diagnosis. Computed tomography performed during trauma evaluation incidentally demonstrated anomalous fusion of multiple cervical vertebrae, a craniocervical junction fusion anomaly, and associated central canal narrowing.
Preoperative airway assessment revealed a Mallampati class IV airway, markedly restricted cervical range of motion, shortened neck, and poor dentition, raising suspicion for KFS and concern for neurological injury during airway manipulation.
Awake fibreoptic tracheal intubation was planned. Conscious sedation was achieved with remifentanil target-controlled infusion, preserving spontaneous ventilation and patient cooperation. Airway topicalisation was performed with lignocaine paste to the oral cavity and oropharynx, followed by 10% lignocaine spray after Berman airway insertion, and 2 mL of 2% lignocaine spray-as-you-go to the vocal cords. Awake oral fibreoptic intubation was successfully performed on the first attempt via the Berman airway with minimal cervical movement. General anaesthesia and surgery proceeded uneventfully.

Conclusion
In the absence of formal cervical spine assessment, the combination of incidental radiological abnormalities and a predicted difficult airway should prompt a cautious approach to airway management. This case illustrates that congenital cervical fusion anomalies identified on trauma imaging, even without a syndromic diagnosis, may warrant early consideration of awake, movement-minimising airway techniques. Awake fibreoptic intubation preserves spontaneous ventilation while minimising cervical movement and may represent a safe and controlled airway strategy in patients with suspected cervical spine abnormalities.

2026-0058

Figure & Table

Figure & Table 1.



Figure 1. Frontal and lateral views of the airway examination demonstrating poor dentition and markedly restricted cervical extension with a shortened neck

2026-0062

Transient Bilateral Lower Limb Paralysis Following Short Gynecological Surgery Under General Anaesthesia: A Diagnostic Challenge

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Introduction

Acute postoperative neurological deficits are uncommon but potentially catastrophic complications that require urgent evaluation to exclude spinal cord compression, ischemia, or other reversible causes. We report a case of transient bilateral lower limb paralysis following a short gynecological procedure under general anaesthesia (GA), highlighting the diagnostic approach and differential diagnoses.

Case

Case Presentation: A 29-year-old woman (159 cm, 53.1 kg, BMI 21 kg/m^2) with a history of anaemia, major depressive disorder, migraine, chronic intermittent back pain, and a previous episode of transient lower limb weakness in 2015 presented for dilatation and curettage with Mirena insertion for abnormal uterine bleeding. Surgery was performed under GA using a laryngeal mask airway in lithotomy position. Operative duration was 12 minutes and was uneventful apart from transient hypotension at induction (70/50 mmHg), treated with ephedrine 15 mg. No neuromuscular blocking agents were administered.

The patient awoke in the post-anaesthesia care unit and the laryngeal mask airway was removed uneventfully. Four minutes later, she was noted to have profound bilateral lower limb weakness and numbness. Examination demonstrated flaccid paralysis of both lower limbs (Medical Research Council power 0/5 throughout), reduced tone, hyporeflexia, lax anal tone, and sensory loss involving multiple lumbar and sacral dermatomes. Upper limb examination and cranial nerves were normal.

Given concerns for an acute spinal pathology, urgent neurology review and magnetic resonance imaging (MRI) of the lumbar spine were arranged. MRI demonstrated only mild lumbar spondylosis with a posterior annular fissure at L4–L5, without canal stenosis, nerve root compression, or other acute pathology. Electrolytes were normal. Over the subsequent hours, sensation gradually returned and motor power improved. By the following morning, neurological examination had completely normalised without intervention. The patient was discharged with outpatient neurology follow-up.

Discussion: The differential diagnosis included position-related peripheral nerve injury, spinal cord ischemia, metabolic causes, residual drug effects, and functional neurological disorder (FND). Although lithotomy positioning is associated with lower limb neuropathies, the dense bilateral motor and sensory deficits, sphincter involvement, and rapid complete recovery were atypical for a peripheral nerve injury. Spinal cord ischemia was considered given transient intraoperative hypotension, but imaging was unremarkable and neurological recovery was rapid. The patient's history of a similar self-limiting episode and the absence of structural abnormalities raised the possibility of FND.

Conclusion

Sudden postoperative bilateral lower limb paralysis should be treated as a spinal emergency until serious central causes are excluded. Prompt neurological assessment, review of perioperative factors, laboratory investigations, and urgent spinal imaging are essential. This case highlights the importance of maintaining a broad differential diagnosis, including functional neurological disorder, when investigations are unrevealing and recovery is rapid.

2026-0063

Sphenopalatine Ganglion Neuromodulation and Ablation for Refractory Post-Radiotherapy Facial Neuropathic Pain: A Case Report

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Introduction

Evidence guiding the management of post-radiotherapy neuropathic pain at the nasal base remains sparse, largely restricted to isolated case reports. Consequently, standardised therapeutic protocols for this condition are lacking. This report details the interventional management of a patient referred to a chronic pain service for refractory facial neuralgia following radiotherapy for nasopharyngeal carcinoma.

Case

Case Description: The patient presented with persistent neuropathic pain, refractory to conventional pharmacotherapy, characterized by deep paresthesia of the right naris radiating to the nostrils, nasal root, and maxillary dentition. Mastication provoked lancinating pain, significantly impairing oral function. This pain distribution suggested extensive involvement of the maxillary (V2) branches (infraorbital, superior alveolar, nasopalatine, and greater palatine nerves) and ophthalmic (V1) branches (anterior ethmoidal and external nasal nerves). Because the sphenopalatine ganglion (SPG) receives sensory afferents from V2 and serves as a critical relay for multiple nasal branches, it was identified as the optimal neuroanatomical target to address this specific nociceptive distribution.
Methods and Outcomes: A diagnostic trans-nasal SPG block utilising 1% lignocaine was performed, yielding immediate analgesia. The patient subsequently underwent pulsed radiofrequency neuromodulation of the SPG (42°C, 10 Hz, 8 minutes). This intervention produced a 90% reduction in symptoms, with relief sustained for three months. Seeking definitive, long-term analgesia, the patient was offered conventional thermal radiofrequency ablation (RFA) of the SPG, executing two discrete lesions at 80°C for 90 seconds. This ablation restored pain-free mastication and maintained a 90% overall symptom improvement. At the eight-month follow-up, the patient remained asymptomatic.

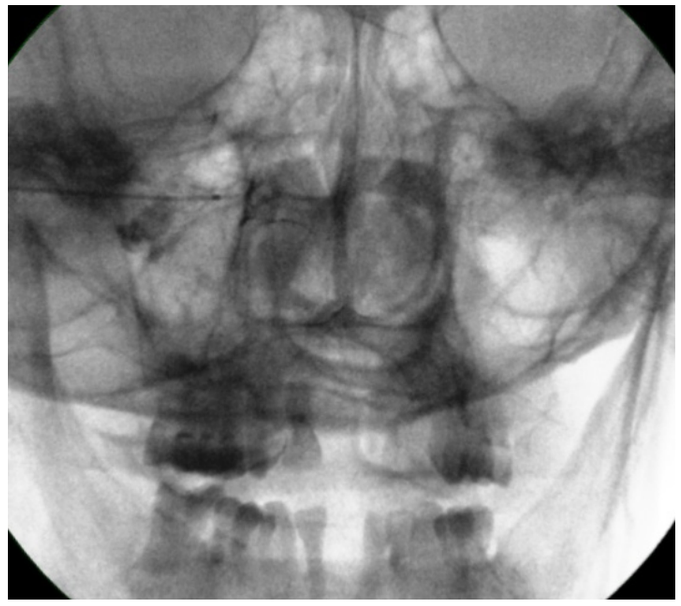
Conclusion

Discussion: While robust evidence supports SPG interventions for cluster headaches, trigeminal neuralgia, and postsurgical sinus pain (Ho et al., 2017), its application in post-radiotherapy neuralgias is physiologically distinct and underreported. Radiation-induced neuropathic pain involves progressive tissue fibrosis, ischemic microvascular damage, and chronic neuroinflammation, which frequently complicate traditional analgesic strategies. Despite these pathophysiological challenges, the sustained relief achieved in this case demonstrates that SPG neuromodulation and thermal ablation offer a viable, lower-morbidity alternative to trigeminal ganglion neurolysis for diffuse facial pain. Ultimately, an algorithmic, stepwise approach—initiating with minimally invasive diagnostic SPG blocks and advancing to thermal neurolysis only upon definitive positive response—is highly recommended to safely mitigate the debilitating functional sequelae of post-radiation facial neuropathies.

2026-0063

Figure & Table

Figure & Table 1.



ABSTRACT
Competition
Presentation
E-Poster

2026-0065

The Development of a Novel Oximetry: A Correlation Study of an Extracranially Placed Oximetry to Standard Frontal Cerebral Oximetry During Surgery

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Background

Cerebral oximetry monitoring remains challenging in neurosurgical practice, particularly during craniotomy where standard frontal sensor placement may interfere with the surgical field. This limitation is especially relevant in elderly patients with significant comorbidities, who are at increased risk of perioperative cerebral ischaemia. The inability to utilise conventional monitoring sites may compromise intraoperative assessment of cerebral oxygenation. These challenges have prompted exploration of alternative extracranial anatomical sites for reliable monitoring.

Methods

This prospective correlation study included six patients (3 male, 3 female; mean age 45 ± 10.2 years) classified as ASA I–II undergoing elective surgery. Patients were allocated to three extracranial monitoring sites: maxillary (A1), jugular (A2), and pre-auricular (A3), in comparison with standard frontal cerebral oximetry using the Masimo Root® O3® system. Correlation analysis was performed between extracranial and frontal regional oxygen saturation (rSO2) values.

Results

Preliminary findings demonstrated moderate to strong correlation for the maxillary (r = 0.703) and jugular (r = 0.735) sites with standard frontal measurements. The pre-auricular site showed weaker correlation (r = 0.440).

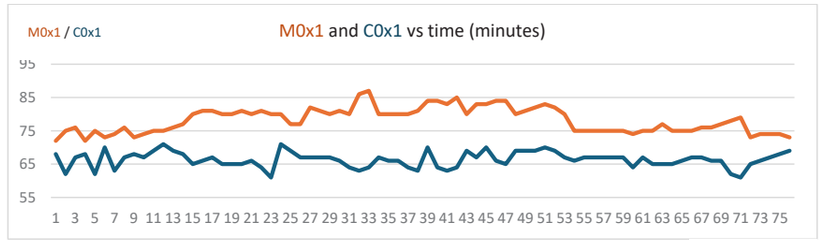
Conclusion

The maxillary and jugular regions show potential as alternative extracranial sites for cerebral oximetry monitoring.

2026-0065

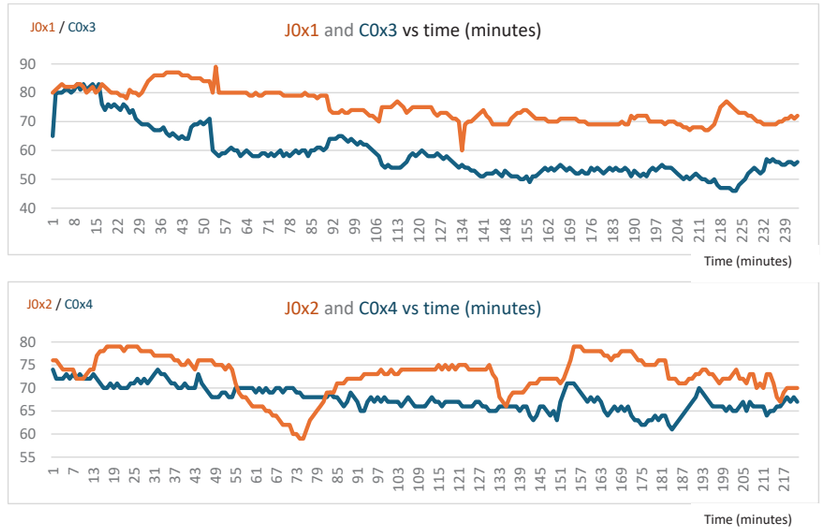
Figure & Table

Figure & Table 1.



Graph 1: Maxillary and Cerebral site readings over time (minutes)

Figure & Table 2.



Graph 2: Jugular and Cerebral site readings over time (minutes)

ABSTRACT
Competition
Presentation
E-Poster

2026-0070

Anaesthesia Management for a Patient with Moderate-Severe Mitral Regurgitation Undergoing Non-Cardiac Surgery

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Introduction

Moderate-severe mitral regurgitation (MR) poses unique haemodynamic challenges in non-cardiac surgery. Key haemodynamic goals include a high-normal heart rate, reduced afterload, and maintaining preload.

Case

We present a 79-year-old patient who underwent right hip joint washout and drainage of the iliacus collection in the emergency operating theatre for septic arthritis with iliacus collection. He has a background of mitral valve prolapse with moderate-severe mitral regurgitation and well-controlled hypertension on medications. Pre-operative transthoracic echocardiogram revealed an ejection fraction of 60% (Simpson's biplane), moderate to severe eccentric MR, no vegetations were seen. The patient was optimised pre-operatively by ensuring euvolemia and obtaining input from cardiology. Blood investigations were significant for anaemia of Hb 8.3g/dL, thus we had reserved 1 unit of cross-matched packed red blood cells for the surgery. An infected sebaceous cyst over the lumbar region precluded spinal anaesthesia, which would have been our anaesthetic technique of choice. General anaesthesia was hence chosen; our patient was induced with propofol, and a laryngeal mask airway (LMA) was inserted in view of adequate fasting and low aspiration risk. Standard American Society of Anesthesiologists (ASA) monitoring was applied. Intraoperatively, a high-normal heart rate (HR) of 80-100 beats per minute (BPM) was maintained. Mean arterial pressure (MAP) was maintained within 20% of baseline (65mmHg and above). Hypotension was treated with ephedrine as the 1st line vasopressor when the heart rate was below target. Preload was also maintained by ensuring euvolemia. At the midpoint of surgery, our patient became hypotensive (MAP ~60mmHg) due to surgical blood loss of approximately 400ml. We treated the patient with titrated boluses of phenylephrine despite theoretical concerns of increasing afterload, as 30mg of ephedrine had already been given and HR was at target, and transfused 1 unit of packed red blood cells. His blood pressure stabilised post-transfusion, further highlighting the importance of maintaining preload. Apart from a brief period of hypotension, the patient's blood pressure was maintained at MAP ≥65mmHg and HR 80-100 BPM. LMA was removed uneventfully, and he made an unremarkable recovery postoperatively.

Conclusion

Moderate-severe MR in non-cardiac surgery is manageable with a goal-directed haemodynamic strategy. Vasopressor selection should be individualised, and ensuring euvolemia is essential with close attention to intraoperative fluid losses.

2026-0070

Figure & Table

Figure & Table 1.

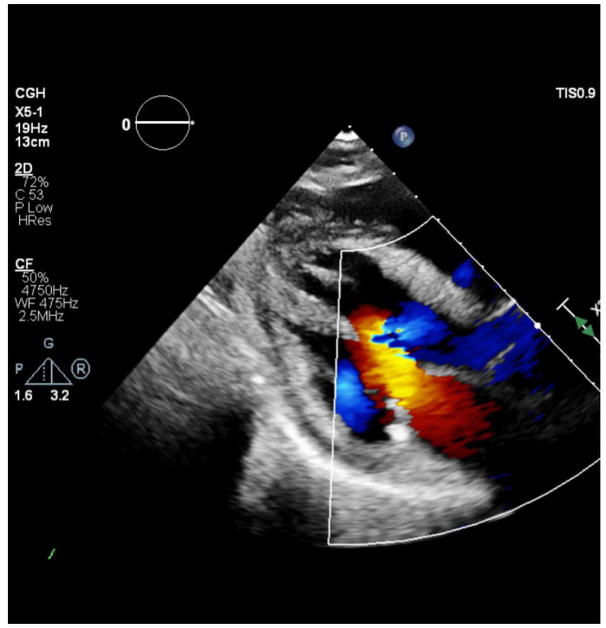
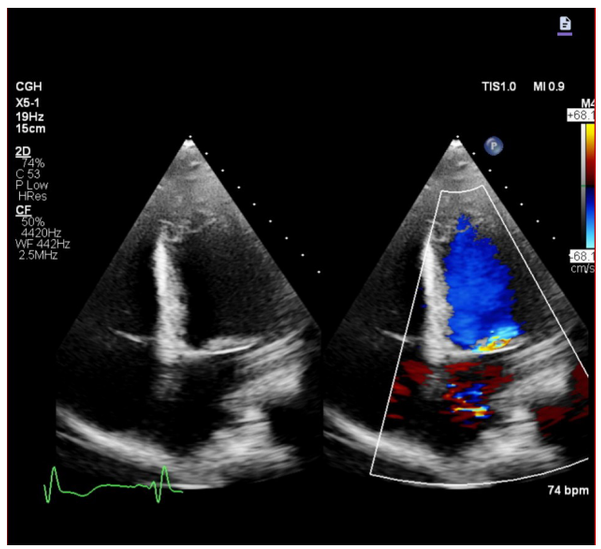


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0072

Complex Airway Management: 'Tubeless' Ventilation Techniques in a Patient with a Tracheostome Undergoing Airway Surgery.

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Introduction

Only a single case report involving a patient with a tracheostome undergoing tracheal exploration with jet ventilation via a suction catheter inserted through the tracheostome has been published.

Case

A 60-year-old male with a background of hypoxic ischemic encephalopathy secondary to out-of-hospital collapse with a long-term tracheostomy since 2019 presented with new stridor and oxygen saturations of 88-92% during a routine ENT clinic review. Nasoendoscopy reviewed tracheal granulation tissue seen inferior to the lower end of the tracheostomy tube and prolapsing into the tube with almost complete occlusion of the trachea. He underwent an emergency tracheoscopy and excision of tracheal granulation tissue. The tracheostomy tube was removed, and a suspension laryngoscope (Lindholm) was inserted through the tracheostome prior to telescope insertion for exploration. A 'tubeless' ventilation technique was required to optimise surgical access. General anaesthesia maintained with total intravenous anaesthesia propofol and remifentanil. Transnasal humidified rapid-insufflation ventilatory exchange (THRIVE) apnoeic oxygenation via high flow nasal canula was initially attempted but promptly abandoned in view of repeated episodes of desaturation. Decision made to switch to jet ventilation (Manujet III set) via the suspension laryngoscope side-port (O2 flow rate 15L/min, pressure limit 1 bar) (Figure 1). 45 minutes into the surgery, the use of a microdebrider to excie the granulation tissue was required, and this necessitated the removal of the suspension laryngoscope for surgical access. The Manujet connection tubing was attached to a stand-alone ventilation port attachment, and jet ventilation via the ventilation attachment was resumed (Figure 2). Remainder of the surgery proceeded uneventfully.

Ventilation options in this case was limited. Endotracheal intubation via the oral route is not feasible as the endotracheal tube tip had to bypass the level of obstruction but would impede surgical access. Apnoeic oxygenation with THRIVE is unsuitable due to 1) presence of a patent tracheostome which disrupts the aventilatory mass flow of oxygen to the lungs and results in loss of positive end expiratory pressure, 2) surgical duration exceeded more than 30 minutes.

Conclusion

'Tubeless' ventilation techniques in a patient with a tracheostome undergoing an airway surgery is complex and requires careful planning. Apnoeic oxygenation with THRIVE may not be suitable in patients with a tracheostome due to air leak. Jet ventilation can be safely performed via 1) side-port of the suspension laryngoscope inserted into the tracheostome, and 2) stand-alone ventilation port without its attachment to a laryngoscope/rigid scope.

2026-0072

Figure & Table

Figure & Table 1.



Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0076

Inadvertent Cannulation of Central Venous Catheter to Left Lumbar Vein via Left Femoral Route

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Introduction

Central venous catheter (CVC) insertion under ultrasound guidance is the standard of care worldwide. Internal jugular or subclavian routes are preferred as they lower infection risk. However, some factors such as preexisting lines over head and neck makes the femoral route the better option. Here we described a case of a malpositioned CVC to left lumbar vein via left femoral route.

Case

A 29-year-old gentleman with significant medical history of severe scoliosis, neurofibromatosis, right temporal ganglioma with existing right VP shunt underwent laparotomy, resection of ileocolic anastomosis, following an anastamotic complication. A quad lumen CVC was inserted via left femoral vein under ultrasound guidedance for vasopressors and fluid resuscitation as the patient had poor intravenous (IV) access. Femoral vein access was chosen in view of an existing left arm PICC, a left external jugular IV and a right VP shunt. Cannulation was uneventful. Resistance was encountered during aspiration of blood from the distal port while , other ports remained patent. CVC was withdrawn 2cm with smooth aspiration on distal port. Readvancement was done to 20cm to reduce infection risk but found that distal port again was not aspirating well. CT abdomen pelvis was done 5 days later to assess intrabdominal collection incidentally showed that the CVC tip was located at paravertebral soft tissue. Multidisciplinary team discussion among vascular and radiology team reviewed the CVC tip was likely in lumbar vein or collateral vessel, less likely perforation due to absence of extravasation of contrast and hematoma on imaging. CVC was removed smoothly under VIR tubogram with further angiogram showing no extravasation. Patient remained well with no complications.

Conclusion

Femoral CVC insertion avoids pneumothorax risks, but it is associated with the rare complication of inadvertent advancement into paraspinal veins. A higher incidence has been found in the paediatric group with left sided ascending lumbar vein cannulation due to the wider angle between ascending lumbar vein and common iliac vein as compared to the right.[1] In this case, the risk of malposition was likely due to the variability of the anatomy with severe scoliosis, alteration vessels and formation of collaterals. If high resistance is encountered during port aspiration, it implies the placement within smaller calibre vessel, abutment against vessel walls, or worse, perforation. As presentation varies with potential risks of complications, a high index of suspicion must be maintained when aspiration is impeded. To mitigate the risks, identification of high risk patients i.e. altered anatomy and consider using shorter CVCs or right femoral vein approach may help with the reduction of inadvertent lumbar vein cannulation.

2026-0076

Figure & Table

Figure & Table 1.

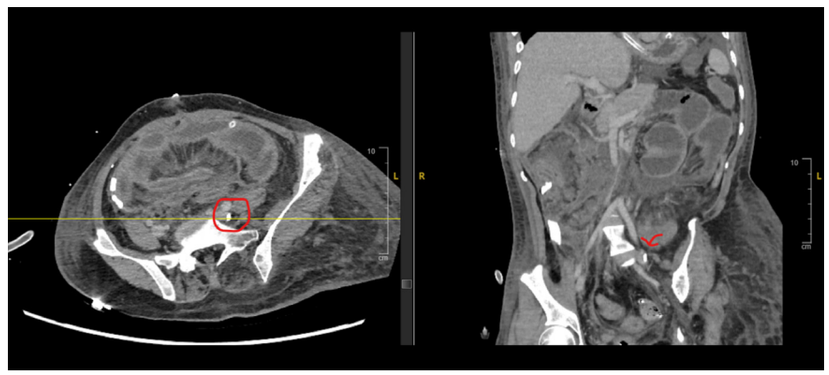
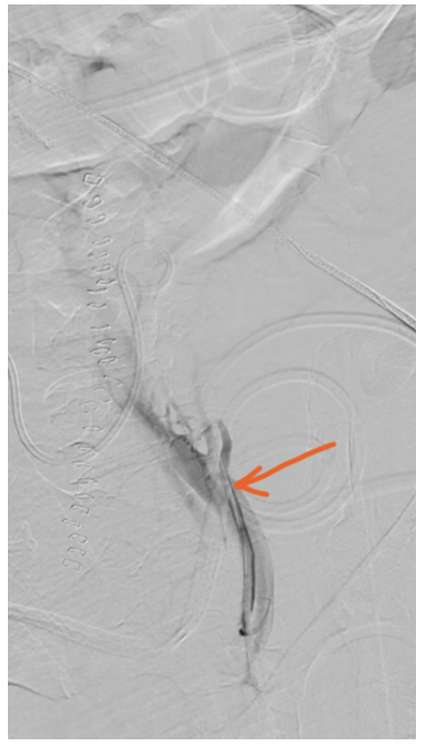


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0077

Rethinking the Default — Continuous Spinal Anaesthesia Enabling Opioid-Free ERAS in Major Abdominal Oncosurgery

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Introduction
Continuous spinal anaesthesia (CSA) offers titratable, extendable neuraxial blockade through an intrathecal catheter, making it theoretically ideal for prolonged major abdominal oncosurgery. However, prospective data on its feasibility, haemodynamic profile, and recovery outcomes in this setting remain scarce. We report a case series of eight consecutive patients who underwent major abdominal cancer surgery under CSA as the sole anaesthetic technique.

Case
Eight adult patients (ASA II–III, mean age 57.4 ± 10.6 years) underwent elective major abdominal cancer surgery — including Whipple's procedure (n=4), radical cystectomy with ileal conduit (n=2), extended hemicolectomy with liver metastasectomy (n=1), and cytoreductive surgery (n=1) — under CSA at a tertiary oncology centre. An 18G Tuohy needle and 19G intrathecal catheter were used at T12–L1 or L1–L2, with 0.5% hyperbaric bupivacaine titrated to achieve T4–T6 sensory level. Dexmedetomidine 0.5 mcg/kg/h provided intraoperative sedation. A thoracic epidural catheter placed preoperatively was activated at 12 hours postoperatively with plain bupivacaine 0.125% via elastomeric pump, providing seamless analgesic continuity. No opioid was administered at any point.
All eight cases were completed without conversion to general anaesthesia. Mean surgical duration was 465 ± 62 minutes. Intraoperative hypotension occurred universally (33 total episodes) but was managed with ephedrine and low-dose noradrenaline infusion without haemodynamic sequelae. NRS pain scores were 0 at 0–6 hours in all patients. Postoperative opioid consumption was zero in all cases at 24 and 48 hours. All patients ambulated within 18 hours, commenced incentive spirometry by 6 hours, and none required postoperative NIV or supplemental oxygen. Mean time to bowel function was 33.8 ± 10.1 hours. Surgeon satisfaction with abdominal wall relaxation was 4.5/5. One patient developed post-dural puncture headache, which resolved conservatively.

Conclusion
CSA with a sequential thoracic epidural strategy enables complete opioid-free anaesthesia and analgesia for prolonged major abdominal oncosurgery, with early recovery, preserved respiratory mechanics, and excellent surgical conditions. These findings support its prospective evaluation as an ERAS-compatible technique in oncosurgical practice.

2026-0079

The EXIT Strategy: Anesthesia Making the Great Escape a Smooth Ride in Emergency EXIT for Large Fetal Cervical Cystic Hygroma

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Introduction
The Ex Utero Intrapartum Treatment (EXIT) procedure enables secure fetal airway management while maintaining placental perfusion, posing unique anesthetic challenges. Elective EXIT allows a detailed multidisciplinary planning and preparation, however emergency EXIT requires rapid adaptation to evolving maternal and fetal priorities. Anesthesia must achieve deliberate uterine relaxation, maintain maternal hemodynamics and uteroplacental perfusion, and facilitate fetal airway establishment before transitioning to restoration of uterine tone and maternal hemostasis.

Case
A 16-year-old primigravida at 37 1/7 weeks gestation presented in active labor necessitating an emergent delivery. Prenatal imaging performed upon presentation incidentally revealed a multicystic, multiseptated mass seen at the left lateral fetal neck region measuring 77.4 × 75.9 × 43.9 mm (estimated volume of 124.45 mL), suspected to be a cystic hygroma or lymphangioma posing a high risk immediate airway obstruction. An emergency cesarean section with EXIT procedure was performed. Maternal general anesthesia was induced with standard induction agents, and a high-dose sevoflurane maintained at MAC 1.5-2.0 to achieve uterine relaxation and facilitate maternal intubation. Partial fetal delivery allowed successful neonatal intubation via video laryngoscopy without need for emergent tracheostomy. At this point, anesthetic priorities shifted from maintaining uterine relaxation and uteroplacental perfusion to restoring uterine tone and maternal homeostasis. Anesthesia was transitioned to manual propofol total intravenous anesthesia (TIVA) titrated at intermittent doses of 30–50 mg every 3–4 minutes (approximating an average delivery rate of 7.5–16.7 mg/min) over the 45-minute closure, with a total dose of 460 mg, combined with standard uterotonics immediately after umbilical cord clamping and fetal delivery to restore uterine tone and minimize hemorrhage. Transient episodes of maternal hypotension were encountered during the transition but was successfully managed with titrated boluses of intravenous Ephedrine maintaining hemodynamic stability throughout the surgical closure. Minimal intraoperative blood loss was encountered, and the postoperative course was uneventful without complications. EXIT to delivery time was 9 minutes; blood loss was 800 mL, with APGAR scores of 7 and 9 at 1 and 5 minutes. Both mother and neonate were discharged in stable condition. At 5 months of age, the infant underwent elective sclerotherapy for the cystic hygroma.

Conclusion
Emergency EXIT requires rapid adaptation of anesthetic priorities throughout the procedure. In this case, a goal directed transition from sevoflurane induced uterine relaxation to propofol based intravenous anesthesia following fetal airway establishment, combined with uterotonic therapy, facilitated restoration of uterine tone while maintaining maternal hemodynamic stability. This case highlights the critical role of dynamic anesthetic management and multidisciplinary coordination in the time sensitive care of emergency EXIT.

2026-0079

Figure & Table

Figure & Table 1.



Figure 1: Partial fetal delivery demonstrating a large cystic hygroma during EXIT.

2026-0080

Multimodal Ultrasound-Guided Regional Anesthesia for Opioid-Sparing Recovery After Forequarter Amputation in a Patient with Proximal Humeral Osteosarcoma

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Introduction

Forequarter amputation produces extensive nociceptive input from multiple overlapping dermatomal distributions, including the brachial plexus (C5–T1), cervical plexus (C2–C4), and thoracic intercostal nerves (T2–T6), creating a substantial pain burden that is difficult to manage with opioids alone. Enhanced Recovery After Surgery principles emphasize multimodal, opioid-sparing analgesia incorporating regional anesthesia. The use of layered, ultrasound-guided regional anesthesia combining multiple peripheral nerve and fascial plane blocks for this procedure has not been well described.

Case

We report a 24-year-old male with suspected chondroblastic osteosarcoma of the right proximal humerus who underwent open right forequarter amputation with split-thickness skin grafting. After two cycles of neoadjuvant chemotherapy, he was classified as ASA Physical Status III. Following general endotracheal anesthesia induction with fentanyl, propofol, and rocuronium, a comprehensive multimodal regional anesthesia strategy was implemented under ultrasound guidance: interscalene brachial plexus block, superficial cervical plexus block, clavicopectoral fascial plane block, superficial parasternal intercostal plane block, and erector spinae plane block at T5. Ropivacaine 0.2% was utilized, total local anesthetic dose was calculated at 2.5mg/kg (187.5mg) within safe limits for 75-kg patient. This combination was selected to provide comprehensive dermatomal coverage of the surgical field. The procedure lasted 7 hours 46 minutes with 150 mL intraoperative blood loss (plus 700 mL specimen-related). The patient remained hemodynamically stable throughout. Postoperatively, he achieved sustained analgesia with NRS scores of 0–1 without rescue opioid analgesia from postoperative day (POD) 1 through POD 5. He was discharged stable on POD 5.

Conclusion

This case demonstrates that a layered, multimodal ultrasound-guided regional anesthesia approach targeting overlapping dermatomal distributions can facilitate postoperative opioid-sparing recovery following forequarter amputation. The combination of five ultrasound-guided techniques may provide comprehensive analgesic coverage for this complex procedure, although further studies are needed to determine the optimal block combination and relative contribution of each technique.

2026-0080

Figure & Table

Figure & Table 1.



Figure 1 Anterior & Lateral View of Patient's Pathology

Figure & Table 2.

1 Interscalene Brachial Plexus Block

2 Superficial Cervical Plexus Block

3 Clavicopectoral Fascial Plane Block

4 Superficial Parasternal Intercostal Plane Block

5 Erector Spinae Plane Block at T5



2026-0081

Peripartum Anaesthetic Management of Parturient with Tuberous Sclerosis Complex and Stage 5 Chronic Kidney Disease

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Introduction

Tuberous sclerosis complex (TSC) is a rare multisystem disorder with neurological, renal, pulmonary and cardiac manifestations. We describe the peripartum anaesthetic management of a parturient with advanced multisystem TSC and stage 5 chronic kidney disease (CKD).

Case

A 27-year-old G2P1 with TSC was admitted at 35+2 weeks' gestation for induction due to severe fetal anomalies and worsening maternal renal function. Comorbidities included cortical tubers with childhood seizures, renal angiomyolipomas (post-embolisation), interstitial lung disease, dilated cardiomyopathy (LVEF 40–50%) and stage 5 CKD (baseline creatinine 363 µmol/L). She had repeatedly declined dialysis. A multidisciplinary team (obstetrics, anaesthesiology, nephrology, cardiology, neonatology) was established at 9 weeks' gestation.

Initial investigations revealed severe anemia (Hb 6.2g/dL), requiring transfusion of two packed red blood cells. Given her limited cardiorespiratory reserve and risk of urgent operative delivery, an early extendable neuraxial strategy was chosen to minimise sympathetic stimulation and to avoid the respiratory and hemodynamic risk of general anaesthesia. Combined spinal–epidural analgesia was established using intrathecal Ropivacaine 2 mg with Fentanyl 15 µg, followed by a 0.1% Ropivacaine epidural infusion. Labour was complicated by prolonged second stage and non-reassuring fetal status. An epidural top up (10ml 0.2% Ropivacaine with Fentanyl 50 µg) was given to facilitate vacuum-assisted vaginal delivery. The neonate (1850 g, 1st centile) developed respiratory distress requiring CPAP (Apgar 8/9) and was admitted to NICU. Assessment revealed cardiac rhabdomyoma and renal cyst consistent with TSC.

Postpartum haemorrhage secondary to uterine atony was managed with uterotonics, tranexamic acid and blood transfusion. Metabolic acidosis worsened postpartum (serum bicarbonate 11.4 mmol/L; base excess −14.1). She again declined dialysis. Bicarbonate infusion, serial monitoring and judicious volume management were instituted given her limited cardiorenal reserve. Serum bicarbonate levels normalised to 24 mmol/L by discharge, though severe renal impairment persisted.

Conclusion

Advanced TSC with stage 5 CKD poses competing cardiorenal and respiratory challenges at delivery. Early multidisciplinary planning and a low-dose, extendable neuraxial strategy facilitated labour analgesia and operative delivery while minimising haemodynamic and respiratory perturbations. This case highlights the challenge of balancing haemorrhage resuscitation and acidosis correction against the risk of fluid overload in a parturient with limited cardiorenal reserve.

2026-0081

Figure & Table

Figure & Table 1.

	Baseline (pre-natal)	On admission	**Induction of labour**	**Postpartum**	Postpartum D1	Postpartum D2	On discharge
Hemoglobin (g/dL)	6.5	6.2	6.9	6.8	7.2	7.6	7.6
Urea (mmol/L)	23	28.6	28.1	29.4	31.8	29.6	29.2
Bicarbonate (mmol/L)	21	19.4	16.2	**11.4**	21.2	20.6	24
Creatinine (μmol/L)	363	485	472	**503**	497	521	528
eGFR (mL/min/1.73 m²)	10	10	10	9	9	10	9
Base Excess			-9.7	**-14.1**			

Table 1. Serial measurements of hemoglobin, urea, bicarbonate, creatinine, base excess, and eGFR during labour, postpartum, and at discharge

2026-0082

From the First LVAD Implantation in Indonesia: Challenges and What We Can Do Better?

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Introduction

Indonesia, an archipelagic developing country with population >300 million, has a heart failure prevalence exceeding 5%. Although its abundant resources and large patient population, advanced heart failure therapy like LVAD never been performed due to high cost, specialized infrastructure, inadequate patient registry, and other healthcare priorities

Case

A-39-year-old male was diagnosed with ADHF due to non-specific cardiomyopathy, LVEF 21%, preserved RV function, and normal valves. RHC showed increased PVR, low CO and CI. The patient underwent LVAD implantation. Anesthesia induction, intraoperative management, and CPB weaning were uneventful. Hemodynamic was supported with adrenaline, noradrenaline, and milrinone.

Upon admission to ICU, MAP was 62 mmHg, supported by moderate-dose of adrenaline, noradrenaline, milrinone, and NTG. BGA revealed metabolic acidosis with a lactate level of 7.6 mmol/L, anemia Hb 8.2 g/dL. LVAD parameters speed were set at 5100 rpm, with a flow of 4.4 L/min and a pulsatility index (PI) of 3.0.

Significant postoperative bleeding required ±800ml multiple blood product transfusions on ICU arrival. The patient exhibited severe agitation during ventilator weaning attempts. On day 4, CRRT was run due to sepsis, VAP and AKI. Antibiotic therapy escalated.

On day 7, the patient able to extubated, although delirium persisted. LVAD monitoring was stable with PI 3.0, and speed could be turned down.

On day 12, the patient experienced clinical deterioration following chest tube removal. He developed acute RV failure with elevated PA pressure. LVAD revealed marked PI variability. TEE showed cardiac tamponade and massive pleural effusion.

Emergency chest reopening performed bedside due to profound hemodynamic instability, evacuating ±300 mL and 800 mL of pericardial and pleural blood. The patient required massive blood transfusion, fluid resuscitation, and escalating doses of vasopressors and inotropes. The patient progressed to septic shock. CRRT, nitric-oxyde re-run, and VA-ECMO was instituted. He was pronounced dead the day after despite maximal resuscitation.

Conclusion

This case illustrates the complexity of managing the first LVAD patient in Indonesia. Despite multidisciplinary approach between anesthesiologist, intensivist, surgeon, cardiologist, pulmonologist, nursing, and hospital management, a favorable outcome was not achieved due to the patient's multiple complications.

As a first experience, this case provided valuable lessons and highlighted several opportunities for improvement. Furthermore, the development of a collaborative healthcare ecosystem with government support is needed to optimize the management of advanced heart failure therapies, and as part to facilitate the future of heart transplantation program in Indonesia.

2026-0082

Figure & Table

Figure & Table 1.

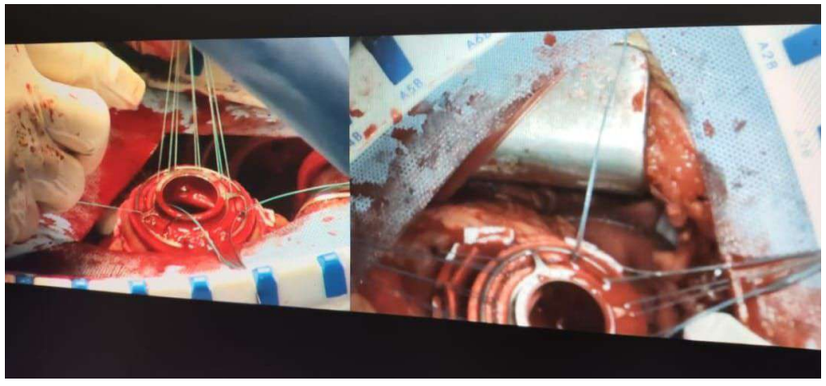
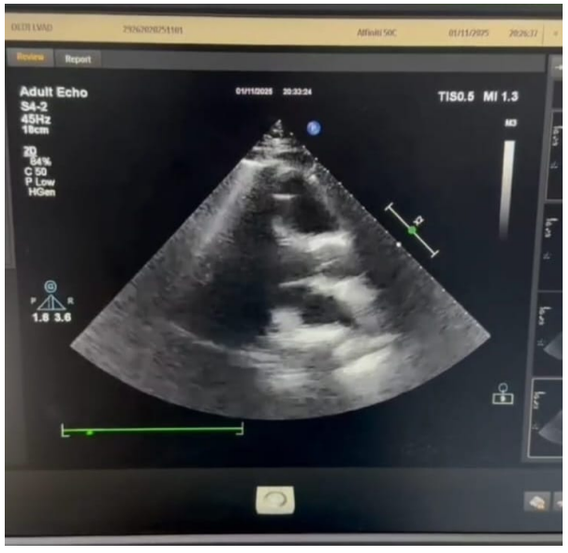


Figure & Table 2.



2026-0088

Dynamic Anaesthetic Management of Near-Complete Right Main Bronchus Obstruction Due to Metastatic Lung Adenocarcinoma Requiring Rigid Bronchoscopy and Stenting

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Introduction

Malignant central airway obstruction presents major anaesthetic challenges because severe airway compromise limits ventilation options and may lead to catastrophic respiratory failure. Successful management requires careful planning and the ability to adapt to changing intraoperative conditions.

Case

A 79-year-old man with stage IV right upper lobe adenocarcinoma, previous coronary artery bypass grafting, moderate aortic stenosis, left ventricular ejection fraction of 46%, and radiological emphysema presented with worsening haemoptysis and dyspnoea. Computed tomography demonstrated near-complete obstruction of the right main bronchus with post-obstructive collapse. He was scheduled for rigid bronchoscopy, tumour debulking, laser therapy, and possible stenting.

General anaesthesia with target-controlled propofol and remifentanil infusions was induced after preoxygenation in a semi-recumbent position. Following confirmation of mask ventilation, neuromuscular blockade was achieved with rocuronium. High-frequency jet ventilation through the rigid bronchoscope was attempted but resulted in markedly elevated airway pressures, raising concerns regarding dynamic hyperinflation and barotrauma. Consequently, the procedure was converted to flexible bronchoscopy using a size 5 Ambu® AuraGain supraglottic airway with conventional mechanical ventilation.

The large airway lumen allowed simultaneous insertion of the flexible bronchoscope, cryoprobe and controlled radial expansion balloon while maintaining adequate ventilation. Tumour debulking and laser therapy restored airway patency. Owing to difficulty advancing the metallic stent through the vocal cords because of anterior laryngeal anatomy, the supraglottic airway was exchanged for a size 9 endotracheal tube, which served as a conduit for successful deployment of a 16 × 30 mm fully covered metallic stent in the right main bronchus. The patient was extubated uneventfully and successfully weaned off supplemental oxygen on postoperative day one.

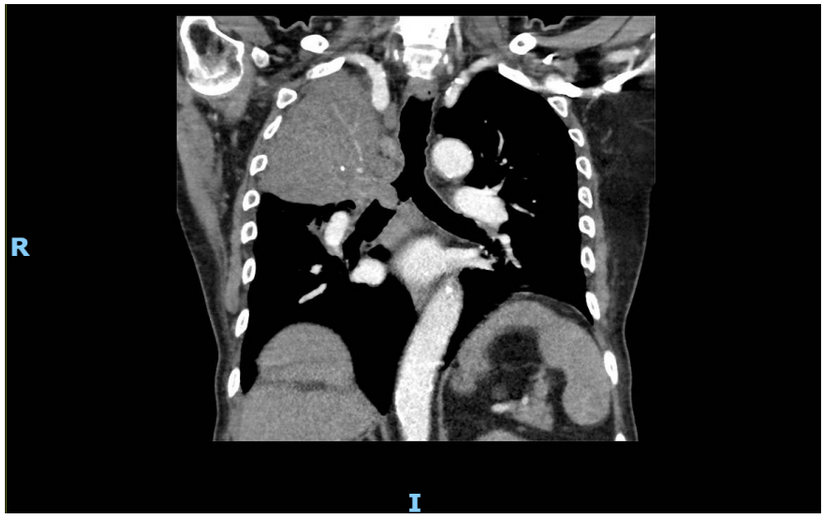
Conclusion

This case highlights the importance of flexibility during complex airway interventions. When high-frequency jet ventilation proved unsuitable, conversion to flexible bronchoscopy via an Ambu® AuraGain supraglottic airway allowed effective ventilation and successful tumour debulking. Individualised airway strategies and close collaboration between anaesthesiologists and interventional pulmonologists are essential for the safe management of malignant central airway obstruction.

2026-0088

Figure & Table

Figure & Table 1.



2026-0089

A Case Report of Anaphylaxis Associated with Tisseel Fibrin Sealant in Laparoscopic Subtotal Gastrectomy in Singapore

Jacqueline Jie Lin Chua[1*], Faith Ai Ping Zeng[2], Cheryl Jiayu Saw[1], Venkatesan Kumaresh[1], Xin Yi Choo[2], Nor Alia Binti Mohd Noor[2]

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Introduction

TISSEEL is a topical fibrin-based sealant used for surgical haemostasis. It contains aprotinin, fibrinogen, factor XIII, thrombin and calcium dihydrate. Aprotinin is a serine protease inhibitor which inhibits fibrinolysis and coagulation, with a 0.2% incidence of perioperative anaphylaxis in cardiac surgery. We report a case of suspected perioperative anaphylaxis due to local application of haemostatic spray containing aprotinin.

Case

A 74 year old Chinese female with stage 3 gastric body adenocarcinoma underwent laparoscopic subtotal gastrectomy and lymphadenectomy with Roux-en-Y reconstruction. She had panhypopituitarism following transsphenoidal surgery for pituitary lymphocytic hypophysitis, requiring hormonal replacement.
She was electively admitted and given stress steroid cover as advised by her endocrinologist. General Anaesthesia (GA) was induced uneventfully and maintained with propofol, remifentanil, ketamine and atracurium infusions. Approximately 10 minutes after local application of Tisseel haemostatic spray, patient developed sudden severe hypotension unresponsive to phenylephrine, fluid bolus and adrenaline 10mcg/kg. The surgery was converted to open laparotomy to exclude occult bleeding or soilage. After preliminary investigations including point-of-care ultrasound were unyielding, anaphylactic shock was suspected. Infusions of noradrenaline and adrenaline were started and surgery deferred. Serum tryptase was 8.0 (0h) > 13.3 (1h) > 11.4 (6h) > 3.8ug/L (24h post-reaction; upper limit of normal 11.4ug/L). Drug chart revealed that no new anaesthetic medication had been administered in the last 2 hours, making aprotinin the most likely culprit. Patient underwent staged Roux-en-Y reconstruction and made an uneventful recovery.
In the largest prospective study of perioperative anaphylaxis in the UK, only one case was linked to aprotinin as the probable causative agent. Locally, the incidence of anaphylaxis to aprotinin is not known.
A transient rise in serum tryptase, a key marker of mast cell degranulation in IgE-mediated hypersensitivity reactions, is highly specific but only moderately sensitive. Our patient demonstrated a positive rise in serum tryptase, peaking 1 hour post-reaction and normalizing by 24 hours post-reaction.
A clinical scoring system has been proposed by Hopkins et al. to diagnose perioperative immediate hypersensitivity reactions. The score is based on symptoms and biochemical testing, due to the only moderate sensitivity of serum tryptase levels alone. This patient scored 8 points for symptoms and 12 points for tryptase trend, giving a score of 20 suggestive of "very likely" reaction.

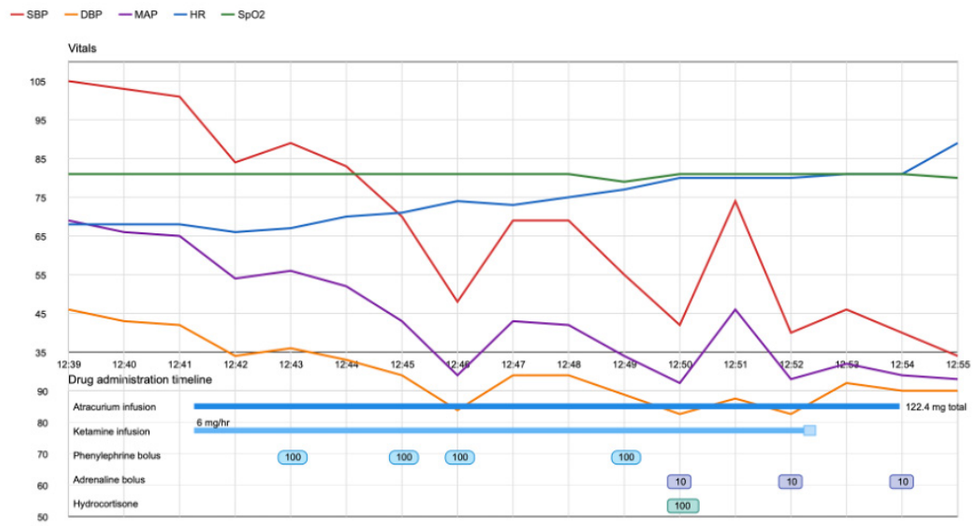
Conclusion

This case highlights the need to consider drugs administered to the surgical field when anaphylaxis is suspected. A history of uneventful surgery and anaesthetic does not exclude allergy, as these develop with re-exposure. Hence, all differentials need to be considered in the workup of unexplained intraoperative hypotension. Timely communication between the surgical and anaesthetic team is essential to establish the diagnosis and achieve haemodynamic control.

2026-0089

Figure & Table

Figure & Table 1.



2026-0096

Determining the Factors That Influence the Dose of Propofol During Gastroscopy

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Background

Propofol is a short-acting agent with rapid metabolism, which has a short recovery time, regardless of the depth or length of the sedation period. Pain and discomfort related to endoscopy sessions can be decrease by sedation, which minimizes anxiety and allows safe examination. In my hospital,
over 90 % of gastroscopy and colonoscopy are performed under sedation.
Propofol usage is increasing in our country during last few years, so I wanted to study how the propofol works in Mongolian situation.

Methods

We surveyed patients in the GI endoscopy department at Family med hospital.
This randomized prospective study evaluated 308 outpatients submitted to upper gastrointestinal endoscopy.
Patients received propofol at 500, 1000 or 1500 ml/h.
The primary outcome assessed was hypoxemia incidence. In addition, the time required to sedation and incidence of hypotension, deep sedation, extremity motor activity, cough, nausea, hiccough, and awareness were evaluated.
Data were analyzed using SPSS 23.0 Categorical variables were assessed by the Pearson's chi-square test. The target depth of sedation was loss of consciousness, no response to call, and eyelashes reflection.
At this moment, propofol was stopped and the endoscope waas inserted. If the patients had a body response after endoscope insertion, propofol was added. The depth of sedation was evaluated according to body response and bispectral index (BIS) values

Results

The propofol dose increased to 500, 1000, or 1500ml/h may lead to deep sedation. Patients' age, gender, BMI and unhealthy habits could influence their dosage.
It is observed that 1000ml/h propofol is appropriate and safe for Mongolians, due to high alcohol consumption, tobacco consumption and overweight problem.
This study has never done in Mongolia before, and we found out that Mongolian patient's propofol doasge is may be higher than most of the Asian countries suggested.

Conclusion

In conclusion, a propofol infusion rate of 1000 ml/h appears to be the most appropriate rate for upper gastrointestinal endoscopy anesthesia. This rate shows fewer complications and adverse reactions during endoscopy, as well as in improved endoscopist satisfaction.

2026-0096

Figure & Table

Figure & Table 1.

Variables	500 ml/hour /n -75/	1000 ml/hour /n-87/	1500 ml/hour /n-78/	P-value
Age (years)	50.1 ± 13.1	52 ± 11.3	51 ± 11.3	>0.05
Sex (M/F)	50/25	60/27	58/20	>0.05
Weight (kg)	63.6 ± 11.7	62.5 ± 8.1	61.9 ± 8.8	>0.05
Height (cm)	162.7 ± 7.1	161.9 ± 6.6	161.6 ± 6.7	>0.05
ASA class I/II/III	30/45/5	35/42/10	36/34/8	>0.05
BMI <16 or BMI >30 (kg m–2)	2/5	1/2	3/3	>0.05
Endoscopy history	47	60	45	>0.05

Figure & Table 2.

Variables	500 ml/h	1000 ml/h	1500 ml/h
Time to loss of consciousness	70.4 ± 6.0	54.1 ± 4.8	32.4 ± 5.2
Total propofol dose (induction dose + additi onal doses) (mg)	155.1 ± 15.4	150.8 ± 12.1	180.1 ± 9.5
Propofol dose (mg.kg–1)	2.4 ± 0.4	2.4 ± 0.3	2.9 ± 0.5
Duration of endoscopy (min)	4.0 ± 0.6	3.4 ± 0.6	3.5 ± 0.6
Recovery times (min)	13.2 ± 1.6	13.1 ± 1.6	18.1 ± 2.0

2026-0103

Bleeding Coagulopathy in Aneurysm Repair with Post-Stent Coronary Artery Disease

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Introduction

Abdominal aortic aneurysms (AAA) are frequently associated with atherosclerosis, a primary driver of coronary artery disease (CAD). CAD along with anti coagulant consumption can disrupt hemostatic balance, leading to prolonged prothrombotic and coagulation times (PT/aPTT), which are linked to worse clinical outcomes. This case explores the anesthetic management of severe coagulopathy and CAD undergoing AAA repair.

Case

A 69-year-old male (BMI 30.06) presented with a 6-month history of a throbbing abdominal mass and radiating back pain. His history was significant for CAD requiring 2 coronary stents (2023, 2024), controlled type 2 diabetes, and untreated pulmonary tuberculosis. Medication include Warfarin, beta blocker, diuretic, etc.
On admission, he was hemodynamically stable except a slight tachycardia and numerical pain scale was 6-7. Laboratory revealed anemia (Hb 10.7 g/dL) and coagulopathy: PT >70 sec, aPTT 114.9 sec, and INR >5. ECG showed sinus rhythm with low R voltage. CT scan confirmed a 6.6 cm infrarenal AAA with mural thrombus, hepatic cirrhosis, and cardiomegaly with reduced LVEF (48%)
Diagnoses were infrarenal AAA, CAD, hepatic cirrhosis, coagulopathy, type 2 diabetes, and ASA 3
Management: General anesthesia was initiated with Midazolam, Fentanyl, Propofol, and maintained with Sevoflurane via a LMA. An Endovascular Aneurysm Repair (EVAR) was performed. Vasopressors (Dobutamine and Nor-Epinephrine) were initiated when hemodynamics dropped (MAP <60 mmHg) during wire insertion. During the procedure, estimated blood loss was 1100 ml occurred during arterial stitching. Replacement included 2000 ml crystalloid, 250 ml PRBCs, 375 ml FFP, 1g Tranexamic acid, 10 mg Vitamin K intravenously, and topical fibrin glue by the surgeon. The procedure completed 4,5 hours later with 400 ml urine output
Outcome: The patient was extubated and transferred to the ICU on vasopressor support (titrated to maintain MAP >65 mmHg)
Discussion: The severe coagulopathy was attributed to anti coagulant medication and hepatic cirrhosis. Management focused on replenishing vitamin K-dependent factors (II, VII, IX, X) using FFP for immediate effect and Vitamin K for de novo synthesis, while avoiding fluid overload. Despite the high INR (>5), the team opted to proceed with EVAR due to its minimally invasive nature and the patient's stable pre-operative status. This decision was supported by the availability of blood products

Conclusion

High-risk patients with severe coagulopathy and CAD can undergo successful EVAR with careful preparation, close hemodynamic monitoring, and balanced approach to coagulation correction. An adequate fluid management and correction of coagulant factor can improve the condition of heart diseased patient and minimize the complicarion in the post operative setting.

2026-0103

Figure & Table

Figure & Table 1.

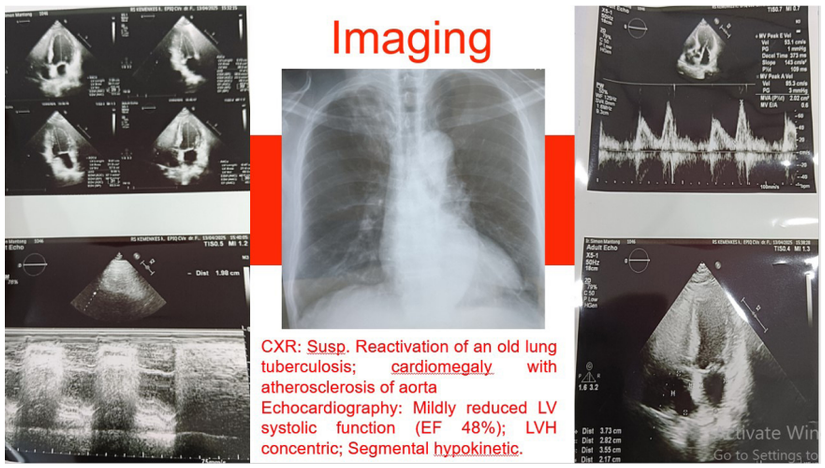
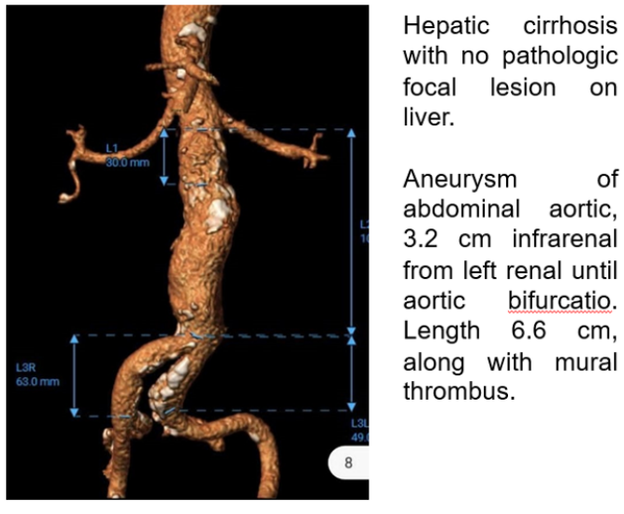


Figure & Table 2.



2026-0104

Anaesthesia Management of a Parturient with Cardiac Sarcoidosis Going for Caesarean Section: A Rare Case Report

Intan Syafiqah Binti Ikram Shah[1], Nur Azreen Hussain[1], Nabilah Abdul Ghani[2*]

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2. Anaesthesiology, University Malaya, Malaysia

Introduction

A parturient with cardiac sarcoidosis undergoing caesarean section is a rare occurence. Anaesthetic management in this patient presents unique challenges such as risks of sudden cardiac events, haemodynamic instability and altered responses during delivery and towards anaesthetic drugs. Here, we present a case report of a parturient with cardiac sarcoidosis who underwent regional anaesthesia and had close cardiac monitoring intraoperatively with FloTrac monitoring. FloTrac is a minimally invasive cardiac output monitoring that uses pulse contour analysis.

Case

A 26 year old primigravida at 31 weeks gestation with cardiac sarcoidosis presented to us for further antenatal management and delivery. Her transthoracic echocardiography reveals severe thickness of left ventricles but sparing basal septum, basal inferior and anteroseptal wall with ejection fraction of 51%. Her right heart function was normal. The inpatient Holter monitoring reveals no cardiac arrhythmias. At 33 weeks, due to risk of cardiac decompensation, elective caesarean was planned by multidisciplinary team.

Our anaesthesia mode was a low dose sequential combined spinal epidural (CSE) with minimally invasive cardiac monitoring via FloTrac. The main haemodynamic events we were anticipating are post intrathecal drug injection in the CSE leading to sympathetic blockade and vasodilation, newborn and placental delivery with autotransfusion of blood from the uterine contractions and the pharmacodynamic effects of the oxytocin administration. Haemodynamic changes in these events were captured in our FloTrac monitoring and was useful in guiding our fluid administration as well as drug administration to maintain a safe and stable Caesarean delivery for our patient with cardiac sarcoidosis. She safely delivered under CSE anaesthesia. Postoperative care was in our intensive care unit with vigilant monitoring of arrhythmias and heart failure. Contrasted cardiac MRI was done for her postpartum and confirmed her cardiac sarcoidosis. She received oral medical therapy and was discharged well on day 8 postoperatively.

Conclusion

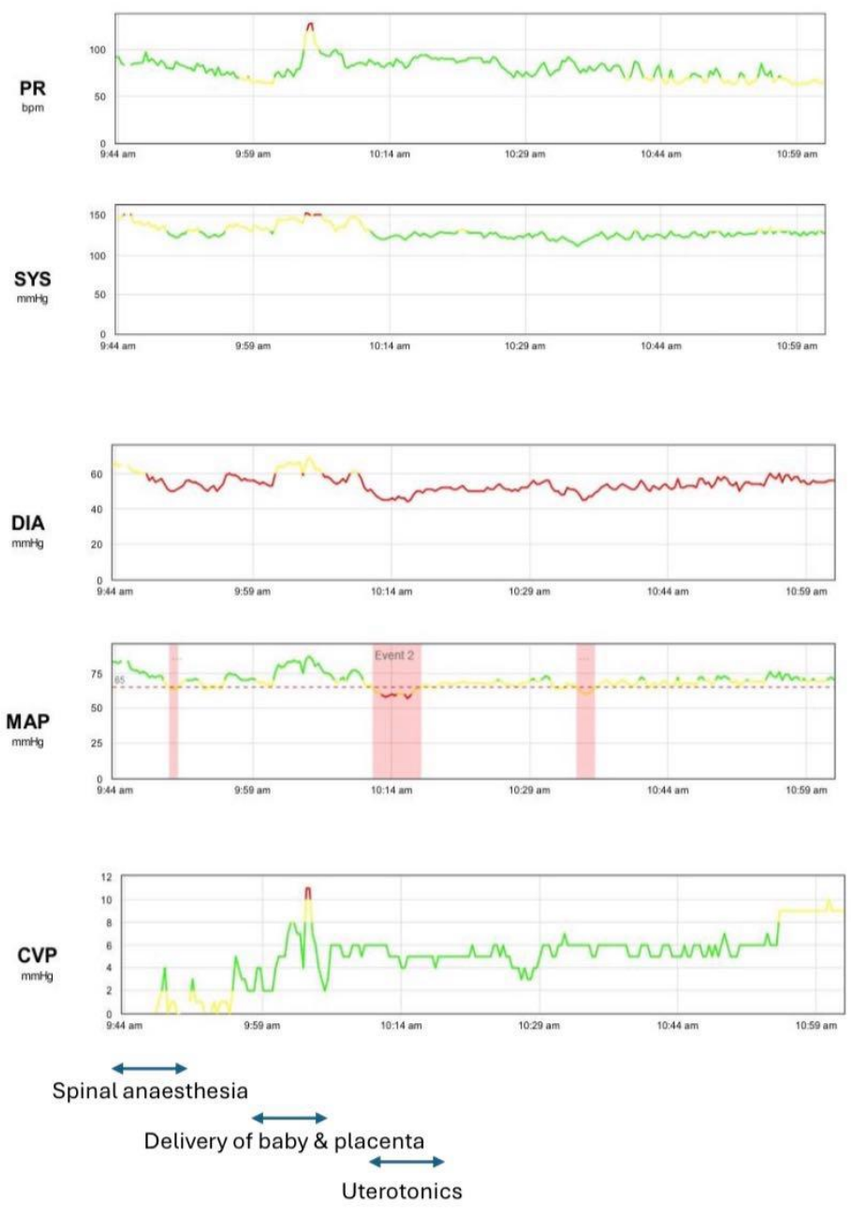
Cardiac sarcoidosis in a parturient who presents to us for labour or Caesarean section presents unique perioperative challenges. Safe anaesthetic management requires multidisciplinary coordination, vigilant intraoperative monitoring and careful postoperative care.

2026-0104

Figure & Table

Figure & Table 1.

Figure 1. Parameters recorded

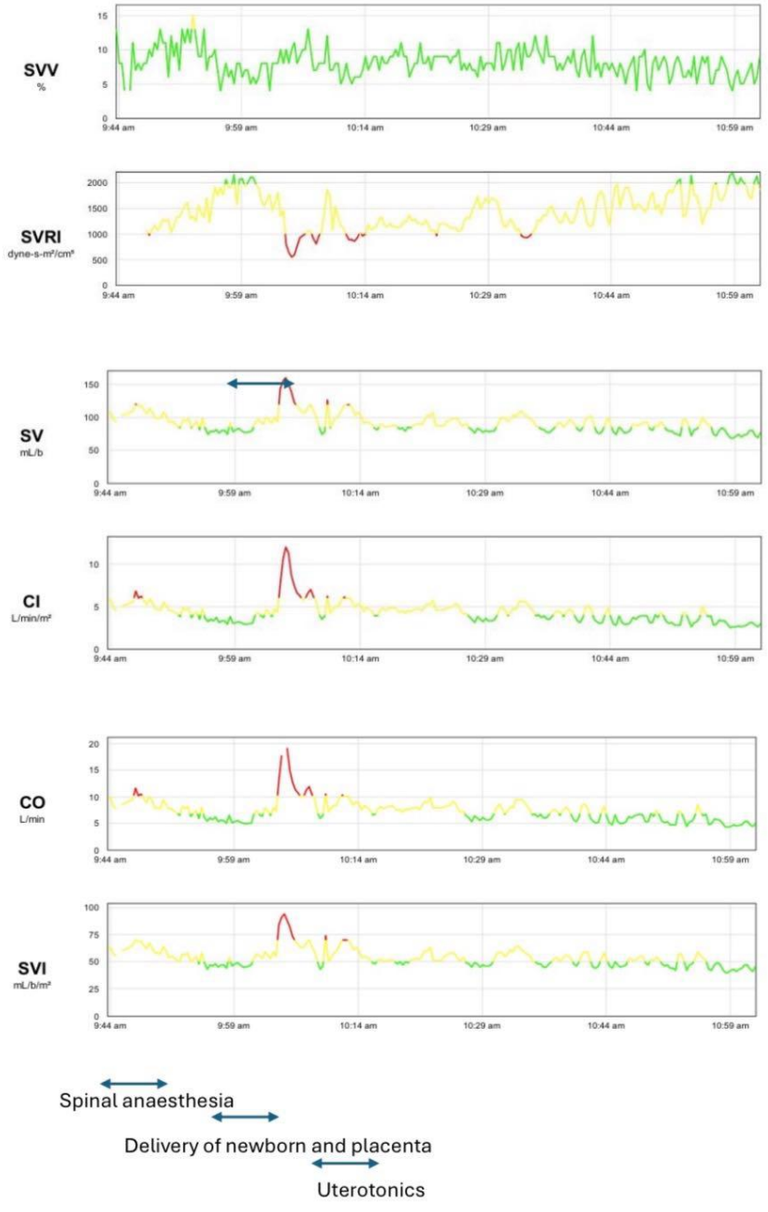


2026-0104

Figure & Table

Figure & Table 2

Figure 2. Derived parameters



2026-0105

Sex Difference in Pain Assessment and Analgesic Consumption of Patients Undergoing Laparoscopic Donor Nephrectomy at National Kidney and Transplant Institute in Quezon City, Metro Manila: An Observational Study

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Background

Laparoscopic living-donor nephrectomy has been accepted to be the standard surgical procedure for harvesting organs for kidney transplantation. Less pain, a shorter hospital stay, and improved cosmetic outcomes are some benefits. Patients who underwent laparoscopic donor nephrectomy were given patient-controlled analgesia to monitor analgesic consumption and were interviewed for the pain assessment for the first 48 hours postoperatively. This study evaluated the sex difference in pain assessment and analgesic consumption of patients undergoing laparoscopic donor nephrectomy.

Methods

This study employed a prospective observational study. Data from closed-type interviews were used to compute for pain perception and analgesic consumption of both sexes. Patients were monitored at the post-anesthesia care unit. The time of arrival at the PACU was defined as zero hour. A pain numerical scoring system was used to evaluate the degree of postoperative pain, and assessment were done after surgery. Repeated measures of analysis of variance were conducted to see the association within groups for cardiovascular parameters. Chi-square were used for the comparison between groups for ASA status, and rescue analgesia while t-test were applied for observation the mean difference between demographic data, pain perception, and analgesic consumption.

Results

The demographic analysis revealed that male donors were significantly taller and heavier than female donors, though age, BMI, blood pressure, and heart rate were comparable. Donor relationship status did not differ significantly between sexes. Postoperative pain scores showed similar trajectories for both groups, with transient differences at the 8th and 12th hours where males reported higher pain. Overall average pain scores were comparable, but females reported slightly better subjective outcomes on the Likert scale. Repeated measures ANOVA confirmed that pain significantly decreased over time, with no overall sex effect or time by sex interaction. Analgesic consumption at 24 and 48 hours, as well as PCA demands within the first 24 hours, did not differ significantly between sexes, indicating similar analgesic requirements.

Conclusion

The findings demonstrate that while male and female donors differ in anthropometric measures, their clinical fitness profiles are otherwise comparable. Postoperative pain trajectories were primarily influenced by time rather than sex, with only short term differences observed at specific intervals. Analgesic consumption and PCA demands were similar across sexes, suggesting that sex does not substantially influence analgesic needs or pain management patterns following laparoscopic donor nephrectomy. Overall, both male and female donors experienced comparable recovery in terms of pain and analgesic use.

2026-0105

Figure & Table

Figure & Table 1.

Table 1: Demographic and Clinical Characteristics of Participants

Variable	Male, Mean (SD)	Female, Mean (SD)	p-value
Age (years)	31.07 (9.92)	35.5 (9.34)	0.1086
Weight (kg)	72 (10.41)	62.40 (9.04)	0.001
BMI	25.77 (2.85)	24.75 (2.71)	0.197
Height	167.67 (5.51)	158.25 (6.85)	0.001
Systolic BP	123.67 (9.73)	119.29 (7.27)	0.078
Diastolic BP	79.48 (6.32)	77.83 (4.94)	0.358
Heart rate	79.22 (8.32)	79.79 (9.08)	0.8162
Relation	**Male, f (%)**	**Female, f (%)**	**p-value**
Living non-related	11 (21.57)	10 (19.61)	0.947
Living related	16 (31.37)	14 (27.45)	

Table 2: Comparison of Postoperative Pain Scores

Time Interval	Male , Mean (SD)	Female , Mean (SD)	p-value
30 minutes	1.22 (2.56)	1.04 (2.39)	0.803
1st Hour	1.67 (2.80)	1.42 (2.70)	0.748
2nd hour	3.00 (1.62)	2.88 (1.57)	0.781
4th Hour	1.00 (2.11)	0.17 (0.48)	0.065
8th hour	0.44 (1.01)	0.00 (0.00)	0.037
12th Hour	0.59 (1.03)	0.00 (0.00)	0.039
24th Hour	2.04 (2.10)	2.04 (2.40)	0.99
36th hour	0.70 (1.65)	0.58 (1.74)	0.797
48th Hour	0.85 (1.30)	0.54 (1.18)	0.401
Average	**2.37 (1.54)**	**2.05 (1.60)**	**0.4586**
Likert Scale	4.65 (0.52)	4.90 (0.29)	0.036

Figure & Table 2.

Table 4: Comparison of Analgesic Consumption

Analgesic Consumption	Male, Mean (SD)	Female, Mean (SD)	p-value
After 24 hours	286.52 (57.83)	249.17 (31.06)	0.1502
After 48 hours	914.44 (282.51)	811.04 (237.58)	0.166

Table 5: Comparison of Number of PCA demands

	Male, Mean (SD)	Female, Mean (SD)	p-value
A/D in 24 H in D1	0.73 (0.17)	0.762 (0.17)	0.575

ABSTRACT
Competition
Presentation
E-Poster

2026-0106

Assessing What We Assess: A Quality Review of an Internal OSCE Preparation Process in Anaesthesiology Residency

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Background
Internal mock Objective Structured Clinical Examinations (OSCEs) are widely used to prepare anaesthesiology residents for high stakes national examinations. However, they are often implemented without formal quality assurance processes. This study aimed to evaluate the psychometric quality of our internal mock OSCE, examine its relationship with national OSCE outcomes, and use these findings to inform targeted improvements in exam preparation.

Methods
We conducted a before–after study across two consecutive cohorts (2024–2025). The mock OSCE comprised seven stations. Standard setting was arbitrarily defined using the station mean score as the pass threshold; borderline regression was explored as a secondary method despite known limitations in small cohorts. 21 residents participated in 2024 and 25 in 2025. Stations were assessed by faculty with varied experience in health professions assessment. Psychometric analyses included Cronbach's alpha, coefficient of determination (R^2) between checklist and global scores, inter grade discrimination, and failure rates. Pearson's correlation was used to examine the relationship between the percentage of
stations passed in the mock OSCE and national OSCE pass/fail outcomes.

Results
In 2024, only four of seven stations were amenable to psychometric analysis due to incomplete checklist level scoring. These stations demonstrated low internal consistency, weak checklist–global score correlations, poor inter grade discrimination, and substantial assessor error variance. Meaningful correlation with national examination outcomes could not be performed. In response, selected faculty underwent formal OSCE training, and stations were redesigned and vetted by experienced faculty, including national examiners. In 2025, all seven stations were psychometrically analysable. Three
stations showed poor internal consistency, and one demonstrated weak checklist–global score correlation. The percentage of stations passed in the mock OSCE correlated strongly with national OSCE outcomes (r = 0.71).

Conclusion
Internal OSCEs require deliberate quality assurance to function as valid preparatory assessments. Iterative faculty development and station review improved psychometric performance and strengthened alignment with national examination outcomes. In conclusion, internal mock OSCEs should not be assumed to be valid without formal review. Psychometric analysis can identify poorly functioning stations and assessor variability. Faculty training and structured station vetting enhance assessment quality and predictive value.

2026-0109

Anesthetic Considerations and Management in Peripartum Cardiomyopathy With Seizure Onset Post-Induction Under Epidural Anesthesia: A Case Report

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Introduction
Peripartum cardiomyopathy (PPCM) is a rare, life-threatening heart failure affecting 1:1,000 to 1:4,000 live births, diagnosed by new-onset failure during the final month of pregnancy or within five months postpartum, no other identifiable cause, and an LVEF of less than 45% (Nayak et al., 2023). Because its presentation (dyspnea, edema) mimics complications like preeclampsia or amniotic fluid embolism, confirming left ventricular dysfunction is critical to guide urgent management. Anesthetic management in PPCM requires balancing maternal hemodynamic stability, minimizing myocardial depression, and maintaining adequate uteroplacental perfusion.

Case
A 32-year-old primigravida at 38 weeks and 2 days gestation with diet-controlled GDM, gestational hypertension, and an overweight status was admitted for induction of labor with a planned assisted vaginal delivery. On admission, she was asymptomatic despite a BP of 130–140/80–90 mmHg and cardiomegaly on a chest radiograph. Following labor induction, she underwent an emergency cesarean section for failure of descent 24 hours after complete cervical dilation.
Under L2–L3 epidural anesthesia, 10 minutes post-augmentation with 0.5% ropivacaine, she experienced a brief generalized seizure (limb jerking, upward eye deviation, rigidity) with severe hypertension (180/100 mmHg) and tachycardia. She was successfully treated with oxygen, 5 mg IV midazolam, and a continued magnesium sulfate drip, with no recurrence. The delivery concluded with 1,500 mL blood loss, requiring 1 unit PRBC transfusion.
On POD 2, she developed acute respiratory distress and hypoxemia requiring emergency intubation. Diagnostics revealed cardiomegaly, pulmonary edema/consolidation, minimal pleural effusion, and concentric remodeling with a mildly reduced EF (44%). Treated in the ICU for suspected PPCM-induced cardiogenic pulmonary edema with diuretics, anticoagulants, and antibiotics, she was successfully extubated on POD 5, transferred to the ward on POD 7, and discharged stable on POD 8.
Final Diagnoses: Term primary cesarean delivery under epidural anesthesia, diet-controlled GDM, eclampsia, and acute respiratory failure secondary to cardiogenic pulmonary edema from PPCM.

Conclusion
This case underscores the need for individualized, multidisciplinary care in PPCM patients facing hypertensive and neurological crises. Carefully monitored regional anesthesia successfully maintained hemodynamic stability, while the intraoperative seizure highlighted the urgency of differentiating between eclampsia and local anesthetic toxicity. Ultimately, prompt decision-making, vigilant postoperative intensive care, and coordinated planning are crucial to preventing clinical deterioration and optimizing maternal outcomes.

2026-0109

Figure & Table

Figure & Table 1.

Table 1. Comparison between Eclampsia and LAST

Feature	Eclampsia	Local Anesthetic Systemic Toxicity (LAST)
Onset	Typically in preeclamptic women, associated with hypertension	After inadvertent intravascular injection or overdose of local anesthetic
Prodrome	Headache, visual changes	Tinnitus, perioral numbness, metallic taste
BP Response	Severe hypertension	Often hypotension, arrhythmia
Seizure Type	Generalized tonic–clonic	Initially focal, may generalize
Management	Magnesium sulfate, BP control and seizure control	Lipid emulsion, airway support

Figure & Table 2.

Table 2. Perioperative Anesthetic Management in PPCM

Management Goal	Evidence-based Strategy
Maintain stable hemodynamics	Use graded epidural anesthesia; avoid sudden preload/afterload changes.
Prevent arrhythmias	Continuous ECG monitoring and cautious use of sympathomimetics.
Optimize oxygenation	Supplemental O_2, consider invasive ventilation if pulmonary edema.
Manage seizures	Magnesium sulfate first-line; differentiate from LAST.

2026-0110

Repeated Internal Kinking of Epidural Catheter

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Introduction

Kinking, knotting, and breakage of epidural catheters are recognised complications of epidural anaesthesia. The incidence of catheter kinking remains unknown. Kinking can occur anywhere between the skin and epidural space leading to catheter dysfunction. We describe a case of repeated uncomplicated epidural insertion complicated by internal kinking of the catheter at a consistent depth, resulting in position-dependent occlusion following change from sitting to a 30-degree head-up position.

Case

A 23 year old female, G2P1, presented during labour and requested for an epidural. She had a previously difficult but ultimately successful epidural for her first delivery. A combined spinal epidural was performed in a sitting position at L3/4 by the medical officer without difficulty on the first attempt. The epidural catheter was inserted to 7cm to space and 12cm at skin. After successful epidural insertion, the patient was positioned to recline at 30 degrees head up. A continuous epidural infusion of 0.125% Ropivacaine with 2mcg/ml Fentanyl was started at 10ml/h. Within 10 minutes of commencing the infusion, the occlusion alarm alerted. No external kinks or knots were noted, but high resistance was encountered on flushing. The patient was repositioned to sitting and the position of the catheter remained unchanged. The catheter flushed smoothly in this position. The catheter was then withdrawn by 1cm and resecured, however occlusion recurred upon reclination.

Given adequate pain relief from spinal anaesthesia, after discussion with the patient and the on-call registrar, a collective decision was made to remove the existing catheter and reinsert a new catheter. The first catheter was removed and a kink was noted at 8cm. A second epidural catheter was inserted uneventfully at the same level by the on-call registrar. The catheter was anchored at 7cm to space, 12 cm at skin. The same positional occlusion recurred when reclined, and resolved on sitting upright. Attempts at catheter adjustment and resecuring were unsuccessful at relieving the obstruction. After much troubleshooting, placing the patient in a 60 degrees head up position cleared the occlusion. The patient elected to continue using the current epidural catheter and reposition herself when the occlusion alarm alerted. She had good pain relief for the duration of her labour. Upon removal of the catheter post-delivery, a kink was again observed at 8cm.

Conclusion

Internal kinking of epidural catheters may present as position-dependent occlusion in spite of uncomplicated insertion. This case demonstrated a recurrent kinking at the same depth unmasked by changes in patient position. It is important to be aware of this possibility of position-related kinking to guide further management of labour analgesia. Potentially, re-siting the epidural at a different level could have yielded different results.

2026-0111

Schmorl's Node Related Thoracolumbar Pain Improved by Paravertebral Block: A Case Report

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Introduction

Schmorl's node (SN) is a vertical herniation of disc material through the vertebral endplate into the vertebral body. Although SNs are common and usually asymptomatic, some are associated with clinically significant axial back pain, particularly when magnetic resonance imaging (MRI) demonstrates adjacent bone marrow edema. Because plain radiographs are often nonspecific, diagnosis may be delayed. We report a patient with symptomatic thoracic SNs whose pain improved after a paravertebral block.

Case

A 65-year-old man with hypertension and diabetes mellitus had experienced thoracolumbar and low-back pain for several years. Initially, the pain was mild and intermittent (NRS 2) and responded to stretching exercises and oral medication, but it gradually worsened over time and began to interfere with prolonged standing and daily activities. He mainly complained of axial back and low-back pain without radiating symptoms to the lower extremities, and neurologic examination, including motor strength, sensory function, and deep tendon reflexes, was normal. There was no history of recent trauma, heavy lifting, or other precipitating events. Plain radiographs showed thoracic spondylosis and mild degenerative changes, and his symptoms improved only transiently with conservative treatment using oral medications. When the pain worsened to NRS 7 despite continued conservative management, MRI of the thoracolumbar spine was obtained to identify a structural pain generator. MRI revealed Schmorl's nodes involving the upper and lower endplates of the T10 vertebral body. On fat-suppressed T2-weighted sagittal images, bone marrow edema was observed adjacent to the lower endplate, suggesting an edematous, symptomatic lesion at this level. Because the patient's pain was localized to the thoracolumbar region and there were no radicular symptoms, the T10 SN with surrounding marrow edema was considered the most likely source of his axial back pain. An ultrasound-guided left T10 paravertebral block was therefore performed, and the pain improved from NRS 7 to 2 at 1 week without complications. This improvement persisted at 2 months, with only mild residual discomfort.

Conclusion

SN can be an underrecognized cause of axial thoracolumbar pain. MRI is important when plain radiographs are inconclusive, especially when marrow edema is present adjacent to the lesion. In selected patients with persistent symptoms, a paravertebral block may be considered as an interventional treatment option.

2026-0111

Figure & Table

Figure & Table 1.

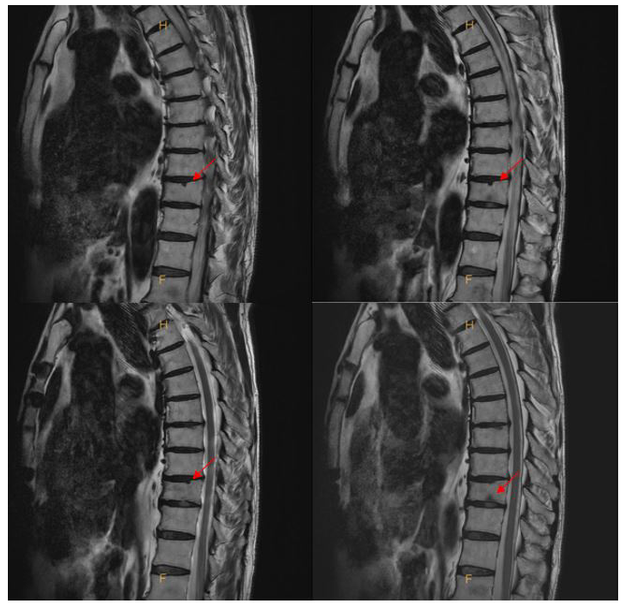
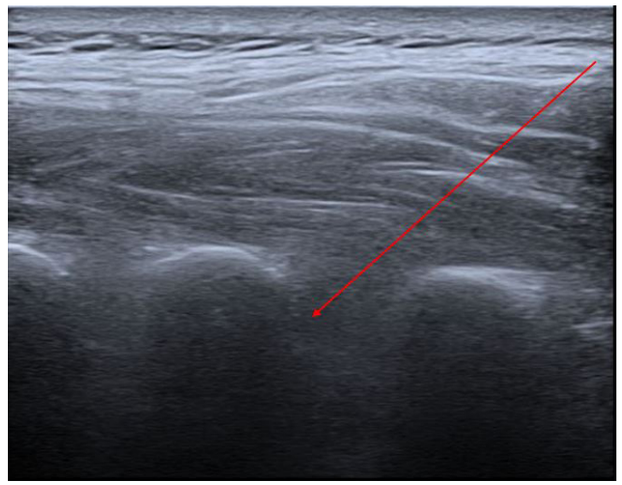


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0119

Intraoperative Hypertensive Crisis During Resection of an Undiagnosed Aortocaval Paraganglioma

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Introduction
Paragangliomas are rare catecholamine-secreting neuroendocrine tumours, accounting for 10-18% of chromaffin tissue-related tumours, with an incidence of 2-8 cases per million person-years. Typical symptoms include episodic headache, sweating, tachycardia and palpitations. Preoperative diagnosis and optimisation reduce perioperative morbidity, but some patients remain asymptomatic and present with an undiagnosed tumour. We report an asymptomatic patient with an aortocaval mass later confirmed to be paraganglioma. Written consent was obtained.

Case
A 56-year-old man with ischaemic heart disease, hypertension, diabetes mellitus and hepatitis B presented for elective laparotomy and resection of an incidental aortocaval mass detected during hepatitis B surveillance. CT showed a non-specific 5.1 × 4.3 × 6.6 cm mass between the diaphragmatic crura and caudate lobe. He was asymptomatic, normotensive on amlodipine and lisinopril, and had unremarkable examination and laboratory investigations. ECG showed diffuse T-wave inversions, but cardiology review deemed him low cardiac risk.
Anaesthesia induction and tracheal intubation were uneventful. Standard monitoring was supplemented with invasive arterial pressure, central venous access and FloTrac monitoring. During tumour manipulation, systolic blood pressure rose to 220 mmHg, with high systemic vascular resistance. Remifentanil and nitrate infusions, with boluses of labetalol, hydralazine and magnesium sulphate, provided limited control. Intermittent surgical pauses allowed systolic blood pressure to fall to approximately 170 mmHg, raising suspicion of phaeochromocytoma or paraganglioma. As phentolamine was obtained and the surgeon anticipated rapid resection, a team decision was made to proceed.
Following tumour excision, systolic blood pressure fell to 70 mmHg, requiring noradrenaline 0.8 mcg/kg/min, vasopressin 2.4 IU/h, crystalloid and albumin resuscitation. The patient was kept intubated and admitted to SICU. He was weaned off vasopressors overnight, extubated the next day, and discharged well on postoperative day 5. Histology confirmed paraganglioma with raised serum chromogranin A.

Conclusion
Preoperative optimisation is important for paraganglioma resection but may not be possible in asymptomatic patients. Unexpected severe hypertension during tumour manipulation should prompt suspicion of catecholamine-secreting tumours. Vigilance is required when managing tumours of uncertain origin.

2026-0119

Figure & Table

Figure & Table 1.

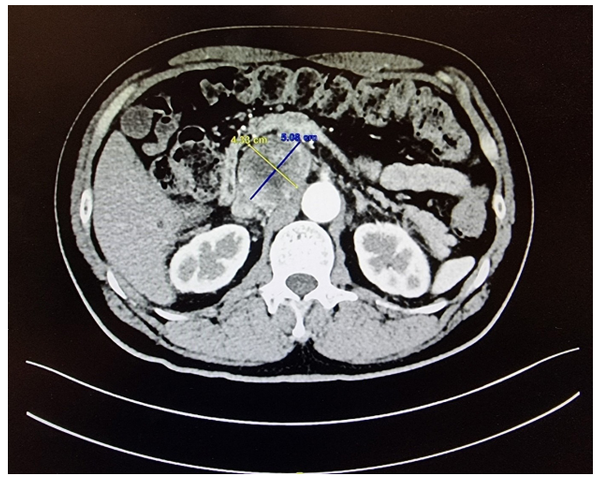
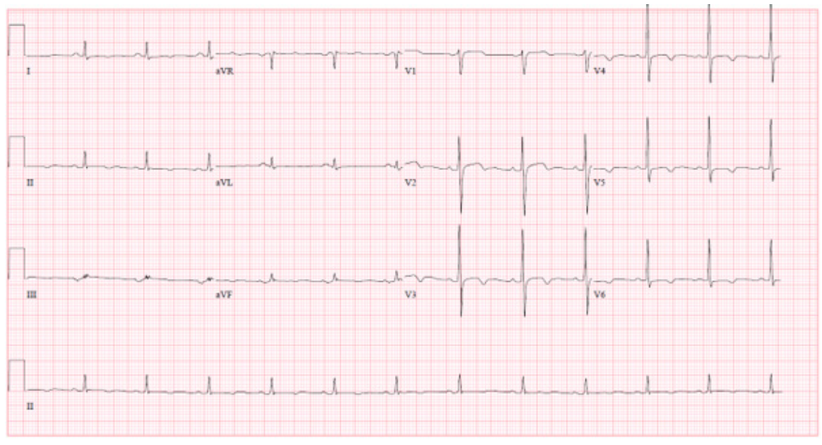


Figure & Table 2.



2026-0120

Effect of Intraoperative Low Dose Ketamine Bolus Versus Infusion on Postoperative Pain in Patients Undergoing Laparoscopic Cholecystectomy: A Randomised Controlled Study

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Background

Laparoscopic cholecystectomy is generally less painful than open surgeries, however many patients still report moderate pain score. Ketamine, a non-competitive N-methyl-D-aspartate (NMDA) receptor antagonist has been widely used as part of multimodal analgesia in various surgery. However, there is a lack of consistent results in the current literature about the efficacy of different methods of administration of ketamine, either bolus or infusion in reducing postoperative pain in laparoscopic cholecystectomy and its related side effects. This study therefore aimed to study the efficacy of ketamine bolus and infusion and its related side effects in this population.

Methods

This was a randomised controlled, double-blinded clinical study conducted in Hospital Pakar Universiti Sains Malaysia, Kubang Kerian. Sixty elective patients planned for laparoscopic cholecystectomy from December 2023 until December 2024 were enrolled. Participants were divided equally into ketamine bolus or infusion group by using computer generated randomization. Group A received received bolus ketamine 0.5mg/kg 15 minutes before surgical incision, followed by normal saline infusion at 0.18mg/kg/h and stopped at the end of surgery. Group B received bolus normal saline 0.5mg/kg 15 minutes before surgical incision followed by ketamine infusion of 0.18mg/kg/h which was stopped at the end of surgery. Post operative pain score was determined at 0, 0.5, 2, 6, 12, 24 hours using MOH pain scale. Cumulative tramadol within 24 hour post operatively were compared between these two groups. The incidence of side effects was documented.

Results

No statistically significant differences were found in the baseline characteristics of the study cohorts. Pain scores at earlier time points (0, 0.5, 2, and 6 hours) showed no statistically significant differences between the two groups. While early postoperative pain scores were comparable, ketamine infusion provided significantly better pain control at 12 and 24 hours (p=0.006 and p=0.001 respectively) postoperatively compared to bolus administration. The infusion group
demonstrated a lower mean cumulative tramadol dose within 24 hours postoperatively (208.33 mg ± 26.53) compared to the bolus group (228.33 mg ± 59.72), with statistical significance (t = -1.68, p = 0.049), indicating that ketamine infusion was associated with reduced reliance on tramadol as part of postoperative pain management. No incidence of side effects was observed for both groups in this study.

Conclusion

The study suggested that ketamine infusion provided significantly better pain control at 12 and 24 hours postoperatively compared to bolus administration and was associated with reduced tramadol requirement post operatively up to 24 hours. There was no observed side effects in both groups.

2026-0120

Figure & Table

Figure & Table 1.

Characteristics	Ketamine bolus (n=30)		Ketamine infusion (n=30)		t-statistic/Chi Square Value	P value*
	Mean,n	SD,%	Mean,n	SD,%		
Age (year)	48.9	11.3	44.5	11.5	-1.51	0.136
Gender					1.49	0.222
Male	9	15%	5	8.3%		
Female	21	35%	25	41.70%		
Weight (kg)	69.5	14.2	66.1	12.8	-0.98	0.329
Height (m)	1.6	0.1	1.5	0.1	-1.38	0.173
Duration of surgery (min)	81.5	24.1	74.2	28.2	-1.07	0.288
BMI (kg/m²)	27	4.9	26.3	4.4	-0.55	0.581
ASA 1	13	21.7	17	28.3	1.07	0.302

Figure & Table 2.

Pain score	Ketamine bolus (n=30)		Ketamine infusion (n=30)		t-statistic	P value*
	Mean,n	SD,%	Mean,n	SD,%		
0 hr	1.4	2.0	0.6	1.3	-1.68	0.098
0.5 hr	1.8	1.6	1.4	1.4	-1.06	0.294
2 hr	2.6	1.9	1.9	1.2	-1.88	0.065
6 hr	2.2	1.4	1.6	1.0	-1.76	0.083
12 hr	1.5	0.9	0.9	0.9	-2.87	0.006
24 hr	1.2	0.8	0.5	0.6	-3.55	0.001

ABSTRACT
Competition
Presentation
E-Poster

2026-0125

The Unexpected Knot: Cherry Knot Formation in Indwelling Medical Equipment

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Introduction
A wide variety of medical devices are routinely introduced into patients' bodies for monitoring, diagnostic, and therapeutic purposes. These devices may traverse or reside within anatomical cavities and spaces, including intraluminal, intravascular, and neuraxial compartments. Owing to their length and flexibility, some devices are susceptible to inadvertent knot formation, which may complicate removal and potentially result in patient harm.

Case
A supraglottic airway device with a gastric drainage port was used for a routine general anaesthetic procedure. Following insertion of the laryngeal mask airway (LMA), an orogastric tube (OGT) was passed through the gastric port to facilitate gastric decompression.
At the conclusion of surgery, suction was applied through the gastric port prior to OGT removal. During attempted removal of the OGT, unexpected resistance was encountered and the tube could not be withdrawn despite gentle traction. As the patient remained stable and ventilation was unaffected, a decision was made to leave the OGT in situ and remove the LMA and OGT together once the patient was awake.
Following removal of both devices, inspection revealed a cherry knot at the distal tip of the OGT. The knot had prevented passage of the tube through the gastric drainage channel, explaining the resistance encountered during removal.

Conclusion
Knotting is an uncommon but important complication associated with a variety of flexible medical devices. Similar occurrences have been reported with nasogastric and orogastric tubes, pulmonary artery catheters, central venous catheters, and neuraxial catheters.
The consequences of forceful retrieval can be significant and vary according to the device involved. Excessive traction on enteral tubes may result in mucosal trauma, ulceration, or perforation. Removal of knotted neuraxial or intravascular catheters may lead to catheter fracture, neurological injury, vascular injury, bleeding, or the need for surgical retrieval. In the present case, forceful traction on the OGT could potentially have displaced the LMA, precipitating airway compromise, coughing, or laryngospasm.

2026-0128

STRIVE Hi–Assisted Airway Management in an Infant with a Large Vallecular Cyst

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2. Anaesthesiology and Critical Care, Hospital Universiti Sains Malaysia, Malaysia

Introduction
Congenital vallecular cyst is a rare but potentially life-threatening cause of upper airway obstruction in neonates and infants. Anaesthetic management is challenging because induction may precipitate complete airway obstruction in an already compromised airway. Maintaining spontaneous ventilation until the airway is secured is a key objective during induction in these patients. We report the use of SponTaneous Respiration using IntraVenous Anaesthesia and High-flow nasal oxygen (STRIVE Hi) in the management of an anticipated difficult airway in an infant undergoing vallecular cyst marsupialisation.

Case
A one-month-old, 3.5-kg infant presented with progressive inspiratory stridor and respiratory distress required preoperative nasal continuous positive airway pressure. Flexible nasopharyngolaryngoscopy demonstrated a large vallecular cyst displacing the epiglottis posteriorly and obscuring the laryngeal inlet. The infant was scheduled for direct laryngoscopy and marsupialization of vallecular cyst under general anaesthesia. Anaesthesia was delivered using STRIVE Hi with high-flow nasal oxygen (2 L/kg/min, FiO_2 1.0) and total intravenous anaesthesia comprising target-controlled propofol (Eleveld model), remifentanil infusion, and titrated dexmedetomidine, allowing spontaneous ventilation to be maintained during airway assessment and tracheal intubation. Direct laryngoscopy confirmed a large vallecular cyst obscuring the glottic view. After adequate visualisation of the vocal cords, tracheal intubation was achieved before marsupialisation.
Spontaneous ventilation and oxygen saturation (98–100%) were maintained throughout induction and repeated airway instrumentation without the need for rescue mask ventilation. Marsupialization was completed without haemodynamic instability or airway complications. The infant was extubated postoperatively and discharged home on postoperative day three with complete resolution of stridor.
In this infant, STRIVE Hi facilitated controlled airway assessment while preserving spontaneous ventilation throughout induction. The combination of high-flow nasal oxygen and titratable total intravenous anaesthesia provided continuous oxygenation and favourable condition for tracheal intubation without interrupting spontaneous breathing. This strategy enabled repeated laryngoscopy before intubation and reduced risk of hypoxemia during a shared airway procedure.

Conclusion
In carefully selected infants with anticipated difficult airways, STRIVE Hi may facilitate controlled airway assessment while maintaining spontaneous ventilation and oxygenation until tracheal intubation is achieved. Successful application requires careful multidisciplinary planning and meticulous preparation.

2026-0128

Figure & Table

Figure & Table 1.



Figure 1:
a. Optiflow nasal high flow system (Fisher &Paykel Healthcare, Auckland, New Zealand)
b. Application of the Optiflow nasal high flow system to the patient

Figure & Table 2.

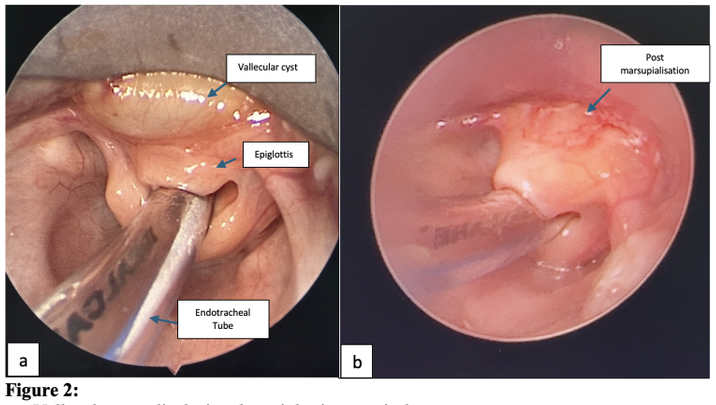


Figure 2:
a. Vallecular cyst displacing the epiglottis posteriorly
b. direct laryngoscopic glottic view post marsupialisation

2026-0133

Compressed from Within: A Case Report on the Anesthetic Management of Anterior Mediastinal Mass Resection in a Pediatric Patient

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Introduction

Mediastinal masses are rare neoplasms, occurring in less than 0.1% of the population, yet they represent one of the most challenging clinical scenarios for anesthesiologists due to the potential for catastrophic airway or cardiovascular compromise during anesthesia. Loss of spontaneous ventilation, reduction in lung volumes, relaxation of airway smooth muscle, and the use of positive pressure ventilation may exacerbate dynamic compression of the tracheobronchial tree and major vessels. These physiologic changes can precipitate acute respiratory obstruction or cardiovascular collapse, collectively referred to as mediastinal mass syndrome (Tan et al., 2022). Pediatric patients are particularly vulnerable because of their smaller airway diameters, reduced cardiopulmonary reserve, and increased airway compliance (Feng et al., 2025). Consequently, careful preoperative evaluation and multidisciplinary planning are essential to anticipate and mitigate perioperative complications and to optimize outcomes.

Case

We report the case of an 11-year-old patient with a three-year history of recurrent pneumonia who was repeatedly treated with antibiotics until imaging revealed a large 6.2 × 11.4 × 8.4 cm anterosuperior mediastinal mass, causing compression of the distal trachea, pulmonary arteries, and major vessels. Following multidisciplinary planning involving thoracic surgery, pediatric pulmonology, cardiology, oncology, intensive care, and anesthesiology, the patient underwent open sternotomy for tumor excision. Given the high risk of dynamic airway collapse, anesthetic management prioritized preservation of spontaneous ventilation during induction to maintain airway patency. Inhalational induction with sevoflurane was performed, followed by cautious endotracheal intubation without using muscle relaxants. Intraoperative fiberoptic bronchoscopy demonstrated approximately 50% narrowing of the distal trachea and left main bronchus from external compression. Transient ventilation changes during tumor dissection were promptly recognized and managed through close coordination between the anesthesia and surgical teams. The mass was successfully excised and was confirmed as a mature cystic teratoma on histopathology.

Conclusion

Successful management of anterior mediastinal masses requires comprehensive preoperative evaluation and close multidisciplinary coordination. Preservation of spontaneous ventilation during induction and avoidance of neuromuscular blockade are commonly recommended strategies to prevent loss of airway tone that could worsen tracheobronchial compression. Close monitoring for signs of airway compression with prompt adjustments in intraoperative positioning to relieve obstruction is also important. Overall, this case demonstrates that meticulous planning and intraoperative vigilance can allow safe surgical resection of mediastinal tumors even in the presence of significant airway compression.

2026-0133

Figure & Table

Figure & Table 1.

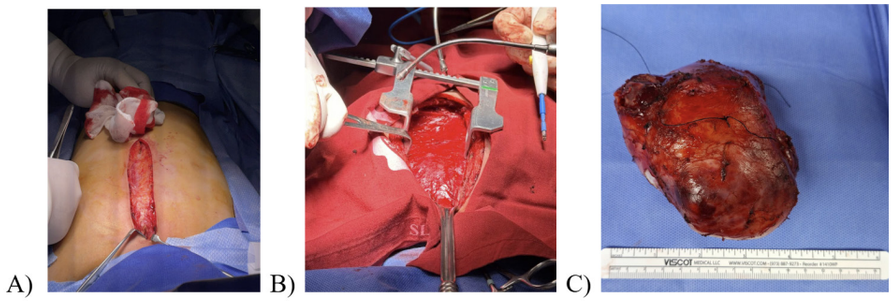


Figure 1. A) Initial incision. B) Gross anatomy of the mediastinal tumor prior to resection C) Mixed cystic and solid anterosuperior mediastinal mass measuring 6 x 11 x 8 centimeter

2026-0134

Anaesthetic Considerations for Bleomycin Electrosclerotherapy (BEST) of a Facial Veno-Lymphatic Malformation: Airway Management for a Novel Procedure in a Remote Location

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Introduction

Bleomycin Electrosclerotherapy (BEST) is an emerging treatment for low-flow vascular malformations, combining intralesional bleomycin with high-voltage electric pulses to enhance sclerosant uptake via reversible electroporation. Facial lesions involving the oral cavity present unique anaesthetic challenges, including nasal intubation for unobstructed surgical access, remote location anaesthesia, minimising post-treatment hyperpigmentation, strict low-oxygen protocol to mitigate bleomycin-induced pulmonary toxicity which may be additionally challenging in a patient with potential airway obstruction from post-procedural swelling. Anaesthetic management of BEST has not been widely described.

Case

A 60-year-old well female presented for BEST treatment of a left cheek veno-lymphatic malformation in the interventional radiology suite (remote location with limited airway rescue support).

In order to minimise bleomycin pulmonary toxicity, current recommendations advocate for keeping FiO2 below 30% following bleomycin administration. Hence, pre-oxygenation was performed with FiO2 40%. Nasal intubation with rocuronium 0.6mg/kg was chosen to optimise surgical access for intra-oral buccal mucosal electrode application. A videolaryngoscope was used in order to increase intubation success rate and prevent prolonged apnoea time.

To minimise bleomycin-related skin hyperpigmentation, adhesive contact was carefully restricted: IV cannula was secured with silicone tape (less skin trauma compared to conventional tape), ECG leads were placed in the axillae and sole of the foot where hyperpigmentation would be less noticeable and the blood pressure cuff was applied over cotton wool. Eyes were kept closed with wet gauze and the nasal endotracheal tube was secured with ties rather than tape.

Intraoperative inspired oxygen concentration was maintained at 28% throughout in order to mitigate risk of bleomycin pulmonary toxicity. The procedure lasted for approximately 1.5 hours and no further top up doses of rocuronium was administered.

Neuromuscular blockade was reversed with 200mg IV sugammadex and train-of-four monitoring was deliberately omitted to avoid adhesive electrode placement. Adequacy of reversal was assessed clinically by ensuring tidal volumes of at least 6-8ml/kg on spontaneous ventilation whilst intubated. However, during this period prior to extubation, repeated transient desaturations necessitated intermittent manual ventilation, highlighting the challenge between adequate oxygenation and the low FiO2 requirement imposed by bleomycin use.

The patient was admitted for overnight monitoring given the significant risk of delayed airway oedema in the perioral and buccal region.

Conclusion

This case illustrates the multifaceted anaesthetic considerations for facial BEST procedures. Key challenges include nasal intubation for unobstructed surgical access in a remote location, meticulous skin protection and avoidance of adhesive electrodes to prevent skin hyperpigmentation; balancing oxygen delivery against bleomycin pulmonary toxicity risk especially in the context of a patient with potential post-procedural airway oedema and high risk of desaturation. Pre-agreed multidisciplinary protocols with overnight inpatient airway monitoring is essential. As BEST gains wider adoption, formal anaesthetic guidelines specific to this novel procedure are warranted.

2026-0136

Ultrasound Guided Peripheral Nerve Blocks for Surgical Anaesthesia in a High-Risk Patient Undergoing Hip Surgery

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Introduction
Hip fracture surgery in elderly patients with major comorbidities presents with significant anaesthetic risks. Due to the complex innervation of the hip joint, peripheral nerve blocks (PNBs) are rarely used for surgical anaesthesia. We describe a combination of a supra-inguinal fascia iliaca block (SIFIB), a para-sacral sciatic nerve block (PSSNB), and a lateral cutaneous branch of the iliohypogastric nerve block (LCBINB) for surgical anaesthesia in a high-risk elderly patient.

Case
A 78-year-old female presented with a fall resulting in a left inter-trochanteric hip fracture. She had dementia, previous stroke and recent myocardial infarction 3 months ago, with a reduced ejection fraction of 45%. Her height was 140cm and weight was 35kg. Spinal anaesthesia was contraindicated due to aspirin and clopidogrel.
A 12-3MHz linear transducer and an echogenic 22G 80mm needle were used. A left SIFIB was performed in the supine position, with ropivacaine 0.35% 15ml. The patient was then turned to the right lateral position where a left PSSNB with ropivacaine 0.35% 15ml was performed, followed by a left LCBINB with ropivacaine 0.35% 3ml. Supplemental oxygen and target-controlled infusion (TCI) propofol of 1-1.5mcg/ml (Schneider effect model) were administered. There was no pain during leg traction, skin incision, implant insertion, and skin closure. Complete surgical anaesthesia was achieved without additional intravenous analgesia or local anaesthesia (LA) supplementation. The surgery was uneventful and she was discharged to the general ward.

Conclusion
The innervation of the hip joint is complex. The anterior capsule is innervated by articular branches from the femoral, obturator and accessory obturator nerves. The posterior capsule is innervated by articular branches from the sacral plexus, including the sciatic nerve, nerve to quadratus femoris, the superior and inferior gluteal nerves. SIFIB targets the femoral, obturator and lateral femoral cutaneous nerves. PSSNB targets the sacral plexus and hence the posterior capsule. LCBINB targets the sensory innervation of the posterolateral thigh, where skin incision was made.
LA volumes were limited given the patient's low weight. For plane blocks, at least 20ml of LA is preferred. Fortunately, surgical anaesthesia was still achieved at lower volumes. In conclusion, a combination of the SIFIB, PSSNB and LCBINB may be considered in high-risk hip fracture patients undergoing surgical fixation.

2026-0139

Utility of Point-of-Care-Ultrasound (POCUS) in Differentiating Neurogenic Pulmonary Edema from Cardiogenic Pulmonary Edema Secondary to Neurogenic Myocardial Stunning, in a Patient with Intracranial Hemorrhage in the Intensive Care Unit (ICU)

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Introduction
In patients with intracranial haemorrhage and acute pulmonary edema, distinguishing cardiogenic pulmonary edema (CPE) due to neurogenic myocardial stunning from neurogenic pulmonary edema (NPE) can be challenging. We report a case demonstrating how serial POCUS provides rapid clinical assessment of the pathology and guided diagnosis and management.

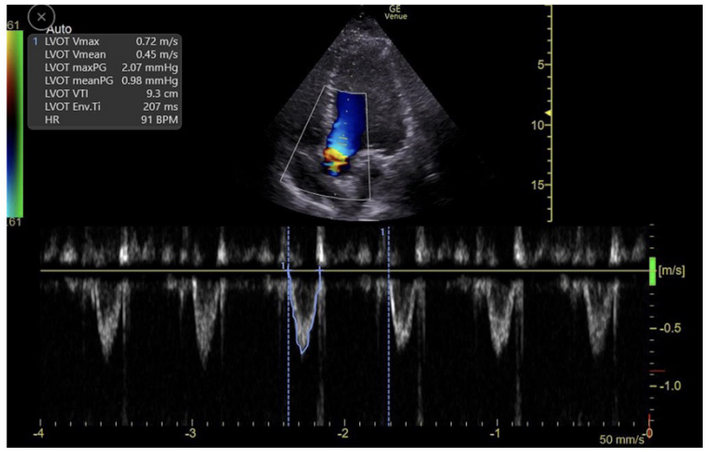
Case
A 53 year old gentleman with a background of hypertension presented with a large acute cerebellar intracranial hemorrhage complicated by severe hypoxemic respiratory failure. He was intubated as his GCS was 3 and underwent emergency posterior fossa decompression and clot evacuation. Intra- and post-operatively, he had oxygen requirements of FiO2 80%-100%.
On admission to ICU post-operatively, patient's arterial blood gas showed PaO2 99 and SaO2 97% while on FiO2 80% with a PEEP of 10cmH2O. Chest radiograph demonstrated extensive bilateral infiltrates. Troponin levels were 184ng/L [reference range 0-14ng/L], NT proBNP 1399 pg/mL [reference range 10-125pg/mL], electrocardiogram showed deep symmetrical T wave inversions in the precordial leads
Given the absence of known cardiac disease apart from hypertension, the key dilemma was whether this represented previously undiagnosed primary cardiac failure, NPE, CPE due to a stunned myocardium or aspiration pneumonia. A POCUS examination was thus performed.
Lung POCUS showed diffuse bilateral B-lines without pleural effusions. Cardiac POCUS demonstrated severe global left ventricular (LV) hypokinesia with reduced LV outflow tract velocity time integral (VTI) of 9cm, while right ventricular function was preserved. Low dose dobutamine 5mcg/kg/min was commenced. Repeat POCUS shortly after initiation of dobutamine showed marked improvement of LV systolic function, with LVOT VTI increasing >20%, suggesting strong inotropic responsiveness. Dobutamine was thus continued at the same dose.
The next day, LVOT VTI improved further to 18cm with markedly improved global LV contractility on POCUS as visually assessed by the ICU Consultant. A formal transthoracic echocardiogram confirmed recovery of LV function showing LV ejection fraction 55% with no regional wall motion abnormalities. Patient's oxygen requirements improved and dobutamine was weaned off.
In this case, POCUS influenced several aspects of management. Firstly, it supported the diagnosis of CPE due to a stunned myocardium and helped us rule out other differentials such as NPE, chronic cardiac failure or aspiration pneumonia. Serial measurements of the LVOT VTI also provided an assessment of stroke volume and inotropic responsiveness, allowing titration of therapy. Finally, it helped us recognise rapid myocardial recovery suggesting cardiomyopathy was transient, thereby avoiding unnecessary aggressive diuresis.

Conclusion
This case highlights the value of serial POCUS in diagnosing CPE secondary to neurogenic myocardial stunning. It enabled rapid identification of reversible LV dysfunction, guided inotropic therapy, monitored response to treatment and facilitated timely de-escalation of supportive measures.

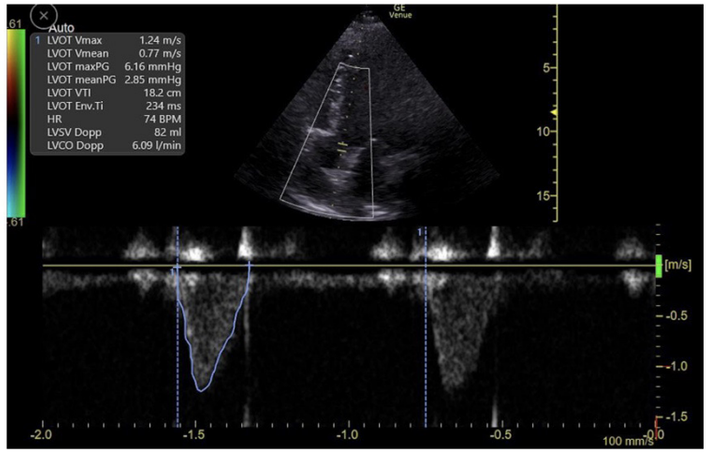
2026-0139

Figure & Table

Figure & Table 1.



VTI on admission to ICU prior to initiation of dobutamine



VTI 1 day after intracranial hemorrhage on dobutamine 5mcg/kg/min

2026-0144

Spontaneous Respiration Using Intravenous Anesthesia and High-Flow Nasal Oxygen (STRIVE Hi) for Microlaryngeal Surgery: A Case Report

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Introduction

Spontaneous Respiration using Intravenous Anesthesia and High-Flow Nasal Oxygen (STRIVE Hi) is a tubeless airway technique that facilitates microlaryngeal surgery while improving margin of safety. Most published protocols use propofol and remifentanil infusions, whereas reports describing dexmedetomidine remain limited. We describe the successful use of propofol target-controlled infusion (TCI) combined with dexmedetomidine during STRIVE Hi for microlaryngeal surgery.

Case

A 35-year-old woman (BMI 28 kg/m^2) with hoarseness of voice and an unremarkable airway assessment underwent direct laryngoscopy, examination under anesthesia, and platelet-rich plasma injection for a right vocal fold sulcus. High-flow nasal oxygen was commenced at FiO_2 1.0, 30 L/min during topicalization and increased to 60 L/min at induction. Rescue equipment, including a videolaryngoscope and microlaryngeal endotracheal tube, was immediately available.

Anesthesia was induced and maintained using propofol TCI (Marsh model) and dexmedetomidine infusion at a fixed infusion rate of 0.3 μg/kg/h. Propofol was initiated at 2 μg/mL and titrated in 0.5 μg/mL increments while maintaining spontaneous respiration. Video laryngoscopy for glottic topicalisation was performed at Ce 5 μg/mL and suspension laryngoscopy was achieved at Ce 6 μg/mL with minimal airway reactivity. Propofol was maintained at Ce 5-5.5 μg/mL during rest of the surgery.

SpO_2 remained at 100% throughout, with no airway obstruction, desaturation, apnoea or requirement for tracheal intubation. Peak end-tidal CO_2 reached was 64 mmHg. Operating conditions were excellent, with minimal vocal cord movement during surgical manipulation. Recovery was uneventful and the patient was discharged on the same day.

Conclusion

Propofol TCI combined with dexmedetomidine infusion provided excellent operating conditions for STRIVE Hi during microlaryngeal surgery while preserving spontaneous respiration. Dexmedetomidine may preserve respiratory drive and reduce propofol requirements, potentially mitigating dose-dependent airway collapse associated with higher propofol doses. This case adds to limited literature supporting propofol - dexmedetomidine as a feasible alternative to propofol - remifentanil regime for tubeless anesthesia with spontaneous ventilation and warrants further evaluation of dexmedetomidine's role in reducing propofol-related adverse effects.

2026-0144

Figure & Table

Figure & Table 1. Fig 1. Preoperative nasoendoscopy showing right vocal fold lesion.

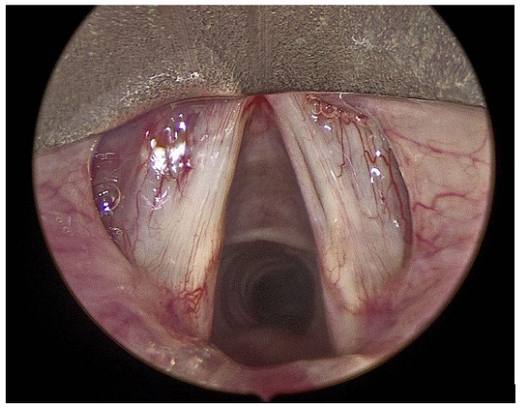


Figure & Table 2. Fig 2. Tubeless anesthesia with HFNO



2026-0145

When Postpartum Headache Is Not Post-Dural Puncture Headache: Acute Bilateral Intracranial Subdural Haematoma After Labour Epidural Analgesia

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Introduction

Intracranial subdural haematoma is a rare but serious complication following labour epidural analgesia and may mimic postdural puncture headache even without recognised accidental dural puncture. We present a case highlighting the importance of early neuroimaging in patients with progressive or atypical postpartum headache.

Case

A 34-year-old primigravida with an unremarkable antenatal course presented at term with spontaneous rupture of membranes. Intrapartum benzylpenicillin was administered for Group B Streptococcus prophylaxis. On admission, she was haemodynamically stable with unremarkable laboratory investigations.

During the active phase of labour, epidural analgesia was performed after informed consent. Under aseptic technique, the epidural space was identified at the L4–L5 interspace using the loss-of-resistance-to-saline technique with a 16 gauge Tuohy needle on the second attempt. The epidural catheter was secured at 11 cm, with a skin-to-epidural distance of 6 cm. Aspiration was negative for blood and cerebrospinal fluid with no recognised accidental dural puncture. An epidural infusion of a local anaesthetic–opioid mixture was commenced, providing effective analgesia without motor blockade. She remained haemodynamically stable and delivered without complications four hours later, with an estimated blood loss of 390 mL. The epidural catheter was removed one hour postpartum with the tip intact and no bleeding at the insertion site.

Thirty minutes after catheter removal, she developed a severe postural occipital headache radiating to the frontal region with neck stiffness. She denied limb weakness, numbness, vomiting, blurred vision or fever. There were no clinical features of pre-eclampsia, her vital signs remained stable and neurological examination revealed no focal deficits. She had no history of anticoagulant or antiplatelet use, and her platelet count and coagulation profile were within normal limits. In view of elevated infective markers (white cell count 22 × 10^3/μL, C-reactive protein 134 mg/L), intravenous ceftriaxone was commenced for presumed intracranial bacterial infection. Although postdural puncture headache was initially suspected, her symptoms failed to improve with oral analgesics and subsequently worsened, with pain radiating to the epidural insertion site.

An urgent CT brain performed 14 hours postpartum demonstrated bilateral acute subdural bleeds measuring 5 mm in thickness, without cerebral oedema. Following neurosurgical review, she was managed conservatively with close neurological monitoring. A repeat CT brain performed 10 hours after the initial scan showed improvement, with a residual 3 mm right frontal acute subdural bleed and complete resolution of the left frontoparietal subdural bleed. Her symptoms improved progressively with conservative management.

She continued to recover and was discharged home on the fifth day of admission with complete resolution of symptoms, no neurological deficits and improving infective markers (TWC 16 × 10^3/μL, CRP 28 mg/L).

Conclusion

Subdural haematoma is a rare but serious complication of epidural analgesia, usually associated with inadvertent dural puncture. Although no recognised dural puncture occurred in this case, an unrecognised dural breach could not be excluded. Maintaining a high index of suspicion for intracranial pathology in patients with atypical postpartum headache is essential to facilitate prompt neuroimaging and favourable neurological outcomes.

2026-0147

Challenging the Boundaries of Cardiac ERAS: Ultra-Fast-Track Recovery in Off-Pump MICS Facilitated by Serratus Anterior Plane and Deep Parasternal Blocks

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Introduction
Minimally invasive cardiac surgery (MICS) via mini-thoracotomy reduces surgical trauma but causes severe intercostal and anterior chest wall pain, which can impair respiratory mechanics and delay extubation. Traditional high-dose opioid regimens contradict Enhanced Recovery After Surgery (ERAS) pathways due to side effects like respiratory depression. Ultrasound-guided fascial plane blocks provide a safe, effective, opioid-sparing regional anesthesia alternative, eliminating the neuraxial hematoma risks associated with systemic heparinization.

Case
We managed a 54-year-old male with severe Left Main disease (SYNTAX 38) that was scheduled for a complex 4-vessel off-pump MICS CABG via a left 5th intercostal space (ICS) mini-thoracotomy. To execute an opioid-sparing Cardiac ERAS protocol, preoperative ultrasound-guided left Serratus Anterior Plane (SAP) block (30mL 0.25% bupivacaine + 5mg dexamethasone + 0.1mg epinephrine) and left deep parasternal intercostal plane blocks (10mL 0.25% bupivacaine + 5mg dexamethasone at 3rd and 5th ICS) were performed. General anesthesia was maintained with sevoflurane and a micro-dose morphine infusion (10mcg/kg/hour). Peak activated clotting time reached 359 seconds. Following a 7-hour uneventful surgery, immediate on-table extubation was achieved. In the ICU, the patient reported outstanding pain control with a Visual Analog Scale (VAS) score of 0 at rest and 1 during early mobilization. No opioid-related complications occurred, allowing a rapid step-down to the general ward within 24 hours.

Conclusion
The synergistic combination of SAP and deep parasternal blocks delivers comprehensive dual-zone hemithoracic analgesia. This peripheral approach serves as a safe, powerful cornerstone of Cardiac ERAS, facilitating safe immediate on-table extubation and minimizing ICU length of stay even in highly complex multi-vessel off-pump surgeries.

2026-0149

Beyond a Rare Diagnosis: Anesthetic Considerations for Dural Puncture Epidural Labor Analgesia in Mirror Syndrome with Cardiopulmonary Compromise

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Introduction
Mirror syndrome (Ballantyne syndrome) is an exceptionally rare obstetric disorder characterized by the triad of fetal hydrops, placental edema, and maternal edema. Despite its rarity, maternal cardiopulmonary complications, including pulmonary edema, hemodilution, congestive heart failure, and rapid intravascular volume shifts, may substantially increase anesthetic risk. Published anesthetic experience remains scarce and is largely limited to cesarean delivery, with little evidence guiding neuraxial labor analgesia. We report the successful anesthetic management of labor using a dural puncture epidural (DPE) technique in a parturient with Mirror syndrome, emphasizing the anesthetic principles that contributed to maternal stability.

Case
A 32-year-old gravida 3 para 2 woman at 31 weeks' gestation presented with progressive dyspnea. Fetal ultrasonography demonstrated severe hydrops fetalis with placentomegaly, polyhydramnios, pulmonary hypoplasia, pleural effusion, ascites, generalized fetal edema, and absent end-diastolic umbilical artery flow, consistent with suspected Mirror syndrome. Maternal evaluation revealed severe anemia (hemoglobin 7.4 g/dL), elevated NT-proBNP (2,659 pg/mL), pulmonary edema, severe chronic energy deficiency, and transthoracic echocardiographic findings suggestive of elevated filling pressures, pulmonary hypertension, and congestive heart failure. During hospitalization, six units of packed red blood cells were transfused to correct symptomatic anemia; however, dyspnea worsened following transfusion, raising concern for progressive volume overload in the setting of Mirror syndrome. After multidisciplinary discussion, maternal condition improved with supportive treatment, but pregnancy termination was undertaken because continuation of pregnancy carried a high risk of recurrent maternal cardiopulmonary deterioration, while the fetus had an extremely poor prognosis owing to advanced hydrops fetalis and pulmonary hypoplasia. Labor induction was therefore performed in the surgical intensive care unit. The anesthetic strategy included invasive arterial pressure monitoring, restrictive fluid therapy, diuretic administration, and continuous cardiopulmonary surveillance. Because the patient remained hemodynamically stable without respiratory failure or coagulopathy, DPE analgesia with incremental epidural ropivacainefentanyl dosing was selected to achieve gradual sympathetic blockade while avoiding airway manipulation. Maternal hemodynamics remained stable without anesthetic complications. The fetus was delivered stillborn.

Conclusion
Mirror syndrome should be regarded not merely as a rare obstetric diagnosis but as a condition with profound anesthetic implications. Recognition of cardiopulmonary involvement, individualized neuraxial planning, restrictive fluid therapy, and vigilant hemodynamic monitoring are fundamental to optimizing maternal outcomes. In carefully selected patients, DPE may provide effective labor analgesia while minimizing airway manipulation and allowing controlled hemodynamic adaptation. This case highlights that successful anesthetic management depends on anticipating the pathophysiological consequences of Mirror syndrome rather than focusing solely on the anesthetic technique.

2026-0150

Postpartum Intracerebral Hemorrhage in Severe Preeclampsia and Chronic Kidney Disease: Neurocritical and Dialysis Challenges in a Non-Ideal Setting

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Introduction

Postpartum circulatory and volume shifts after cesarean delivery may destabilize severe preeclampsia and advanced kidney dysfunction. In anuric chronic kidney disease (CKD), impaired fluid and solute clearance complicates blood pressure, acid-base, and cardiopulmonary management. Intracerebral hemorrhage (ICH) further limits dialysis because anticoagulation may worsen bleeding, whereas heparin-free dialysis increases circuit thrombosis.

Case

A 33-year-old gravida 2 para 1 woman at 30 weeks' gestation was referred with severe preeclampsia, fetal distress, fetal growth restriction, and CKD. Emergency cesarean delivery was performed under rapid-sequence spinal anesthesia. Nine hours postoperatively, she developed aphasia, right-sided weakness, and impaired consciousness. Brain imaging showed a 29 mL spontaneous ICH with intraventricular extension, accompanied by anuria, metabolic acidosis, and hypermagnesemia.

Intravenous and oral antihypertensives were titrated to limit hematoma expansion while preserving cerebral perfusion. Fluids were restricted because anuria limited tolerance of postpartum volume shifts. Conservative treatment was chosen due to ICH < 30 ml, mild midline shift, no neurological worsening, and high surgical bleeding risk from kidney failure and dialysis exposure.

Dialysis required balancing bleeding risk, thrombosis, and circuit patency. Citrate anticoagulation was unavailable, and systemic heparin could aggravate intracerebral bleeding. But dialysis delay could worsening pulmonary edema and other complication due to preeclampsia, postpartum physiology and CKD.

Heparin-free continuous renal replacement therapy (CRRT) was used during the acute hemorrhagic phase, but circuit thrombosis stopped treatment after about 30 hours. Dialysis then continued with intermittent low-dose heparin hemodialysis, improving volume status, acidosis, and renal parameters. Follow-up neuroimaging showed no hematoma enlargement. Neurological deficits partially improved before discharge. She later resumed normal daily activities, although preeclampsia worsened her CKD and led to regular hemodialysis.

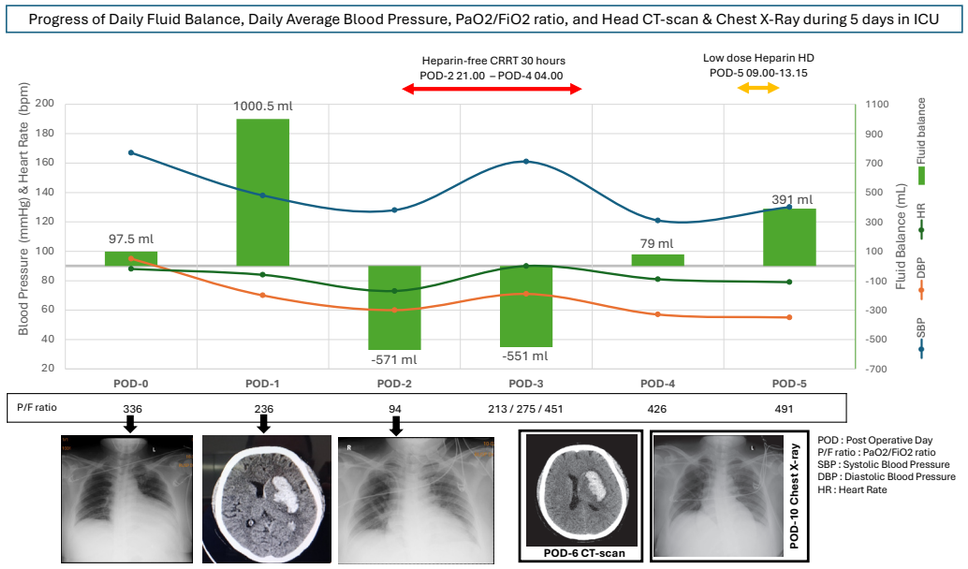
Conclusion

This case emphasizes individualized blood pressure, fluid, neurological, and dialysis strategies when severe preeclampsia, anuric kidney failure, postpartum hemodynamic shifts, and ICH coexist. Nonoperative neurocritical management may be appropriate in neurologically stable patients when hemodynamic targets, fluid balance, and renal replacement therapy are tailored. Anticoagulation remains a central dilemma: heparin may worsen ICH, whereas heparin-free CRRT increases early circuit failure and thrombosis.

2026-0150

Figure & Table

Figure & Table 1.



2026-0160

Association of Intraoperative Oxygen Concentration with Longitudinal Cognitive Outcomes and Exploratory Circulating microRNA Expression in Older Adults Undergoing Non-Cardiac Surgery

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Background
The optimal intraoperative oxygen concentration for elderly surgical patients remains controversial (1). Hyperoxia may increase oxidative stress and neuronal injury, potentially contributing to perioperative neurocognitive disorders (PND) and altered microRNA (miRNA) expression (2) . To evaluate the association between intraoperative oxygen concentration, longitudinal cognitive outcomes, and exploratory circulating microRNA expression in older adults with delayed neurocognitive recovery following elective non-cardiac surgery.

Methods
This prospective observational study included 40 older adults with delayed neurocognitive recovery. Twenty patients received normoxic (FiO_2 ≈ 0.35) and twenty received hyperoxic (FiO_2 >0.5) intraoperative oxygen Cognitive function was assessed preoperatively and at 24 hours, 1, 3 and 6 months postoperatively. Between-group comparisons were performed using the Mann-Whitney U test, and within-group changes were analysed using the Friedman test with Bonferroni correction. Exploratory circulating microRNA profiling was performed using small RNA sequencing (n=10), followed by qRT-
PCR validation (n=30).

Results
Both groups demonstrated significant cognitive decline at 24 hours with progressive improvement during follow-up (all p>0.001). No significant between-group differences were observed at any assessment (all p>0.05). Small RNA sequencing identified three candidate microRNAs (hsa-miR-6873-3p, hsa-miR-32-5p, and hsa-miR-483-3p). qRT-PCR
demonstrated differential expression of hsa-miR-483-3p (log_2 fold change −1.64; p=0.0375), whereas the remaining candidate microRNAs were not significantly different.

Conclusion
Normoxic and hyperoxic intraoperative oxygen strategies were associated with similar longitudinal cognitive outcomes. Differential expression of hsa-miR-483-3p requires validation in larger prospective studies.

2026-0161

Effects of Opioid-Free and Opioid-Based Anaesthesia on Neurocognition and Cerebral Oxygenation

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Background
Perioperative neurocognitive disorders (PND) are common in older surgical patients and may impair recovery (1) . This study compared opioid-based anesthesia (OBA) and opioid-free anesthesia (OFA) on neurocognitive outcomes in older adults undergoing laparoscopic surgery. It also evaluated the association between intraoperative regional cerebral oxygen saturation (rSO_2) and postoperative neurocognitive outcomes.

Methods
In this prospective randomized controlled trial, 100 older adults undergoing laparoscopic surgery were randomly assigned to receive either OBA or OFA. Delirium and cognition were assessed preoperatively and postoperatively at 24 hr, and at 30 days using Delirium Rating Scale-98 Revised (DRS-98 R) and Addenbrooke's Cognitive Examination- III (ACE-III) respectively. Near-infrared spectroscopy (NIRS) was used to monitor rSO_2 levels.

Results
Ninety-six patients were included in the final analysis with 48 patients in each group. Baseline demographic, clinical, and neurocognitive characteristics were comparable. Postoperative DRS-98 scores were significantly lower in the OFA group in the PACU and at 24 hours (P<0.001). Cognitive performance at 24 hours postoperatively was significantly higher in the OFA group (P = 0.0006), while cognitive scores were comparable betweengroups at 30 days. Intraoperative rSO_2 remained comparable between the two groups throughout the study period (P = 0.253).

Conclusion
OFA was associated with improved neurocognitive outcomes at 24 hr compared with OBA in older adults undergoing laparoscopic surgery. However, neurocognitive outcomes were similar at 30 days and intraoperative rSO_2 remained comparable between groups.

2026-0165

No Breath Shall Be Wasted: Femoro-Femoral Bypass-Assisted Awake Tracheostomy for Advanced Thyroid Carcinoma

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Introduction

Advanced papillary thyroid carcinoma (PTC) with tracheal invasion presents a significant anesthetic challenge due to the risk of catastrophic airway obstruction during induction and airway manipulation. In patients with critical fixed tracheal stenosis, conventional airway management techniques may result in failed ventilation and oxygenation. Extracorporeal support, such as cardiopulmonary bypass (CPB), may provide a safer strategy by maintaining gas exchange while definitive airway control is achieved. We present a case of stage IVB papillary thyroid carcinoma with critical tracheal obstruction managed with planned femorofemoral CPB prior to airway intervention.

Case

A 76-year-old female with stage IVB papillary thyroid carcinoma with intratracheal invasion, vascular encasement, and pulmonary metastases was scheduled for femorofemoral CPB, prophylactic tracheostomy, and incision biopsy of the thyroid mass. Computed tomography revealed a large right thyroid mass measuring 7.8 × 6.4 × 3.9 cm with superior mediastinal extension and critical tracheal narrowing from C7 to T2, with a minimum residual lumen of 0.4 cm. Flexible laryngoscopy demonstrated right vocal cord paresis in the paramedian position and an intraluminal mass. Due to the severity of airway compromise, conventional induction of general anesthesia and awake fiberoptic intubation were considered high-risk. After multidisciplinary discussion, femorofemoral CPB was established before airway manipulation. Under local anesthesia and conscious sedation, high-flow nasal oxygen was administered at 65 L/min with FiO_2 0.60. Remifentanil infusion using a target-controlled infusion system based on the Minto model, supplemented with intermittent midazolam, was titrated while preserving spontaneous ventilation. Femoral arterial and venous cannulation were performed, and CPB was initiated prior to tracheostomy, providing extracorporeal oxygenation during airway intervention. After airway establishment, total intravenous anesthesia with propofol and remifentanil was initiated. CPB was discontinued uneventfully after 41 minutes, and the procedure was completed. The patient was transferred to the ENT ward on postoperative day 2, successfully weaned from oxygen support, and discharged on postoperative day 22 without respiratory complications.

Conclusion

In patients with advanced thyroid malignancy and critical tracheal obstruction, careful airway assessment and multidisciplinary planning are essential. Planned femorofemoral CPB prior to airway manipulation may provide a safe approach by maintaining oxygenation while definitive airway control is achieved. This case highlights the role of extracorporeal support as a preventive strategy in managing anticipated difficult airways.

2026-0165

Figure & Table

Figure & Table 1.



2026-0169

Effect of Ultrasound-Guided Regional Anesthesia on Postoperative Analgesia After Orbitotomy: A Pilot Prospective Randomized Controlled Trial

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Background
Postoperative pain following orbitotomy can be significant and may require substantial opioid administration. Ultrasound-guided regional anesthesia has the potential to improve perioperative analgesia while reducing opioid consumption. This pilot randomized controlled trial evaluated the analgesic efficacy of ultrasound-guided or ultrasound-assisted regional anesthesia as part of a multimodal analgesic regimen in patients undergoing orbitotomy.

Methods
Thirty patients undergoing orbitotomy under general anesthesia were randomized to receive either multimodal analgesia incorporating ultrasound-guided/assisted regional anesthesia (Group M, n = 15) or systemic analgesia alone (Group S, n = 15). The primary outcome was total fentanyl consumption during the first 24 postoperative hours. Secondary outcomes included intraoperative and postoperative fentanyl requirements, postoperative Numerical Rating Scale (NRS) pain scores, and time to first rescue analgesia.

Results
Baseline characteristics were comparable between groups. Group M demonstrated significantly lower intraoperative fentanyl consumption (68.3 ± 27.5 vs. 150.4 ± 55.5 μg), postoperative fentanyl consumption (184.0 ± 85.9 vs. 308.9 ± 97.3 μg), and total 24-hour fentanyl requirement (238.6 ± 106.7 vs. 459.3 ± 138.7 μg) compared with Group S (all $p < 0.001$). Postoperative NRS pain scores were significantly lower in Group M up to 12 hours after surgery (all $p < 0.001$), with no significant difference at 24 hours ($p = 0.104$). Time to first rescue analgesia was significantly prolonged in Group M (81 ± 50.6 vs. 31 ± 16.2 minutes; $p < 0.001$). No major block-related complications were observed.

Conclusion
Ultrasound-guided or ultrasound-assisted regional anesthesia significantly reduced perioperative opioid requirements and improved early postoperative analgesia following orbitotomy. These findings support its role as an effective component of multimodal analgesia in orbital surgery. Larger studies are warranted to validate these results and explore strategies to prolong analgesic duration.

2026-0169

Figure & Table

Figure & Table 1.

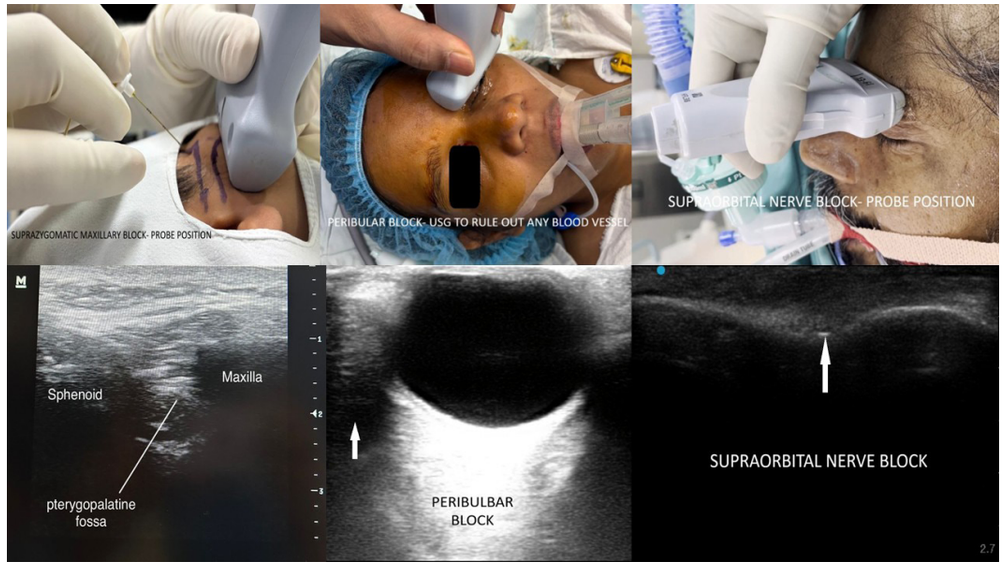
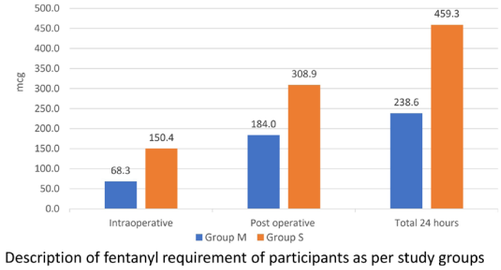


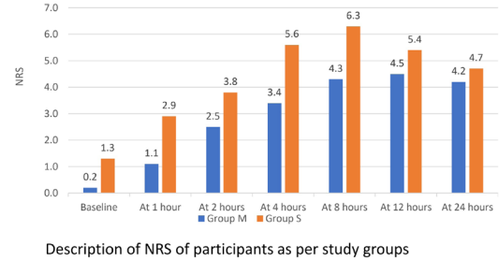
Figure & Table 2.



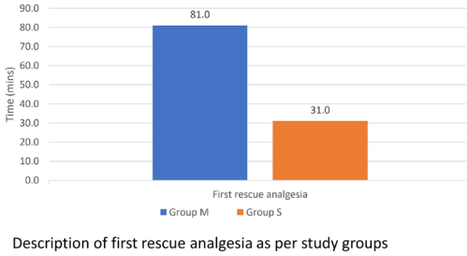
Description of fentanyl requirement of participants as per study groups

Surgery	Regional Technique
Orbitotomy without Periocular lid incision	Peribulbar block
Anterior orbitotomy	Supraorbital, supratrochlear, and peribulbar block
Lateral orbitotomy	Suprazygomatic maxillary and Peribulbar block
Inferior orbitotomy	Infraorbital and peribulbar block

Regional anesthetic techniques used according to the orbitotomy approach in patients



Description of NRS of participants as per study groups



Description of first rescue analgesia as per study groups

2026-0170

Efficacy of Clonidine as an Adjuvant to 0.5% Ropivacaine in Erector Spinae Plane Block for Postoperative Analgesia in Breast Surgeries : A Randomized Controlled Trial

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Background

Modified radical mastectomy (MRM) is associated with significant postoperative pain. The ultrasound-guided erector spinae plane (ESP) block has emerged as an effective component of multimodal analgesia. This randomized controlled trial assessed the efficacy of clonidine as an adjuvant to 0.5% ropivacaine in ESP block for postoperative analgesia following MRM.

Methods

Seventy-two adult female patients with American Society of Anesthesiologists (ASA) physical status I or II scheduled for unilateral MRM under general anaesthesia were randomly assigned to two groups. Group R received 20 ml of 0.5% ropivacaine, while Group RC received clonidine (1 µg/kg) with 20 ml of 0.5% ropivacaine via ultrasound-guided ESP block at the T4 level prior to induction. The primary outcome was the duration of analgesia, defined as the time to first rescue analgesic (VAS ≥ 4). Secondary outcomes included time to sensory block onset, extent of dermatomal spread, VAS scores, total analgesic requirement in the first 24 hours, and adverse events.

Results

The median time to first rescue analgesia was longer in Group RC [18.0 (IQR 8–24) hours] compared to Group R [10.5 (IQR 4–15) hours], though the difference was not statistically significant (P > 0.05). Sensory block onset was comparable [10.7 ± 3.0 min in RC vs 10.3 ± 0.9 min in R; P > 0.05], and both groups had a block duration of approximately 26 hours. Fewer patients in Group RC (16%) required rescue analgesia than in Group R (33.3%). VAS scores and hemodynamic parameters were similar, and no adverse effects were observed.

Conclusion

Clonidine as an adjuvant to ropivacaine in ESP block does not significantly prolong analgesia but may reduce postoperative analgesic requirements without added side effects.

2026-0170

Figure & Table

Figure & Table 1.

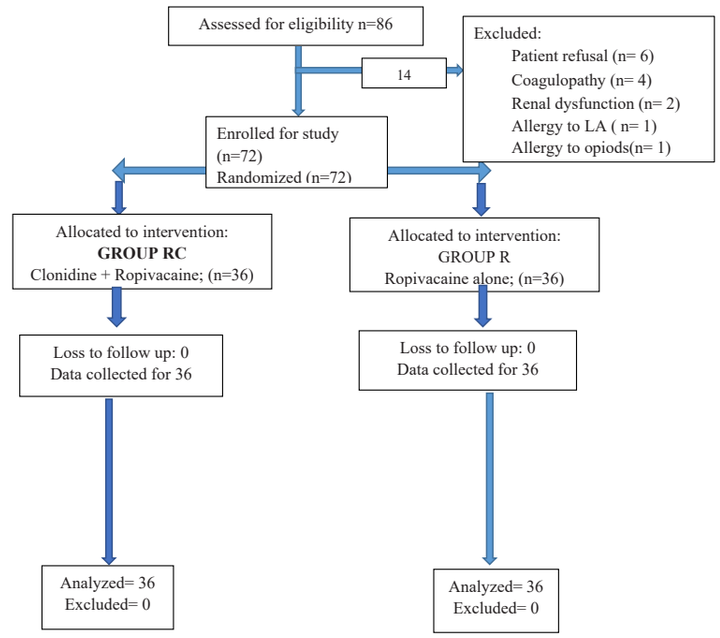


Figure 1: CONSORT figure representing the enrolment and randomization of cases

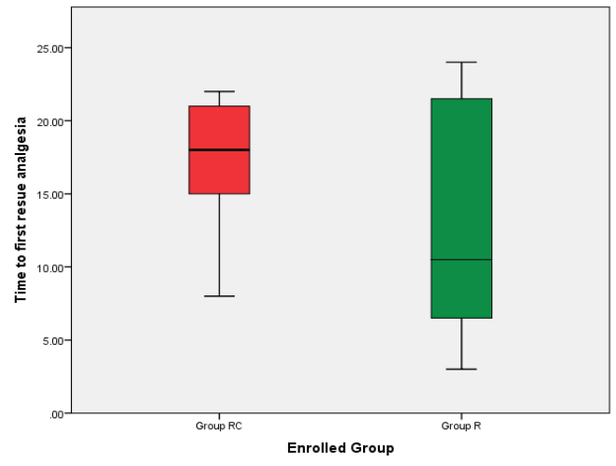


Figure 2:- Comparison of median time to first rescue analgesic(in hours) in RC and R groups.

2026-0170

Figure & Table

Figure & Table 2.

Table 1 | Comparison of baseline demographic characteristics

Parameter	Group RC (Mean ± SD)	Group R (Mean ± SD)	p-value
Age (years)	54.7 ± 12.6	52.0 ± 13.0	0.410
Body Weight (kg)	61.89 ± 12.22	59.94 ± 10.76	0.494
Height (cm)	152.14 ± 4.78	152.68 ± 5.64	0.670

Table 2 | Comparison of sensory block characteristics between study groups

Parameter	Group RC (Mean ± SD)	Group R (Mean ± SD)	p-value
Time to Sensory Block Onset (minutes)	10.7 ± 3.0	10.3 ± 0.9	0.513
Number of Dermatomes Blocked	4.4 ± 1.0	4.5 ± 0.5	0.606

Table 3 | Comparison of time to first rescue analgesic between groups

Group	Median Time to First Rescue Analgesic (hrs)	Q1 (hrs)	Q3 (hrs)	p-value
RC	18.00	13.25	21.25	0.400
R	10.50	6.25	21.75	

Table 4 | Incidence of rescue analgesic requirement within 24 Hours

Parameter	Group RC (n = 36)	Group R (n = 36)	p-value
No. of patients requiring rescue analgesic	6 (16.7%)	12 (33.3%)	0.086
No. of patients not requiring rescue analgesic	30 (83.3%)	24 (66.7%)	

Table 5 | Comparison of resting and movement VAS scores over 24 hours

Time Point	RC Resting (Mean ± SD)	R Resting (Mean ± SD)	p-value	RC Movement (Mean ± SD)	R Movement (Mean ± SD)	p-value
30 min	2.28 ± 1.00	2.54 ± 0.82	0.244	2.78 ± 0.59	3.11 ± 0.71	0.323
60 min	2.25 ± 0.97	2.53 ± 0.91	0.414	2.97 ± 0.77	3.36 ± 0.90	0.053
90 min	2.17 ± 1.08	2.92 ± 0.91	0.002	3.11 ± 1.06	3.75 ± 0.97	0.435
2 hr	1.97 ± 0.65	2.08 ± 0.60	0.894	2.97 ± 0.65	3.06 ± 0.58	0.630
4 hr	2.11 ± 0.57	2.22 ± 0.72	0.355	3.08 ± 0.55	3.25 ± 0.73	0.131
6 hr	2.14 ± 0.96	2.08 ± 0.81	0.463	3.11 ± 0.95	3.11 ± 0.78	0.595
9 hr	2.03 ± 0.45	2.28 ± 0.97	0.168	3.03 ± 0.45	3.19 ± 1.06	0.391
12 hr	1.97 ± 0.56	2.03 ± 0.61	0.675	3.06 ± 0.47	3.00 ± 0.68	0.749
18 hr	2.08 ± 0.77	2.14 ± 0.80	0.817	3.17 ± 0.91	3.14 ± 0.68	0.233
24 hr	2.28 ± 0.94	2.25 ± 1.16	0.790	3.22 ± 0.93	3.22 ± 1.22	0.420

2026-0180

Severe Hypophosphatemia Presenting as Isolated Depressed Consciousness During Treatment of Diabetic Ketoacidosis

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Introduction

Phosphate is an essential substrate for the synthesis of adenosine triphosphate (ATP), the primary energy source required for normal cellular function.

Severe hypophosphatemia can lead to a wide range of clinical manifestations, including reduced cardiac contractility resulting in hypotension, skeletal muscle weakness resulting in respiratory failure and neurological complications such as confusion, seizures and impaired consciousness.

Case

We report the case of a 59-year-old woman who developed a rapid progressive decline in consciousness while receiving treatment for diabetic ketoacidosis (DKA). She had been hospitalized for four days, with progressive resolution of DKA. However, on the fifth day of admission she became increasingly drowsy and confused.

Initial investigations performed in the general ward were unremarkable. Computed tomography (CT) of the brain showed no acute intracranial pathology. Blood investigations showed normocarbia, normoglycemia, normal thyroid, kidney and liver function; no acid-base disturbances, hyperammonemia nor uremia. Folate and B12 levels were replete as well. Significantly, extended electrolytes, including calcium, magnesium and phosphate, were not measured. Initial calcium, magnesium and phosphate levels checked on admission were normal.

Despite these findings, her neurological status deteriorated rapidly, with her Glasgow Coma Scale (GCS) falling to 3 on the same day. She was intubated for airway protection and transferred to the intensive care unit (ICU), where she required only minimal ventilatory support.

Following ICU admission, serum phosphate was measured and found to be profoundly reduced at 0.4 mg/dL, while all other electrolyte levels remained within the normal range. The patient regained full GCS once phosphate was replete and successfully extubated.

Conclusion

During DKA treatment, it is common to check potassium but not phosphate levels. However, insulin therapy promotes intracellular phosphate shifts as glucose is transported into cells and then metabolized for ATP synthesis. [1]

Neurological manifestations of hypophosphatemia may precede respiratory compromise, but isolated severe depression of consciousness without clinically significant muscle weakness is uncommon. The brain's high metabolic demand and dependence on ATP may explain why neurological dysfunction can occur before skeletal muscle weakness becomes clinically apparent [1]

2026-0183

Successful Videolaryngoscopic Intubation Following Failed Awake Fibreoptic Intubation in an Acromegalic Patient with Predicted Difficult Airway

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Introduction
Acromegaly, most commonly caused by pituitary adenomas, is associated with progressive multisystem morbidity. Upper airway involvement is particularly important and relevant in perioperative anaesthetic care, as soft-tissue hypertrophy and craniofacial overgrowth may result in macroglossia, prognathism, pharyngeal narrowing, and laryngeal distortion. These anatomic changes increase the likelihood of difficult airway management.

Case
We present the case of a 40 years old gentleman, recently diagnosed with acromegaly secondary to a pituitary macroadenoma which is planned for endoscopic and transsphenoidal surgery. Prior to diagnosis, he was already under otorhinolaryngology (ORL) follow up for obstructive sleep apnea (OSA) and on continuous positive airway pressure (CPAP) machine at home. He has all the classic acromegaly difficult airway features with significant anaesthetic history needed awake fibreoptic intubation (AFOI) with post-extubation hypoxia resulting in cardiac arrest. Given the anticipated difficult airway and previous airway-related complication, AFOI was planned, however the procedure failed, video laryngoscopy (VL) blade size 4 was done, Percentage of Glottis Opening (POGO) 0% after given intravenous propofol 60 mg and TCI Remifentanil up to 2 mcg/ml. Bag mask ventilation (BMV) was difficult, patient was put on Larygeal Mask Airway (LMA) size 5 to ventilate while waiting for the patient to wake up. Surgery was postponed.
A multidisciplinary team (MDT) discussion involving anaesthesiology, neurosurgery and ORL teams was conducted discussing the airway strategy. It was agreed upon that the AFOI will be done in sitting position to improve the probability of success. ORL team agreed to do open tracheostomy under local anaesthesia (LA) if intubation fails or under general anaesthesia (GA) for post operative airway management.
During the latest intubation for the surgery, AFOI was done in sitting position as planned, however despite repeated attempts advancement of bronchoscope is hindered by a severely crowded upper airway and floppy epiglottis. It was then decided to gas down with 5% sevoflurane, attempted VL, POGO 100%. IV Rocuronium 100 mg (1mg/kg) was given to facilitate BMV which remained challenging as required three personnels to hold the mask alone. Following successful intubation using VL, tracheostomy was performed and surgery proceeded uneventfully.

Conclusion
This case highlights the challenges of airway management in acromegalic patient. It also emphasizes the importance of multidisciplinary involvements and adherence to difficult airway guidelines.

2026-0189

Management of an Obstetric Patient with Osteogenesis Imperfecta Undergoing Cesarean Delivery

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Introduction
Obstetric patients with osteogenesis imperfecta (OI) present unique challenges for anesthetic management due to potentially difficult maternal airways and severe physiological alterations during pregnancy. The anatomical abnormalities associated with OI, combined with the normal physiological changes of pregnancy, create a complex scenario for the anesthesia team when managing patients undergoing cesarean section.

Case
A 39-year-old primigravida lady with OI presented to our center at 25 weeks of gestation for inpatient antenatal care. Her pregnancy was complicated by severe scoliosis, poorly controlled bronchial asthma, and restrictive lung disease. Due to progressive respiratory compromise, a cesarean section was planned at 32 weeks of gestation following a multidisciplinary discussion.
A high-fidelity simulation was performed one week prior to delivery to optimize airway management strategies. During the operation, initial attempts at awake fiberoptic intubation failed due to acute bronchospasm and airway trauma. The patient was subsequently successfully intubated via awake tracheal intubation using a video laryngoscope. The operation proceeded uneventfully, and the patient was transferred to the intensive care unit postoperatively. She recovered well and was discharged postoperatively on day 14. Written informed consent was obtained from the patient for the publication of this case report.

Conclusion
Managing an obstetric patient with severe OI requires a well-coordinated multidisciplinary approach to minimize perioperative complications and shorten hospital stays. An expert team involving anesthesiologist, obstetricians, respiratory physicians,and the ear, nose, and throat (ENT) team successfully minimized the associated risks. This case highlights the critical importance of careful pre-anesthetic planning, thorough risk stratification, structural emergency protocols, and clinical simulation for crisis management when handling difficult airways in patients with connective tissue disorders. Furthermore, establishing alternative awake airway strategies with rigorous multidisciplinary preparation is essential for patient safety when primary airway plans fail.

2026-0192

The Effect of Intraoperative Intravenous (IV)Magnesium Sulphate (MgSO4) on Postoperative Pain in Adult Patients Undergoing Laparoscopic Cholecystectomy under General Anaesthesia (GA)- a Systematic Review of Randomised Trials

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Background

Magnesium sulphate (MgSO4), is the fourth commonest cation in the body and has a key role in many physiological processes. It is often used as an adjunct, and some desirable effects include better intraoperative muscle relaxation, reduced postoperative nausea and vomiting, better hemodynamic stability and analgesia.

This systematic review, undertaken according to PRISMA guidelines, investigated the effects of intraoperative intravenous MgSO4 on postoperative analgesic control, as assessed by pain scores such as the VAS (visual analogue scale) or NRS (Numerical Rating Scale) in adult patients undergoing laparoscopic cholecystectomy. Secondary outcomes of interest included and the use of rescue analgesics postoperatively and postoperative nausea and vomiting (PONV).

Methods

The major databases Pubmed, Embase and Cochrane Central were used. The search strategy included RCTs from these databases' inception to the date of search (March 2025). Only publications in English were selected. The quality of the included studies was evaluated using the Cochrane Risk of Bias tool (RoB2)4 .

Eligible trials included were randomised control trials (RCTs) in adults (age≥18) undergoing laparoscopic cholecystectomy under GA, comparing intravenous MgSO4 with a control of either no MgSO4 or a placebo. Observational studies were excluded. Trials involving MgSO4 given via non-intravenous routes were excluded. Trials with no control or placebo group were excluded.

Results

Six RCTs involving a total number of 572 patients were included. Patients who received IV MgSO4, whether bolus alone or bolus followed by infusion, intraoperatively, had lower pain scores postoperatively in the immediate postoperative period. The requirement for postoperative analgesia was significantly lower in three of the six studies, and pooled analysis did not show a significance. There was no significant difference in PONV rates.

Conclusion

The reduction of early postoperative pain scores highlights the possible role of MgSO4 as a valuable adjunct to reduce postoperative pain for patients undergoing laparoscopic cholecystectomy, making it potentially useful in facilitating patient-centred, enhanced recovery and ambulatory surgery. Further research, including large-scare randomised trials, will be useful to confirm these findings, elucidate optimal dosing of perioperative IV MgSO4, and to evaluate potential side-effects.

2026-0192

Figure & Table

Figure & Table 1.

Figure 1. Flowchart of identification of studies

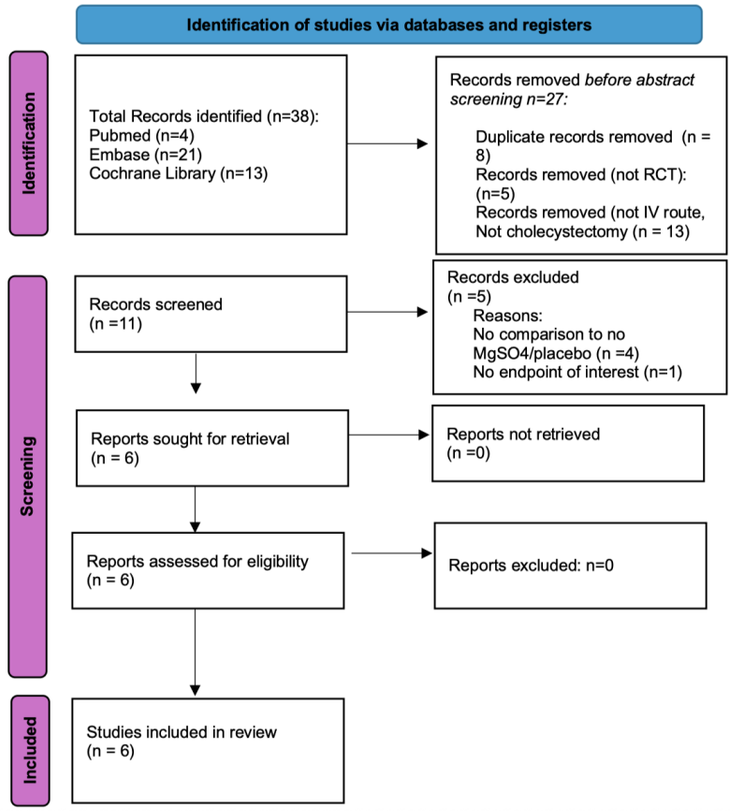
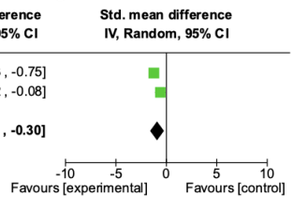


Figure & Table 2.

Figure 3: Forest plot comparing Pain Scores at 0 hours between MgSO4 and control

Study or Subgroup	MgSO4 Mean	MgSO4 SD	MgSO4 Total	Control Mean	Control SD	Control Total	Weight	Std. mean difference IV, Random, 95% CI
✓ Lu Jing et al (9)	2.33	0.77	37	3	0.01	40	50.9%	-1.24 [-1.73 , -0.75]
✓ Olgun et al (8)	5.9	2.3	30	7.3	2.3	30	49.1%	-0.60 [-1.12 , -0.08]
Total (Wald[a])			**67**			**70**	**100.0%**	**-0.93 [-1.56 , -0.30]**

Test for overall effect: Z = 2.89 (P = 0.004)
Test for subgroup differences: Not applicable
Heterogeneity: Tau² (REML[b], 95% CI) = 0.14 [0.00 , >100]; Chi² = 3.11, df = 1 (P = 0.08); I² = 68%



Footnotes
[a]CI calculated by Wald-type method.
[b]Tau² calculated by Restricted Maximum-Likelihood method.

2026-0193

Predicting Respiratory Failure and Outcome in Guillain-Barré Syndrome Using EGRIS and mEGOS Scores: A Case Series of ICU Patients

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Introduction

Guillain-Barré Syndrome (GBS) is an immune-mediated polyneuropathy that can lead to respiratory failure, with approximately 20% of patients requiring mechanical ventilation and admission to the Intensive Care Unit (ICU). The main challenges in clinical management are determining the appropriate timing for intubation before the condition worsens and predicting the long-term prognosis. This case report examines whether the Erasmus Guillain-Barré Syndrome Respiratory Insufficiency Score (EGRIS) and the modified Erasmus Guillain-Barré Syndrome Outcome Score (mEGOS) can predict respiratory failure and outcome in three GBS cases admitted to the ICU.

Case

Evaluation was conducted on three patients with different conditions and outcomes. Case 1: A 41-year-old female patient was admitted on day 7 with an EGRIS score of 4 (intermediate risk) and an mEGOS score of 8 (poor prognosis). The patient required mechanical ventilation and experienced worsening after the second plasmapheresis session, leading to death on the 13th day of hospitalization. Case 2: A 54-year-old male patient had an EGRIS score of 3 (intermediate risk) and an mEGOS score of 8 (poor prognosis). The patient experienced disease progression leading to type 2 respiratory failure and required intubation. The patient died after experiencing complications of cardiac arrest on day 16. Case 3: A 26-year-old male patient was admitted with an EGRIS score of 2 (low risk) and an mEGOS score of 3 (good prognosis). After receiving ventilator support and plasmapheresis therapy, the patient's condition gradually improved, leading to successful extubation and discharge on day 17.

Conclusion

The EGRIS score accurately identified GBS patients requiring mechanical ventilation at ICU admission, while the mEGOS score on day 7 predicted recovery outlook. These findings were consistent with the three cases evaluated. However, delayed referral or delayed plasmapheresis therapy due to insurance constraints may worsen actual clinical outcomes. The authors recommend using EGRIS and mEGOS as standard protocols in the ICU and HCU for new GBS patients to improve the quality and safety of care.

2026-0193

Figure & Table

Figure & Table 1.

Table 1. EGRIS and mEGOS scoring systems and their category

Scoring system	Category	Points
EGRIS Score		
Days between the onset of weakness and admission	> 7 hari	0
	4 – 7 hari	1
	≦ 3 hari	2
Presence of facial and/or bulbar weakness	Absent	0
	Present	1
MRC (Medical Research Council) Sum Score	51 – 60	0
	41 – 50	1
	31 – 40	2
	21 – 30	3
	≦ 20	4
mEGOS Score		
Age at onset (years)	≦ 40	0
	41 – 60	1
	> 60	2
Preceding diarrhea	Absent	0
	Present	1
MRC Sum Score	51 – 60	0
	41 – 50	2
	31 – 40	4
	0 – 30	6

Figure & Table 2.

Table 2. Case summary

	Case 1	Case 2	Case 3
Age	41 yo	54 yo	26 yo
Time between disease onset and admission	5 days	5 days	7 days
Bulbar involvement	Absent	Absent	Present
Preceding diarrhea	Present	Absent	Absent
MRC sum score	36	48	42
EGRIS Score	4	3	2
EGRIS Score Interpretation	Intermediate risk	Intermediate risk	Low risk
mEGOS Score	8	8	3
mEGOS Score interpretation	poor	poor	good
Outcome	Death	Death	Extubated, Discharged from hospital

ABSTRACT
Competition
Presentation
E-Poster

2026-0197

Acute Macroglossia Following Oropharyngeal Packing.

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Introduction

Macroglossia is characterised by a resting tongue that protrudes beyond the teeth or alveolar ridge[1]. Acute macroglossia is an uncommon but potentially serious condition due to the risk of upper airway obstruction. We present a rare case of acute macroglossia following oropharyngeal packing in a 26-year-old polytrauma patient and describe its management in the Surgical Intensive Care Unit (SICU).

Case

A 26-year-old male motorcyclist with no past medical history presented to the emergency department following a high-speed road traffic accident in which he collided with the rear end of a lorry. His injuries included multifocal acute intracranial haemorrhages, multiple facial bone and thoracic transverse process fractures, and a left-sided pneumothorax. On arrival, his GCS was E1V1M4 and he was intubated for airway protection before transfer to the SICU.

The patient sustained bilateral temporal bone fractures complicated by haemosinus and persistent oral and nasal bleeding. The Otolaryngology team was consulted, and achieved haemostasis with absorbent packing of his oral and nasal cavities. On the third day of admission, following resolution of the bleeding, the packs were removed. Subsequently, marked tongue oedema with protrusion from the oral cavity was noted. There were no clinical signs of seizure activity or tongue biting injury. Otolaryngology review was sought and conservative management was recommended. As extubation was planned in the following days, there was concern regarding potential upper airway obstruction secondary to macroglossia after removal of the endotracheal tube. The SICU team commenced the patient on intravenous dexamethasone 4mg three times daily for 48 hours, resulting in significant reduction of tongue swelling. The patient was subsequently extubated successfully without evidence of upper airway obstruction.

Conclusion

Acute macroglossia has been previously described in literature following self-induced tongue biting[2] or oral surgeries[3]. This case presents macroglossia as a rare complication following oropharyngeal packing, likely resulting from the compression of the tongue base and surrounding oropharyngeal structures, leading to impaired venous and lymphatic drainage of the tongue[4]. Early recognition is important to prevent life-threatening respiratory complications, particularly during the peri-extubation period. Oropharyngeal packs should be removed as soon as clinically appropriate and adjunctive treatment with intravenous corticosteroids such as dexamethasone, may facilitate resolution of tongue oedema and reduce the risk of airway obstruction.

2026-0197

Figure & Table

Figure & Table 1.



Figure 1: Macroglossia following oropharyngeal packing.

Figure & Table 2.



Figure 2: resolution of macroglossia after oropharyngeal packs removal and intravenous dexamethssone.

ABSTRACT
Competition
Presentation
E-Poster

2026-0200

Comparison of the Effect of Ketofol and Ketodex as Procedural Sedation and Analgesia for Oocyte Retrieval During In Vitro Fertilisation Procedures: A Randomised Controlled Pilot Study

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Background
Transvaginal oocyte retrieval is a commonly performed procedure in assisted reproductive technology (ART), requiring an anesthetic technique that ensures optimal analgesia, patient immobility, and hemodynamic stability without compromising oocyte quality or embryological outcomes. Ketofol (ketamine–propofol) is widely used for procedural sedation but may be associated with dose-dependent respiratory depression and higher intraoperative opioid requirements. Dexmedetomidine, an α2-adrenergic agonist, provides cooperative sedation with opioid-sparing effects and minimal respiratory suppression. Evidence comparing ketamine–dexmedetomidine (Ketodex) versus Ketofol specifically for oocyte retrieval remains limited.

Methods
This pilot randomized controlled trial included 60 women (30 per group) undergoing ultrasound-guided oocyte retrieval. Patients received either Ketodex (ketamine + dexmedetomidine) or Ketofol (ketamine + propofol). Pain intensity was assessed using the Visual Analogue Scale (VAS) at predefined intervals, and a composite Cumulative Pain Score (CPS) was derived by integrating VAS-time AUC with intraoperative fentanyl usage. Hemodynamic variables, sedation scores, intra- and postoperative complications, oocyte morphology, fertilization rates, and cleavage rates were documented.

Results
CPS was significantly lower in the Ketodex group compared with the Ketofol group (median 2.0 vs. 33.0, $p < 0.001$). No patient in the Ketodex group required intraoperative fentanyl, while the Ketofol group required a median dose of 30 μg ($p < 0.001$). Apnea occurred in 53.3% of Ketofol patients but was absent in the Ketodex group ($p < 0.001$). Hemodynamic stability, sedation adequacy, and postoperative recovery profiles were comparable. Embryological parameters—including total oocytes retrieved, mature oocytes, fertilization rate, and cleavage rate—showed no significant intergroup differences.

Conclusion
Ketodex provides superior analgesic stability, eliminates opioid supplementation, and offers better respiratory safety compared to Ketofol, without adversely affecting oocyte quality or early embryological outcomes. It may represent a safer and more effective sedation option for oocyte retrieval.

2026-0200

Figure & Table

Figure & Table 1.

Outcome	Ketofol (n = 30)	Ketodex (n = 30)	p-value	Effect Size (r_s)
Intraoperative fentanyl (μg) [a]	20.67 (18.37–30.00)	0.00 (0.00–0.00)	<0.001	0.60
Postoperative fentanyl (μg) [a]	1.83 (0.00–7.01)	0.00 (0.00–0.00)	0.161	0.07
Cumulative Pain Score (CPS) [a]	24.43 (18.68–33.00)	2.23 (0.43–2.00)	<0.001	0.95
VAS (10 min) [b]	1.4 (1.0–2.0)	1.0 (1.0–1.0)	<0.001	—
VAS (30 min) [b]	1.5 (1.0–2.0)	1.0 (1.0–1.0)	<0.001	—
VAS (1 h) [b]	1.3 (1.0–2.0)	1.0 (1.0–1.0)	0.002	—
VAS (2 h) [b]	1.1 (1.0–2.0)	1.0 (1.0–1.0)	0.009	—

Table 2. Primary outcome (VAS pain scores) and analgesic requirements within 2 hours after oocyte retrieval, CPS is reported as an exploratory composite measure.

Data shown as median (IQR). [a]Mann–Whitney U test (between-group), [b]Friedman test with Bonferroni (within-group). Fisher's exact test used for categorical variables. Effect sizes as rank-biserial correlation (r_s). Significance: $p < 0.05$.

ABSTRACT
Competition
Presentation
E-Poster

2026-0201

Reactive Airway Dysfunction Syndrome (RADS) in Paediatric Burns: Unraveling a Rare Consequence of Inhalational Injury with Management Guidelines

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Introduction

With the advancements in burn care, it is now possible for many children to survive severe burn injuries. However, inhalation injury is still considered a significant predictor of morbidity and mortality in burn injury cases. When a child inhales smoke and toxic gases, it can lead to various pulmonary complications, such as airway obstruction, pulmonary edema, decreased pulmonary compliance, and ventilation-perfusion mismatch. Additionally, it can also result in systemic toxicity due to carbon monoxide poisoning and cyanide toxicity. Inhalation injury is diagnosed based on the patient's medical history and physical examination and confirmation done through bronchoscopy. Over a 10-year period, 850 paediatric burn patients with inhalation injury were reviewed across multiple centre, revealing a mortality rate of 16%. The primary cause of death was pulmonary dysfunction and sepsis. However, for those who required mechanical ventilation for over a week, mortality rates increased from 25% to 50%.

Case

Survival rates for inhalational injuries in paediatric thermal burn patients are exceptionally low. This report highlights two cases at the AIIMS New Delhi Burns and Plastic Department involving electric flash burns. Both patients received intensive care in the ICU for three months. During the course of treatment, one patient developed reactive airway disease, necessitating intubation twice, with subsequent challenges in weaning and the eventual need for tracheostomy. Persistent hypercapnia posed difficulties during decannulation.

After three months of dedicated multidisciplinary efforts, including coordinated care by anaesthesiologists and critical care teams, along with support from paediatric and pulmonology departments, both patients achieved successful decannulation post tracheostomy. Sustained room air saturation of 97% was maintained in the first patient. The same algorithm was applied to the second patient, resulting in survival for both. Additionally, ongoing daily care, dressing, and debridement by plastic surgeons played a crucial role in the comprehensive management of these challenging cases.

Conclusion

We had discussed the challenges faced in the management of reactive airway dysfunctional syndrome due to inhalational injury in paediatric patients and the treatment algorithm for the same which requires a low threshold for suspecting, more common in resource-limited countries due to economic constraints, so more studies are needed from such countries.

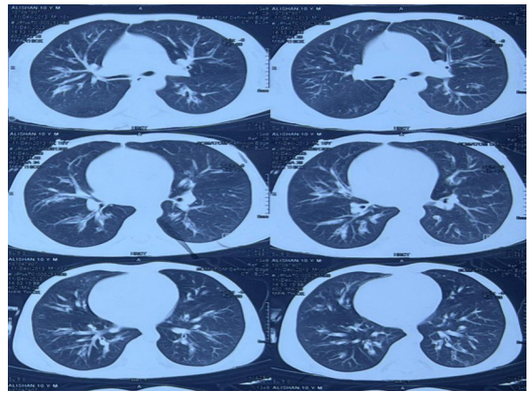
2026-0201

Figure & Table

Figure & Table 1.



Figure & Table 2.



2026-0202

Intraoperative Analgesia Nociception Index (ANI)-Guided Remifentanil Administration in Elderly Patients Undergoing Hip Fracture Surgery: A Randomized Controlled Trial

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Background
The Analgesia Nociception Index (ANI) may improve intraoperative opioid titration. We evaluated whether ANI-guided remifentanil administration reduces opioid consumption compared with hemodynamic-guided care in elderly patients undergoing hip fracture surgery.

Methods
In this prospective randomized controlled trial, 74 patients aged 65–95 years undergoing scheduled hip fracture surgery under general anesthesia were randomized to ANI-guided or hemodynamic-guided (control) remifentanil titration. In the ANI group, remifentanil effect-site concentration was adjusted every 5 minutes to maintain ANI 50–70. The primary outcome was intraoperative remifentanil consumption.

Results
Of 74 randomized patients (ANI: n = 37, control: n = 37), four developed new-onset atrial fibrillation before induction and were withdrawn before receiving the allocated intervention (ANI: n = 3, control: n = 1), leaving 70 for modified intention-to-treat analysis (ANI: n = 34, control: n = 36). Intraoperative remifentanil consumption was lower in the ANI group (0.10 ± 0.03 vs. 0.13 ± 0.04 μg/kg/min; mean difference, −0.03 μg/kg/min; 95% CI, −0.043 to −0.007; P = 0.006). Nicardipine use was higher in the ANI group (0.24 ± 0.39 vs. 0.09 ± 0.18 mg; mean difference, 0.15 mg; 95% CI, 0.007 to 0.29; P = 0.045). No significant differences were observed in postoperative fentanyl consumption, pain scores, or complications.

Conclusion
ANI-guided remifentanil titration reduced intraoperative remifentanil consumption, an effect best interpreted as intraoperative opioid-sparing; postoperative pain, opioid consumption, and complications were unchanged, and nicardipine requirements increased. Larger multicenter trials with patient-centered outcomes are needed to establish clinical benefit.

2026-0202

Figure & Table

Figure & Table 1.

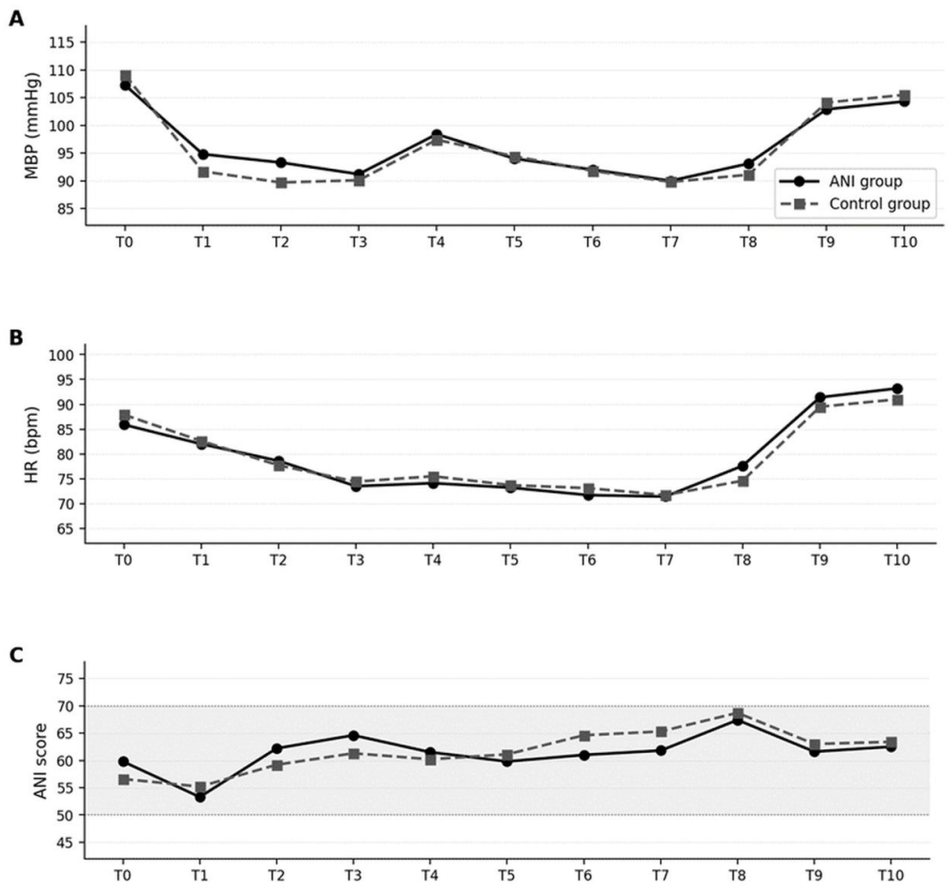


Figure 1. Time-course changes in hemodynamic and nociception parameters. Panel A: mean blood pressure (MBP); Panel B: heart rate (HR); Panel C: Analgesia Nociception Index (ANI). The shaded band in Panel C indicates the ANI target range (50–70). T0: pre-induction; T1: post-intubation; T2: 10 minutes after intubation; T3: operation start; T4–T7: intraoperative at 5-minute intervals; T8: operation finish; T9: post-extubation; T10: PACU arrival. Filled circles with solid lines, ANI group; filled squares with dashed lines, Control group. ANI: Analgesia Nociception Index; MBP: mean blood pressure; HR: heart rate; PACU: post-anesthesia care unit.

ABSTRACT
Competition
Presentation
E-Poster

2026-0202

Figure & Table

Figure & Table 2.

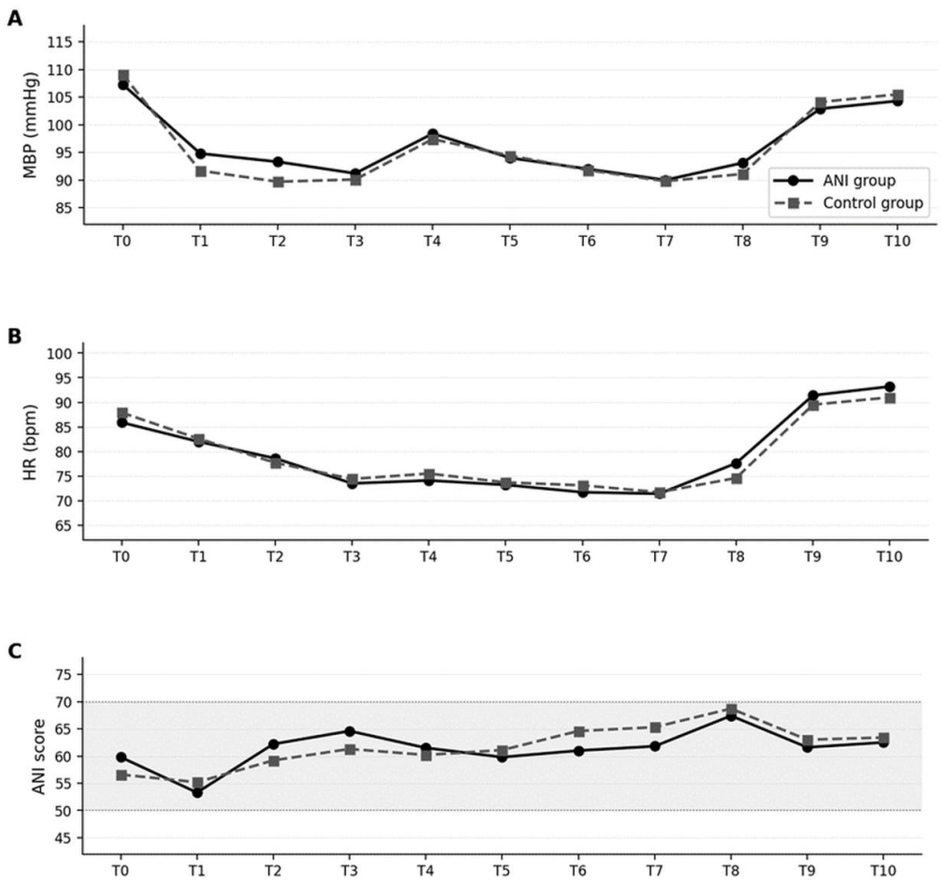


Figure 1. Time-course changes in hemodynamic and nociception parameters. Panel A: mean blood pressure (MBP); Panel B: heart rate (HR); Panel C: Analgesia Nociception Index (ANI). The shaded band in Panel C indicates the ANI target range (50–70). T0: pre-induction; T1: post-intubation; T2: 10 minutes after intubation; T3: operation start; T4–T7: intraoperative at 5-minute intervals; T8: operation finish; T9: post-extubation; T10: PACU arrival. Filled circles with solid lines, ANI group; filled squares with dashed lines, Control group. ANI: Analgesia Nociception Index; MBP: mean blood pressure; HR: heart rate; PACU: post-anesthesia care unit.

2026-0204

Critical Care Management of Severe Systemic Lupus Erythematosus Flares Requiring Mechanical Ventilation: A Case Series

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Introduction

Systemic Lupus Erythematosus is a chronic autoimmune disease characterized by multisystem inflammation and widely variable clinical manifestations, including serositis. Severe Systemic Lupus Erythematosus flares, such as serositis leading to critical illness, require intensive care unit admission and multi-organ support. This case series details the clinical challenges and successful multidisciplinary critical care interventions in two patients presenting with life-threatening complications.

Case

The first case was a 51-year-old female with long-standing, refractory SLE who presented with progressive dyspnea, severe cachexia, and peripheral neuropathy. The patient presented to the Emergency Department complaining of shortness of breath for 2 weeks, which had worsened over the three days before hospital admission. Investigations revealed massive pericardial and pleural effusions causing impending cardiac tamponade. The patient also developed community-acquired pneumonia. Emergency pericardiocentesis followed by surgical thoracotomy with a pericardial window and chest tube insertion successfully stabilized her hemodynamics. We administered adequate antibiotics due to pneumonia and prolonged mechanical ventilation; a bedside tracheostomy was performed on the fifth day. She was successfully weaned to a T-piece in nine days in the medical ICU. Second case: A 51-year-old female with overlapping severe Systemic Lupus Erythematosus and biopsy-confirmed Anti-Neutrophil Cytoplasmic Autoantibody -associated vasculitis presented with massive right pleural effusion, mild pericardial effusion, severe hypoalbuminemia, acute pulmonary edema, and anasarca. She complained of worsening shortness of breath after three days of treatment in the ward. She was transferred to the intensive care unit. She deteriorated into severe mixed respiratory and metabolic acidemia. Management included therapeutic pleural paracentesis, target-driven ventilatory support, pulse immunosuppression, intravenous albumin, and femoral hemodialysis to control fluid overload. We managed the patient's respiratory failure with non-invasive mechanical ventilation for five days, and she was successfully weaned to a nasal cannula.

Conclusion

Severe Systemic Lupus Erythematosus flares can present as catastrophic multi-organ crises, including cardiac tamponade, life-threatening acid-base derangements, respiratory failure, severe serositis, and aggressive vasculitis. ICU management, such as Mechanical interventions, precision mechanical ventilation, immunosuppression, strict fluid management, and advanced renal replacement therapy, is a vital component for patients. An individualized multidisciplinary approach is important for improving outcomes in a critically ill Severe Systemic Lupus Erythematosus patient.

2026-0205

Delayed but Progressive Epidural Anesthesia for Cesarean Delivery in Severe Congenital Scoliosis with Patent Ductus Arteriosus and Pulmonary Hypertension

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Introduction

Severe scoliosis may distort epidural anatomy and local anesthetic spread, causing delayed, unilateral, or patchy neuraxial block. Although neuraxial anesthesia is feasible in uncorrected scoliosis, reported success rates are approximately 80% for epidural and 73% for intrathecal anesthesia. In patients with congenital heart disease and pulmonary hypertension, titrated epidural anesthesia may provide gradual sympathetic blockade while avoiding abrupt hemodynamic changes.

Case

A 27-year-old gravida 2 para 1 woman at 36 weeks underwent repeat cesarean delivery. She had severe congenital thoracolumbar scoliosis, patent ductus arteriosus with left-to-right shunt, high-probability pulmonary hypertension, severe mitral regurgitation, moderate pulmonary regurgitation, mWHO class IV status, and NYHA class II symptoms. Echocardiography showed an ejection fraction of 52%. Because of distorted spinal anatomy and high cardiac risk, ultrasound-assisted titrated epidural anesthesia was planned with general anesthesia as backup. After ultrasound marking, an epidural catheter was inserted at L4-L5, followed by a test dose of lidocaine 45 mg with epinephrine 15 mcg. Sensory block progression was slow but progressive, reaching T10 at 30 minutes with Bromage 3 motor block and T6 at 45 minutes after monitoring started. Phenylephrine 100 mcg was administered for transient blood pressure reduction. Skin incision was performed after T6 block was achieved, followed by delivery at 60 minutes and skin closure at 115 minutes. Hemodynamics remained stable, and no conversion to general anesthesia was required. A 2300-g neonate was delivered with Apgar scores of 7 and 9.

Conclusion

In severe scoliosis with congenital heart disease and pulmonary hypertension, delayed but progressive epidural anesthesia may allow successful cesarean delivery with stable hemodynamics when carefully titrated.

Figure & Table

Figure & Table 1.

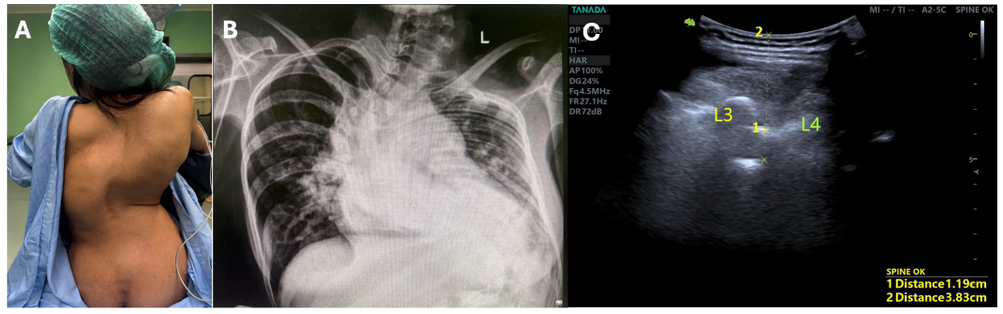
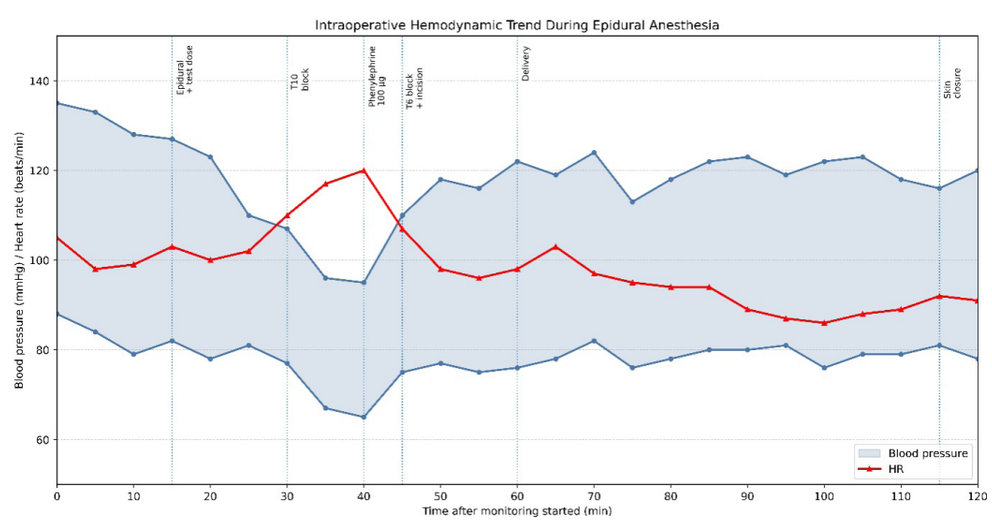


Figure & Table 2.



2026-0206

Perioperative Opioid-Induced Sensitization and Its Role in The Development of Chronic Postsurgical Pain: A Systematic Review of Current Evidence

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Background
Chronic postsurgical pain (CPSP) affects approximately 10–30% of surgical patients and is associated with reduced long-term quality of life. Emerging evidence suggests that excessive perioperative opioid administration, particularly remifentanil and fentanyl, may contribute to opioid-induced hyperalgesia (OIH), resulting in increased pain sensitivity and central sensitization. These mechanisms may increase postoperative opioid requirements and the risk of developing persistent pain after surgery. This systematic review aims to evaluate current evidence on the relationship between perioperative opioid exposure, opioid-induced sensitization, central sensitization, and the development of CPSP in adults undergoing elective surgery under general anesthesia.

Methods
A systematic review of published literature was conducted using PubMed, Scopus, Embase, and the Cochrane Library. Studies published evaluating perioperative opioid administration, OIH central sensitization, & CPSP were included. Publications comprised randomized controlled trials, prospective & retrospective cohort studies, systematic reviews, meta-analyses, & international clinical guidelines. Data extraction focused on opioid type and dosage, postoperative pain intensity, opioid requirements, quantitative sensory testing findings, incidence of chronic pain, and preventive analgesic interventions. Study quality and methodological rigor were critically assessed using established evidence-based appraisal tools.

Results
Current evidence indicates that high-dose intraoperative opioids, particularly remifentanil and fentanyl, may induce opioid-induced hyperalgesia (OIH) through activation of NMDA receptors, neuroinflammation, glial cell activation, and enhanced spinal excitatory pathways. These mechanisms promote central sensitization, resulting in increased postoperative pain, higher opioid consumption, delayed recovery, and an elevated risk of chronic postsurgical pain (CPSP), especially in susceptible patients. Risk factors include pre-existing chronic pain, psychological distress, female sex, and younger age. Studies consistently demonstrate that multimodal opioid-sparing strategies, including regional anesthesia, ketamine, intravenous lidocaine, dexmedetomidine, acetaminophen, NSAIDs, and gabapentinoids, effectively reduce opioid requirements and improve postoperative pain outcomes.

Conclusion
Current evidence supports an association between excessive perioperative opioid exposure, opioid-induced hyperalgesia, central sensitization, and the development of chronic postsurgical pain. Although definitive opioid dose thresholds remain uncertain, contemporary perioperative pain management increasingly emphasizes individualized, multimodal, opioid-sparing analgesic protocols to optimize recovery and minimize long-term pain complications. Future high-quality multicenter randomized trials are needed to identify patient-specific risk factors, establish safe opioid dosing strategies, and evaluate long-term preventive interventions targeting central sensitization.

2026-0213

Perioperative Anesthetic Management and Early Outcomes of Pediatric Congenital Heart Surgery Under Cardiopulmonary Bypass: Initial Experience at a Tertiary Pediatric Center in Mongolia M. Batchimeg[1] [1]Department of Anesthesiology and Intensive Care, National Center for Maternal and Child Health, Ulaanbaatar, Mongolia; School of Medicine, Mongolian National University of Medical Sciences (MNUMS), Ulaanbaatar, Mongolia.

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Background
Pediatric congenital heart surgery performed under cardiopulmonary bypass (CPB) requires standardized perioperative anesthetic management and multidisciplinary intensive care to optimize surgical outcomes. Published data regarding pediatric cardiac anesthesia in Mongolia remain limited. In 2026, the National Center for Maternal and Child Health established a pediatric congenital heart surgery program in collaboration with pediatric cardiac surgery teams from the Republic of Korea and Luxembourg. This study evaluated perioperative anesthetic management and early postoperative outcomes during the initial phase of the program.

Methods
This retrospective descriptive study included 17 consecutive children who underwent congenital heart surgery under CPB between April and June 2026. Patients undergoing procedures without CPB were excluded. General anesthesia was induced with midazolam, low-dose propofol, fentanyl (2–5 μg/kg), and rocuronium, and maintained with low-dose sevoflurane. Following CPB, sedation was maintained with propofol (50–100 μg/kg/min) and fentanyl (2–5 μg/kg/h). Vasoactive agents were administered during CPB weaning according to intraoperative hemodynamic status. Demographic characteristics, operative variables, postoperative mechanical ventilation time, intensive care unit (ICU) length of stay, postoperative complications, and perioperative mortality were analyzed.

Results
Seventeen children (8 males and 9 females) with a mean age of 27.6 months (range, 16 days–12 years) and a mean body weight of 11.6 ± 7.9 kg were included. Diagnoses included ventricular septal defect (n=9), atrial septal defect (n=4), tetralogy of Fallot (n=2), total anomalous pulmonary venous return (n=1), and left pulmonary artery stenosis (n=1).
The mean CPB duration was 68.6 minutes, the mean aortic cross-clamp time was 39.1 minutes, and the lowest intraoperative temperature was 33.1°C. During CPB weaning, milrinone was administered in 13 patients (76.5%), dobutamine in 8 (47.1%), nitroglycerin in 2 (11.8%), and epinephrine in 1 (5.9%). The mean postoperative mechanical ventilation time was 57.4 hours, and the mean ICU length of stay was 6.3 days. Twelve patients (70.6%) had an uncomplicated postoperative course, whereas five (29.4%) developed postoperative complications. No perioperative mortality occurred.

Conclusion
Standardized perioperative anesthetic management for pediatric congenital heart surgery under CPB was safely implemented and was associated with favorable early postoperative outcomes during the establishment of a new pediatric cardiac surgery program. These findings support the continued development of pediatric cardiac anesthesia and multidisciplinary perioperative care in Mongolia.

2026-0214

TAVI on Your Toes: Teamwork, Timing, Technology.

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Introduction

Aortic valve stenosis remains the most common debilitating valvular heart lesion. Despite the benefit of aortic valve replacement, many high-risk patients cannot tolerate surgery. Transcatheter Aortic Valve Implantation (TAVI) treats aortic stenosis without subjecting the patients to sternotomy, cardiopulmonary bypass (CPB), and aorta cross-clamping.

Case

77-year-old female with BMI of 42.4kg/m^2, a known case of HTN and IHD , status post PTCA to the RCA in 2023 (3.0 × 4 mm Synergy stent) presented with complaints of NYHA class II breathlessness for the past few months with ECG suggestive of LBBB with LAD and LVH. The 2d-echo revealed good left ventricular systolic function with severe aortic stenosis, a peak/mean transaortic gradient of 71/43 mmHg, a heavily calcified aortic valve, and an aortic valve area of 0.9 cm^2. The PASP, estimated by the tricuspid regurgitation jet, was 56 mmHg. In view of these findings, the patient was planned for coronary angiography with transcatheter aortic valve implantation (TAVI).

Pre-assessment was performed individually by cardiologists,CTV surgeons and the cardiac anesthetists and first morning slot was booked .Patient was given her oral anti-HTN meds, aspirin and clopidogrel with sips of water at ward prior to shifting and both written informed High risk consent and fasting status of patient re-confirmed at the cathlab suite .

Stand-by operation theatre ,CVTS and perfusionist confirmed. ICU and Blood bank were given prior intimation about the procedure . Cathlab suite was kept ready with defibrillator machine ,THRIVE and syringes of all essential and emergency drugs were loaded and labeled .Airway equipment were kept ready for intubation if required.

The TAVI procedure could be categorised under four phases and coordination between anesthesiologists, cardiologists and CTVS was retained at all crucial steps.

Phase I: Pre-deployment

Standard Monitors and THRIVE cannula were applied . Standard antibiotic prophylaxis given .A large bore IV cannula, invasive lines including - Left radial arterial line ,Right IJV CVC and sheath were secured under USG guidance. Temporary pacemaker (TPM) wire secured through the venous sheath and position confirmed .Dexmedetomidine infusion (0.2-0.7 µg/kg/hr) and THRIVE O2 flow was titrated throughout the procedure.

Arteriotomy was performed to obtain an appropriate femoral access under local anesthesia. Heparin (100IU/kg)was given. Coronary angiography was also done .

Phase II & III : Balloon aortic valvuloplasty & Prosthetic aortic valve deployment

Balloon aortic valvuloplasty was done , under rapid ventricular pacing (RVP) at 140 bpm, deployment of NAVITOR 25mm aortic valve prosthesis during second RVP. Prior to each RVP I.V. bolus of vasopressor phenylephrine was given to support mean arterial pressure around 70 mmHg.

Phase IV : Post-deployment.

Followup transthoracic echo showed a well functioning prosthesis, no AR ; with a mean pressure gradient of 5 mm Hg. Checkshoot showed good filling of coronaries and no ilia-femoral dissection or perforation.Patient remained hemodynamically stable and was transferred with TPM wire insitu to the cardiac surgery ICU for further monitoring. Our procedure was performed without any complications.

Conclusion

Successful TAVI requires a multidisciplinary team of which cardiac anesthesiologists are a crucial part ,who plays several important roles in TAVI, including perioperative preparation, leadership, risk mitigation and in management of complications.

2026-0216

Dural Puncture Epidural Analgesia for Second-Trimester Pregnancy Termination in a Patient with Eisenmenger Syndrome: A Case Report

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Introduction

Pregnancy in women with Eisenmenger syndrome is contraindicated because pregnancy-related hemodynamic changes markedly increase the risk of pulmonary hypertensive crisis, right ventricular failure, and maternal death. Pregnancy termination is recommended; however, anesthetic management remains challenging because inadequate analgesia increases sympathetic activation and pulmonary vascular resistance, whereas excessive neuraxial blockade may cause hemodynamic instability. Dural puncture epidural (DPE) may offer faster onset and better sacral analgesia than conventional epidural analgesia, potentially reducing pain-induced sympathetic responses. We describe the use of DPE during second-trimester pregnancy termination.

Case

A 30-year-old woman (G2P1A0) at 17 weeks of gestation with Eisenmenger syndrome underwent therapeutic pregnancy termination following multidisciplinary consultation. She presented with exertional dyspnea (NYHA II), oxygen saturation of 82–85% on room air, digital clubbing, and a cardiac murmur. Echocardiography demonstrated a 14–17 mm secundum atrial septal defect, impaired right ventricular systolic function, preserved left ventricular ejection fraction (81%), left ventricular diastolic dysfunction, and pulmonary hypertension.

Labor induction with vaginal misoprostol was performed in the intensive care unit under invasive arterial pressure monitoring. DPE was performed at L4–L5 using a 25-G spinal needle for intentional dural puncture without intrathecal drug administration, followed by epidural catheter placement with an 18-G Tuohy needle. Epidural analgesia consisted of 10 mL ropivacaine 0.125% with fentanyl 2 µg/mL, repeated every 4–6 hours during the first stage and every 2 hours during the second stage.

Delivery occurred 36 hours after induction. Maternal hemodynamics remained stable without hypotension or vasopressor support. Oxygen saturation was maintained at 82–88% with oxygen via nasal cannula (2 L/min). Adequate analgesia was achieved (NRS 2–3) with preserved motor function (Bromage 0). No pulmonary hypertensive crisis or anesthetic complications occurred. The patient remained in the ICU for 24 hours, subsequently underwent bilateral tubectomy on postpartum day 3 using the existing epidural catheter without hemodynamic instability, and was discharged seven days later in stable condition.

Conclusion

Dural puncture epidural provided effective analgesia while preserving motor function and maintaining stable hemodynamics without vasopressor support. Its faster onset and improved sacral analgesia may reduce pain-induced sympathetic activation during pregnancy termination in patients with Eisenmenger syndrome. This case highlights DPE as a feasible neuraxial strategy for carefully selected high-risk cardiac parturients within a multidisciplinary perioperative approach.

2026-0222

The Forgotten Right Ventricle: Bedside Critical Care Echocardiography-Guided Right Ventricular Hemodynamic Phenotyping in Critically Ill Patients with Acute Exacerbation of COPD

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Introduction

Acute exacerbation of chronic obstructive pulmonary disease (AECOPD) is a common cause of intensive care unit (ICU) admission. Although management focuses on respiratory failure, right ventricular (RV) dysfunction is frequently overlooked despite its major influence on hemodynamics, fluid therapy, ventilatory support, and weaning. Bedside critical care echocardiography enables rapid RV assessment and may identify distinct hemodynamic phenotypes requiring different management despite the same diagnosis.

Case

Case 1: A 62-year-old man presented with hypercapnic respiratory failure requiring mechanical ventilation. Bedside critical care echocardiography demonstrated RV dysfunction, moderate pulmonary hypertension, and systemic venous congestion. These findings guided RV-protective ventilation, correction of hypoxemia and hypercapnia, IV furosemide to achieve a negative fluid balance of 10–20 mL/kg/day, and dobutamine. This approach reduced systemic venous congestion and enabled successful extubation.

Case 2: A 64-year-old man presented with hypercapnic respiratory failure requiring mechanical ventilation. Bedside echocardiography identified early RV dysfunction without significant systemic venous congestion, supporting ventilatory optimization, maintenance of euvolemia, dobutamine, and serial echocardiographic monitoring. The patient remained hemodynamically stable and was successfully extubated.

Case 3: A 63-year-old man presented with hypercapnic respiratory failure managed with high-flow nasal cannula as he remained fully conscious and did not require intubation. Bedside echocardiography demonstrated RV dysfunction without systemic venous congestion, with a collapsible inferior vena cava (IVC-CI 42.6%) and low estimated RAP (3 mmHg), suggesting low RV filling pressures. These findings prompted an echo-guided mini fluid challenge (5 mL/kg) followed by dobutamine. This strategy improved RV preload and forward flow without RV volume overload.

Case 4: A 76-year-old man presented with hypercapnic respiratory failure requiring mechanical ventilation. Bedside echocardiography demonstrated advanced cor pulmonale with RV dysfunction, severe pulmonary hypertension, and systemic venous congestion, prompting RV-protective ventilation, correction of hypoxemia and hypercapnia, aggressive decongestion with IV furosemide to achieve a negative fluid balance of 10–20 mL/kg/day, dobutamine, norepinephrine for hypotension, and inhaled iloprost to reduce RV afterload. This approach improved RV performance and enabled successful extubation.

Conclusion

Bedside critical care echocardiography identified four distinct RV hemodynamic phenotypes despite the same diagnosis of AECOPD. Echocardiographic phenotyping informed individualized RV-protective management by distinguishing patients requiring decongestion, maintenance of euvolemia, echo-guided fluid challenge, or RV afterload reduction rather than a uniform treatment strategy. This physiology-based approach optimized RV performance and facilitated respiratory support liberation in all patients.

2026-0222

Figure & Table

Figure & Table 1. **Echocardiographic Findings and RV Hemodynamic Phenotypes**

Parameter	Case 1	Case 2	Case 3	Case 4
RV basal diameter	4.28 cm	3.33 cm	2.67 cm	4.32 cm
TAPSE	1.55 cm	1.48 cm	1.19 cm	1.30 cm
TR Vmax	2.87 m/s	2.22 m/s	2.85 m/s	3.09 m/s
IVC-CI	12.3%	34.5%	42.6%	10.8%
Estimated RAP	15 mmHg	8 mmHg	3 mmHg	15 mmHg
Estimated PASP	48 mmHg	28 mmHg	35 mmHg	53 mmHg
RV phenotype	RV dysfunction with congestion	Early RV dysfunction	RV dysfunction without congestion	Advanced cor pulmonale
Fluid strategy	Fluid restriction	Euvolemic strategy	Echo-guided fluid challenge	Fluid restriction
Inotrope	Dobutamine	Dobutamine	Dobutamine	Dobutamine
Vasopressor	None	None	None	Norepinephrine
Pulmonary vasodilator	None	None	None	Inhaled iloprost

ABSTRACT
Competition
Presentation
E-Poster

2026-0227

Landmark-Guided Spinal Anesthesia for Cesarean Delivery in a Parturient With Limb-Girdle Muscular Dystrophy Phenotype and Scoliosis: A Resource-Limited Case Report

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Introduction
Pregnancy in patients with muscular dystrophy presents competing anesthetic risks. General anesthesia may worsen respiratory weakness, prolong neuromuscular blockade, and increase postoperative ventilatory requirements, while marked scoliosis can make neuraxial access difficult, particularly without ultrasound.

Case
A 29-year-old primigravida at 37 weeks and 4 days underwent cesarean delivery for breech presentation at an Indonesian referral hospital without neuraxial ultrasound. She had childhood-onset progressive muscular dystrophy with symmetric proximal weakness, muscle atrophy, and marked scoliosis, consistent with a limb-girdle phenotype without molecular confirmation. She was nonambulatory and needed assistance to sit. After counselling regarding block failure, conversion to general anesthesia, and postoperative respiratory support, spinal anesthesia was chosen to avoid airway manipulation and neuromuscular blockade and reduce systemic opioid use. An experienced anesthesiologist performed a landmark-guided single-shot spinal in a supported sitting position. A midline approach at the estimated L3–L4 interspace succeeded on the second puncture. Intrathecal hyperbaric bupivacaine 7.5 mg, fentanyl 15 μg, and preservative-free morphine 75 μg produced bilateral sensory blockade to T5. Hemodynamics remained stable with crystalloid co-loading without vasopressors. Surgery lasted 52 minutes with 200 mL estimated blood loss and no conversion to general anesthesia. A 2,645-g female neonate was delivered with Apgar scores of 9 and 10 at 1 and 5 minutes. Postoperative motor function was unchanged. Pain was well controlled with ERACS-based multimodal analgesia, without rescue analgesia or ventilatory support.

Conclusion
Landmark-guided spinal anesthesia was feasible in this nonambulatory parturient with a limb-girdle muscular dystrophy phenotype and marked scoliosis. When ultrasound is unavailable, supported positioning, an experienced operator, conservative intrathecal dosing, and readiness for airway and respiratory rescue are essential.

2026-0227

Figure & Table

Figure & Table 1.

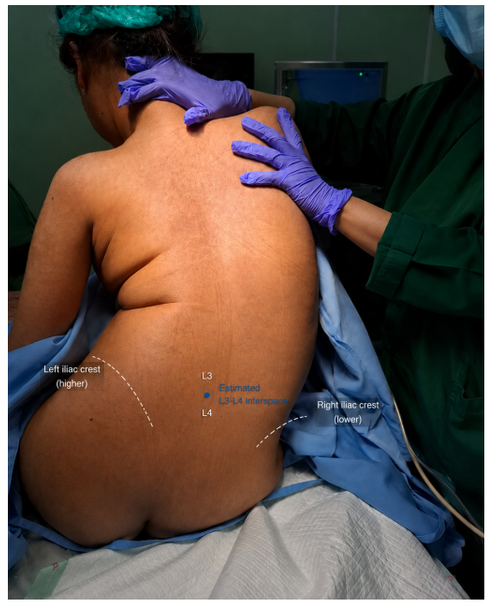


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0229

The Impact of Fear of Malpractice on Defensive Medicine Practices Among Malaysian Anaesthesiologists

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Background
Anaesthesiology is a high-risk specialty with significant medicolegal exposure. Fear of malpractice has been shown to influence clinical decision-making, potentially driving defensive medicine (DM) behaviours that prioritize legal protection over patient benefit. Despite growing concerns in Malaysia following a landmark 2024 medicolegal case, data on the prevalence and relationship of these phenomena among Malaysian anaesthesiologists remain scarce. This study aimed to explore the relationship between fear of malpractice and defensive medicine behaviour among anaesthesiologists in Malaysia, and to assess the prevalence of high fear of malpractice and high DM behaviour scores.

Methods
A prospective observational study was conducted among Malaysian anaesthesiologists recruited via the Malaysian Society of Anaesthesiologists (MSA). Participants completed a validated online questionnaire comprising the Fear of Malpractice Scale (6 items; score range 6–30) and the Defensive Medicine Behaviour Scale (DMBS; 14 items; score range 14–70). Statistical analyses included descriptive statistics and Spearman correlation, with $p < 0.05$ considered significant

Results
A total of 306 anaesthesiologists participated. The majority were female (57.5%), aged 30–39 years (44.1%) and employed under the Ministry of Health (66.7%). The mean fear of malpractice score was 22.03 ± 4.55, with 74.5% (n = 228) falling in the upper tertile (score > 20). Regarding DM behaviour, 65.1% (n = 199) scored in the high or very high DMBS category. A strong positive correlation was identified between fear of malpractice and DM behaviour (Spearman, r = 0.631, $p < 0.001$). Male gender, contract doctors and anaesthestists working at private hospital has significant higher score for DMBS.

Conclusion
Our study showed that fear of malpractice is highly prevalent among Malaysian anaesthesiologists and is strongly correlated with defensive medicine behaviour. The mean fear of malpractice score was 22.03 ± 4.55, with 74.5% (n = 228) falling in the upper tertile (score > 20). Regarding DM behaviour, 65.1% (n = 199) scored in the high or very high DMBS category. A strong positive correlation was identified between fear of malpractice and DM behaviour (Spearman, r = 0.631, $p < 0.001$). Male gender, contract doctors and anaesthestists working at private hospital has significant higher score for DMBS. These findings highlight the need for targeted medicolegal education and systemic interventions to promote evidence-based, patient-centred practice.

2026-0230

Fatal Rhabdomyolysis Following Severe Traumatic Subarachnoid and Intraparenchymal Haemorrhage: A Case Report

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Introduction
Etiologically, rhabdomyolysis is broadly categorized into traumatic and non-traumatic origins. Rhabdomyolysis is common in patients involved with road traffic accidents with crush injuries or lower extremities fracture. The risk of acute kidney injury (AKI) is between 10-50% when the creatine kinase (CK) is more than 1000U/L. Mainstay treatment of rhabdomyolysis is adequate hydration with urine alkalinization. Around 15-37% of patients with required intermittent dialysis.

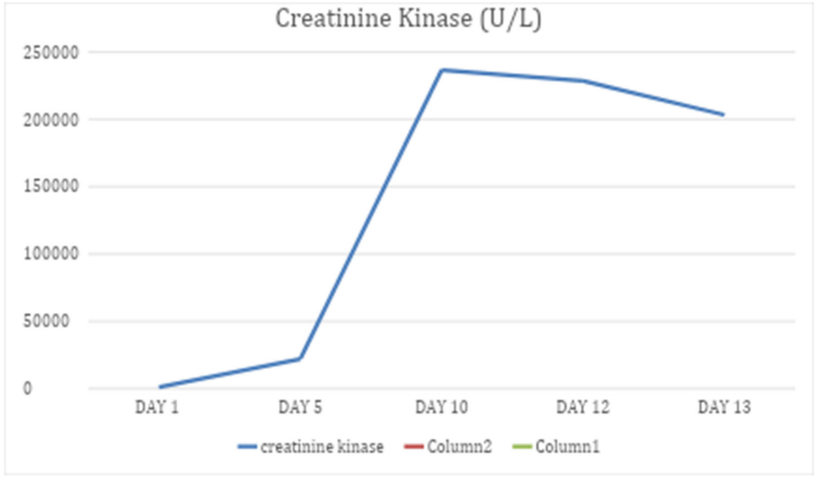
Case
18 years old male involved in motor vehicle accident, sustained purely severe traumatic brain injury, subarachnoid haemorrhage (SAH) and intraparenchymal haemorrhage (IPH) with no crush injury or long bone fracture. Patients undergo decompressive craniectomy, evacuation of clot and external ventricular drain (EVD) insertion.
The initial serum CK level was mildly elevated at 1,185 U/L, however on day 5 post trauma, despite standard neurointensive care management, optimal hydration, and the strict exclusion of prolonged immobilization, the CK level suddenly rose to >22,000 U/L.
This massive release of intracellular components directly coincided with the worsening of the patient's renal function and the development of severe myoglobinuric acute kidney injury. Continuous venovenous hemofiltration (CVVH) followed by sustained low-efficiency daily dialysis (SLEDD) was initiated however the serum CK levels remained high. CK level was 236,600 U/L on day 10. Over days 12 and 13, the CK levels plateauing at 228,408 U/L and 203,200 U/L, respectively.
A comprehensive diagnostic workup was aggressively undertaken to determine the cause. Direct traumatic factors—including physical entrapment, prolonged down-time, or crush injuries—were readily absent from the patient's history. Non-traumatic insults were similarly eliminated: baseline toxicological screens were unremarkable. Because patient on levetiracetam, albeit rare, trigger for muscle injury, a targeted dechallenge test was executed; the lack of a corresponding decrease in creatine kinase levels successfully eliminated it as a causative agent. Systemic pathologies such as viral myositis, neuroleptic malignant syndrome, and malignant hyperthermia were clinically dismissed. Finally, iatrogenic causes excluded as patient was not on depolarizing muscle relaxants and not sedated with propofol to exclude propofol infusion syndrome (PRIS) and patient was not in hyperosmolar state. Consequently, by process of elimination, the clinical picture pointed directly to a profound, neurogenically driven process.
On day 16 of admission, progressive cardiovascular instability necessitated an increase in inotropic support and the patient ultimately succumbed to the illness later that day.

Conclusion
Rhabdomyolysis possess imminent threat to patient if not detected and treated early. However, it is difficult for physician to detect in trauma patient without obvious crush injuries or bony fracture. This fatal outcome emphasizes that early, proactive screening is vital before the cascade to multi-organ failure becomes entirely irreversible.

2026-0230

Figure & Table

Figure & Table 1.



2026-0231

Multidisciplinary Neurocritical Care Management of Delayed Cerebral Vasospasm Following Microsurgical Clipping of a Ruptured Distal Anterior Cerebral Artery Aneurysm: A Case Report

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Introduction
Delayed cerebral vasospasm remains one of the leading causes of neurological deterioration after aneurysmal subarachnoid hemorrhage (aSAH). Optimal outcomes depend on early recognition, meticulous neurocritical care, and timely multidisciplinary intervention. This case illustrates the importance of anesthetic management, neuromonitoring, and timely endovascular rescue in the diagnosis and treatment of delayed cerebral vasospasm.

Case
A 50-year-old male patient with hypertension presented with sudden vomiting and impaired consciousness (GCS 11; E4V1M6), corresponding to Hunt–Hess grade III. Cranial CT demonstrated diffuse subarachnoid hemorrhage with intraventricular extension (modified Fisher grade IV). CT angiography and digital subtraction angiography (DSA) identified a ruptured left anterior cerebral artery (ACA) A3 aneurysm. Emergency microsurgical clipping was performed under general anesthesia. Invasive arterial monitoring and central venous catheterization were established before surgery.
During the approximately 7-hour surgery, the patient received 2500 mL crystalloid solution, 150 mL hypertonic saline, and 200 mL mannitol. No major intraoperative bleeding occurred, and urine output was 2800 mL. At the end of surgery, the patient remained intubated and was transferred to the intensive care unit for close postoperative hemodynamic and neurological monitoring under mechanical ventilation.
Following a planned sedation vacation on postoperative day (POD) 4, BIS monitoring demonstrated a burst suppression pattern, midazolam infusion and levetiracetam for suspected non-convulsive seizure activity. A tracheostomy was performed on postoperative day (POD) 10 because of persistent depressed consciousness and the ongoing need for mechanical ventilation. MRI on POD 15 demonstrated postoperative hemorrhagic changes and subacute white matter ischemia without acute diffusion-restricted infarction. However, neurological recovery remained limited despite sedation interruption and serial imaging.
Therefore, cerebral DSA on POD 16 revealed severe bilateral ACA vasospasm. The interventional neuroradiology team administered intra-arterial nimodipine (1-2 mg infused over 10–15 minutes). Control angiography demonstrated resolution of vasospasm in both ACAs, more pronounced on the left, with restoration of distal cerebral perfusion.
The patient was transferred to a palliative rehabilitation unit on POD 27, underwent inpatient rehabilitation, was decannulated on POD 58, and was discharged home on POD 66 with a GCS of 14, mild dysarthria, intact person and place orientation, impaired time orientation, and independent ambulation despite mild balance impairment.

Conclusion
This case highlights the pivotal role of timely intra-arterial nimodipine as rescue therapy for delayed cerebral vasospasm. Combined with structured neurocritical care, serial neurological assessment, and multidisciplinary decision-making, it facilitated restoration of cerebral perfusion and favorable neurological recovery.

2026-0240

Anaesthetic Dilemma in Emergency Caesarean for Severe Chorioamnionitis

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Introduction
Chorioamnionitis is a known cause of uterine atony, but severe cases can cause profound structural myometrial compromise, particularly with underlying autoimmune vasculopathy. Anaesthetic management is further complicated by sepsis, haemodynamic instability, and coagulopathy, and decision-making is harder when surgery cannot await laboratory confirmation. We report a case of severe chorioamnionitis causing an extremely deficient, atonic, necrotic myometrium in a patient with active systemic lupus erythematosus (SLE) and cardiac dysfunction, presenting for emergency caesarean section, and discuss the resulting anaesthetic dilemma.

Case
A 24-year-old G5P3 with SLE (lupus nephritis, pancytopenia, serositis, neuropsychiatric involvement, possible myocardial involvement) and presumptive ischaemic heart disease (ejection fraction 35-40%). She presented with previable preterm prelabour rupture of membranes at 19 weeks but was discharged against medical advice, citing caregiving obligations for other family members. She represented at 32+3 weeks with a fever of 39.9°C, suspicious for worsening chorioamnionitis. She was started on IV ceftriaxone and metronidazole and was listed for immediate emergency caesarean section. Given the surgical urgency, there was insufficient time to await laboratory results. Her platelet count and coagulation status (given her known SLE-related pancytopenia) remained unknown when mode of anaesthesia had to be chosen. This posed a genuine dilemma: proceeding with a neuraxial technique carried a potential risk of undiagnosed coagulopathy and thrombocytopenia, while general anaesthesia carried a high risk of cardiac depression in a patient with reduced ventricular function. Single-shot spinal anaesthesia was ultimately chosen based on clinical judgement, prioritising avoidance of myocardial depression and airway instrumentation. Intraoperatively, the myometrium was extremely deficient, with uterine inversion noted on delivery of the placenta, and a 1cm fundal defect adjacent to a sloughy plaque with filmy omental adhesions was found. Severe uterine atony was managed with B-Lynch suturing and multiple uterotonics (carbetocin, oxytocin, syntometrine, transexamic acid, and three doses of carboprost). Blood loss totaled 1.7L and was managed with ROTEM-guided transfusion. The patient developed high anion gap metabolic acidosis (base excess -14) secondary to haemorrhage and was admitted to intensive care postoperatively. Current literature supports safe use of spinal anesthesia in patients with febrile chorioamnionitis provided that appropriate antibiotics were given pre-operatively.

Conclusion
Severe chorioamnionitis in active SLE may cause profound myometrial compromise that extends beyond the commonly expected infective atony. When emergency surgery precludes waiting for laboratory confirmation, the choice between neuraxial and general anesthesia becomes a genuine clinical dilemma, weighing potential coagulopathy from sepsis and blood loss against the risk of cardiac depression and airway instrumentation. Ultimately, the decision rests on individualized clinical judgement rather than protocol.

2026-0242

Comparative Efficacy of Different Doses of Dexamethasone as an Adjuvant to Ropivacaine in Axillary Brachial Plexus Block for Forearm and Hand Surgery: A Double-Blind Randomized Controlled Trial

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Background
Axillary brachial plexus block provides effective anesthesia and postoperative analgesia for forearm and hand surgery; however, its duration is limited. Dexamethasone is commonly added to local anesthetics to improve block quality and prolong analgesia, but the optimal perineural dose remains uncertain. This study compared the efficacy of 4 mg and 8 mg dexamethasone as adjuvants to ropivacaine.

Methods
This double-blind randomized controlled trial included 40 ASA I–II patients aged 18–65 years undergoing elective or emergency forearm or hand surgery. Participants received an ultrasound-guided axillary brachial plexus block with 20 mL of 0.5% ropivacaine alone (control, n=13), with 4 mg dexamethasone (n=13), or with 8 mg dexamethasone (n=14). Outcomes included duration of analgesia, onset and duration of sensory and motor block, rescue analgesic use, and adverse events. Data were analyzed using the Kruskal–Wallis test with post hoc multiple comparisons.

Results
The duration of analgesia was significantly prolonged with 4 mg dexamethasone (24.1±10.6 hours) and 8 mg dexamethasone (79.3±18.4 hours) compared with control (11.9±1.7 hours; $p<0.001$). Sensory block onset was significantly faster with 4 mg than with control, while motor block onset was significantly faster with 8 mg than with control. Both dexamethasone doses significantly prolonged sensory and motor block durations compared with control. No significant differences were observed between 4 mg and 8 mg in the onset or duration of sensory and motor block. Rescue analgesic use was minimal, and no adverse events were recorded.

Conclusion
Perineural dexamethasone significantly enhances and prolongs axillary brachial plexus block when added to 0.5% ropivacaine. Although 8 mg produced the longest analgesia, 4 mg provided adequate prolongation of analgesia and block duration without requiring a higher dose. Therefore, 4 mg dexamethasone may be considered the preferred adjuvant for forearm and hand surgery.

2026-0242

Figure & Table

Figure & Table 1. Mean Perioperative Outcomes According to the Different Treatment Groups

Treatment Groups	N	Primary Outcome	Secondary Outcome				
		Mean Analgesia Duration (*hours*)	Mean Onset of Sensory Block (minutes)	Mean Onset of Motor Block (minutes)	Mean Duration of Sensory Block (minutes)	Mean Duration of Motor Block (minutes)	Mean Number of Rescue Analgesia
0.5% Ropivacaine (Control)	13	11.9 (SD=3.77)	15.15 (SD=6.78)	19.77 (SD=7.28)	450 (SD=135)	314 (SD=81.9)	2.308
0.5% Ropivacaine + Dexamethasone 4 mg	13	24.1 (SD=10.6)	8.92 (SD=3.95)	13.38 (SD=6.32)	802 (SD=215)	626 (SD=215.5)	0.538
0.5% Ropivacaine + Dexamethasone 8 mg	13	79.3 (SD=18.42)	6.23 (SD=4.34)	9.23 (SD=5.61)	967 (SD=279)	750 (SD=218.9)	0.000

Figure & Table 2. Multiple Comparison Analysis on the Efficacy of the Different Doses of Dexamethasone as an Adjuvant to Ropivacaine in Axillary Brachial Plexus Block for Forearm and Hand Surgery Patients at R2TMC

Perioperative Outcomes			*W*	*p*
Primary Outcome				
Analgesia Duration (*hrs*)	4mg Dexamethasone	8mg Dexamethasone	6.06	** < 0.001
	4mg Dexamethasone	control	-5.64	** < 0.001
	8mg Dexamethasone	control	-6.16	** < 0.001
Secondary Outcomes				
Onset of Sensory Block (*minutes*)	4mg Dexamethasone	8mg Dexamethasone	-2.64	0.148
	4mg Dexamethasone	control	3.87	* < 0.017
	8mg Dexamethasone	control	4.77	* < 0.002
Onset of Motor Block (*minutes*)	4mg Dexamethasone	8mg Dexamethasone	-2.88	0.103
	4mg Dexamethasone	control	3.50	*0.036
	8mg Dexamethasone	control	5.14	** < 0.001
Duration of Sensory Block (*minutes*)	4mg Dexamethasone	8mg Dexamethasone	2.21	2.61
	4mg Dexamethasone	control	-5.08	**<0.001
	8mg Dexamethasone	control	-5.77	**<0.001
Duration of Motor Block (*minutes*	4mg Dexamethasone	8mg Dexamethasone	1.81	0.406
	4mg Dexamethasone	control	-4.77	*0.002
	8mg Dexamethasone	control	-5.85	**<0.001
Number of Rescue Analgesia	4mg Dexamethasone	8mg Dexamethasone	-4.29	*0.009
	4mg Dexamethasone	control	6.08	** < 0.001
	8mg Dexamethasone	control	6.65	** < 0.001

**Significant at p < 0.05*

2026-0243

Unexpected Prolonged Apnea after Succinylcholine Administration: A Case of Butyrylcholinesterase Deficiency.

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Introduction

Unexpected prolonged apnea following succinylcholine administration is an uncommon but clinically significant perioperative event. Butyrylcholinesterase (BChE) deficiency impairs succinylcholine metabolism and may result in prolonged neuromuscular blockade with delayed recovery of spontaneous ventilation. We report a case of previously unrecognized BChE deficiency encountered during thoracic surgery, emphasizing perioperative management and future anesthetic considerations.

Case

A 60-year-old woman (ASA physical status III) underwent elective right uniportal video-assisted thoracoscopic (VATS) pulmonary resection. Preoperative airway assessment predicted difficult tracheal intubation due to Mallampati class III, reduced cervical spine mobility, and a short thyromental distance. Because sugammadex was unavailable and rapid sequence induction was indicated due to anticipated difficult double-lumen intubation and aspiration risk, anesthesia was induced with propofol, fentanyl, and succinylcholine (100 mg). A left-sided Robertshaw double-lumen tube was successfully inserted on the first attempt. Surgery lasted 3.5 hours and was uneventful.Following discontinuation of anesthesia, the patient remained apnoeic with no spontaneous respiratory effort or purposeful movements despite stable haemodynamic parameters and absence of metabolic or neurological abnormalities. Persistent succinylcholine-induced neuromuscular blockade was suspected, and controlled mechanical ventilation was continued. Four hours after succinylcholine administration, two units of fresh frozen plasma (FFP) were administered as an adjunct because prolonged postoperative mechanical ventilation was considered undesirable after thoracic surgery. Following transfusion, spontaneous ventilation recovered progressively, and the trachea was successfully extubated approximately six hours after succinylcholine administration. Plasma BChE activity was reduced (3.37 kU/L; reference >5.32 kU/L), supporting the diagnosis of butyrylcholinesterase deficiency. One month later, contralateral VATS was performed using atracurium instead of succinylcholine, with uneventful recovery.

Conclusion

Previously unrecognized butyrylcholinesterase deficiency should be considered whenever recovery after succinylcholine administration is unexpectedly prolonged. Early recognition, exclusion of other causes of delayed emergence, and continued mechanical ventilation remain essential for safe management. Fresh frozen plasma may be considered as an individualized adjunct in selected patients when earlier recovery of spontaneous ventilation is clinically desirable, although its efficacy remains uncertain. Accurate documentation of the diagnosis is essential to guide future anesthetic management and prevent recurrence.

2026-0243

Figure & Table

Figure & Table 1.

Медицинска Лаборатория Цибалаб

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04.12.2025 [redacted] **ID** [redacted]

ЕГН: Външен ID

Лекуващ лекар

Фонд/Клиника 1/2 Б-ца НКБ Схема: Здравен фонд

Карта No:

Осигурен ЕГН:

Паспорт

Забележка:

Ако не е посочено друго, референтните граници са за пол Жена, възраст 60 г.

Биохимия (Clinical chemistry)

Име на теста (изследването)	Флаг	Резултат	Единици	Референтни стойности
Холинестераза (Cholinesterase)	↓	**3.37**	**kU/l**	**Над 5.32**

Край на справката.

Внимание : Лабораторните резултати са част от диагнозата. Приемането на лекарствени средства без лекарско предписание, може да бъде опасно за Вашето здраве. Моля, обръщайте се за тълкуване на резултатите и предписание за лечение към вашия лекуващ лекар.

2026-0244

Ruptured Appendicitis in an Adolescent With Double-Inlet Left Ventricle Managed Under General Endotracheal Anesthesia: A Case Report

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Introduction

Double-inlet left ventricle (DILV) is a rare cyanotic congenital heart disease characterized by a functional single ventricle receiving blood from both atria, resulting in complete admixture of systemic and pulmonary venous blood, chronic hypoxemia, and limited cardiopulmonary reserve. Emergency non-cardiac surgery in these patients presents significant anesthetic challenges because even small changes in systemic vascular resistance (SVR), pulmonary vascular resistance (PVR), preload, or myocardial contractility may disrupt the balance between systemic and pulmonary blood flow. We report the successful anesthetic management of an adolescent with unrepaired DILV who underwent emergency open appendectomy for ruptured appendicitis.

Case

A 16-year-old male with unrepaired DILV receiving captopril, diltiazem, digoxin, and furosemide presented with a two-day history of right lower quadrant pain and fever. Laboratory investigations demonstrated leukocytosis (21.7×10^9/L), while abdominal ultrasonography revealed a non-compressible appendix with periappendiceal fluid collection, consistent with complicated appendicitis. Physical examination showed chronic cyanosis, digital clubbing, and a grade 5/6 systolic murmur, with baseline oxygen saturation in the low 80% range. Following multidisciplinary evaluation by pediatric surgery, cardiology, and anesthesiology, emergency open appendectomy proceeded under general endotracheal anesthesia. Induction consisted of fentanyl, slowly titrated propofol, and rocuronium, followed by sevoflurane maintenance. The anesthetic strategy prioritized preservation of preload and SVR while avoiding hypoxia, hypercarbia, acidosis, hypothermia, excessive airway pressures, and abrupt hemodynamic changes that could increase PVR or reduce pulmonary blood flow. Intravenous fluids were judiciously administered to maintain adequate ventricular filling without precipitating volume overload. The procedure was completed uneventfully with minimal blood loss and stable intraoperative hemodynamics. Postoperative arterial blood gas demonstrated pH 7.36, PaO_2 48 mmHg, and oxygen saturation of 82%, findings consistent with the patient's chronic cyanotic physiology rather than acute respiratory compromise. He remained clinically stable, was monitored in the pediatric surgical intensive care unit for continued cardiopulmonary surveillance, resumed his maintenance cardiac medications, and was discharged home without perioperative complications.

Conclusion

This case highlights the importance of physiology-guided anesthesia in patients with unrepaired DILV undergoing emergency non-cardiac surgery. Successful perioperative management depends on preserving the balance between systemic and pulmonary circulations rather than correcting chronically abnormal oxygen saturation. Careful understanding of single-ventricle physiology, meticulous hemodynamic management, and close multidisciplinary collaboration enabled timely surgical source control and a favorable outcome despite the patient's complex congenital heart disease.

2026-0244

Figure & Table

Figure & Table 1.



2026-0255

Bridging the Anemic Brain: A Case Report of Physiology-Guided Neuroanesthesia After Massive Neurosurgical Hemorrhage

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Introduction

Massive hemorrhage during neurotrauma surgery threatens systemic perfusion and cerebral oxygen delivery. In traumatic hematoma evacuation, blood loss can worsen cerebral perfusion pressure, intracranial dynamics, and secondary brain injury. Transfusion evidence in acute brain injury remains threshold-based, comparing liberal and restrictive hemoglobin triggers while assuming compatible blood is available once transfusion is indicated. This case highlights a less discussed problem: preserving cerebral physiology when profound anemia is present but red-cell replacement is delayed.

Case

A 47-year-old man was admitted 13 days after a 2-meter fall while intoxicated, with headache, vomiting, and progressive confusion. Examination showed equal reactive pupils and no sensorimotor deficit. CT showed an enlarging left temporal traumatic subdural hematoma from approximately 15 to 28 mL, with 0.3 cm midline shift and mildly compressed cisterns. Surgery was initially delayed by bed constraints, but after clinical and radiologic progression, craniotomy proceeded once feasible; one unit of crossmatched PRBC was secured.

During left temporal craniotomy, brisk hemorrhage occurred after hematoma evacuation. The source could not be identified, and blood loss reached about 4 L, nearly the patient's estimated blood volume of 4,125 mL. Massive transfusion was activated, but the blood bank reported a hospital-wide shortage of O-positive PRBC. The anesthetic problem shifted from routine resuscitation to physiologic bridging during profound loss of oxygen-carrying capacity. While awaiting blood, management prioritized perfusion, oxygenation, coagulation support, and intracranial physiology using crystalloids, 1 unit PRBC, 3 units FFP, norepinephrine, vasopressin, calcium gluconate, empiric sodium bicarbonate, and 200 mL of 0.5 M hypertonic sodium lactate. Because hemostasis and further red-cell replacement were not immediately achievable, the operative site was packed with absorbable hemostatic materials and surgery was terminated.

Postoperatively, hemoglobin was 3.9 g/dL with coagulopathy, creating a sustained cerebral oxygen-delivery crisis. Lactate, ionized calcium, fibrinogen testing, cryoprecipitate, ICU bed, and capnography outside the operating room were unavailable. He was managed first in the PACU, with additional blood products available about 6 hours later. After transfusion of 1 unit PRBC and 1 unit FFP, he improved to GCS 10T and followed commands. He was transferred intubated to a ward room in front of the nurses' station, with observation, monitoring, ventilatory support, and norepinephrine by infusion pump. He was extubated on postoperative day 2 and recovered to GCS 15 without sensorimotor deficit.

Conclusion

This case illustrates profound acute anemia after neurosurgical hemorrhage as a cerebral oxygen-delivery crisis compounded by incomplete hemostasis, blood scarcity, limited monitoring, and lack of critical care access. Recovery despite hemoglobin 3.9 g/dL does not prove that profound anemia is safe; rather, it highlights how physiology-guided neuroanesthetic decision-making may serve as a temporary physiologic bridge while oxygen-carrying capacity is restored, reinforcing the role of context-adapted anesthesia in safer neurotrauma care.

2026-0256

Defying the ROX Index: High-Flow Nasal Cannula for Severe ARDS in Weil's Disease with Multiorgan Dysfunction and Iatrogenic Pneumothorax

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Introduction

Severe acute respiratory distress syndrome (ARDS) in Weil's disease combined with iatrogenic pneumothorax traditionally mandates invasive mechanical ventilation. This report highlights a crucial deviation in clinical decision-making, where non-invasive management was maintained in a failing patient by honoring patient autonomy, yielding a satisfactory outcome.

Case

A 44-year-old male smoker presented with a 4-day history of fever, cough, dyspnea, jaundice, and oliguria. He was admitted to the ICU in septic shock due to severe leptospirosis (Weil's disease, IgM positive) with multiorgan dysfunction syndrome (MODS): liver failure (platelets 39,000/μL, albumin 2.3 g/dL, total bilirubin 6.37mg/dL), severe renal failure (creatinine 8.19 mg/dL, diuresis 0.3 mL/kg/h), and hyponatremia (124.4mEq/L). Resuscitation required fluids and norepinephrine.

During right internal jugular central venous catheter (CVC) insertion, the patient coughed, causing immediate dyspnea, hypoxia (saturation dropped from 98% to 90%), and absent right lung sliding on ultrasound. Urgent bedside chest X-ray confirmed a right pneumothorax, managed promptly with a chest tube (WSD). The next day, severe ARDS developed (P/F ratio plummeted to 110, RR 30–40 bpm on non-rebreathing mask). High-flow nasal cannula (HFNC, FiO2 90%, 40\ L/min) was initiated. At 2 hours, the ROX index was 2.75, highly predictive of HFNC failure. However, the patient remained fully conscious, cooperative, and strongly refused intubation.

While the oliguria progressed to polyuria by day 2, urea levels rose 18-fold (207.8 mg/dL), necessitating a single session of intermittent hemodialysis. Pharmacotherapy included empirical Ceftriaxone and Levofloxacin, escalated to Meropenem on day 5 due to rising inflammatory markers, alongside albumin, blood transfusions, and intensive physiotherapy. Guided by the patient's strong will and stable hemodynamics, intubation was withheld. The ROX index progressively improved by day 5. The chest tube was removed on day 8, HFNC ceased on day 9, and he was discharged on day 12 without residual symptoms or the need for long-term dialysis.

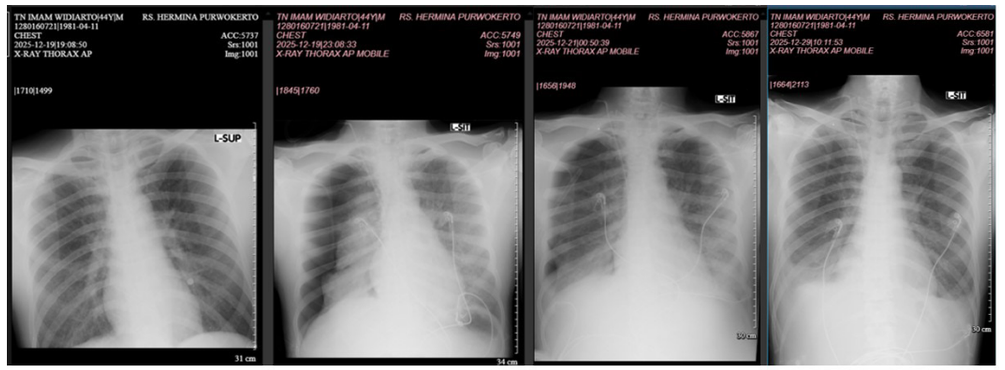
Conclusion

Weil's disease with MODS and iatrogenic pneumothorax tests clinical limits. When hemodynamically stable, close monitoring combined with respect for patient autonomy can successfully avert invasive ventilation, even when standard indices suggest failure

2026-0256

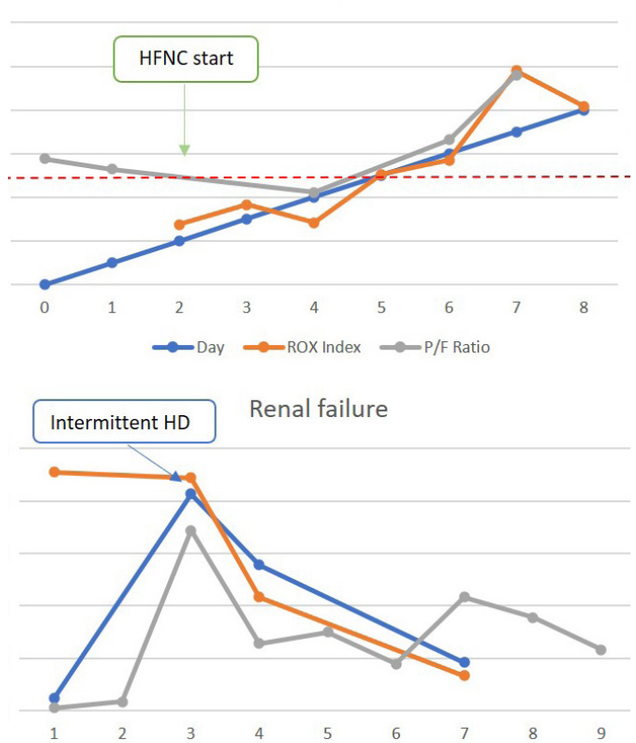
Figure & Table

Figure & Table 1.



Day 0 initial CXR | Day 0 PTX after CVC | Day 2 on WSD | Day 9 before discharge

Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0259

Early High-Flow Nasal Cannula for Prevention of High-Risk Reintubation Following Extended Pancoast Tumor Resection and Chest Wall Reconstruction.

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3. Anesthesiology and Intensive Care Unit, Medical University Sofia, Bulgaria

Introduction

Early postoperative respiratory failure after major thoracic surgery remains a major challenge in intensive care. Although invasive mechanical ventilation is the standard treatment for severe hypoxemic respiratory failure, it may not be optimal after extensive lung resection and chest wall reconstruction because positive-pressure ventilation may increase mechanical stress on the bronchial stump and reconstructed chest wall. High-flow nasal cannula (HFNC) may provide effective respiratory support while avoiding invasive ventilation. We report a case in which early HFNC prevented reintubation after extended Pancoast tumor resection.

Case

A 53-year-old man with hypertension, ischemic heart disease, and a long smoking history presented with an 83-mm right Pancoast tumor involving the first and second ribs with Horner syndrome. After six cycles of carboplatin, paclitaxel, and pembrolizumab, he underwent extended right thoracotomy with en bloc chest wall resection, right upper lobectomy, and synthetic mesh reconstruction. One-lung ventilation was performed using a Robert-Shaw double-lumen tube. Following opioid-sparing multimodal analgesia, the patient was extubated in the operating room and admitted to the ICU breathing spontaneously.

On postoperative day three, he developed progressive dyspnea, tachypnea, and hypoxemia (SpO_2 85–87%) despite conventional oxygen therapy. Chest radiography demonstrated a new contralateral infiltrate consistent with hospital-acquired pneumonia and elevation of the right hemidiaphragm, while inflammatory markers increased. Because of the recent extensive thoracic resection and chest wall reconstruction, invasive mechanical ventilation was considered undesirable. HFNC was initiated early (50 L/min, FiO_2 0.60), together with broad-spectrum antibiotics, respiratory physiotherapy, bronchial hygiene, and close monitoring. The patient's respiratory status progressively improved without further escalation of respiratory support. Bronchoscopy showed minimal retained secretions, inflammatory markers normalized, HFNC was weaned to conventional oxygen therapy, and the patient was discharged from the ICU on postoperative day 20 without reintubation or invasive mechanical ventilation.

Conclusion

This case demonstrates that early initiation of HFNC may represent an effective preventive respiratory support strategy in selected patients developing postoperative hypoxemia after major thoracic surgery. Timely recognition of clinical deterioration and proactive escalation to HFNC may help prevent high-risk reintubation and avoid invasive mechanical ventilation when positive-pressure ventilation is considered potentially detrimental to postoperative recovery.

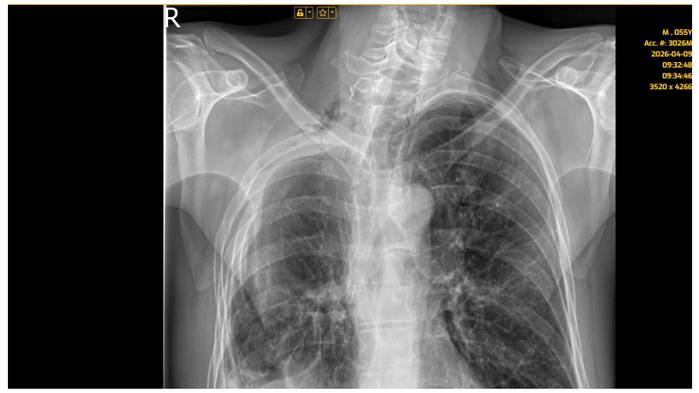
2026-0259

Figure & Table

Figure & Table 1.



Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0261

Anaesthetic Management of Aspiration of a Video Capsule During Endoscopic Placement Under Deep Sedation in a Paediatric Patient

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1. Anesthesia, Singapore General Hospital, Singapore

Introduction

Video capsule endoscopy (VCE) is an established investigation for small bowel pathology. Capsule aspiration is a rare complication, with most reported cases occurring during oral ingestion in elderly patients with dysphagia. Intraoperative aspiration during endoscopic deployment under deep sedation is exceptionally uncommon, particularly in paediatric patients. We describe VCE aspiration causing acute upper airway obstruction and its anaesthetic management.

Case

A 5 year old boy underwent elective oesophagogastroduodenoscopy (OGD), colonoscopy with biopsies, and endoscopic VCE deployment under propofol total intravenous anaesthesia with a natural airway. Preoperative assessment demonstrated low gastric aspiration risk, with no predicted difficult airway.

Following uneventful OGD and colonoscopy, deployment of the VCE encountered repeated resistance at the oropharynx with blood-stained secretions after the initial attempt. The anaesthetic team raised concerns about capsule size and possible dislodgement with the proceduralist. Following discussion, the proceduralist assessed the attachment to be secure and elected to proceed with a second deployment attempt. Shortly thereafter, the capsule disappeared from the endoscopic view. Repeat OGD did not identify the capsule within the stomach, while real-time capsule imaging demonstrated the epiglottis, raising immediate suspicion of airway aspiration.

The patient was returned to the supine position and 100% oxygen administered. Although end-tidal carbon dioxide remained detectable during bag-mask ventilation, bilateral air entry was markedly reduced and oxygen saturation decreased to 88%. At this stage, the team considered the competing risks of maintaining spontaneous ventilation to minimise possible distal migration of the capsule versus administering neuromuscular blockade to improve laryngoscopy, relieve possible laryngospasm, and facilitate retrieval. Suxamethonium (2 mg/kg) was administered, and video laryngoscopy demonstrated the capsule lodged across the glottic inlet. The capsule was removed with Mcgill forceps, after which ventilation and oxygenation improved immediately. The planned VCE deployment was abandoned, and the patient recovered without apparent sequelae.

Conclusion

This case highlights that a low risk of gastric aspiration does not equate to a low procedural airway risk. During endoscopic VCE deployment, a large detachable foreign body is introduced into a shared airway, particularly relevant in paediatric patients. Repeated difficult attempts should prompt reassessment of the airway strategy, multidisciplinary communication, and consideration of securing a definitive airway before further manipulation. The decision to administer neuromuscular blockade in suspected laryngeal foreign body obstruction should be individualised, balancing the theoretical risk of distal foreign body migration against the potential benefits of improved airway access and retrieval conditions. This case also highlights the value of real-time capsule imaging in rapidly localising the foreign body and supporting timely management.

2026-0261

Figure & Table

Figure & Table 1.

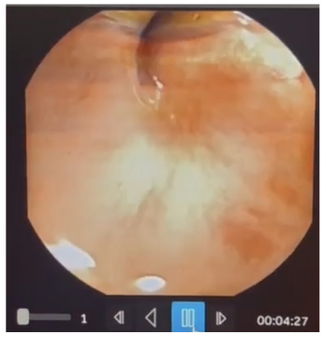


Fig.1: VCE image of Oropharynx



Fig.2:Endoscope passing VCE after dislodgement



Fig.3: VCE image of glottis

ABSTRACT
Competition
Presentation
E-Poster

2026-0262

Severe Epistaxis Following Nasal Instrumentation Under General Anaesthesia: Looking Beyond Direct Trauma

Christopher Mathew[1*], Ashley Lee[1], Emma Du[1]

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Introduction

Epistaxis under general anaesthesia is a recognised complication of nasal instrumentation. While most episodes are self-limiting, severe bleeding may occur in the presence of underlying anatomical abnormalities or systemic causes. We report a case of persistent epistaxis following atraumatic insertion of a nasal temperature probe contributed by venous congestion from central vein stenosis.

Case

A 65-year-old female, with end-stage renal failure on haemodialysis via an arteriovenous fistula and a history of vascular access issues requiring multiple angioplasties, underwent total parathyroidectomy and deltoid implantation. She was not on antithrombotic therapy and preoperative coagulation profile was normal.

Following induction and uncomplicated orotracheal intubation, a temperature probe was inserted smoothly via the right nostril. Fresh bleeding was soon noted from both nostrils and the oral cavity. Fibreoptic inspection of the airway revealed focal bleeding over the right middle turbinate and nasal septum, along with generalised erythema and brisk contact bleeding in both nostrils. External compression, topical co-phenylcaine and Merocel packing were used to achieve temporary haemostasis and surgery proceeded uneventfully. After the surgery prior to extubation, nasal packs were removed following which there was recurrence of profuse bilateral epistaxis. This did not respond to suction diathermy hence otolaryngology was consulted. Rigid nasoendoscopy identified culprit bleeding spots at the bilateral middle turbinates, the right nasal septum and the left lateral nasal wall (Figure 1). Stepwise management with electrocautery, adrenaline-soaked pledgets, Surgicel and Gelfoam packing were performed to achieve haemostasis. Intravenous tranexamic acid was also administered. The patient was then extubated uneventfully without any recurrence of bleeding.

The diffuse bilateral nature of bleeding raised the suspicion of an underlying systemic cause unmasked by nasal instrumentation. Given the patient's history, central vein stenosis was considered the most likely cause. This was confirmed on postoperative angiogram showing 50% stenosis of the left brachiocephalic vein.

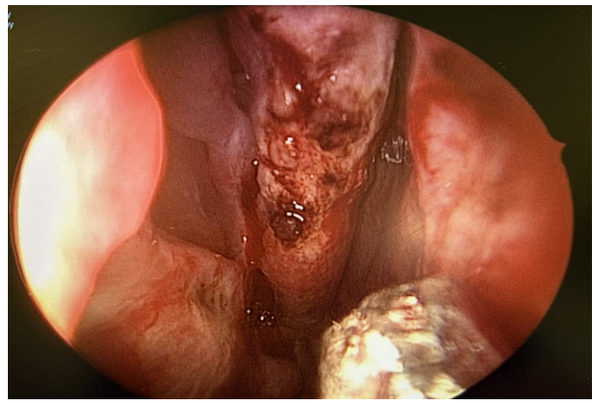
Conclusion

Severe epistaxis following nasal instrumentation should prompt clinicians to consider underlying systemic causes such as venous congestion from central vein stenosis. This case highlights the importance of detailed preoperative assessment for risk factors for epistaxis. In at-risk patients, alternative routes for nasal instrumentation should be considered wherever possible. In the event of severe epistaxis, stepwise escalation therapy, early intubation, and involvement of otolaryngologists are crucial to minimise airway complications.

2026-0262

Figure & Table

Figure & Table 1.



ABSTRACT
Competition
Presentation
E-Poster

2026-0264

Perioperative Challenges: SGLT2-Associated Euglycemic Diabetic Ketoacidosis and Pulmonary Embolism in a Patient with Femoral Neck Fracture

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Introduction
Sodium-glucose cotransporter-2 (SGLT2) inhibitors are effective glucose-lowering agents; however, their use is associated with a risk of developing euglycemic diabetic ketoacidosis (euDKA), particularly in the setting of surgical stress, reduced oral intake, and severe comorbidities. Timely diagnosis of euDKA remains challenging because of the absence of marked hyperglycemia and the nonspecific nature of clinical manifestations.

Case
A 61-year-old female patient was admitted to National Scientific Center of Traumatology and Orthopedics named after ac.N.D.Batpenov on June 17, 2026, with a fracture of the left femoral neck. The injury had occurred 18 days before admission. Surgical treatment had previously been postponed because of poorly controlled type 2 diabetes mellitus (HbA1c >13%). Prior to admission, the patient had been diagnosed with DVT of the lower extremities that developed during prolonged immobilization following the injury. Blood glucose level on admission was 8.7 mmol/L. Dapagliflozin was prescribed on June 19, 2026. On the same day, a hip joint hemiarthroplasty was performed under spinal anesthesia. Intraoperative blood loss was 50 mL. Dapagliflozin therapy was initiated on the second postoperative day.
On postoperative day 4, the patient developed nausea, vomiting, and marked generalized weakness, which were initially attributed to gastrointestinal disorder. Despite ongoing treatment, her condition gradually deteriorated. On June 29, 2026, she was transferred to the ICU. Evaluation revealed severe metabolic acidosis (pH 7.207; bicarbonate concentration [HCO_3^-] 6.8 mmol/L; pCO_2 8.8 mmHg), ketonuria (4.9), and dehydration. Despite severe metabolic acidosis and significant ketosis, blood glucose levels remained within 10–13 mmol/L, which was disproportionate to the severity of the clinical condition and contributed to delayed recognition of DKA. CT angiography demonstrated pulmonary embolism involving small branches of the pulmonary artery. Based on the clinical presentation and laboratory findings, SGLT2 inhibitor–associated euDKA was diagnosed.
The patient received intensive treatment including intravenous insulin infusion, fluid resuscitation with dextrose-containing solutions, correction of electrolyte and acid-base disturbances, and anticoagulant therapy with nadroparin. Clinical improvement was observed, with normalization of acid-base status and resolution of symptoms. The postoperative course was subsequently complicated by a surgical site infection requiring revision surgery. Following comprehensive treatment, the patient was discharged in satisfactory condition.

Conclusion
This case highlights the need for cautious use of SGLT2 inhibitors in high-risk patients during the perioperative period. The development of nausea, vomiting, generalized weakness, and metabolic acidosis in patients receiving SGLT2 inhibitors should raise suspicion for euDKA regardless of blood glucose levels. Routine assessment of ketonemia, ketonuria, and acid-base status facilitates early diagnosis and timely initiation of appropriate treatment. According to current recommendations, SGLT2 inhibitors should be discontinued at least three days before elective surgery and resumed only after clinical stabilization, restoration of adequate oral intake, and sufficient hydration. Adherence to these perioperative management principles may reduce the risk of euDKA and its potentially life-threatening complications.

2026-0270

Comparison of Manometer-Guided and Conventional Clinical Techniques for Endotracheal Tube Cuff Inflation and Postoperative Sore Throat in a Tertiary Hospital in Manila, Philippines: A Prospective Cohort

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Background
Postoperative sore throat (POST) remains one of the most common and bothersome complications after endotracheal intubation. Inaccurate cuff inflation can impair tracheal mucosal perfusion, increasing the risk of airway injury and other cuff-related complications. Although cuff pressure manometers are recommended to maintain safe intracuff pressures, many institutions continue to rely on subjective inflation techniques because of limited resources. This study evaluated whether manometer-guided cuff inflation reduces the incidence and severity of POST compared with conventional clinical methods during routine general anesthesia

Methods
In this prospective observational cohort study, 214 adults (18–65 years, ASA I–III) undergoing elective surgery with endotracheal intubation at a tertiary referral hospital were enrolled. Endotracheal tube cuffs were inflated using either conventional subjective techniques (pilot balloon palpation and/or audible leak test; n=139) or manometer-guided inflation targeting 20–30 cmH_2O (n=75). The primary outcome was the incidence of postoperative sore throat (POST). Secondary outcomes included POST severity (Numerical Pain Rating Scale), hoarseness, postoperative benzydamine hydrochloride use, and cuff pressure after inflation. Groups were compared using the chi-square or Fisher's exact test for categorical variables and the Mann–Whitney U test for continuous variables, with $p<0.05$ considered statistically significant.

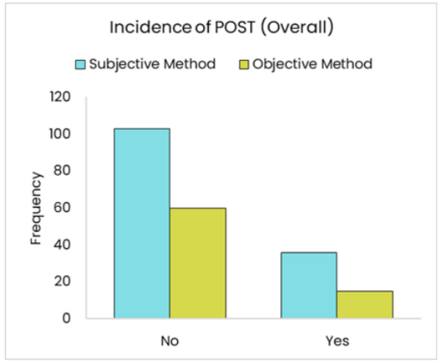
Results
Among 214 patients, the overall incidence of POST was 23.8%. POST occurred less frequently with manometer-guided than conventional cuff inflation (20.0% vs. 25.9%), although the difference was not significant (p=0.425). At 1-hour post-extubation, POST incidence remained similar (18.9% vs. 25.9%, p=0.331). Most cases were absent or mild (96.3%), with no severe POST. Hoarseness and postoperative benzydamine use were rare and comparable between groups. Cuff pressure reassessment was significantly more frequent with manometer-guided inflation (85.3% vs. 3.6%, $p<0.001$), indicating markedly better adherence to recommended cuff pressure management.

Conclusion
Routine manometer-guided cuff inflation did not significantly reduce postoperative sore throat but consistently achieved optimal cuff pressures. In resource-limited settings, careful clinical cuff inflation remains a practical alternative, while the observed trend toward reduced POST with manometry merits further investigation.

2026-0270

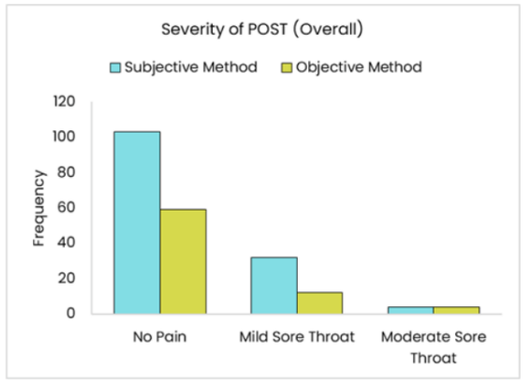
Figure & Table

Figure & Table 1.



Graph 1. Postoperative sore throat was reported in 23.83% of all patients, with no significant difference between the subjective group (25.90%) and the objective manometer-guided group (20.00%).

Figure & Table 2.



Graph 2. Most patients reported no throat pain (75.70%), while mild symptoms (20.56%) and moderate symptoms (3.74%) comprised the remainder, with no cases of severe POST observed.

2026-0277

Status Epilepticus with Persistent Fetal Bradycardia Caused by Previously Undiagnosed Brain Metastases in a Term Parturient Requiring Emergency Cesarean Delivery

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Introduction

Seizures during pregnancy are often attributed to eclampsia. However, distinguishing eclampsia from other causes can be challenging in the setting of status epilepticus in a parturient, which is a combined neurological and obstetric emergency. We report a case of status epilepticus caused by previously undiagnosed brain metastases in which emergency cesarean delivery was required due to persistent fetal bradycardia.

Case

A 33-year-old primigravid woman (160cm, 49kg) at 38 weeks and 6 days of gestation developed generalized tonic-clonic seizures at home. She had undergone thoracoscopic right middle lobectomy for lung cancer two years earlier, with no recurrence on her latest follow-up prior to pregnancy. The initial seizure was brief, but the patient did not recover normal mental status during transport. She had another brief seizure on arrival at the emergency department 45 minutes later, where diazepam 5mg was administered. Fetal heart rate monitoring revealed persistent severe bradycardia (40–80 bpm). The patient remained unresponsive, most consistent with a postictal state. Emergency cesarean delivery was performed under general anesthesia with a decision to delivery interval of 16 minutes. The infant's (2,800 g) Apgar scores were 6 and 8 at 1 and 5 minutes respectively; cord arterial pH was 6.912. Postoperative CT performed with neurosurgical back up available revealed bilateral temporal cystic lesions with surrounding edema, consistent with metastatic brain tumors. No immediate neurosurgical intervention was necessary. The patient was extubated three hours later without neurological deficits and was referred for further oncological and neurosurgical management.

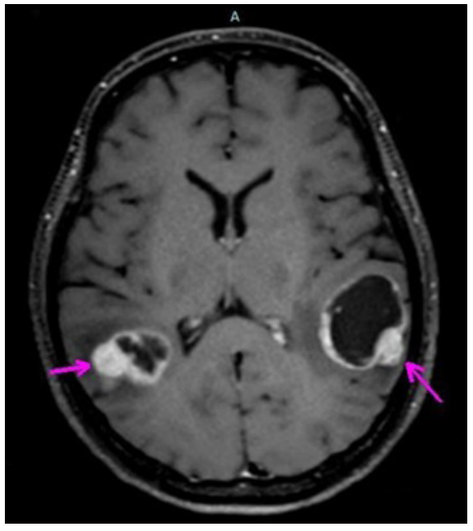
Conclusion

Status epilepticus can cause maternal hypoxia and hypotension, reducing placental blood flow. Seizures are also associated with transient uterine hypertonus, which may also cause fetal bradycardia. This case highlights that seizures during pregnancy are not always due to eclampsia. Intracranial pathology including metastatic brain tumors should be considered, especially in patients with a history of cancer. In this case, surveillance for cancer recurrence had been put on hold during pregnancy. Guidelines state that exposure from diagnostic radiographic imaging is at a dose much lower than the exposure associated with fetal harm, and should not be withheld from a pregnant patient. When maternal neurological emergencies coexist with persistent fetal bradycardia at term, prompt delivery with concurrent neurological evaluation allows fetal rescue and timely diagnosis to optimize maternal and neonatal outcomes. Rapid multidisciplinary decision-making and perioperative management are essential.

2026-0277

Figure & Table

Figure & Table 1.



2026-0278

Delayed Emergence Unresponsive to Flumazenil After Remimazolam-Based General Anesthesia in an Elderly Patient With Pre-Existing Cerebrovascular Disease: A Case Report

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Introduction
Remimazolam is an ultra-short-acting benzodiazepine anesthetic characterized by rapid metabolism via hepatic carboxylesterase-1, hemodynamic stability, a short context-sensitive half-life, and reversibility with flumazenil. Nevertheless, delayed emergence may still occur, and recovery of consciousness may not follow promptly after flumazenil administration. We report a case of prolonged delayed emergence without recovery of consciousness despite flumazenil administration after remimazolam-based general anesthesia in an elderly patient with pre-existing cerebrovascular disease.

Case
An 83-year-old man with a history of traumatic subarachnoid hemorrhage and right posterior inferior cerebellar artery infarction underwent buccal cancer resection with tracheostomy and microvascular free-flap reconstruction under remimazolam-based anesthesia. He recovered normally after the initial 6-hour operation. On postoperative day 3, emergency reoperation was performed for flap salvage and reconstruction. Anesthesia was induced with remimazolam at 6 mg/kg/h and maintained at 1 mg/kg/h with remifentanil for approximately 9 hours. Bispectral index values were maintained at 40–55, mean arterial pressure remained above 70 mmHg, and core temperature ranged from 35.5°C to 36.3°C. At the end of surgery, sugammadex 200 mg and flumazenil 300 μg were administered intravenously. Although spontaneous respiration returned, the patient remained unresponsive to verbal and painful stimuli, with a bispectral index of approximately 70. An additional 150 μg of flumazenil produced no improvement. Postopertaive laboratory evaluation and brain magnetic resonance imaging revealed no metabolic abnormality or acute intracranial lesion. Consciousness recovered spontaneously 9 hours after surgery, and the patient regained full orientation without neurologic deficit.

Conclusion
Remimazolam-based anesthesia is generally associated with rapid and predictable emergence. Recovery of consciousness is typically achieved promptly with or without administration of flumazenil. A few recent case reports, however, have described transient awakening after flumazenil administration followed by subsequent re-sedation. In contrast to these previously reported patterns, our patient showed no observable recovery of consciousness despite repeated administration of flumazenil. The present case represents an unusual pattern of prolonged delayed emergence characterized by an apparent lack of responsiveness to flumazenil, rather than transient reversal followed by re-sedation. Potential contributing mechanisms include interindividual variability in hepatic carboxylesterase-1 (CES1)-mediated remimazolam metabolism, underestimation of anesthetic depth by bispectral index monitoring during benzodiazepine-based anesthesia, and delayed reactivation and functional reintegration of central arousal networks in an elderly patient with reduced cerebral reserve. This case highlights the importance of careful dose titration and cautious interpretation of bispectral index values during prolonged remimazolam administration, particularly in elderly patients and those with pre-existing cerebrovascular disease.

2026-0279

Comparative Evaluation of Virtual Reality and Augmented Reality as Distraction Techniques on Preoperative Anxiety in Paediatric Patients

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Background
Preoperative anxiety affects a significant proportion of paediatric surgical patients, with negetive physiological and psychosocial consequences. Virtual Reality (VR) and Augmented Reality (AR) have individually demonstrated anxiolytic efficacy, no study has directly compared these modalities in children. We aimed to evaluate and compare AR and VR as distraction tools in alleviating preoperative anxiety in paediatric patients aged 4–10 years.

Methods
This randomised comparative pilot trial was conducted between August 2023 and August 2024 at Maulana Azad Medical College, New Delhi, following IEC approval and CTRI registration. Seventy children (ASA I–III) undergoing elective surgery under general anaesthesia were randomised to Group AR (n=35; Dreamland AR encyclopaedia/ Snapchat filters via iPad/iPhone) or Group VR (n=35; 360° YouTube videos via Irusu mini-VR headset). Primary outcome was change in Modified Yale Perioperative Anxiety Scale (mYPAS) from baseline to induction. Secondary outcomes included parental anxiety (STAI), induction compliance (ICC), parental satisfaction, and time to induction.

Results
Ten patients (28.5%) in the VR group discontinued due to headache and claustrophobia; final analysis included AR (n=35) and VR (n=25). Acceptability was significantly higher in Group AR (100%) versus Group VR (71.5%; p<0.001). Both groups demonstrated significant mYPAS reductions from baseline to induction: AR (58.12±13.86 to 33.70 ±10.56; 41.73% reduction; p<0.001) and VR (52.23±8.46 to 30.72±10.63; 40.73% reduction; p<0.001), with no significant intergroup difference (p=0.76). Parental anxiety (STAI) decreased significantly in both groups (AR: 31.3%; VR: 33.8%; p=0.95 between groups). Induction compliance was excellent in both groups (median ICC=0). Parental satisfaction scores were high and comparable (AR: 94.8±3.47; VR: 94.82±3.49; p=0.87). Time to induction and sevoflurane consumption were similar between groups.

Conclusion
Both AR and VR are comparable and effective non-pharmacological distraction modalities for reducing preoperative anxiety in paediatric patients. Given its significantly higher acceptability, AR is a more practical and preferred tool — particularly in resource-limited settings where low-cost smartphone-based applications can replace expensive headsets.

2026-0279

Figure & Table

Figure & Table 1.

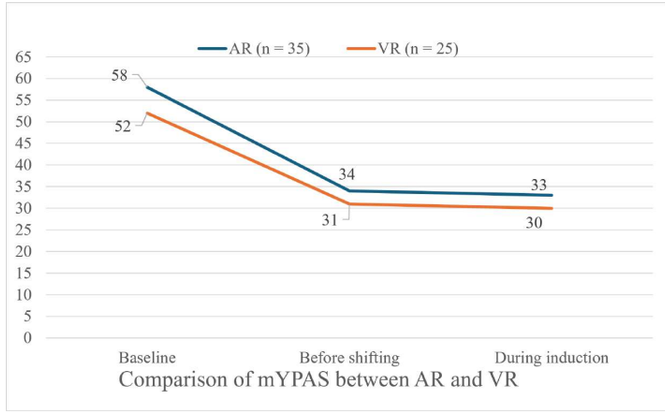


Figure & Table 2.

Acceptability of patient selected application	Group AR(n=35)	Group VR(n=35)	P value
Accepted	35	25	<0.001
Not accepted	0	10	

Table 2: Acceptability of patient selected applications in group AR and group VR

ABSTRACT
Competition
Presentation
E-Poster

2026-0290

Anesthetic Induction in Patients With Compromised Respiratory Physiology Undergoing Diagnostic Thoracic Procedures: A Case Series Using a Remifentanil-Based Strategy

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Introduction

Diagnostic thoracic procedures often require general anesthesia with airway instrumentation in patients with compromised respiratory physiology. In these patients, anesthetic induction may increase the risk of hypoxemia because of ventilation–perfusion mismatch, reduced pulmonary reserve, and transient loss of spontaneous ventilation. However, evidence regarding induction strategies for this high-risk population remains limited. We report our experience with a remifentanil-based induction strategy in four patients undergoing diagnostic thoracic procedures.

Case

We retrospectively reviewed four ASA physical status III adults (33–72 years) who underwent pleuroscopy, cryobiopsy, or endobronchial ultrasound for confirmed or suspected thoracic malignancy. Respiratory compromise included bilateral pleural effusions with compression atelectasis, near-complete lung collapse, severe restrictive ventilatory dysfunction (forced vital capacity 27.5% predicted), and pneumonia. General anesthesia was induced with propofol (1.7–3.2 mg/kg) and a remifentanil bolus of 50 μg (0.77–1.06 μg/kg), followed by continuous remifentanil infusion (0.15–0.20 μg/kg/min). Neuromuscular blockade was omitted in three patients and used in one patient according to procedural requirements. Oxygen saturation remained between 97% and 100% throughout induction and the procedure, with no episodes of severe desaturation. No patient developed severe hypotension, clinically significant bradycardia, required vasopressors, immediate postoperative reintubation, or had delayed emergence. One patient developed hydropneumothorax with subcutaneous emphysema after pleuroscopy, which was considered related to the procedure rather than anesthesia.

Conclusion

This case series suggests that a remifentanil-based induction strategy was feasible in selected patients with compromised respiratory physiology undergoing diagnostic thoracic procedures. Oxygenation and hemodynamic stability were maintained in all four patients, with no severe desaturation, significant hemodynamic instability, or immediate postoperative reintubation. However, the small number of patients, retrospective design, and lack of a comparator group limit the conclusions that can be drawn. Further prospective studies are needed to evaluate this approach.

2026-0290

Figure & Table

Figure & Table 1.

Table 1. Baseline Characteristics and Anesthetic Management

Variable	Case 1	Case 2	Case 3	Case 4
Age (years)	72	33	59	64
Sex	Male	Female	Female	Female
ASA Physical Status	III	III	III	III
Procedure	Pleuroscopy	EBUS	Cryobiopsy	Pleuroscopy + Cryobiopsy
Primary Respiratory Pathology	Bilateral pleural effusion with compression atelectasis	Near-complete lung collapse	Severe restrictive ventilatory dysfunction (FVC 27.5% predicted)	Pneumonia with pleural effusion
Baseline SpO_2	92% (RA) → 97% (NC 3 L/min)	99% (RA)	95% (RA) → 98–99% (NC 3 L/min)	95% (RA)
Body Weight (kg)	65	60	47	50
Propofol	150 mg (2.3 mg/kg)	100 mg (1.7 mg/kg)	150 mg (3.2 mg/kg)	100 mg (2.0 mg/kg)
Remifentanil Bolus	50 μg (0.77 μg/kg)	50 μg (0.83 μg/kg)	50 μg (1.06 μg/kg)	50 μg (1.00 μg/kg)
Remifentanil Infusion	0.15 μg/kg/min	0.20 μg/kg/min	0.20 μg/kg/min	0.15 μg/kg/min
Neuromuscular Blockade	None	None	Rocuronium 30 mg	None
Endotracheal Intubation	Yes	Yes	Yes	Yes

ASA = American Society of Anesthesiologists; EBUS = Endobronchial Ultrasound; FVC = Forced Vital Capacity; NC = Nasal Cannula; RA = Room Air; SpO_2 = Peripheral Oxygen Saturation.

Table 2. Peri-induction Outcomes

Outcome	Case 1	Case 2	Case 3	Case 4
SpO_2 During Procedure	97–100%	97–100%	98–100%	98–100%
Lowest SpO_2 (%)	97	97	98	98
Lowest MAP (mmHg)	68	70	72	70
Lowest HR (beats/min)	68	72	74	72
Severe Desaturation (SpO_2 <90%)	No	No	No	No
Severe Hypotension (MAP <65 mmHg)	No	No	No	No
Clinically Significant Bradycardia (HR <50 bpm)	No	No	No	No
Vasopressor Requirement	No	No	No	No
Immediate Postoperative Reintubation	No	No	No	No
Delayed Emergence	No	No	No	No
Procedure-related Complication	Hydropneumothorax with subcutaneous emphysema	None	None	Hydropneumothorax with subcutaneous emphysema*

SpO_2 = Peripheral Oxygen Saturation; MAP = Mean Arterial Pressure; HR = Heart Rate.

* Considered procedure-related rather than anesthesia-related.

ABSTRACT
Competition
Presentation
E-Poster

2026-0291

Accidental Dural Puncture with a Spinal Introducer Needle During Labour Epidural Insertion

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Introduction

Accidental dural puncture (ADP) with large bore needles such as Tuohy needles is a known complication of epidural analgesia and is associated with significant morbidity, particularly post-dural puncture headache (PDPH) in obstetric patients. While ADP with longer or larger needles is more frequently reported, inadvertent dural puncture with a spinal introducer needle remains uncommon, with limited case data in the literature.

We present a case of an accidental dural puncture with an 20G 32mm spinal introducer needle.

Case

The patient 30-year-old gravida 2 para 1 at 38 weeks' gestation, with no significant medical history (ASA 2 for pregnancy). Her BMI was 21 (172 cm, 62.1 kg).

In our institution, a combined spinal epidural (CSE) technique is routinely performed for labour pain. We describe her progress after she was admitted to the labour ward following induction of labour, after the patient had requested for a labour epidural.

Due to severe labour contraction pain, the patient was in significant distress when first seen by anaesthesia. She was restless and moving about despite verbal reassurance and Entonox. A decision was made to administer a single shot spinal component first then proceed with epidural insertion so as to expedite delivery of analgesia as well as avoid the technical complications of epidural insertion while the patient was moving about. A gush of clear cerebrospinal fluid was encountered after insertion of only the spinal introducer needle.

We describe our immediate and subsequent management of the case, including post-discharge follow-up for potential PDPH.

Conclusion

This case illustrates that ADP can occur with a spinal introducer needle, especially in the setting of poor patient cooperativeness or high-risk anatomical features. Vigilance is required during all steps of neuraxial access.

2026-0293

When the Spine Bends and the Diaphragm Fails: A Case of High-Risk Anesthesia in Dual Anatomic Anomalies

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Introduction

Adult Bochdalek diaphragmatic hernia (BDH) is a rare congenital condition that presents significant anesthetic challenges due to visceral herniation, mediastinal shift, and compromised pulmonary mechanics. Surgical repair often requires one-lung ventilation (OLV), which becomes particularly demanding in the presence of severe scoliosis because of distorted tracheobronchial anatomy and restrictive lung disease. We describe the anesthetic management of an adult with giant BDH and severe scoliosis undergoing thoracic repair, highlighting individualized airway management, lung-protective ventilation, and meticulous perioperative planning to safely achieve OLV in this high-risk setting.

Case

A 32-year-old man with severe congenital scoliosis and a giant left-sided Bochdalek diaphragmatic hernia underwent elective repair. Severe thoracic deformity, restrictive lung disease, mediastinal shift, and distorted tracheobronchial anatomy created the uncommon combination of an anticipated difficult airway and the need for prolonged one-lung ventilation (OLV). Although a bronchial blocker would traditionally be favored in this setting to secure the airway before lung isolation, a left-sided double-lumen tube (DLT) was deliberately selected to provide more reliable isolation and facilitate prolonged thoracic surgery. Using video laryngoscopy and fiberoptic bronchoscopy, the DLT was advanced with a gentle angulated rotational maneuver tailored to the patient's distorted airway anatomy, allowing successful placement without airway trauma. Lung-protective OLV was maintained using low tidal volumes, individualized PEEP, and repeated bronchoscopic confirmation after positioning and during surgery to ensure continued tube alignment despite intraoperative repositioning and conversion to a combined thoracoabdominal approach.

Effective lung isolation was maintained throughout prolonged one-lung ventilation despite severe thoracic deformity, intraoperative repositioning, and the risk of double-lumen tube malposition. Oxygenation and hemodynamic stability were preserved without rescue ventilation, airway exchange, or interruption of surgery. Postoperatively, the double-lumen tube was exchanged for a single-lumen tube using an airway exchange catheter, and the patient was transferred intubated to the intensive care unit. After individualized ventilator optimization and intensive pulmonary rehabilitation, the patient was successfully extubated on postoperative day 3 and recovered without neurological deficits or further respiratory complications.

Conclusion

The coexistence of severe congenital scoliosis and giant Bochdalek diaphragmatic hernia presents the rare challenge of balancing an anticipated difficult airway with the need for reliable one-lung ventilation. Although a bronchial blocker is often considered the safer option in difficult airway management, this case demonstrates that a double-lumen tube can be safely and successfully used when guided by meticulous preoperative planning, anatomy-adapted insertion techniques, bronchoscopic confirmation, and vigilant intraoperative reassessment.

2026-0294

Beyond Kratom Toxicity: Severe Methanol Poisoning Following Alleged Co-Ingestion of Kratom and Locally Distilled Alcohol

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Introduction
Methanol poisoning is a life-threatening toxicological emergency characterized by severe metabolic acidosis, visual impairment, and multi-organ dysfunction. Kratom (Mitragyna speciosa) is widely consumed in Southeast Asia for its stimulant and opioid-like effects and has increasingly been implicated in cases of polysubstance exposure. Early recognition and prompt initiation of antidotal therapy and hemodialysis are essential to reduce morbidity and mortality. We report severe methanol poisoning following alleged co-ingestion of homemade kratom and locally distilled alcohol, highlighting the importance of maintaining a high index of suspicion despite an initially unclear exposure history.

Case
A 47-year-old previously healthy Malaysian fisherman presented with a two-day history of dyspnea, chest pain, vomiting, and progressive bilateral blurring of vision following alleged co-ingestion of homemade kratom and locally distilled alcohol. On examination, he was tachypneic, with visual acuity reduced to hand movements bilaterally. Arterial blood gas analysis demonstrated profound metabolic acidosis with pH 6.99, bicarbonate 7.5 mmol/L, and base excess −25.6 mmol/L. Initial investigations revealed an anion gap of 16 mmol/L, measured serum osmolality of 354 mOsm/kg, calculated serum osmolality of 290 mOsm/kg, and an osmolar gap of 64 mOsm/kg, raising strong suspicion for toxic alcohol poisoning. In view of impending respiratory failure secondary to profound metabolic acidosis, the patient underwent endotracheal intubation and mechanical ventilation in the Emergency Department. Empirical treatment with intravenous sodium bicarbonate, oral 20% ethanol, intravenous folinic acid, and urgent hemodialysis was commenced without waiting for toxicological confirmation. The patient was subsequently admitted to the intensive care unit, where he required vasopressor support and a second hemodialysis session. Toxicological analysis later confirmed elevated levels of serum methanol concentration of 55 mg/dL and a serum ethanol concentration of 292 mg/dL, consistent with mixed methanol–ethanol exposure. Kratom concentrations were not measured. The patient recovered with resolution of metabolic acidosis, successful liberation from mechanical ventilation, improvement in renal function, recovery of visual function, and was discharged without radiological evidence of methanol-induced putaminal necrosis.

Conclusion
This case highlights the importance of recognizing methanol poisoning in patients presenting with severe metabolic acidosis, visual impairment, and a markedly elevated osmolar gap, even when the exposure history is initially unclear. Although the patient had a markedly elevated serum ethanol concentration, the clinical deterioration was predominantly attributable to methanol-derived formate toxicity, emphasizing that concomitant ethanol intoxication does not exclude severe methanol poisoning. Although alleged kratom co-ingestion was reported, its contribution to the clinical presentation could not be determined. Early airway management, empirical antidotal therapy, and timely hemodialysis should not be delayed while awaiting toxicological confirmation, as prompt multidisciplinary management can result in favorable clinical outcomes.

2026-0296

When the BIS Lies: Electromyographic Interference Mimicking Inadequate Anaesthetic Depth During Microvascular Decompression, A Case Report

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Introduction
Bispectral index (BIS) is widely used to reduce the risk of awareness during general anaesthesia while avoiding excessive anaesthetic administration. However, BIS algorithms analyse high-frequency signals that overlap with frontal electromyography (EMG) frequencies. Consequently, increased facial muscle activity may artificially increase BIS values despite adequate cortical hypnosis. Neurosurgical procedures, particularly those involving cranial nerves and facial muscles, frequently produce increased EMG activity, making interpretation of BIS particularly challenging. We describe a patient undergoing microvascular decompression in whom EMG contamination produced misleading BIS readings.

Case
A 57-year-old Chinese man with left hemifacial spasm underwent elective left rectosigmoid craniotomy and microvascular decompression. The magnetic resonance imaging (MRI) demonstrated the left vertebral artery compressing the facial nerve root entry zone, with adjacent posterior inferior cerebellar artery and superior cerebellar artery involvement. His comorbidities include hypertension, atrial fibrillation on rivaroxaban, and previous vocal cord polyp excision. Airway assessment suggested difficult airway (Mallampati IV). Anaesthesia was induced with propofol, remifentanil TCI and rocuronium. Endotracheal intubation was successfully achieved using a bougie. Anaesthesia was initially maintained with sevoflurane before conversion to total intravenous anaesthesia (TIVA) following sugammadex reversal for intraoperative neurophysiological monitoring. During corticobulbar motor evoked potentials (CoMEP/MEP) stimulation, BIS transiently increased from 45–46 to 63–90 with corresponding SEF95 maintained despite stable haemodynamics. The surgery was completed successfully with disappearance of the lateral spread response. The patient recovered without neurological deficit, no evidence of awareness (Michigan Class 0), and was discharged from intensive care unit the following day.

Conclusion
This case highlights that elevated BIS values should be interpreted cautiously during intraoperative neurophysiological monitoring, particularly in the presence of increased EMG activity. Correlation with complementary EEG-derived parameters, including Spectral edge frequency 95 (SEF95%) and cortical EEG amplitude, together with the clinical context, enables a more accurate assessment of anaesthetic depth and avoid inappropriate escalation of anaesthetic administration.

2026-0296

Figure & Table

Figure & Table 1.

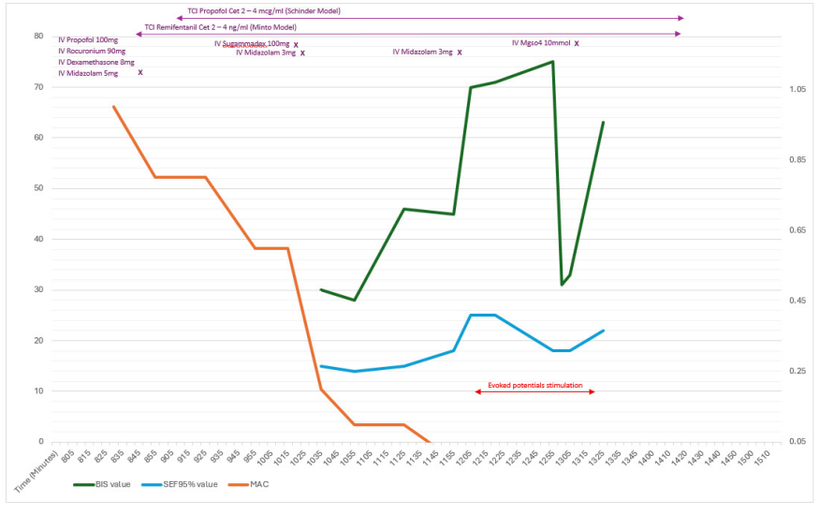


Figure & Table 2.



2026-0304

Total Intravenous Anaesthesia and Multimodal Analgesia in a Neuromuscular Blockade Agent - Allergic Patient Undergoing Appendicectomy: A Case Report

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Introduction

Neuromuscular blocking agents (NMBAs) are the leading cause of perioperative hypersensitivity reactions, with an estimated mortality of 4–9%. In Malaysia, NMBAs account for 31% of perioperative anaphylaxis, followed by antibiotics (27.4%), chlorhexidine (16%), gelatin-containing intravenous fluids (12.4%), and latex (5%). Anaesthetic management of these patients requires meticulous planning, strict avoidance of identified allergens, and alternative anaesthetic techniques to ensure patient safety.

Case

An 18-year-old man (ASA I) with a history of severe anaphylactic shock during induction of general anaesthesia for appendicectomy nine months earlier, resulting in abandonment of surgery, presented with recurrent appendicitis requiring emergency appendicectomy. Allergy investigations confirmed rocuronium hypersensitivity on skin testing, with cross-reactivity to pancuronium, atracurium, and cisatracurium. Serum-specific IgE demonstrated mild elevation to penicilloyl G and V, as well as low-level reactivity to chlorhexidine, bovine gelatin, suxamethonium, and latex components. Following multidisciplinary discussion involving the surgical, anaesthetic, and allergy teams, an open appendicectomy was planned to avoid the need for profound neuromuscular blockade. A total intravenous anaesthesia (TIVA) technique without NMBAs was selected.

The patient was scheduled as the first emergency case, and a latex-free operating theatre was prepared. Intravenous hydrocortisone and chlorpheniramine were administered before induction. Anaesthesia was induced and maintained using target-controlled infusions of propofol (Schnider model) and remifentanil (Minto model). Satisfactory intubating conditions were achieved without neuromuscular blockade at effect-site concentrations of propofol 6 µg/mL and remifentanil 8 ng/mL. Depth of anaesthesia was maintained with Bispectral Index (BIS) values between 40 and 60.

Incremental doses of immediate-release oxycodone (Oxynorm®) were administered after appendiceal removal with close monitoring for hypersensitivity reactions. Local infiltration of 0.25% bupivacaine, together with postoperative oral paracetamol and tramadol, provided multimodal analgesia, while patient-controlled analgesia (PCA) using Oxynorm® was reserved for breakthrough pain.

Conclusion

Successful perioperative management of patients with NMBA allergy requires multidisciplinary planning, meticulous avoidance of identified allergens, and individualized anaesthetic strategies. Combined with multimodal analgesia, this approach represents a safe and effective strategy for patients with complex NMBA hypersensitivity undergoing surgery.

2026-0304

Figure & Table

Figure & Table 1.

Specific IgE tests are as follows:

Agent	Specific IgE Concentration (kU/L)	Interpretation
Latex	Reagent temporarily unavailable	-
Penicilloyl G	**1.25**	**Low**
Penicilloyl V	**1.48**	**Low**
Chlorhexidine	0.46	Very Low
Bovine gelatine	0.14	Very low
Suxamethonium	0.45	Very low
Morphine	0.08	Undetectable
Phocoldine	Reagent temporarily unavailable	-
rHev b 8 Profilin*	0.15	Very Low

*Latex components

Figure & Table 2.



2026-0308

Hemodynamic Management of Refractory Mixed Obstructive and Vasoplegic Shock Post-Pulmonary Thrombectomy

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Introduction

Massive pulmonary embolism (PE) with acute right ventricular (RV) strain requires urgent reperfusion. While catheter-directed mechanical thrombectomy clears central pulmonary arterial obstruction, patients can post-procedurally decompensate into mixed shock—a hybrid state combining RV cardiogenic stunning and distributive vasoplegia. In this overlapping hemodynamic failure, conventional adrenergic vasopressors often fail or exacerbate RV afterload. We highlight a multimodal rescue strategy using arterial pulse contour analysis, methylene blue, and nebulized milrinone in recurrent PE complicated by septic shock.

Case

A 32-year-old male presented with acute hypoxic respiratory failure (SpO2 78% on room air) secondary to massive bilateral PE and severe RV strain (PA:Aorta ratio > 1.0, Troponin I 792.70 ng/L). Percutaneous mechanical thrombectomy restored 80% pulmonary arterial flow. A mega cava anomaly (> 28 mm) precluded inferior vena cava filter placement, leaving a popliteal deep vein thrombosis un-isolated and precipitating recurrent embolization requiring a second thrombectomy.

Post-procedure, the patient developed hospital-acquired pneumonia with severe septic shock (procalcitonin > 100 ng/mL) and refractory mixed shock (pH 6.90, pCO2 110 mmHg, lactate 6.8 mmol/L, anuric acute kidney injury, and tachyarrhythmias up to 230 bpm). Continuous arterial pulse contour analysis (FloTrac) differentiated the shock mechanism, revealing collapsed systemic vascular resistance (SVR < 500 dynes-sec/cm5) alongside a depressed cardiac index (CI < 2.0 L/min/m2).

To decouple RV dysfunction from septic vasoplegia, clinicians implemented a targeted rescue protocol without reliance on numbered lists or traditional escalation steps. Intravenous methylene blue (1 mg/kg bolus followed by 50 mg/hr infusion) inhibited nitric oxide pathways to restore systemic vascular tone, while nebulized milrinone (5 mg inhaled 2-hourly) selectively reduced RV afterload without inducing systemic hypotension. Concurrent continuous veno-venous hemodiafiltration (CVVHDF) corrected metabolic acidemia and controlled fluid balance, while synchronized DC cardioversion restored sinus rhythm.

This comprehensive regimen normalized pH (7.43), cleared lactate (1.2 mmol/L), reduced troponin I (3227 ng/L), and permitted vasopressor weaning. However, mandatory therapeutic anticoagulation for the un-isolated DVT subsequently led to a fatal intraparenchymal hemorrhage with tonsillar herniation.

Conclusion

Post-thrombectomy mixed shock from recurrent PE and septic vasoplegia demands rapid pathophysiological identification. Advanced pulse contour monitoring directs precise vasoactive titration. Methylene blue effectively reverses septic vasoplegia, while nebulized milrinone provides selective RV pulmonary vasodilation.

2026-0309

Case Report: Intensive Care Management of Disseminated Klebsiella pneumoniae Syndrome Originating from a Bartholin's Abscess

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Introduction
Klebsiella pneumoniae represents a common Gram-negative bacterium and a recognized cause of nosocomial and community-acquired infections. The emergence of hypervirulent Klebsie la pneumoniae (hvKp) expanded the organism's pathogenic potential, causing Invasive Klebsie la Syndrome (IKS)—a severe condition featuring primary abscesses and a high propensity for hematogenous dissemination. We report a rare case of IKS originating from a Bartholin's abscess.

Case
A 61-year-old female with poorly controled diabetes presented with an infected Bartholin's cyst. Gynecology performed emergent incisional drainage. Post-operatively, the patient rapidly decompensated into septic shock and acute respiratory failure, prompting intensive care unit (ICU) admission. Computed tomography (CT) demonstrated extensive systemic dissemination, including septic pulmonary emboli, splenic micro-abscesses, and a right frontal lobe infarction. Blood and swab cultures grew Klebsiella pneumoniae. Targeted intravenous amoxicilin-clavulanate cleared the bacteremia; however, the patient suffered poor neurological recovery secondary to the central nervous system insult and ultimately required a tracheostomy.

Conclusion
Disseminated K. pneumoniae requires a high index of clinical suspicion, even when originating from localized sources such as a Bartholin's abscess. Successful ICU management dictates rapid hemodynamic resuscitation, precise antimicrobial pharmacokinetic/pharmacodynamic optimization, and vigilant monitoring for multi-organ metastatic complications

2026-0311

Atypical Extra-Pancreatic Tracking and Vascular Complications in Severe Acute Necrotizing Pancreatitis: A Radiological Perspective

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Introduction
In severe acute necrotizing pancreatitis (SANP), proteolytic enzymes and inflammatory exudates typically confine acute necrotic collections (ANCs) to the lesser sac and anterior pararenal spaces. However, aggressive retroperitoneal enzymatic autodigestion can occasionally breach fascial boundaries, tracking into deep abdominal wall musculature. Furthermore, the intense local inflammatory milieu frequently precipitates splanchnic venous thrombosis. We present a radiologically striking case of SANP characterized by massive, atypical necrotic extension into the deep pelvic musculature and evolving vascular ischemic complications, managed successfully via interventional radiology (IR).

Case
A 65-year-old male presented with severe epigastric pain and an amylase of 2487 U/L. Initial contrast-enhanced computed tomography (CECT) confirmed acute necrotizing pancreatitis complicated by splenic vein and superior mesenteric vein (SMV) thrombosis. Over the next month, despite intensive care support for multi-organ failure, serial CECTs demonstrated rapid, atypical progression of the necrotic collections.
While a follow-up CECT showed spontaneous resolution of the splanchnic venous thromboses, subsequent imaging at week six revealed massive progression of the fluid collections. The largest locule in the left splenorenal region measured 12.8 × 11.9 × 14.7 cm. Uniquely, the necrotic collection had breached typical anatomical boundaries, tracking inferiorly and posteriorly to extensively involve the left psoas and left quadratus lumborum muscles (5.4 x 10.4 × 8.4 cm). Additionally, an ill-defined hypodense splenic lesion was identified, consistent with a splenic infarct secondary to the preceding vascular thrombosis. The patient subsequently underwent IR-guided percutaneous drainage, which successfully evacuated an extraordinary 6.9 liters of fluid (4.9L pre-pancreatic, 2L peritoneal), achieving crucial source control.

Conclusion
This case highlights the unpredictable and highly aggressive fascial tracking potential of SANP. Extension into the psoas and quadratus lumborum is a rare radiological finding that signifies profound structural destruction. Furthermore, the rapid temporal evolution from splanchnic thrombosis to splenic infarction underscores the need for meticulous, serial radiological surveillance. Ultimately, targeted, image-guided percutaneous drainage remains a highly effective, minimally invasive cornerstone for achieving source control in anatomically complex, multi-compartmental pancreatic collections.

2026-0313

When Low Volume Is Still Too Much: A Case Report of Reversible Retinal Striae Following Peribulbar Anaesthesia

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Introduction
Peribulbar anesthesia is commonly used for vitreoretinal surgery to provide ocular akinesia and analgesia while avoiding general anesthesia. Orbital tolerance to injected volume varies, and even a modest volume may cause orbital fullness, chemosis, and globe deformation. We report reversible retinal striae during vitrectomy after a 6-mL peribulbar block, followed by successful surgery using a lower-volume, response-guided technique.

Case
A 65-year-old woman with hypertension, right-eye cystoid macular edema, pseudophakia, and bilateral posterior vitreous detachment was scheduled for right pars plana vitrectomy under peribulbar anesthesia with sedation. No retinal striae had been documented before the procedure. The initial block comprised 4 mL of 0.5% bupivacaine and 2 mL of 2% lidocaine. After the 6-mL block, the orbit became tense and full, chemosis developed, and intraocular pressure was 24 mmHg. Vitrectomy was initiated, but retinal striae were identified intraoperatively, and the procedure was discontinued. Three days later, the striae had resolved and surgery was rescheduled. Intraocular pressure before the second procedure was 18 mmHg. The block was reduced to 4 mL, comprising 3 mL of 0.5% bupivacaine and 1 mL of 2% lidocaine. This time, local anesthetic was injected slowly and incrementally, while orbital fullness was assessed visually and periocular tension was palpated with the non-injecting hand before further injection. The block provided satisfactory akinesia and analgesia without chemosis. Vitrectomy was completed using a 25-gauge pars plana technique with triamcinolone and Brilliant Blue, membrane peeling, and air tamponade, without further anesthetic complications.

Conclusion
This case shows that even a modest peribulbar volume may exceed individual orbital tolerance. Adequate akinesia and analgesia, rather than a predetermined volume, should guide injection. Reducing the volume and using slow incremental dosing with assessment of orbital fullness and tissue tension may help prevent overfilling and support an individualized approach.

2026-0313

Figure & Table

Figure & Table 1.

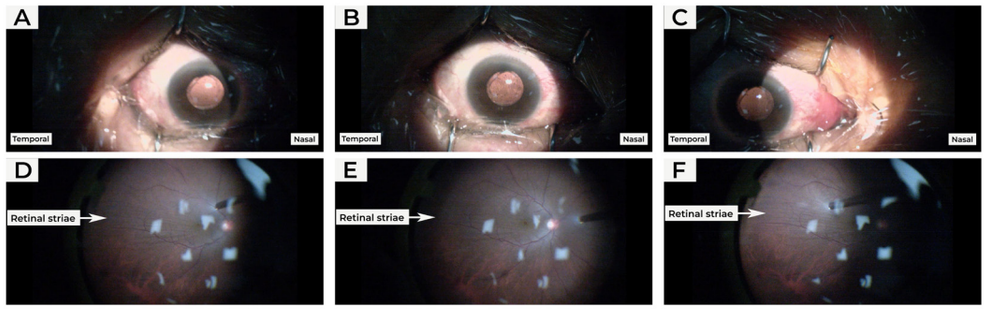
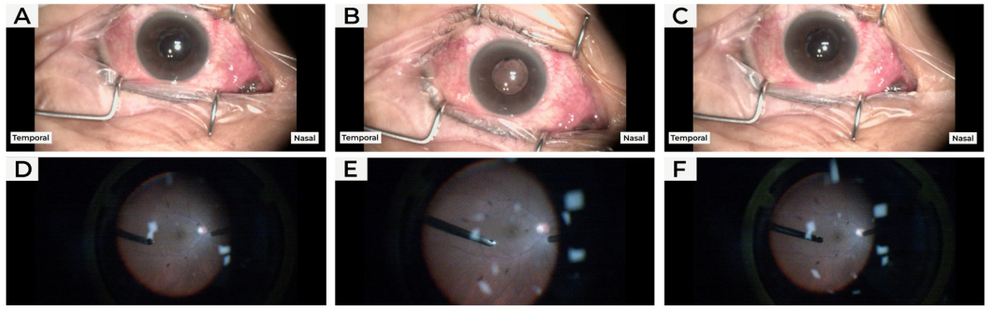


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0314

It Just Won't Fit: A Case Report on the Airway Management of a Pediatric Patient with Congenital Tracheal Stenosis

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Introduction

Airway management in neonates and infants present with significant challenges due to their anatomical and physiological difference compared with adults. These patients are characterized with proportionally larger tongues, more cephalad larynx and a funnel shaped glottic area. Understanding the neonatal airway is essential in order to anticipate intubation difficulties. Tracheal stenosis is a rare but potentially life threatening condition that may be congenital or acquired. Congenital tracheal stenosis occurs in approximately 0.2 to 2 per 100,000 live births and is characterized by fixed narrowing of the tracheal lumen or the presence of a complete tracheal ring.

Case

A 14 weeks old male infant born prematurely at 32 weeks of gestation was admitted for observed episodes of circumoral cyanosis and managed as a case of upper respiratory tract infection and laryngotracheomalacia. On 12th day of admission, worsening respiratory distress, acidosis and hypercarbia required endotracheal intubation. After multiple failed attempts, anesthesia service was consulted. Intubation attempt was done by the anesthesiologist using a video laryngoscope with a size 3 cuffed and uncuffed tube and lastly a 2.5 uncuffed tube, however unexpected resistance was encountered. A LMA was then inserted and successful ventilation was achieved. Two days after, intubation was again attempted but still with multiple failed attempts. Persistent hypoxia and bradycardia ensued leading to hypoxic arrest. Pediatric advance life support was activated with a total down time of 12 minutes before return of spontaneous circulation. The LMA was again inserted to provide successful ventilation. The patient the underwent emergency chest tube thoracostomy due to massive pneumothorax likely secondary to repeated intubation attempts and positive pressure ventilation. CT scan imaging demonstrated 2 areas of tracheal narrowing: an infraglottic stenosis with a diameter of 0.2cm at C5-6 level and another at the thoracic inlet measuring 0.3cm. Incidental findings included extensive subcutaneous emphysema on the temporal, occipital, orbital area, neck, chest and abdominal wall with associated pneumomediastinum. The patient was scheduled for tracheostomy and bronchoscopy. A 0.29cm flexible bronchoscope could not pass the stenosis. Dilatation was attempted but the 0.3cm scope was unable to pass. The procedure was aborted and the surgical team decided to attempt dilatation until the patient was older.

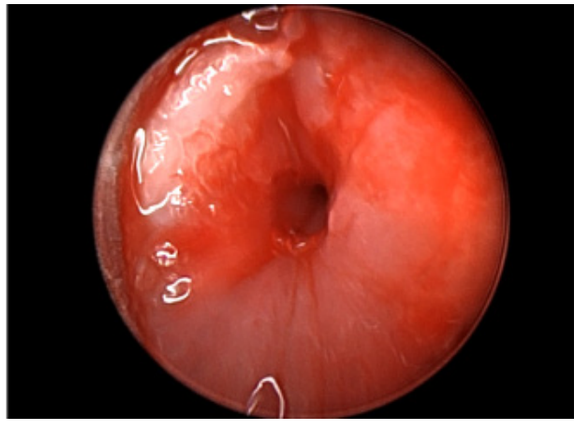
Conclusion

Management of a difficult airway in pediatric patients in an emergency setting remains highly challenging in our population due to its low incidence. Early recognition of a difficult airway is essential for anticipating potential complications that come along with it. Prompt and decisive action is required in patients who cannot be ventilated and intubated. Careful planning for intubation or reintubation should be discussed by the airway team in order to improve success rates. This includes the preparation for fiberoptic intubation and a double set up with ENT service for the need of emergency invasive surgical maneuvers such as cricothyrotomy.

2026-0314

Figure & Table

Figure & Table 1.



ABSTRACT
Competition
Presentation
E-Poster

2026-0316

Beyond the Opioid Ceiling: Continuous Dexmedetomidine Infusion for Management of Refractory Cancer Pain and Opioid-Induced Hyperalgesia

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Introduction

Advanced gastric carcinoma with peritoneal carcinomatosis can produce a complex mixed nociceptive–neuropathic pain syndrome that is often difficult to manage. Persistent nociceptive input may promote N-methyl-D-aspartate (NMDA) receptor activation and central sensitization, whereas prolonged exposure to high-dose opioids may further compromise analgesia through the development of tolerance and opioid-induced hyperalgesia (OIH). Although the World Health Organization analgesic ladder remains an important framework for cancer pain management, opioid therapy alone may be inadequate in some patients because of tolerance, OIH, and alterations in receptor signaling. In this case, conventional opioid escalation and NMDA receptor antagonism alone provided minimal analgesic benefit, while further opioid escalation was associated with a paradoxical worsening of pain. Dexmedetomidine, a highly selective α2-adrenergic agonist with analgesic and opioid-sparing properties, was therefore introduced as a multimodal rescue strategy for refractory cancer pain.

Case

A 30-year-old female with stage IV gastric carcinoma and extensive peritoneal carcinomatosis presented with severe, intractable cancer-related pain rated 10/10 on the Numerical Rating Scale (NRS). Despite an outpatient analgesic regimen consisting of oral morphine 10 mg and chronic transdermal fentanyl 150 μg, her pain remained uncontrolled. Opioid tolerance and OIH were suspected; therefore, the pain specialist discontinued her current opioids and shifted to different regimen.

The patient was initially started on low-dose ketamine infusion at 0.5 mg/kg/day together with a midazolam. The regimen was progressively titrated over 24 hours; however, it provided minimal analgesia despite dose escalation. Her medications was then changed to a continuous oxycodone infusion at 0.3 mg/hour combined with an intravenous magnesium sulfate infusion as an analgesic adjuvant. This regimen produced only transient and inadequate pain relief.

Given the refractory and multifactorial nature of her pain, intravenous dexmedetomidine at 0.2 μg/kg was added to the multimodal analgesic regimen. The addition of dexmedetomidine was associated with sustained reduction in pain intensity, improved overall comfort, and stabilization of her analgesic requirements, ultimately facilitating discharge to home-based palliative care.

Conclusion

This case exemplifies the importance of targeting multiple neurochemical systems in refractory cancer pain, namely μ-opioid, NMDA, and α2-adrenergic pathways, rather than relying solely on opioid escalation. Dexmedetomidine may be a valuable adjunctive rescue therapy for carefully selected patients with refractory cancer pain complicated by suspected opioid tolerance or OIH.

Figure & Table

Figure & Table 1.

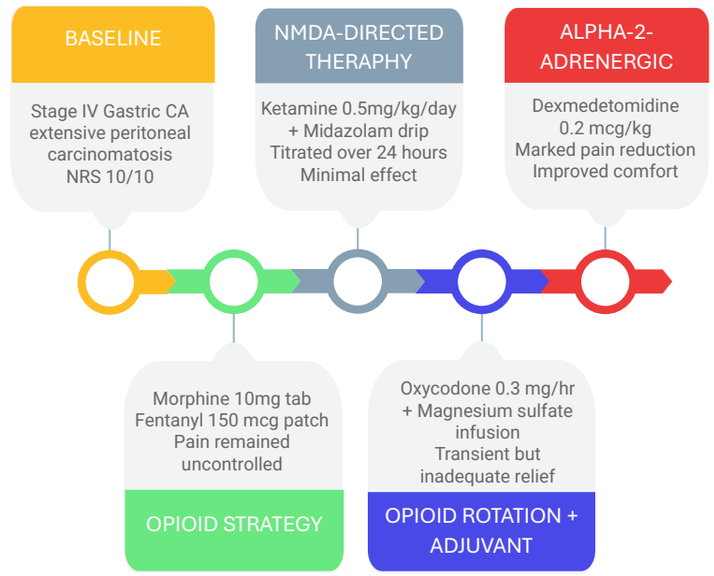
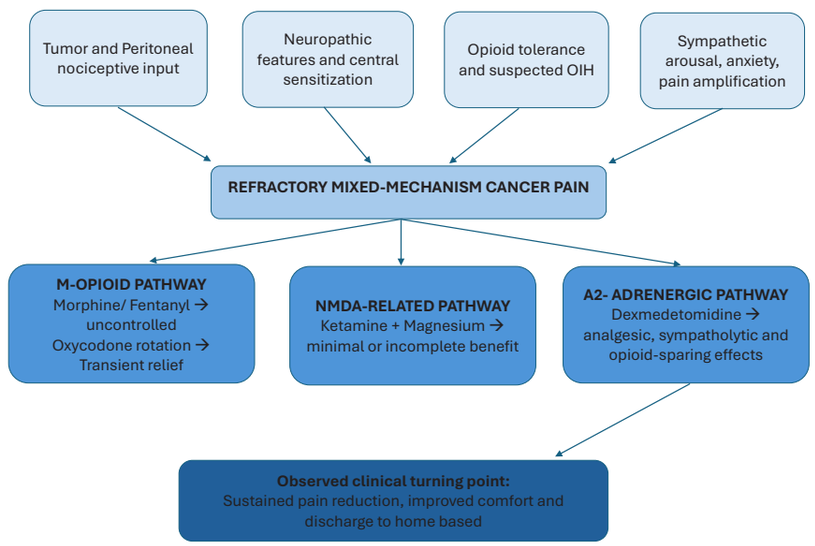


Figure 1. Sequential Mechanism-based Management of Refractory Cancer Pain

Figure & Table 2.



2026-0321

When Hypotension Does Not Lead to Emesis: A Case Series of Intrathecal Atropine in Cesarean Spinal Anesthesia

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Introduction

Intraoperative and postoperative nausea and vomiting (IONV/PONV) during cesarean spinal anesthesia are multifactorial and clinically relevant, particularly with post-spinal hypotension, visceral stimulation, uterotonics, and neuraxial opioids. Intrathecal atropine may modulate the vagal-cholinergic component of the emetic reflex, but its role in obstetric anesthesia remains uncertain.

Case

We report a series of six cesarean spinal anesthesia cases selected for documented post-spinal hypotension, a clinically relevant trigger of perioperative nausea and vomiting. All parturients received a standardized intrathecal regimen of hyperbaric bupivacaine 0.5% 12.5 mg and morphine 80 mcg, had moderate-to-high Apfel risk scores (3–4), achieved T4 sensory block, and required no conversion to general anesthesia. Intrathecal atropine sulfate was administered in four cases, comprising two 100 mcg and two 50 mcg exposures, with both emergency and elective cesarean settings represented at each dose. Two additional non-atropine cases, also spanning emergency and elective settings, were included as contextual observations. Hypotension was treated with standard obstetric hemodynamic measures, including left uterine displacement, crystalloid administration, and vasopressor rescue. Emetic outcomes showed a dose-related observational pattern: no IONV or PONV occurred in the 100 mcg atropine cases; IONV without PONV occurred in one of the 50 mcg atropine cases; and IONV occurred in both non-atropine cases, with PONV in one. Oxygenation remained preserved throughout, and no respiratory depression, neurological complication, or serious adverse event was observed during early follow-up.

Conclusion

In this series of cesarean spinal anesthesia cases with documented post-spinal hypotension, perioperative emetic outcomes appeared less frequent with intrathecal atropine exposure, particularly at 100 mcg, but were not uniformly abolished at 50 mcg. These observations do not establish causality, do not imply that atropine prevents hypotension, and should not be interpreted as a formal comparison with the contextual non-atropine cases. Rather, they raise a hypothesis that intrathecal atropine may attenuate the vagal-cholinergic emetic response in selected obstetric patients undergoing cesarean section receiving intrathecal morphine. Prospective controlled studies with standardized IONV/PONV scoring and predefined hemodynamic protocols are warranted.

2026-0321

Figure & Table

Figure & Table 1.

Table 1. Clinical characteristics and perioperative emetic outcomes of the six reported cases

Case	Urgency	Primary Obstetric Indication	IT Atropine	Apfel	Documented Hypotension	IONV	PONV
1	Emergency	Non-reassuring fetal status	100 mcg	3	✓	–	–
2	Elective	Previous cesarean delivery	100 mcg	4	✓	–	–
3	Emergency	Failed TOLAC	50 mcg	3	✓	–	–
4	Elective	Breech presentation	50 mcg	4	✓	+	–
5	Emergency	Non-reassuring fetal status	None	3	✓	+	+
6	Elective	Previous cesarean delivery	None	3	✓	+	–

Note: TOLAC = trial of labor after cesarean, IT = intrathecal, IONV = intraoperative nausea and vomiting, PONV = postoperative nausea and vomiting

ABSTRACT
Competition
Presentation
E-Poster

2026-0324

Anesthetic Challenges for Cesarean Section in a Morbidly Obese Parturient with Rare New-Onset Atrial Fibrillation: A Case Report

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Introduction

New-onset atrial fibrillation (AF) during pregnancy in non-structural heart disease is extremely rare (0.3%). When this arrhythmia superimposed on super-morbid obesity (BMI 55 kg/m^2) and severe pre-eclampsia with acute kidney injury (AKI), it indicates a significant anesthetic challenge.

General anesthesia (GA) in such patients carries catastrophic airway risks, including rapid hypoxemia and the potential for a "cannot intubate, cannot oxygenate" scenario. Conversely, central neuraxial anesthesia poses the risk of severe hemodynamic instability due to sympathectomy-induced vasodilation and the loss of the "atrial kick" in a preload-dependent heart. We report the successful anesthetic management of Cesarean Section in this rare yet complex case

Case

A 45-year-old obese parturient (BMI 55 kg/m^2, 122 kg) at 32 weeks gestation presented in hypertensive crisis with dyspnea on exertion, orthopnea, and an irregularly irregular tachycardia (127 bpm). Investigations confirmed new-onset AF, severe pre-eclampsia, non-oliguric AKI, metabolic acidosis, and high-risk obstructive sleep apnea (STOP-BANG 6/8). Echocardiography revealed a dilated left atrium with preserved ejection fraction, normal valves and no thrombus.

She was managed with oral Labetalol for rate control and therapeutic subcutaneous enoxaparin (anti-Xa monitored) for thromboembolism prophylaxis. Due to severe pre-eclampsia, an emergency cesarean section was indicated. Anticipating a difficult airway with Mallampati 4 and short thick neck, a carefully titrated neuraxial technique was planned. Enoxaparin was strictly withheld for 24 hours prior to intervention. A combined spinal-epidural (CSE) approach was performed in the sitting position. Landmark of epidural space at L3-L4 was identified with Ultrasound scanning pre-procedure. To minimize effect of sympathectomy in the fibrillating heart, low dose subarachnoid block with Intrathecal Heavy Bupivacaine 8mg and Fentanyl 15mcg was given, followed by sequential epidural doses of 0.375% ropivacaine slowly titrated to achieve a T4 sensory block. High-flow nasal cannula oxygen was provided. Maternal hemodynamics remained remarkably stable throughout the 70-minute surgery without the need for vasopressor support. A 1.4 kg infant was delivered. Postoperatively, maternal renal function and blood pressure normalized, and she was discharged on day 5 postpartum.

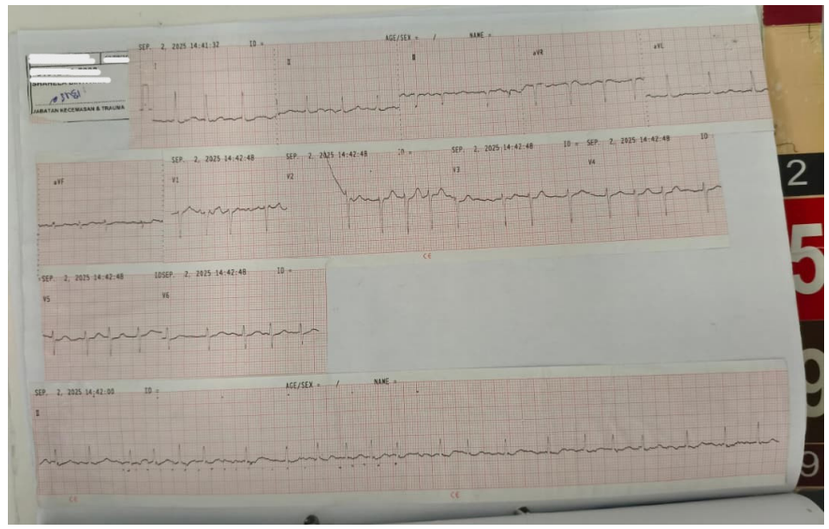
Conclusion

This case highlights that although rare, AF is still possible to occur in parturient without structural heart disease due to maternal physiological changes. The triad of morbid obesity, severe pre-eclampsia, and rare new-onset AF in pregnancy carries significant anesthetic challenges. A meticulously titrated neuraxial block, strict adherence to anticoagulation timing, and a multidisciplinary approach can provide a superior safe anesthesia for Cesarean Section. This strategy successfully avoids airway complications of general anesthesia while maintaining hemodynamic stability in such complex case.

2026-0324

Figure & Table

Figure & Table 1.



ABSTRACT
Competition
Presentation
E-Poster

2026-0333

Comparative Evaluation of the Effect of an Eye Mask and Music on Midazolam Requirement for Bispectral Index (BIS) Guided Sedation during Spinal Anaesthesia

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Background

During regional anesthesia, intravenous sedatives are frequently administered to enhance patient comfort by reducing anxiety and inducing a state of hypnosis. However, various environmental factors in the operating room can disrupt patient relaxation. The noise from medical staff and surgical instruments, bright lighting, and unfamiliar surroundings can heighten patient anxiety. As a result, achieving adequate sedation can be challenging, even with the use of sedatives.In this study, we sought to determine whether and to what extent the use of an eye mask and music could reduce the amount of midazolam required to achieve sufficient sedation in patients undergoing surgery with spinal anesthesia.

Methods

This was a Randomised Controlled Trial conducted over a span of 12 months in a tertiary care hospital. Ethical approval was obtained from the Institutional Review Board (IEC no. F.1/IEC/MAMC/MD/MS (96/02/2023/No. 83). The study was carried out in accordance with the Declaration of Helsinki, 2013 and Good Clinical Practice. Written informed consent was obtained from all the patients. All consecutive eligible patients were enrolled in the study. Random group allocation was performed. In the Music group (Group M), classical raga Neelambari music was played continuously through noise-cancelling headphones until the end of the surgery. The volume was adjusted according to each patient's comfort and preference. In the Eye Mask group (Group E), patients randomly selected for this intervention were provided with a cooling gel eye mask, which they wore throughout the surgical procedure. In the Control group (Group C), patients received neither headphones nor an eye mask.

- Primary Outcome: The total dose of midazolam required to achieve sedation corresponding to a BIS value of 70-80.
- Secondary outcomes consisted of time to reach BIS value less than 80 and duration or which the BIS value remained below 80.

Results

Statistical analysis using the Kruskal-Wallis test revealed a p-value of 0.001, indicating a statistically significant difference in midazolam doses among the three groups. This result suggests that the type of intervention—whether Eye Mask or Music—significantly affects the amount of midazolam required to achieve the desired level of sedation compared to the Control group, leading to the rejection of the null hypothesis.

The results also indicate that the interventions, particularly the Eye Mask, had a considerable impact on extending the period during which BIS values stayed below 80.

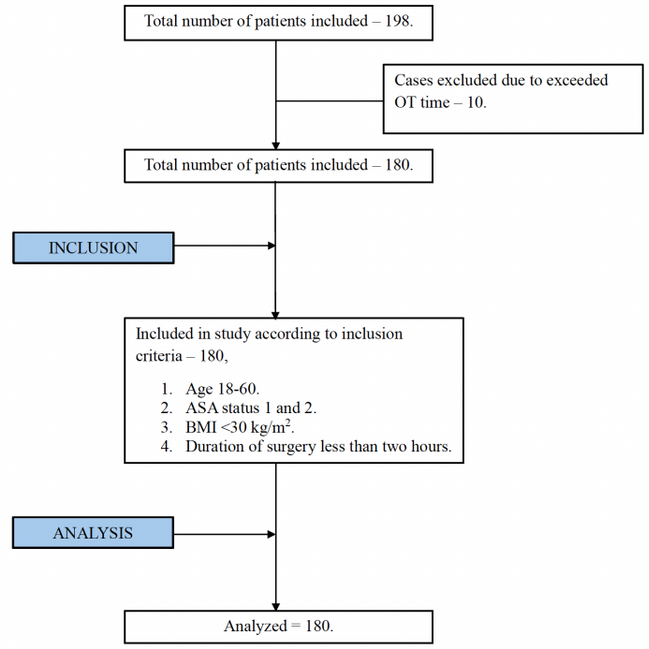
Conclusion

The findings of this study indicate that both the Eye Mask and Music interventions significantly reduced the total dose of midazolam required to achieve the desired level of sedation compared to the Control group, with the Eye Mask group showing a more substantial reduction.

2026-0333

Figure & Table

Figure & Table 1.



Consort 2: Observation and analysis of patients as participants of this study.

Figure & Table 2.

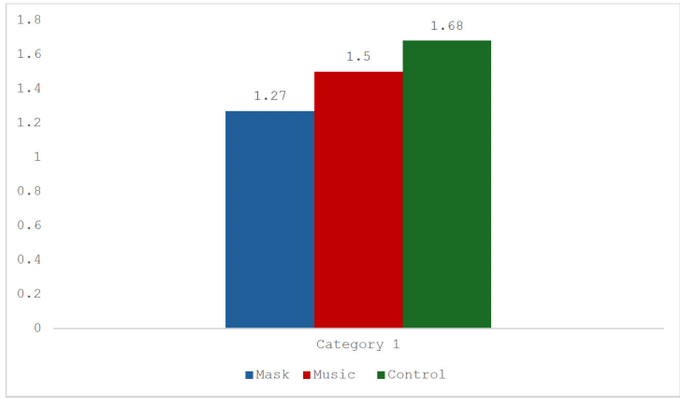


Figure 18: Graphical representation of mean values of Total dose of Midazolam amongst groups.

2026-0334

Organ Procurement from Brain-Dead Donors on VA-ECMO with Concurrent IABP Support

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Introduction
Organ procurement from brain-dead donors supported by veno-arterial extracorporeal membrane oxygenation (VA-ECMO) is uncommon, and concomitant intra-aortic balloon pump (IABP) support adds further physiological and procedural complexity. The combination creates unique challenges in ventilation monitoring and anaesthetic delivery due to recused pulmonary blood flow. High VA-ECMO flow markedly reduce native pulmonary blood flow, decoupling end-tidal carbon dioxide ($ETCO_2$) from arterial carbon dioxide tension ($PaCO_2$) and making systemic uptake of volatile anaesthetics less predictable. We describe a case of multiorgan procurement under combined VA-ECMO and IABP support with its specific anaesthetic and monitoring consideration.

Case
A 32-year-old woman with arrhythmogenic right ventricular cardiomyopathy and severe right ventricular dysfunction suffered ventricular tachycardia storm and cardiac arrest requiring VA-ECMO and IABP support. She subsequently developed a left middle cerebral artery thromboembolic stroke complicated by cerebral oedema and haemorrhagic conversion and was declared brain dead. During organ procurement, VA-ECMO flows were maintained at 3–4 L/min. After connection to the anaesthesia machine, sevoflurane was commenced. $ETCO_2$ remained <10 mmHg despite a $PaCO_2$ of approximately 40 mmHg, consistent with markedly reduced native pulmonary blood flow and extracorporeal carbon dioxide clearance. As volatile uptake and the relationship between end-tidal sevoflurane concentration and systemic delivery were considered less predictable during high-flow VA-ECMO, a propofol infusion and fentanyl 500 micrograms were administered with neuromuscular blockade to attenuate sympathetic responses to surgical stimulation. Haemodynamics remained stable.
Concomitant IABP support required additional coordination with the retrieval and perfusion teams. In our patient, the IABP was stopped and withdrawn before aortic cross-clamping to avoid potential interference with cross-clamp placement and preservation perfusion. VA-ECMO was then discontinued in a coordinated fashion before cross-clamp application and cold preservation. Retrieval of organs proceeded successfully.

Conclusion
High-flow VA-ECMO alters the interpretation of familiar anaesthetic measurements: a very low $ETCO_2$ may reflect minimal native pulmonary blood flow rather than systemic hypocapnia, and arterial blood gas analysis should therefore guide carbon dioxide management. Similarly, end-tidal volatile concentration may not reliably reflect systemic anaesthetic delivery when pulmonary blood flow is markedly reduced, supporting intravenous supplementation when attenuation of surgical sympathetic responses is required. In patients undergoing organ retrieval with an IABP, the IABP adds pulsatility and may improve coronary and visceral perfusion during procurement. IABP balloon position should be considered in relation to the planned aortic cross-clamp and preservation-perfusion strategy. The timing of IABP cessation or removal should therefore be coordinated and discussed between the anaesthesia, retrieval and perfusion teams.

2026-0337

Association of Clinicodemographic Profile and Occurrence of Post Operative Nausea and Vomiting Among Patients Undergoing Ophthalmic Surgery Under General Anesthesia with Supraglottic Airway

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Background
Increased surgical complications and days spent in the hospital post-operatively due to PONV imposes a lot of money to the healthcare system. Western literatures have identified a multitude of risk factors related to the patient (sex, history of motion sickness, smokers, age, and delayed gastric emptying) surgery (type of surgery and duration of surgery), and pre, intra, and post-operative anesthesia. Studies have shown that PONV creates a lot of impacts on patients, which leads to decreased quality of life and overall satisfaction, increased hospitalization time, delayed discharge from hospital, and increased rehospitalization. More importantly, in this study, straining and increased intraocular pressure resulting from PONV can be particularly damaging to the outcomes of ophthalmic surgery.

Methods
This was a cross-sectional analytical, prospective study, conducted for a period of 12 months, and utilized a convenience sampling method.
All participants were placed on non per orem (NPO) status for at least 8 hours before surgery. A supraglottic airway was inserted during anesthesia induction, with size selected based on the patient's weight. Anesthesia was maintained with the inhalational agent, Sevoflurane. After surgery, the supraglottic airway was removed. Six hours post-surgery, the data collection tool was administered by the researcher.
In interpreting the data, both descriptive and inferential analyses were utilized. Chi-square test was employed to determine any possible association between the occurrence of postoperative nausea and vomiting (PONV) and the identified risk factors. The AORs were computed along with their 95% confidence intervals (CIs) and p-values to assess statistical significance.

Results
None of the clinicodemographic variables showed a statistically significant association with the occurrence of postoperative nausea and vomiting (PONV) at the 0.05 significance level.
Patients with a history of motion sickness demonstrated substantially increased odds of experiencing PONV in this study. Female patients were observed to have 3.76 times higher odds of developing PONV compared to males. Patients aged 55 years and older had lower odds of experiencing PONV compared to younger counterparts. As for smoking status, none of the current smokers in the sample developed PONV, resulting in an extremely low adjusted odds ratio.
Although no clinicodemographic variable in this study reached statistical significance, several trends were consistent with findings from previous literature. Female sex, non-smoking status, history of motion sickness, and normal BMI were associated with increased odds of PONV.

Conclusion
The occurrence of PONV was low, with only 4 out of 52 patients (7.7%) reporting symptoms within the first six hours postoperatively, lower than global prevalence estimates.
There were no statistically significant associations between the occurrence of PONV and any of the clinicodemographic variables studied, suggesting that the factors, commonly cited in literature as risk indicators, may not independently predict PONV in settings where SGA and standardized preoperative care are implemented.
The findings support the growing body of evidence indicating that the use of SGAs may mitigate common triggers for PONV by reducing airway stimulation compared to traditional endotracheal intubation. Furthermore, standardized anesthesia protocols may contribute to the minimization of PONV risk, regardless of individual patient characteristics.

2026-0339

Low-Volume Ultrasound-Guided Interscalene Block with Dexmedetomidine Sedation for Prolonged Arthroscopic Rotator Cuff Repair in an Obese Patient: A Case Report

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Introduction
Interscalene brachial plexus block (ISB) provides reliable anesthesia and analgesia for shoulder surgery, but conventional local-anesthetic volumes may increase unwanted spread, particularly to the phrenic nerve. Ultrasound guidance permits targeted deposition using smaller volumes. We report prolonged arthroscopic rotator cuff repair performed under a low-volume ISB with dexmedetomidine sedation in a patient with class II obesity.

Case
A 50-year-old man (101 kg, 167 cm; BMI 36.2 kg/m^2), ASA II for obesity, underwent elective left arthroscopic rotator cuff repair. Preoperative cardiopulmonary examination, chest radiograph, electrocardiogram, coagulation profile, and renal function were unremarkable. An ultrasound-guided ISB was performed with a single injection of 8 mL 0.5% isobaric bupivacaine (40 mg) between the C5 and C6 roots. Sensory and motor block developed within 10–15 minutes. Dexmedetomidine was prepared at 4 mcg/mL (200 mcg in 50 mL) and infused using an adjusted body weight of 78.3 kg, initially at 0.2 mcg/kg/h and subsequently maintained at 0.4 mcg/kg/h. The patient underwent surgery in the beach-chair position while calm and sedated. Anesthesia began at 11:30 AM and surgery ended at 4:36 PM. Heart rate remained 85–95 beats/min without bradycardia; recorded intraoperative blood pressure ranged from 90/60 to 100/70 mmHg, with no critical intraoperative event. Motor function began to return approximately 1 hour postoperatively, although weakness persisted, while sensory blockade remained present at 4 hours postoperatively.

Conclusion
In this patient, a targeted 8-mL ultrasound-guided C5–C6 interscalene block combined with adjusted-body-weight dexmedetomidine sedation provided adequate anesthetic conditions for prolonged arthroscopic rotator cuff repair without conversion to general anesthesia or additional local anesthetic. This case demonstrates the feasibility of a low-volume regional anesthetic strategy for shoulder arthroscopy in an obese patient while limiting bupivacaine exposure. It does not establish phrenic-sparing efficacy, which would require objective diaphragmatic assessment, and supports further study of low-volume ISB techniques and sedation strategies.

2026-0345

Nearly One Million Critical Illness Admissions in Indonesia: Tertiary Care and Severity Emerge as Key Cost Drivers

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Background
Critical-care planning in low- and middle-income countries is constrained by limited national data, particularly where ICU registries are incomplete. We estimated the national burden of diagnosis-defined critical illness and identified drivers of resource use in Indonesia's National Health Insurance (JKN) system.

Methods
We conducted a retrospective survey-weighted analysis of referral-level inpatient claims from the available 2023-2024 extract. Critical illness was identified using prespecified ICD-10 groups for sepsis or shock, acute respiratory failure, acute cardiovascular or neurologic emergencies, acute kidney injury or renal replacement-related care, major trauma, and selected metabolic or bleeding emergencies. The primary outcome was payer-verified cost; secondary outcomes were high-cost admission (verified cost ≥90th percentile), length of stay (LOS), and in-hospital mortality. Survey-weighted gamma, logistic, and negative binomial models estimated adjusted cost ratios, odds ratios (ORs), and incidence rate ratios (IRRs), respectively. The ethics committee granted exemption for this deidentified secondary-data analysis (Protocol No. 2026.03.1.0650); individual consent was not applicable.

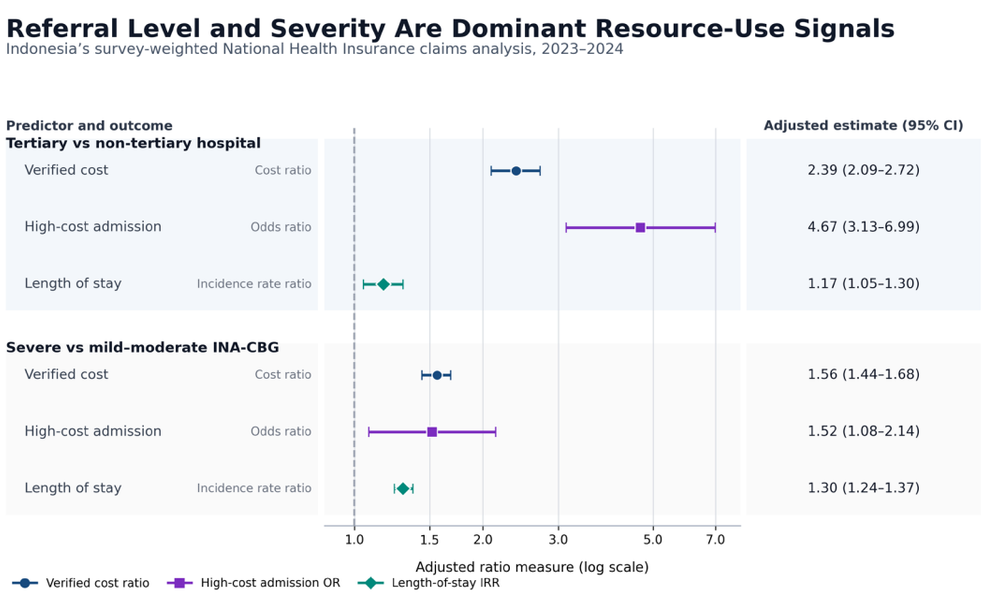
Results
The cohort included 14,666 eligible admissions. Multivariable complete-case models included 10,479 admissions, representing an estimated 985,873 admissions nationally; in-hospital mortality was 13.7%. Compared with non-tertiary care, tertiary hospital care had a verified-cost ratio of 2.39 (95% CI 2.09-2.72), an OR for high-cost admission of 4.67 (95% CI 3.13-6.99), and an LOS IRR of 1.17 (95% CI 1.05-1.30). Severe versus mild-to-moderate Indonesia Case Base Groups (INA-CBG) classification was associated with higher verified cost (ratio 1.56, 95% CI 1.44-1.68), high-cost admission (OR 1.52, 95% CI 1.08-2.14), and LOS (IRR 1.30, 95% CI 1.24-1.37). Broad geographic region and hospital ownership were not independently associated with verified cost.

Conclusion
Diagnosis-defined critical illness imposed a substantial national inpatient burden under JKN. Resource use was concentrated at tertiary referral hospitals and in severe INA-CBG cases rather than across broad regional or ownership categories. Cost benchmarking and critical-care capacity planning should therefore account for referral level and case mix before high cost is interpreted as inefficiency.

2026-0345

Figure & Table

Figure & Table 1.



Complete-case n=10,479; weighted national estimate ≈985,873 admissions. High-cost admission: verified cost ≥90th percentile. Vertical line: null value (1.0).

2026-0349

Awake Epidural Anesthesia Without Sedation for Prone Percutaneous Stenoscopic Lumbar Decompression in a Morbidly Obese Patient with Untreated Obstructive Sleep Apnea: A Case Report

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Introduction

Anesthetic management of patients with morbid obesity and untreated obstructive sleep apnea (OSA) undergoing prone spine surgery is challenging because sedative and general anesthetic exposure may increase the risk of airway obstruction and respiratory compromise. Awake neuraxial anesthesia may be a feasible alternative in carefully selected patients by avoiding airway manipulation and minimizing exposure to respiratory depressant medications.

Case

A 42-year-old man (170 cm, 133 kg; BMI 46 kg/m²) with untreated OSA and a baseline oxygen saturation of 90% on room air was scheduled for prone percutaneous stenoscopic lumbar decompression (PSLD) at L4–L5. Airway examination revealed Mallampati class IV. His medical history was also notable for iodinated contrast-induced anaphylaxis requiring emergency epinephrine.

Following multidisciplinary discussion and careful assessment of the anticipated airway and respiratory risks, awake epidural anesthesia without sedation was selected. An epidural catheter was inserted at the L3–L4 interspace under C-arm fluoroscopic guidance. Ropivacaine 0.75% (10 mL) produced a sensory block to the T12 dermatome. Standard ASA monitoring and supplemental oxygen via nasal cannula were used, with airway rescue equipment immediately available.

The procedure was completed in the prone position within 40 minutes without sedative medication, airway intervention, or conversion to general anesthesia. Hemodynamic and respiratory parameters remained stable throughout the procedure. The patient recovered uneventfully and was discharged from the post-anesthesia care unit after 60 minutes without neurological or respiratory complications.

Conclusion

This case demonstrates the feasibility of awake epidural anesthesia without sedation for minimally invasive lumbar spine surgery in a carefully selected patient with morbid obesity and untreated OSA. The avoidance of sedation allowed maintenance of spontaneous ventilation while avoiding airway instrumentation and minimizing exposure to sedative-related respiratory depression. Although this single case cannot establish superiority over other anesthetic techniques, it highlights a potentially useful strategy for selected high-risk patients. Careful patient selection, multidisciplinary planning, continuous monitoring, and immediate preparedness for airway rescue are

2026-0355

Navigating the Infant Airway: Multi-Level Compression from a Cervicofacial Lymphatic Malformation - A Case Report

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Introduction

Cervicofacial lymphatic malformations may appear deceptively benign despite significant airway distortion. In infants, progressive expansion within the confined upper airway can produce multilevel compression and a high-risk anesthetic scenario, where clinical stability does not reliably exclude critical obstruction. We present an infant with extensive cervicofacial cystic hygroma in whom cross-sectional imaging, rather than bedside appearance, revealed the true airway compromise.

Case

A 13-week-old female infant was admitted for urgent debulking of a rapidly enlarging cervicofacial lymphatic malformation. Although she remained comfortable at rest, maintained normal oxygen saturation on room air, and fed well, examination showed marked macroglossia and rightward tracheal deviation. Computed tomography demonstrated a multiloculated cervicofacial mass with multilevel airway compression from the oropharynx to the subglottis, the narrowest segment measuring about 0.8 cm. In anticipation of a difficult pediatric airway, spontaneous ventilation was maintained through a stepwise anesthetic strategy incorporating Ketamine, Dexmedetomidine, low-dose Sevoflurane, and adjunctive agents. Advanced airway devices and surgical airway rescue were prepared. Surgical debulking was completed without intraoperative hypoxemia. The postoperative period was complicated by delayed removal of the endotracheal tube and subsequent planned tracheostomy. An initial dislodgement of the tracheostomy tube necessitated surgical revision. Following transfer from the Pediatric Intensive Care Unit to the ward, recurrent tube dislodgement caused severe hypoxemia, culminating in cardiopulmonary arrest and death.

Conclusion

In infants with cervicofacial lymphatic malformation, clinical stability neither excludes important airway compression nor assures safety after surgery. Imaging must be interpreted as part of a dynamic airway assessment and used to guide tube selection, airway strategy, and rescue preparation. Preserving spontaneous ventilation until tracheal intubation is secured and maintaining high-acuity, multidisciplinary surveillance after tracheostomy are vital. This case redefines airway management as a continuum from pre-operative imaging to post-operative monitoring rather than an event limited to induction.

2026-0355

Figure & Table

Figure & Table 1.



Figure 1. During feeding, the protruded tongue enveloped the nipple, facilitating an adequate latch and milk transfer. The enlarged tongue compensated by molding around the nipple to maintain an oral seal and suction despite the altered oropharyngeal anatomy.

Figure & Table 2.

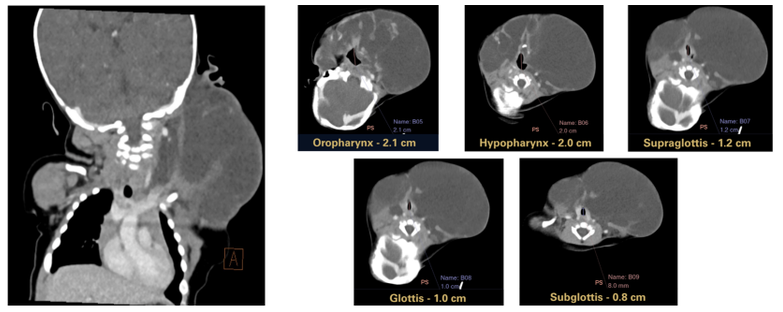


Figure 2. Contrast-enhanced neck CT showing multilevel airway compression, the narrowest segment at the subglottis measuring about 0.8 cm in widest diameter.

ABSTRACT
Competition
Presentation
E-Poster

2026-0356

Chronic Post-Surgical Neuropathic Pain After Laparoscopic Cholecystectomy: A Case Report Emphasizing Mechanism-Based Multimodal Management

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Introduction

Laparoscopic cholecystectomy has largely replaced open cholecystectomy because it is associated with less postoperative pain, a shorter hospital stay, faster recovery, and an earlier return to baseline functional status. Despite these advantages, chronic postsurgical pain (CPSP) may still develop. CPSP is defined as pain that develops or increases in intensity after surgery, persists for more than three months, is localized to the surgical site or a referred area, and cannot be attributed to another cause. Neuropathic mechanisms may contribute to CPSP through nerve injury, inflammation, and central sensitization. The transition from acute to chronic pain is multifactorial and is influenced by biological, psychological, and social factors. This case illustrates the development of chronic neuropathic pain following minimally invasive surgery and highlights the effectiveness of mechanism-based, multimodal pain management.

Case

A 67-year-old woman with hypertension, type 2 diabetes mellitus, and an anxiety disorder underwent laparoscopic cholecystectomy. She was discharged on the first postoperative day with a tramadol–paracetamol combination as her primary analgesic. Four months later, she presented with persistent, severe abdominal pain localized to the incision sites. She described the pain as tearing, stabbing, and tingling, with Visual Analog Scale (VAS) scores ranging from 8 to 10 out of 10. The pain significantly impaired her sleep, mood, and activities of daily living.

Magnetic resonance imaging, magnetic resonance cholangiopancreatography, esophagogastroduodenoscopy, colonoscopy, laboratory investigations, and other diagnostic evaluations revealed no structural or identifiable cause for her symptoms. Quantitative sensory testing demonstrated hyperalgesia to pinprick and allodynia to light touch and cold in the areas surrounding the port-site scars, findings consistent with neuropathic chronic postsurgical pain.

The patient was started on gabapentin, a short course of dexketoprofen, oral tramadol for rescue analgesia only, ondansetron, and escitalopram. Her pain scores initially decreased to 2–5 out of 10. However, medication nonadherence and the unsupervised administration of intramuscular tramadol by a family member resulted in the recurrence of severe pain. Escitalopram was subsequently replaced with duloxetine, intramuscular tramadol was discontinued, and strict follow-up was implemented, with continued reinforcement of medication adherence.

Five months after the initiation of specialist pain management, the patient reported complete resolution of her pain, with a VAS score of 0 out of 10. She also demonstrated improved appetite, stabilization of mood, and restoration of functional capacity.

Conclusion

Chronic postsurgical neuropathic pain may develop even after minimally invasive procedures. The transition from acute to chronic pain is multifactorial and may be influenced by inadequate early analgesia, psychological vulnerability, neuropathic mechanisms, and opioid exposure. Early implementation of structured, multimodal, opioid-sparing strategies, together with mechanism-based pharmacotherapy using agents such as gabapentin and duloxetine, may promote substantial symptom improvement and restoration of function. Preoperative risk stratification, patient education, and close postoperative follow-up are essential components of efforts to reduce pain chronification and optimize recovery.

2026-0359

Unanticipated Difficult Airway Management and Supraglottic Airway Failure Associated with Relative Macroglossia in a Parturient with MSSA Bacteremia: A Case Report

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Introduction

Airway management in parturients remains challenging due to mucosal edema and rapid desaturation. Methicillin-sensitive Staphylococcus aureus (MSSA) bacteremia carries a risk for septic embolization, hematogenous seeding, and systemic inflammation, potentially causing soft tissue swelling and relative macroglossia. We report a full-term parturient with primary MSSA bacteremia and sacroiliac joint seeding who presented with an unanticipated difficult airway. After failed rapid sequence induction (RSI) and secondary obstruction with an i-gel, the airway was secured using video laryngoscopy, followed by safe delayed extubation.

Case

A 36-year-old primigravida (GA 37+0 weeks, 168 cm, 68 kg; ASA II) presented with severe left gluteal pain lasting 3 days. Emergency Cesarean section was scheduled due to persistent minimal fetal heart rate variability. Preoperative vital signs were stable without fever; lab tests showed leukocytosis (WBC 12,990/μL) and elevated CRP (12.10 mg/dL). Pre-anesthetic evaluation showed restricted mouth opening (2 finger breadths). RSI was attempted using succinylcholine, but mouth opening failed to improve. Rocuronium (50 mg) was added, but restricted mouth opening persisted. Video laryngoscopy using an AceScope (MAC 3) showed a Cormack-Lehane grade 4 view. Repositioning with an X-blade improved the view to grade 3, but intubation failed. An i-gel (#3) was inserted to restore ventilation. During surgery, progressive tongue protrusion beyond the i-gel occurred with submandibular swelling and severe ventilation failure. To secure a definite airway, re-intubation was achieved using a video laryngoscope with an X-blade and BURP (backward, upward, and rightward pressure on the thyroid cartilage) maneuver with ENT on standby for an emergent tracheostomy. Postoperative neck CT (figure. 1) revealed relative macroglossia with posterior displacement of the tongue, resulting in poor delineation of the epiglottis and marked upper airway narrowing. Delayed extubation was successfully performed post-steroid therapy. Blood cultures confirmed primary MSSA bacteremia with presumed pyogenic sacroiliitis.

Conclusion

Systemic infections like MSSA bacteremia and resulting inflammatory responses cannot be ruled out as contributing factors to rapid upper airway edema and relative macroglossia in parturients. Neuromuscular blockade may fail to relieve restricted mouth opening, and secondary obstruction can occur post-SAD placement. Clinicians must execute a step-by-step difficult airway algorithm—utilizing advanced video laryngoscopy, BURP maneuver, surgical standby, and planned delayed extubation—to ensure safety.

2026-0359

Figure & Table

Figure & Table 1.



2026-0362

Awake Shoulder Replacement Under Regional Anaesthesia and High-Flow Nasal Oxygen in a Patient with Fibrotic Lung Disease and Pulmonary Hypertension

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Introduction
Shoulder arthroplasty is commonly performed under general anaesthesia, but this may pose substantial perioperative risk in patients with severe respiratory disease and pulmonary hypertension. We report the case of a 62-year-old woman with fibrotic interstitial lung disease, type I respiratory failure and moderate pulmonary hypertension who required shoulder replacement for a proximal humeral fracture.

Case
To avoid airway instrumentation, positive pressure ventilation and systemic opioid requirements, surgery was undertaken while the patient remained awake under ultrasound-guided interscalene and superficial cervical plexus blocks. High-flow nasal oxygen was used proactively to support oxygenation and mitigate anticipated respiratory compromise associated with phrenic nerve blockade. Following supplemental local infiltration at skin incision, the procedure was completed uneventfully with maintained verbal contact and oxygen saturation between 90% and 100%. The patient was discharged home on the third postoperative day.

Conclusion
This case suggests that, in carefully selected high-risk patients, awake shoulder replacement under regional anaesthesia supported by high-flow nasal oxygen may be a feasible alternative to general anaesthesia when accompanied by individualized planning, close monitoring and clear rescue strategies.

2026-0364

Comparison of Autonomic and Hemodynamic Responses Following Ketamine Administration With or Without Sevoflurane Anesthesia: A Prospective Cohort Study

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Background

Ketamine increases sympathetic activity, whereas sevoflurane suppresses overall autonomic tone. Conventional frequency-domain heart rate variability (HRV) indices, including low frequency (LF), high frequency (HF), and the LF/HF ratio, are widely used to assess autonomic activity but are affected by respiration and may not reliably reflect sympathovagal balance [1-3]. Nonlinear HRV indices derived from Poincaré plots, such as SD1, SD2, and the SD1/SD2 ratio, may provide a more sensitive assessment of autonomic changes [4]. However, whether sevoflurane modifies ketamine-induced changes in nonlinear HRV remains unclear. We aimed to compare changes in nonlinear HRV indices after ketamine administration according to the presence or absence of sevoflurane anesthesia and to evaluate their associations with changes in blood pressure.

Methods

Adult patients with American Society of Anesthesiologists physical status I–II undergoing elective surgery under general anesthesia were included. Patients with neurologic, psychiatric, cerebrovascular, hypertensive, or thyroid disease, allergy to ketamine, or a body mass index ≥30 kg/m^2 were excluded.
Ketamine was administered as a 1 mg/kg intravenous bolus followed by a continuous infusion of 0.03 mg/kg/min. Changes in nonlinear HRV indices (SD1, SD2, and SD1/SD2) during the 5 min after ketamine administration were compared according to the presence or absence of sevoflurane anesthesia(Time 1→2: abscence of sevoflurane // Time 3→4: presence of sevoflurane). The associations between changes in nonlinear HRV indices and blood pressure were also assessed.

Results

15 patients were enrolled. The percent changes in all three nonlinear HRV indices differed significantly between the two periods. SD1 changed by −24.0% during Time 1→2 and +20.3% during Time 3→4 (mean paired difference, −44.3%; 95% CI, −76.6 to −12.1; P=0.011). SD2 changed by +101.0% and −2.9%, respectively (P=0.030), while SD1/SD2 changed by −49.8% and +41.6%, respectively (P<0.001). In an exploratory pooled analysis of both periods (n=30 observations), SD1/SD2 was inversely correlated with changes in SBP, DBP, and MBP (r=−0.56 to −0.62; P≤0.001), whereas SD2 was positively correlated with all three blood pressure measures (r=0.44–0.50; P=0.005–0.015). SD1 was inversely correlated with changes in DBP and MBP (r=−0.43 and −0.38; P=0.017 and 0.038, respectively), but not with SBP.

Conclusion

Ketamine-induced nonlinear HRV responses differed markedly between the two study periods, suggesting that sevoflurane anesthesia modifies the autonomic response to ketamine. The associations between nonlinear HRV indices and blood pressure changes, particularly for SD1/SD2 and SD2, suggest their potential utility for characterizing perioperative autonomic–hemodynamic responses.

2026-0364

Figure & Table

Figure & Table 1.

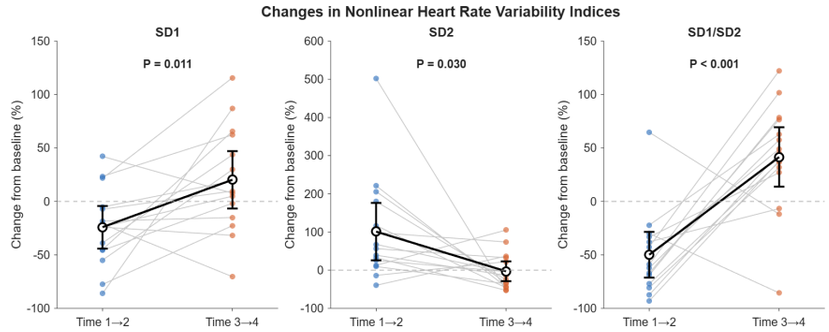
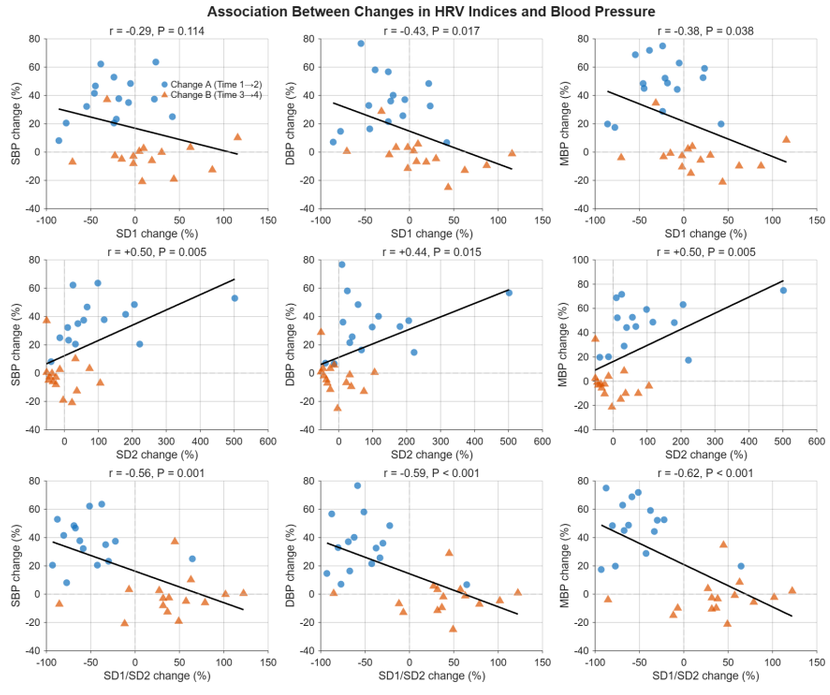


Figure & Table 2.



2026-0365

Microvascular-Macrovascular Dissociation Detected by Nirs and Tcd Monitoring Following Traumatic Brain Injury and Aneurysmal Rupture

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Introduction

Delayed Cerebral Ischemia (DCI) is the main cause of mortality and severe neurological impairment following subarachnoid hemorrhage (SAH) and traumatic brain injury (TBI). Diagnostic gaps frequently arise during peak DCI risk windows due to therapeutic sedation. Non-invasive multimodal neuromonitoring (MMM) utilizing Transcranial Doppler (TCD) and Near-Infrared Spectroscopy (NIRS) offers complementary insights into macrovascular (large artery flow) and microvascular (tissue oxygenation) hemodynamics. These two modalities provide complementary data, monitoring two different but interrelated cerebral circulation compartments.

Case

A 41-year-old male presented with a fall resulting in TBI, spontaneous right frontotemporal intracerebral hemorrhage (ICH, 40 cc), and SAH (Modified-Fischer Grade 1) secondary to a suspected right middle cerebral artery (MCA) aneurysm. Following emergent decompressive craniectomy and clot evacuation, the patient was managed in the neuro-critical care unit under a non-invasive Multimodal Neuromonitoring (MMM) protocol combining TCD and Near-Infrared Spectroscopy (NIRS). However, multimodal neuromonitoring on post-operative day (POD) 4 showed a decoupling (dissociation) phenomenon: TCD (Macrovascular) showed improved flow (MFV 81 cm/s), below the vasospasm threshold. NIRS (Microvascular) showed drastic deterioration on the lesion side. Right rSO2 fell to 49% (a >20% decrease from the baseline of 78%), while left rSO2 was 73%. Despite improved TCD results, hypertension therapy using norepinephrine was continued based on the decreasing NIRS findings. While the TCD and patient's clinical state was improving, NIRS data were suggestive of persistent and severe regional tissue hypoxia. These NIRS data provided the team with rational guidance to continue induced hypertension management (norepinephrine continued until post-operative day 7) in an effort to preserve the compromised microvascular area. In this scenario, NIRS served as a guide to microvascular therapy when macrovascular monitoring (TCD) and clinical monitoring (GCS) failed to detect ongoing focal pathology.

Conclusion

Integrating TCD and NIRS is crucial in neurocritical care. NIRS can detect focal tissue hypoxia missed by other modalities, justifying continued aggressive hemodynamic management to prevent DCI, even when clinical and macrovascular parameters appear to improve.

2026-0365

Figure & Table

Figure & Table 1.



Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0366

The Frozen Airway and Fragile Body: An Anesthetic Case Report of Advanced Systemic Sclerosis with Massive Bilateral Pleural Effusions Undergoing Bilateral Chest Tube Thoracostomy and Left Hip Disarticulation

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Introduction
Systemic sclerosis is a multisystem connective-tissue disease characterized by fibrosis and microvascular dysfunction.
For the anesthesiologist, clinically important manifestations include microstomia and restricted temporomandibular/cervical mobility, pulmonary involvement, cardiac dysfunction and conduction abnormalities, and esophageal dysmotility with aspiration risk. This case is noteworthy because several high-risk features converged in one patient: an anticipated difficult rescue airway, massive bilateral pleural effusions requiring chest tubes, septic physiology, limited cardiac reserve, severe malnutrition, major surgery, and delayed postoperative cardiopulmonary collapse after an initially reassuring recovery.

Case
A 27-year-old woman with an approximately 8-year history of systemic sclerosis had been chronically debilitated and bedridden for several months and required assistance with activities of daily living. She presented with sepsis secondary to an infected, non-healing lower-extremity wound with extensive pressure-related ulcers and necrotic tissue. She was scheduled for bilateral chest tube thoracostomy followed by definitive left hip disarticulation.

Conclusion
The central challenge was not simply obtaining an airway; it was managing a patient in whom loss of airway control could become difficult to rescue while pulmonary and cardiovascular reserves were simultaneously limited. In systemic sclerosis, microstomia and restricted cervical motion can complicate both intubation and reintubation. Extubation should therefore be treated as a planned high-risk procedure when rescue may be difficult.
Massive pleural effusions reduce respiratory reserve, while newly placed chest tubes introduce additional possibilities for abrupt postoperative respiratory deterioration. Sepsis, borderline LV function, conduction abnormalities, severe malnutrition, major surgery, blood loss, and transfusion further compound vulnerability.
The most instructive feature is the discordance between initial PACU stability and subsequent deterioration.
This report does not establish that ward transfer caused the arrest, nor does it establish a single mechanism of collapse.
Rather, it demonstrates why postoperative destination and monitoring intensity should be explicitly incorporated into the anesthetic plan. In comparable patients, ICU/HDU or another continuously monitored setting should be strongly considered when supported by the clinical assessment and available resources.

2026-0370

Effect of Oral Melatonin Premedication on Bispectral Index-Guided Sevoflurane Consumption in Children: A Double-Blind Randomized Controlled Trial

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Background
General anesthesia in children carries dose-dependent risks, including hemodynamic instability, delayed emergence, and concerns about neurodevelopmental effects of prolonged volatile anesthetic exposure. Sevoflurane is the most commonly used inhalational anesthetic in pediatric anesthesia, making strategies to minimize exposure clinically relevant. Melatonin has sedative and anxiolytic properties and may have anesthetic-sparing effects; however, its effect on sevoflurane consumption remains unclear. We evaluated whether oral melatonin premedication reduces sevoflurane consumption in children undergoing elective surgery under BIS-guided general anesthesia.

Methods
This prospective, double-blind, randomized controlled trial (CTRI/2024/01/062064) included children aged 2–8 years, ASA I–II, undergoing elective surgery lasting 30–120 minutes. A total of 140 children were randomized to receive oral melatonin (0.2 mg/kg, maximum 10 mg) or placebo (5 mL honey) 1 hour before surgery. Computer-generated block randomization was used, with allocation concealed in sequentially numbered, opaque, sealed envelopes. The intervention and outcome assessor were blinded. Anesthesia was induced with sevoflurane and maintained with sevoflurane titrated to a BIS of 40–50. Sevoflurane consumption was calculated using Dion's method, with induction and maintenance analyzed separately. The primary outcome was total sevoflurane consumption. Secondary outcomes included preoperative sedation and anxiety, rescue midazolam requirement, postoperative pain, and analgesic consumption over 24 hours.

Results
Of 140 children randomized, 128 completed the study, with 64 in each group. Baseline characteristics were comparable. Total sevoflurane consumption was significantly lower in the melatonin group than in the placebo group (20.41 ± 6.55 mL vs. 22.93 ± 7.77 mL; P = 0.049). This reduction was confined to the induction phase, with no significant difference in maintenance consumption. Sedation scores were significantly higher and anxiety scores lower in the melatonin group at 30 and 60 minutes (P < 0.001 for both), with a lower requirement for rescue midazolam. Postoperative pain scores and analgesic requirements were comparable throughout the 24-hour observation period.

Conclusion
A single preoperative oral dose of melatonin reduced BIS-guided sevoflurane consumption during induction and improved preoperative sedation and anxiolysis in children, without affecting postoperative analgesia. Melatonin appears to be a simple, low-risk premedication option worth wider consideration in pediatric anesthetic practice.

2026-0370

Figure & Table

Figure & Table 1. **Sevoflurane Consumption**

Phase	Melatonin (Mean ± SD)	Placebo (Mean ± SD)	*p*-value
Induction	4.62 ± 0.80	5.34 ± 0.93	<0.001
Maintenance	15.80 ± 6.29	17.60 ± 7.37	0.268
Total	20.41 ± 6.55	22.93 ± 7.77	0.049

2026-0372

Cardiac Tamponade with Secondary Abdominal Compartment Syndrome: A Case of Multi-Organ Dysfunction following Pericardial Effusion

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Introduction

Cardiac tamponade is an emergency usually characterized by Beck's triad of elevated jugular venous pressure, hypotension, and muffled heart sounds. We present a case of cardiac tamponade presenting with hypotension resulting in multi-organ failure and secondary abdominal compartment syndrome.

Case

A 48-year-old female with no known cardiac history was admitted for bilateral heel necrotizing fasciitis. After bilateral below-knee amputations and completing 8 days of IV antibiotics, the patient remained stable and was planned for rehabilitation.

Two weeks after surgery, the patient turned hypotensive with blood pressure 71/60 mmHg (MAP 64). On examination, cardiovascular and respiratory exam findings were unremarkable, although bedside continuous ECG showed small voltages in limb leads with poor R wave progression. She had a capillary refill time of >3 seconds. With a low-grade fever, the team's impression was that of sepsis. IV antibiotics were started and crystalloids ran fast, but her blood pressure was not fluid responsive.

Laboratory investigations revealed severe multi-organ dysfunction: the patient's creatinine rose to 267 µmol/L from a baseline of 100 µmol/L, her liver enzymes >3x the upper limit of normal - Aspartate aminotransferase (AST) 872 U/L, alanine aminotransferase (ALT) 841 U/L. Her lactate rose to 7.4 mmol/L and an arterial blood gas showed compensated metabolic acidosis (pH 7.35, PCO_2 21 mmHg, PO_2 92 mmHg, bicarbonate 11 mmol/L, base excess -14 mmol/L).

A bedside point of care ultrasound (POCUS) found a pericardial effusion with associated right ventricular diastolic collapse (fig 1), and a plethoric inferior vena cava (IVC) with minimal respiratory variation. This was also confirmed with a formal 2D Echocardiogram.

Intra-abdominal pressure (IAP) was elevated at 24 mmHg, consistent with abdominal compartment syndrome.

The patient was then transferred to the ICU where noradrenaline infusion was started to maintain adequate perfusion pressure. Emergency pericardiocentesis was performed under ultrasound guidance, yielding 500 ml of haemosanguineous fluid. Subsequently, the patient demonstrated clinical improvement. She was able to wean off noradrenaline immediately post-procedure. IAP decreased from 24 mmHg to 9 mmHg, with resolution of acute kidney and liver injury, and improvement in metabolic acidosis.

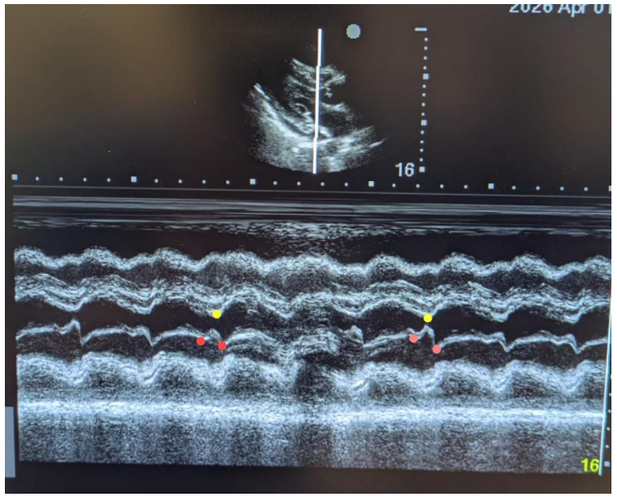
Conclusion

In cardiac tamponade, the accumulation of fluid in the pericardial space impairs venous return, hindering ventricular distensibility and diastolic filling. Systemic venous congestion occurs with potential backflow effects on the liver, resulting in congestive hepatomegaly explaining acute liver failure, raised intra-abdominal pressure [1]. Reduced cardiac output may also lead to sustained hypoperfusion resulting in organ ischemia. [2] POCUS was a useful bedside investigation to clinch the diagnosis as it revealed a plethoric IVC and pericardial effusion with tamponade physiology. Clinicians should maintain high suspicion for cardiac tamponade in patients presenting with unexplained shock and multi-organ failure, particularly when intra-abdominal pressure is elevated.

2026-0372

Figure & Table

Figure & Table 1.



2026-0374

Into the Blue Storm: Anaesthetizing an Unrepaired Tetralogy of Fallot Through Three Stages of Anorectal Malformation Surgery Before Corrective Cardiac Surgery

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Introduction

The tetralogy of Fallot (TOF) is a congenital heart disease (CHD) in which its complex pathophysiology and potentially life-threatening sequelae may impose great anaesthetic challenges peri-operatively. Its association with other congenital syndromes also means that affected children may present for non-cardiac procedures prior to their corrective TOF repair. In this case report, we present the peri-operative journey of a one-year-old boy with TOF and VACTERL association presented for staged anorectal malformation (ARM) surgeries prior to his corrective TOF repair surgery.

Case

A one-year-two-month-old male infant weighing 10kg with VACTERL association (imperforated anus, TOF, horseshoe kidney with left ectopic kidney, bilateral radial club hands) was electively scheduled for posterior sagittal anorectoplasty (PSARP) prior to his corrective TOF surgery. A diverting colostomy was previously done during neonatal period. Balloon valvuloplasty and right ventricular outflow tract (RVOT) stent was inserted during infancy as temporary management of TOF prior to definitive surgery, necessitating dual anti-platelet therapy with aspirin and clopidogrel.

Baseline oxygen saturation of patient ranged between 80-85%, with acceptable SpO2 above 75%.

Multidisciplinary discussion with paediatric and cardiothoracic surgeons suggested for definitive repair of his ARM and stoma closure prior to corrective TOF repair to minimize risk of peri-operative infection.

PSARP surgery was subsequently performed under total intravenous anaesthesia (TIVA) uneventfully, however, stoma closure was only performed seven months later due to surgical considerations complicated with episodes of systemic infections. The child then successfully underwent his corrective TOF repair a week after his closure of stoma and was discharged home one week post surgery.

Learning points:

- A thorough understanding of the pathophysiology and potential sequelaes of children with cyanotic congenital heart disease undergoing non-cardiac surgeries is essential to optimize their peri-operative outcomes.
- Balancing haemodynamics in uncorrected CHD may be challenging, taking into considerations effects of surgical techniques and position such as laparoscopy and prone position on ventilation and haemodynamic parameters.
- Decision of whether a non-cardiac procedure should precede patient's corrective cardiac surgery require multidisciplinary discussion and collaboration in order to minimize peri-operative risks.

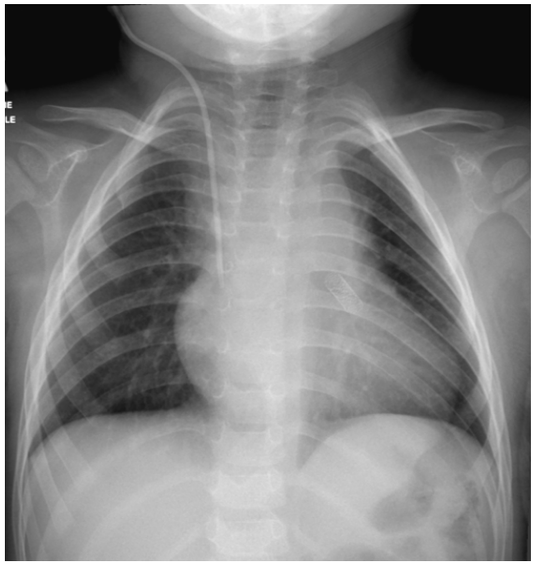
Conclusion

Non-cardiac surgery in patient with unrepaired CHD may lead to significant morbidity and mortality if not well planned and managed. Multidisciplinary efforts and meticulous peri-operative planning is pertinent to ensure a smooth peri-operative journey for patient.

2026-0374

Figure & Table

Figure & Table 1.



2026-0378

Preoperative Nutritional-Inflammatory Phenotypes for Risk stratification of Postoperative Delirium After Hip Fracture Surgery

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Background
Postoperative delirium (POD) is a multifactorial complication influenced by various patient-related factors, including nutritional and immune status. The geriatric nutritional risk index (GNRI) is a widely used indicator of nutritional status, whereas the neutrophil-to-lymphocyte ratio (NLR) reflects systemic inflammatory and immune status; both have been associated with the risk of POD. Given the multifactorial nature of POD, a phenotype-based approach combining markers that reflect distinct aspects of patient vulnerability may provide more refined risk stratification than evaluating each marker individually. Therefore, we aimed to investigate whether the combined use of GNRI and NLR could further stratify the risk of POD.

Methods
This retrospective cohort study included 334 patients aged 65 years or older who underwent hip surgery. The GNRI and NLR were dichotomized into high and low groups based on their respective median values in the study population, and four GNRI–NLR phenotypes were defined according to the combinations of high and low GNRI and NLR values. Multivariable logistic regression analyses were performed to assess the association between GNRI–NLR phenotypes and the risk of POD. The models were adjusted for age, sex, American Society of Anesthesiologists physical status, and preoperative cognitive impairment.

Results
Among 334 patients, 67 (20.1%) developed POD. POD incidence differed significantly across the four phenotypes (overall, P<0.001; Table 1). Within both GNRI categories, high NLR identified substantially higher-risk patients (high GNRI: 27.7% vs 5.9%, P<0.001; low GNRI: 32.4% vs 15.4%, P=0.018; Table 1). Compared with high GNRI/low NLR phenotype, the adjusted odds ratios were 2.99 (95% CI, 1.00–8.92) for high GNRI/high NLR and 2.98 (95% CI, 1.07–8.28) for low GNRI/high NLR (Table 2).

Conclusion
Preoperative GNRI–NLR phenotypes stratified POD risk. Notably, within the same GNRI category, patients with higher NLR values had a greater risk of POD, suggesting that the combined assessment of nutritional and inflammatory status may provide more refined risk stratification than GNRI alone.

2026-0378

Figure & Table

Figure & Table 1.

Table 1 Incidence and risk stratification of POD According to GNRI–NLR Phenotype

Phenotype	Low NLR(<3.8)		High NLR(>=3.8)		Total	
	N	POD	N	POD	N	POD
High GNRI (>=97.13)	102	6(5.9%)	65	18(27.7%)	167	24(14.4%)
Low GNRI (<97.13)	65	10(15.4%)	102	33(32.4%)	167	43(25.7%)
Total	167	16(9.6%)	167	51(30.5%)	334	67(20.1%)

Figure & Table 2.

Table 2 POD Risk According to GNRI-NLR Phenotype

Phenotype	Crude OR (95% CI)	Adjusted OR (95% CI)
High GNRI / High NLR	6.13 (2.28–16.45), p<0.001	2.99 (1.00–8.92), p=0.049
Low GNRI / Low NLR	2.91 (1.00–8.44), p=0.049	1.99 (0.62–6.39), p=0.248
Low GNRI / High NLR	7.65 (3.04–19.26), p<0.001	2.98 (1.07–8.28), p=0.036

2026-0381

Maintaining Cerebral Perfusion During Thymectomy in a Child with Severe Ectopic ACTH Syndrome (EAS) and Complex Neurological Complications: A Case Report

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Introduction

Ectopic ACTH Syndrome (EAS) is exceedingly rare in children. Beyond its profound physical and metabolic consequences, severe hypercortisolism induces immunosuppression, predisposing patients to opportunistic infections. In this case, thymectomy posed significant anaesthetic challenges as the surgical stress, positive pressure ventilation and hemodynamic perturbation may compromise cerebral perfusion in a child with pre-existing intracranial infection and pathology.

Case

A 13-year-old child (BMI 25 kg/m^2) presented with ACTH-dependent hypercortisolism secondary to a somatostatin-receptor-avid right thymic mass. Profound immunosuppression resulted in opportunistic infections including tuberculosis and invasive CNS Aspergillosis. Patient received prolonged antimicrobial therapy, metyrapone and hydrocortisone. Poor medication adherence led to rebound hypercortisolism with worsening ventriculitis, cerebral oedema and hydrocephalus needed ventriculoperitoneal (VP) shunt insertion. Despite improvement in left sided hydrocephalus, persistent right sided ventriculomegaly and possible foramen of Monro stenosis remained on repeated MRI brain. Following multidisciplinary optimization, patient underwent thymectomy with intact neurological status (GCS 15/15).

Anaesthetic management focused on preserving cerebral perfusion amid residual cerebral oedema and hydrocephalus, while balancing cortisol suppression and adrenal crisis prevention. Anaesthesia was induced and maintained using target-controlled propofol and remifentanil infusions. Multimodal neuromonitoring included invasive arterial pressure, cardiac output monitoring, BIS and bilateral cerebral oximetry, with baseline cerebral regional oxygen saturation (rSO2) of 48% used as individualised reference. Mean arterial pressure (MAP) was maintained at 80–90 mmHg with ventilation, oxygenation, hemodynamic, fluid balance and positioning carefully controlled to minimize rise in intracranial pressure. Bilateral rSO2 remained 50-62%, BIS 40-60 and MAP sustained at 80-90mmHg without vasoactive support. Thymic mass was resected with 15% estimated blood loss with no transfusion. The patient was extubated with full GCS, no neurological deterioration, and a postoperative downward trend in ACTH level.

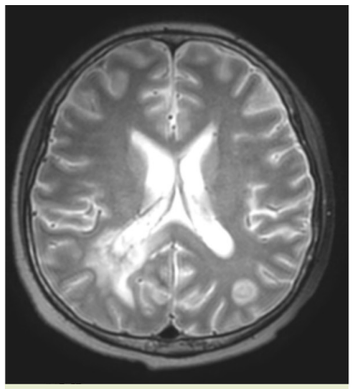
Conclusion

This case demonstrates that thoracic surgery can be undertaken safely in a child with EAS and complex intracranial pathology through a deliberate, multimodal approach to cerebral protection. The absence of significant NIRS desaturation with favourable neurological outcome supports individualized cerebral perfusion target, guided by patient's baseline cerebral oxygenation and continuous monitoring, may be a useful strategy in children with impaired cerebral reserves.

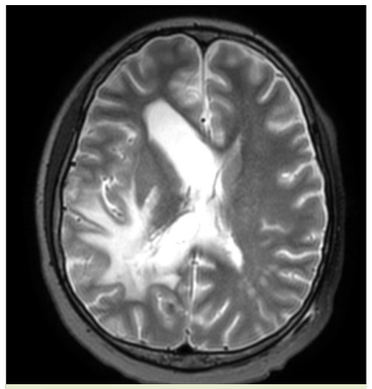
2026-0381

Figure & Table

Figure & Table 1.



a T2-weighted Transverse



b T2-weighted Transverse

Figure 1: T2-weighted axial MRI brain.
(a) Right temporal haemorrhagic meningoencephalitis, ventriculitis, and multifocal ring-enhancing lesions (initial presentation)
(b) Improved lesions but worsening right cerebral oedema and ventriculomegaly from chronic ventriculitis (8 months later)

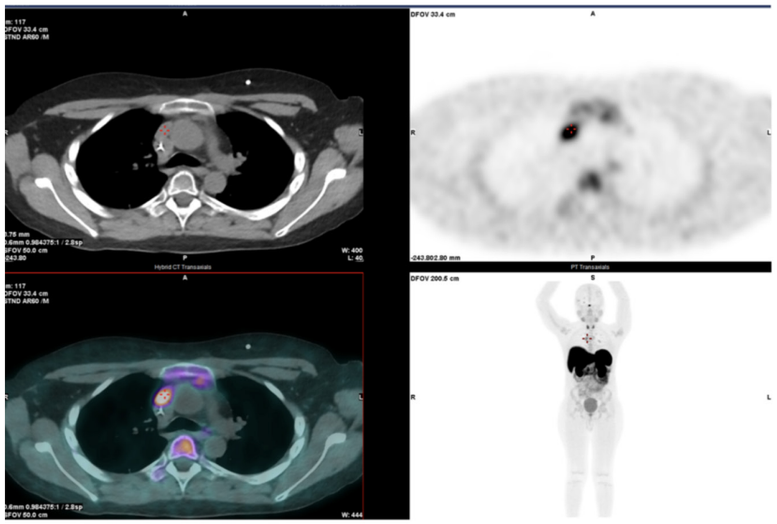


Figure 2: ^{68}Ga-DOTATATE PET-CT localized a somatostatin receptor-positive right thymic lesion (SUV max 4.9; Krenning score 2), confirming the ectopic ACTH source

2026-0381

Figure & Table

Figure & Table 2.



a



b

Figure 3: (a) Bilateral cerebral oximetry/BIS application; (b) INVOS 5100C baseline rSO_2 of 48% prior to induction

	Oct 2025	Nov 2025	April 2026	May 2026	June 2026	July 2026	July 2026
	Initial presentation	After started metyrapone	On block and replacement therapy with metyrapone and HCT	return with ICP symptoms, increase metyrapone dose and HCT		Prior thymectomy	Post op
Blood Ix: ALC K (mmol/l) Na (mmol/l)	 0.83 <1.5 143			 0.33 3.2 142	 1.9 4.6 139	 1.5 4.2 142	 1.2 3.7 140
ACTH (pg/ml) **N: 0-46**	379	209					23.5
Cortisol (nmol/L)	*8am:* 2948 *4pm:* 2833	253	677	2739	282	432	
24-hour urinary cortisol (nmol/24hour) **N: 31.7-282**	>14,252	22.4	321.6				252
Desmopressin suppression test: insignificant ACTH and cortisol rise suggestive of ectopic ACTH secretion. **High-dose dexamethasone suppression tests:** <75% cortisol suppression, also suggestive of ectopic ACTH secretion							

Table 1: Biochemical trend from diagnosis to post-thymectomy in EAS, showing markedly elevated ACTH/cortisol at presentation, dynamic testing consistent with an ectopic source, and biochemical improvement after treatment and surgery.

2026-0382

Management of an Anticipated Difficult Airway in a Post-Irradiated Airway Presenting for Endolaryngeal Microsurgery: A Case Report

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Introduction
The previously irradiated larynx is a recognised high-risk airway. Radiotherapy induces tissue fibrosis, reduced compliance and mucosal friability, complicating laryngoscopy and front-of-neck access. Endolaryngeal microsurgery (ELMS) adds the challenges of a shared airway, jet ventilation and instrumentation trauma. Difficult intubation and repeated instrumentation are established drivers of post-extubation laryngeal edema and extubation failure. This case shows a planned day-surgery procedure escalating to unplanned postoperative ventilation.

Case
A 62-year-old man presented for ELMS and frozen-section biopsy of a right vocal fold lesion causing 6 months of hoarseness and choking. History: minor coronary artery disease, recent stroke on lifelong aspirin, and T2N0 glottic squamous cell carcinoma treated with radiotherapy 10 years ago, resulting in bilateral vocal fold (VF) palsy. Airway assessment: mallampati 3, micrognathia, thyromental distance 3 finger-breadths, neck extension ~30°. Nasoendoscopy: right VF palsy in midline with irregular papillomatous lesion, left VF paresis, paradoxical vocal fold motion. A staged plan was discussed between ENT and anesthesia: plan A tubeless technique with infraglottic jet ventilation via laser jet catheter, plan B open tracheostomy. Pre-induction neck ultrasound localized the trachea, though the cricothyroid membrane was slightly difficult to isolate; landmarks were marked pre-induction.
After TIVA induction and confirmation of adequate bag-mask ventilation, rocuronium was given. 3 laryngoscopy attempts with different video laryngoscope blades (McGrath MAC 3 blade, MAC 4 blade, X blade) were required to place a subglottic jet catheter. Infraglottic jet ventilation (Monsoon jet ventilator: driving pressure 1.5 bar, frequency 100, FiO2 1) was commenced. Frozen section showed polypoid tissue with possible low-grade surface dysplasia and ulceration, no invasive carcinoma.
At emergence, airway topicalization at a light plane triggered coughing, stridor and probable laryngospasm; bronchoscopy showed significant false cord and epiglottic edema. Anesthesia and ENT jointly decided to reintubate and defer extubation. Reintubation required 3 fiberoptic scope-guided attempts through a supraglottic airway, before a size 5 microlaryngeal tube was railroaded successfully. He was transferred to SICU for ventilatory support, treated with regular dexamethasone, and extubated in OT under nasoendoscopic guidance on postoperative day 2 once edema settled.

Conclusion
This case highlights several learning points in managing the shared, previously irradiated airway.
1. Preoperative assessment correctly identified this difficult airway (prior glottic radiotherapy, bilateral VF palsy, anatomical predictors). An awake technique with a double set-up was considered; though the team chose a staged asleep approach with videolaryngoscopy and infraglottic jet ventilation, with tracheostomy pre-planned as rescue technique. This underscores the value of agreeing on an escalation pathway with surgeons before induction.
2. Stimulating an inflamed, freshly instrumented larynx at a light plane readily provokes laryngospasm; topicalization/manipulation should occur at an adequate depth.
3. Deferred extubation, corticosteroids, and staged extubation in theater with ENT on standby for reintubation/surgical airway followed established high-risk extubation principles.

2026-0383

Development and Feasibility Evaluation of a Culturally and Linguistically Adapted Immersive Preoperative Virtual Reality (IMProVR) Intervention for Reducing Perioperative Anxiety in Paediatric Patients: A Multi-Phase Evaluation with Healthcare Providers and Child End-Users

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5. Department of Creative Motion Design, Faculty of Arts & Design, Universiti Teknologi MARA (UiTM), Malaysia
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Background
Preoperative anxiety affects 50 to 75% of children undergoing surgery and is linked to poor induction compliance, postoperative pain, and emergence delirium. Virtual reality (VR) is a promising non-pharmacological intervention, but culturally adapted VR for non-English-speaking paediatric populations is scarce, and studies rarely compare side-effect burden between adult clinician evaluators and child end-users using identical scoring. We describe development of IMPRoVR, a Bahasa Melayu immersive VR intervention simulating the paediatric perioperative journey, and evaluate its feasibility, usability, and safety across three phases: (1) a healthcare provider needs analysis, (2) a multidisciplinary clinician panel evaluation, and (3) a child usability pilot, with harmonised side-effect scoring enabling direct clinician-child comparison.

Methods
Phase 1 surveyed 22 healthcare providers on anxiety management practices and VR attitudes. Phase 2 involved nine clinicians who evaluated a refined IMPRoVR prototype using the Virtual Reality Content Validation Questionnaire, IGroup Presence Questionnaire (IPQ), Simulator Sickness Questionnaire (SSQ), and Virtual Reality System Usability Questionnaire (VRSUQ). Phase 3 recruited 18 children aged 9-12 (M=10.44, SD=1.10) who experienced IMPRoVR via Meta Quest 3 and completed the IPQ, SSQ, an observational checklist, and pre-/post-exposure Visual Analog Scale (VAS).

Results
Providers identified fear of the unknown (72.7%) and fear of surgical outcomes (63.6%) as leading anxiety drivers; 81.8% requested staff training for VR adoption. Clinicians rated content validity well (α=.86) and presence acceptably on three of four IPQ dimensions. VRSUQ effectiveness (M=4.15/5) and satisfaction (M=3.52/5) were strong, but efficiency was significantly lower (M=2.22/5; Friedman $\chi^2(2)=17.54$, $p<.001$). All 18 children completed sessions without early headset removal; presence was strong across all dimensions. Using harmonised scoring, children showed higher simulator-sickness burden than clinicians (SSQ Total Severity: 20.8 vs 11.6), with 44.4% of children versus 22.2% of clinicians exceeding a concerning-symptom threshold. VAS anxiety decreased non-significantly ($t(17)=0.96$, $p=.35$, $d=0.23$). Greater presence correlated with smaller anxiety reduction ($\rho=-.59$, $p=.011$).

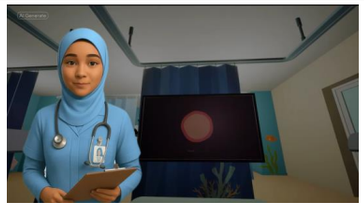
Conclusion
IMPRoVR is feasible and acceptable to clinicians and children, but harmonised safety scoring reveals children carry a higher simulator-sickness burden than adult evaluators, a finding masked by inconsistent scoring conventions. Alongside a clinician-identified usability weakness in error recovery, this constitutes a concrete, prioritised safety and design agenda before progressing to a powered efficacy trial.

2026-0383

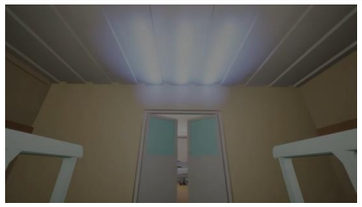
Figure & Table

Figure & Table 1.

Figure 1. Selected scenes from the IMPRoVR intervention



(a) Virtual nurse guides deep-breathing exercise



(b) Transition to the operating room



(c) Nurse explains perioperative equipment



(d) Child rates pain using emoji scale

Note. All narration and on-screen text are presented in Bahasa Melayu.

Figure & Table 2.

Table 1: Comparative Summary of Feasibility, Usability, Presence, and Safety Outcomes

Evaluation Domain & Measure	Clinician Panel (n=9) Mean ± SD	Child Pilot (n=18) Mean ± SD
Simulator Sickness (SSQ)		
Total Severity (Kennedy-weighted)	11.6 ± 9.4	20.8 ± 16.1
Participants exceeding TS > 20, n (%)	2 (22.2%)	8 (44.4%)
Sense of Presence (IPQ, 1–7 scale)		
General Presence	3.78 ± 1.56 (Grade D)	5.11 ± 1.78 (Grade A)
Spatial Presence	4.58 ± 0.49 (Grade C)	4.59 ± 0.63 (Grade C)
Involvement	4.64 ± 0.95 (Grade B)	5.18 ± 1.09 (Grade A)
Experienced Realism	3.64 ± 0.70 (Grade C)	3.96 ± 0.90 (Grade B)
System Usability (VRSUQ, 1–5 scale)		
Effectiveness	4.15 ± 0.47	Not Assessed
Efficiency	2.22 ± 0.24	Not Assessed
Satisfaction	3.52 ± 0.29	Not Assessed
Emotional Impact (VAS, 0–10 scale)		
Pre-exposure anxiety	Not Assessed	2.00 ± 1.88
Post-exposure anxiety	Not Assessed	1.39 ± 2.50

Note. SSQ = Simulator Sickness Questionnaire; IPQ = IGroup Presence Questionnaire; VRSUQ = Virtual Reality System Usability Questionnaire; VAS = Visual Analog Scale; TS = Total Severity.
To enable valid comparison between cohorts, SSQ Total Severity was scored using the identical Kennedy et al. (1993) weighted procedure applied to raw 16-item responses for both groups.
IPQ Grades represent normative benchmarks: A (Excellent), B (Very Good), C (Satisfactory), D (Marginal).
VRSUQ Efficiency was significantly lower than Effectiveness and Satisfaction ($p < .001$). VAS anxiety change was not statistically significant ($p = .351$, $d = 0.23$).

2026-0387

A Ticking Time Bomb Meticulously Handled - Double Lumen Intubation for Temporary Stenting in a Compressed Airway

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Introduction

We report a case of a previously healthy 18 year-old boy who presented with chest pain, cough and haematemesis to our center, which later unveiled as external compression to the trachea and bilateral bronchi, hence a challenging airway management.

Case

Our patient was initially treated as upper gastrointestinal bleeding (UGIB) with occult sepsis. Orogastroduodenoscopy revealed Mallory Weiss tear. However he developed respiratory distress and reduced conciousness, subsequently required intubation. Chest radiography showed clear lung fields with widened mediastinum. Computed tomography of thorax was done urgently and revealed large saccular thoracic arch pseudoaneurysm (4.3 × 6.6 × 4.6 cm) with surrounding peri aortic mediastinal inflammatory soft tissue and haematoma causing compression onto the trachea and proximal part of bilateral main bronchi. We were having difficulty in ventilating the patient in our intensive care unit (ICU) with high peak airway pressure and respiratory acidosis in the blood gas analysis. Bronchoscopy was performed, noted slit like opening due to external compression distal to the endotacheal tube (ETT) tip. A decision to bypass the obstruction by putting in a double lumen tube was made. In view of limited resourses, we only have left-sided double lumen tube of which the bronchial lumen was inserted to right main bronchus which was more severely compressed than the left bronchus. Subsequent blood gas analysis showed marked improvement in oxygenation and resolution of respiratory acidosis. Peak airway pressure reduced significantly from 55 to 22 cmH20. Our patient's haemodynamic parameters also improved and he was referred to cardiothoracic center for further management of the aortic pseudoaneurysm. However during transport, he developed another episode of massive UGIB and became haemodynamically unstable. Sadly, he succumbed to the illness in spite of the effort that we have made.

Conclusion

In times of airway crisis, we have to make do with whatever resources that we have and never give up on the patient even though the chances are slim. With double lumen tube insertion, we were able to temporarily 'stent' open the airway while waiting for definitive management in center with cardiothoracic service.

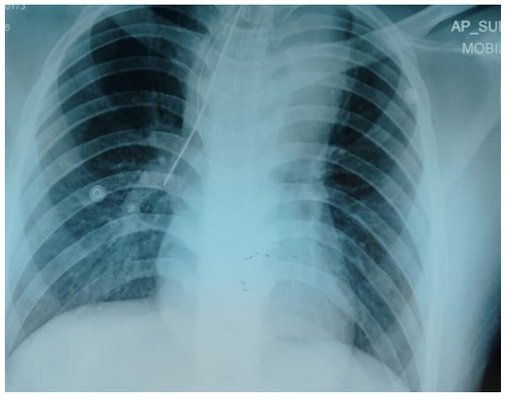
2026-0387

Figure & Table

Figure & Table 1.



Figure & Table 2.



2026-0390

Anaesthetic Management for Caesarean Delivery in a Parturient With Huntington Disease and Significant Choreiform Movements: A Case Report

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Introduction

Introduction: Huntington disease (HD) is an autosomal dominant neurodegenerative disorder caused by a CAG trinucleotide repeat expansion in the HTT gene, resulting in progressive neurodegeneration with characteristic motor, cognitive and psychiatric manifestations. It typically manifests between ages 30 and 50. The estimated prevalence of HD in Asian populations is approximately 0.40 per 100,000, substantially lower than the estimated prevalence of 5.70 per 100,000 reported in Western populations. Due to this low prevalence, the presentation of symptomatic HD in an Asian parturient is a rarely encountered clinical scenario with limited evidence to guide the optimal obstetric anaesthetic management.

Case

A 40-year-old Malay woman, G5P3+1 at 36 weeks gestation, was electively admitted for Caesarean delivery and bilateral tubal ligation. Diagnosed with HD three years prior, she exhibited facial chorea progressing to bilateral upper-limb choreiform movements and dysarthria with no evidence of bulbar or psychiatric involvement. The risks and benefits of spinal anaesthesia (SAB) and general anaesthesia (GA) were discussed with the patient and her husband. Although SAB would generally be preferred as it avoids airway manipulation and minimizes neonatal exposure to systemic anaesthetic agents, severe uncontrolled choreiform movements compromised her ability to maintain a stable position for safe spinal needle insertion. Following multidisciplinary discussion, GA was selected. Preoperative aspiration prophylaxis with pantoprazole and sodium citrate was administered with avoidance of metoclopramide because of concern regarding exacerbation of extrapyramidal movements. Rapid-sequence induction was performed with propofol (2mg/kg) and rocuronium (1mg/kg), followed by tracheal intubation and anaesthesia maintained with sevoflurane. Haemodynamic parameters remained stable and the neonate was delivered with satisfactory Apgar scores. Post surgery, sugammadex (2mg/kg) was administered and extubation was performed after confirming neuromuscular recovery with a train-of-four ratio ≥ 0.9, adequate spontaneous ventilation, full recovery of consciousness and intact airway reflexes. Postoperative multimodal analgesia included local anaesthetic infiltration, paracetamol, non-steroidal anti-inflammatory drugs and oxycodone. She recovered uneventfully and was discharged without any complications.

Conclusion

HD in pregnancy presents unique anaesthetic challenges, particularly when significant choreiform movements interfere with positioning and the technical feasibility of neuraxial anaesthesia. In such circumstances, general anaesthesia may be a reasonable alternative following individualized risk–benefit assessment. In our patient, careful aspiration precautions, rapid-sequence induction and quantitative neuromuscular monitoring with sugammadex reversal facilitated an uncomplicated perioperative course. This case highlights the importance of tailored anaesthetic planning for parturients with HD.

2026-0391

Delivering Through Dengue: Anesthetic Insights from a High-Risk Pregnancy – A Case Report

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Introduction

Dengue Fever is an endemic viral disease in the Philippines. Increased vascular permeability and platelet dysfunction central to the disease process have detrimental effects that complicate the immunologic and hematologic changes of pregnancy. Clinical presentation, severity, and timing of illness in parturients with Dengue Fever must be considered in formulating an anesthetic plan.

Case

The case highlights a 31-year-old female at 38 weeks age of gestation for emergency repeat cesarean section. The patient presented with a three-day history of fever, with highest temperature at 38.7°C and erythematous papules on the extremities. No other associated symptoms and no mucosal bleeding. Laboratory testing showed positive dengue titers for NS1 and IgG, negative for IgM. Complete blood count likewise showed a low platelet count at 140,000 cells/μL. Upon consultation, the patient was already afebrile, signifying the start of critical phase for dengue fever. Given the patient's hemodynamic stability and absence of clinical signs of active bleeding, one-shot spinal anesthesia was administered.

In this case, the critical phase of dengue coincided with the expected decline in platelet count due to plasma leakage, increasing the risk of bleeding associated with regional anesthesia. Given the invasive nature of spinal anesthesia, the patient was closely monitored postoperatively for signs of bleeding or deficits. Management included adequate hydration and avoidance of NSAIDs to minimize bleeding risk. The patient remained hemodynamically stable throughout her admission, with a nadir platelet count of 105,000 cells/μL on postoperative day four, and was discharged in good condition on day five.

Conclusion

The choice of anesthetic technique in parturients with dengue fever must be carefully individualized, guided by a thorough risk-benefit assessment — taking into account both the severity of the infection and the urgency of the surgical procedure. Vigilant postoperative monitoring is crucial to detect and manage potential complications promptly.

2026-0395

Thoracic Epidural Anaesthesia: A Viable Alternative to General Anaesthesia for High-Risk Upper Abdominal Surgery

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Introduction

Open cholecystectomy in frail patients with severe cardiopulmonary disease presents substantial anesthetic challenges. General anesthesia (GA) with mechanical ventilation carries high risks of intraoperative hemodynamic collapse, severe myocardial depression, and postoperative pulmonary complications. Thoracic epidural anesthesia (TEA) offers a continuous segmental sensory block (T4–T10), attenuating surgical stress responses while preserving spontaneous respiration. Though typically utilized as an adjunct to GA for postoperative pain management, its application as the primary anesthetic for major abdominal surgery is less frequently reported. We present the successful clinical management of a frail, elderly female with severe cardiac dysfunction and extensive comorbidities who underwent open cholecystectomy under sole TEA.

Case

A 71-year-old female (NYHA IV, CFS 6, ASA IV) presented for elective open cholecystectomy following a sealed perforated gallbladder empyema previously managed with percutaneous drainage. Medical history included hypertension, type 2 diabetes mellitus, a recent cerebrovascular accident with residual hemiparesis, and ischemic heart disease with a left ventricular ejection fraction of 35%–40%. Preoperative severe normochromic normocytic anemia (hemoglobin 8.5 g/dL) and multiple electrolyte abnormalities were optimized prior to surgery (post-transfusion hemoglobin 12.5 g/dL).

Given her high risk for cardiovascular collapse and extubation failure under GA, sole TEA was chosen. Invasive arterial and central venous monitoring lines were placed preoperatively. A T7/T8 thoracic epidural catheter was successfully placed, establishing a T4–T10 sensory block to pinprick using incremental administration of 0.75% ropivacaine (4 mL total) with fentanyl (5 μg/mL). Anesthesia was maintained with hourly top-up boluses of 2 mL 0.75% ropivacaine. Conscious sedation was provided using intravenous midazolam (1 mg) and a target-controlled infusion (TCI) of remifentanil (0.3–0.5 ng/mL) under continuous capnography. Spontaneous respiration and serial arterial blood gases remained stable throughout the 3-hour 15-minute operation. Sympathectomy-induced vasodilation was counteracted with a low-dose noradrenaline infusion (0.04–0.08 μg/kg/min) to maintain mean arterial pressure >70 mmHg. Surgical traction-induced retching resolved promptly with intravenous metoclopramide 10 mg.

Postoperatively, transient recovery-unit hypotension responded quickly to a 500 mL crystalloid fluid bolus. Analgesia was maintained via epidural infusion of 0.2% ropivacaine (3–5 mL/h) with oral tramadol. The patient was mobilized, had the epidural catheter removed intact on POD 2, and was safely discharged home on POD 3 without surgical or anesthetic complications.

Conclusion

Sole thoracic epidural anesthesia, paired with light sedation and low-dose vasopressor support, is a safe and effective alternative to general anesthesia for upper abdominal surgery in high-risk, frail patients with severe cardiopulmonary compromise.

2026-0398

Navigating an Anticipated Difficult Airway in a Child with Treacher Collins Syndrome for CochlearTM OSIA 2® Implant: A Case Report

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Introduction

Treacher Collins syndrome (TCS) is an uncommon genetic condition involving the first and second branchial arches, often leading to severe micrognathia and mandibular hypoplasia. From anaesthetic perspectives, these structural defects frequently culminate in a notoriously difficult airway. Crucially, even when a child presents with an apparently normal or adequate mouth opening, direct or standard visual axes to the larynx are heavily distorted. This case report presents the perioperative airway strategies and the successful application of sequential video-laryngoscopy rescue maneuvers in a pediatric patient with TCS.

Case

A 6-year-8-month-old child, weighing 17.5 kg, was electively scheduled for a right cochlearTM OSIA 2® bone conduction implant insertion secondary to bilateral ear canal atresia and moderate conductive hearing loss.

- Clinical History: History of post-natal neonatal intensive care unit (NICU) admission requiring prolonged oxygen therapy and feeding interventions.
- Airway Evaluation: Physical examination revealed classic features of TCS: bilateral microtia, dysplastic ears, a distinctly triangular face, severe midface hypoplasia, overcrowded dentition, and micrognathia. (Figure 1) No symptoms of obstructive sleep apnea (OSA) or current upper respiratory tract infections were present.
- Strategic Planning: Anticipating a difficult airway in terms of mask ventilation and endotracheal intubation, a meticulous airway management plan was structured. Equipment including standard C-MAC blades size 2, a C-MAC hyperangulated D-blade, a GlideScope Size 2 (S2), and a flexible fiberoptic bronchoscope were prepared. (Figure 2)
- Mode of Anaesthesia: Total intravenous anaesthesia (TIVA) without neuromuscular blocking agents

Standard monitoring was applied upon arrival to the operating theatre. Following inhalational induction with sevoflurane, adequate mask ventilation was achieved with two-hand technique while maintaining spontaneous ventilation. TIVA was commenced with target-controlled infusions (TCI) of propofol and remifentanil.

First attempt of videolaryngoscopy with CMAC MAC 2 blade failed to visualize the glottis due to structural mandibular restriction. (Figure 3). A second attempt using CMAC D-blade improved glottic view partially with POGO 75%. (Figure 4). Definitive airway was successfully secured on our third attempt using Glidescope S2 blade, which provided full glottic visualization with POGO 100%(Figure 5).

Importantly, oxygenation was maintained throughout airway manipulation with no desaturation episodes encountered. The surgery proceeded uneventfully under total intravenous anaesthesia.

Child was successfully extubated post-operatively and discharged to ward for post-operative care uneventfully.

Conclusion

Successful anaesthetic management of Treacher Collins syndrome requires careful anticipation of difficult airway and comprehensive preparation. Preservation of oxygenation, availability of advanced airway devices, and a structured airway strategy were key factors contributing to the safe perioperative outcome in this patient.

2026-0398

Figure & Table

Figure & Table 1.



2026-0400

Balancing Airway and Haemodynamic Risk: Ultrasound-Assisted Spinal Anaesthesia for Emergency Perineal Surgery in a Patient with Severe Obesity and Possible Hypertrophic Cardiomyopathy Physiology

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Introduction

Emergency surgery in patients with severe obesity, predicted difficult airway, obstructive sleep apnoea (OSA), renal impairment and complex cardiovascular disease poses significant anaesthetic challenges. General anaesthesia (GA) may be associated with difficult airway management, aspiration and postoperative respiratory complications, while neuraxial anaesthesia may cause haemodynamic instability. In patients with possible hypertrophic cardiomyopathy (HCM) physiology, reductions in preload and afterload, tachycardia and increased contractility may precipitate dynamic left ventricular outflow tract (LVOT) obstruction. We describe the successful use of spinal anaesthesia (SA) for emergency perineal surgery in a high risk patient with possible HCM physiology.

Case

A 51 years old man, 168 cm and 166 kg (BMI 58.8), presented for emergency I&D and saucerisation of a scrotal abscess. His comorbidities include hypertension, poorly controlled diabetes mellitus, chronic kidney disease, previous haemorrhagic stroke with residual hemiparesis, OSA, heavy smoking and previous myocardial infarction. His transthoracic echocardiography record showed preserved left ventricular (LV) ejection fraction, generalised increased LV wall thickness, a severely thickened anteroseptum and mild to moderately thickened inferolateral wall, suggestive of HCM without resting LVOT obstruction. Airway assessment suggested a difficult airway, with neck circumference >40 cm, Mallampati class IV and poor dentition with 2 very loose teeth.

The patient was counselled for significant cardiorespiratory risks of both GA and SA. A plan was made to attempt SA with readiness to convert to GA if required. A ramp pillow and difficult airway trolley were prepared as airway backup. Standard ASA monitoring was applied. An 18G intravenous cannula and left radial arterial line were inserted for continuous blood pressure monitoring. He was transferred and positioned sitting on the operating table with assistance. Ultrasound was used to identify and mark out the midline and L3-L5 interspinous spaces before skin preparation. Co-loading with 500 ml compound sodium lactate was commenced. A phenylephrine infusion was prepared and connected, ready for immediate treatment of hypotension from reduced afterload after spinal blockade. SA was then performed aseptically at L3-4 using a midline approach with a Quincke needle and 2.5 ml of 0.5% hyperbaric bupivacaine.

Sensory block was assessed with reduced sensation to T10 dermatome. The patient was positioned in lithotomy with minimal Trendelenburg tilt to minimise cephalad spread of the hyperbaric bupivacaine. Surgery proceeded uneventfully, no supplemental analgesia or sedation was required. He remained haemodynamically stable throughout, with mean arterial pressure maintained >70mmHg, and did not require vasopressor support. He was monitored in the post-anaesthesia care unit for 30 minutes before discharge to the ward.

Conclusion

SA is traditionally avoided in HOCM because sympathetic blockade may reduce venous return, preload and afterload, potentially worsening dynamic LVOT obstruction. However, with an understanding of the haemodynamic goals, invasive monitoring, judicious fluid administration and vasopressor preparation, neuraxial anaesthesia may be considered in selected patients with possible HCM physiology. This case highlights that SA can be a safe and effective alternative to high risk GA in selected emergency surgical patients.

2026-0402

Suspected Transient Horner's Syndrome Accompanying Local Anesthetic Systemic Toxicity after Ultrasound-Guided Axillary Brachial Plexus Block

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Introduction

Axillary brachial plexus block is favored for distal upper-extremity surgery, avoiding airway manipulation and respiratory depression. Horner's syndrome—ptosis, miosis, and anhidrosis—is well recognized after interscalene block and reported after infraclavicular block, but exceedingly rare after an axillary approach. We report a patient in whom transient neurologic symptoms were attributed to local anesthetic systemic toxicity (LAST), while an ipsilateral ptosis suggested additional oculosympathetic (Horner's-type) involvement.

Case

A 44-year-old woman (162 cm, 67 kg; ASA physical status III) was scheduled for left wrist hardware removal. She had severe asthma with impaired pulmonary function (FEV1 33%, FVC 38% predicted), syringomyelia, and ankylosing spondylitis. To avoid general anesthesia, an ultrasound-guided axillary block was performed. A 35-mL mixture of 20 mL of 2% lidocaine (400 mg) and 15 mL of 0.75% ropivacaine (112.5 mg) was prepared, and 30 mL was injected around the terminal nerves. Vital signs remained stable. Approximately 20 minutes later, the patient reported dizziness, diplopia, nausea, and subjective slurred speech without objective dysarthria; ptosis was noted in the ipsilateral (left) eye. Metallic taste, perioral numbness, cardiovascular changes, and convulsions were absent. Surgery began 30 minutes after the block and proceeded uneventfully under sedation with midazolam, propofol, and dexmedetomidine. In the postanesthesia care unit, dizziness and diplopia persisted while the ptosis improved. LAST was suspected, and 100 mL of 20% lipid emulsion was administered without improvement. Neurology was consulted, and diffusion-weighted brain MRI showed no acute abnormality, excluding stroke. Symptoms resolved within 6 hours without recurrence, and she was discharged in stable condition.

Conclusion

Transient Horner's syndrome may occur even after an axillary brachial plexus block. Here, the systemic symptoms were consistent with mild LAST, given the characteristic early CNS features and their onset shortly after injection, while a normal MRI and the absence of seizures excluded stroke and progressive toxicity. The isolated ipsilateral ptosis, unexplained by LAST, instead suggested oculosympathetic involvement from unexpected proximal spread of local anesthetic. Horner's syndrome should therefore be considered when such symptoms follow an axillary block, even when systemic toxicity seems primary. The diagnosis remains presumptive: miosis and anhidrosis were not assessed, and neither pharmacologic pupillary testing nor plasma local anesthetic levels were obtained. Further case reports and research are warranted.

2026-0403

When Blood Loss Exceeds Twice the Blood Volume: Anaesthetic Management of a Neonatal Pancreatic Head Teratoma

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Introduction

Congenital pancreatic head teratomas are an exceedingly rare neonatal tumour, and their proximity to major abdominal vessels creates a high risk of catastrophic haemorrhage during resection. This makes the anaesthetic management particularly challenging. The neonate's limited circulating blood volume and immature physiological reserve predispose to rapid haemodynamic deterioration and coagulopathy in the setting of catastrophic haemorrhage. We present the anaesthetic management of a neonate undergoing resection of a pancreatic head teratoma complicated by massive haemorrhage exceeding twice the circulating blood volume.

Case

A 2.8 kg late preterm neonate delivered at 36^{+5} weeks by elective Caesarean for an antenatally diagnosed retroperitoneal mass required immediate intubation for respiratory distress from abdominal splinting (Fig 1). Day-1 CT showed a 9.7×13.3×9.7 cm complex mass encasing the coeliac trunk and superior mesenteric artery with markedly raised alpha-fetoprotein (156,556 IU/mL) suggesting teratoma (Fig 2). Anticipating massive haemorrhage, blood products were pre-arranged and laparotomy performed on day 5 of life under general anaesthesia with invasive arterial and central venous monitoring, multimodal active warming, and prophylactic tranexamic acid.

Tumour dissection precipitated massive haemorrhage (600 mL, ~2.3× total blood volume), resulting in haemorrhagic shock, and consumptive coagulopathy. "Massive transfusion protocol was activated, with packed cells transfused alongside fresh frozen plasma, platelets, and cryoprecipitate in an approximate 1:1:1 ratio (total 618 mL against 600 mL estimated loss), with noradrenaline support up to 1mcg/kg/min.". At the nadir, venous blood gas revealed severe metabolic acidosis with haemoglobin of 3 g/dL. Serial blood gas analysis guided ongoing correction of ionised calcium and potassium, while blood glucose was closely monitored. Following aggressive haemostatic resuscitation and surgical control of bleeding, the patient's metabolic and haemodynamic status improved by end of surgery and noradrenaline weaned to 0.15 mcg/kg/min.

Histopathology confirmed an extragonadal immature pancreatic head teratoma. The neonate was successfully weaned off inotropes and extubated on day 16 of life.

Conclusion

This case highlights the importance of anticipatory, multidisciplinary preparation for anaesthetising neonates with vascular-encasing abdominal tumours, including early blood bank activation, invasive monitoring, and proactive haemostasis with tranexamic acid. Balanced massive transfusion, vigilant metabolic correction, and close surgical-anaesthetic communication were key to achieving a favourable outcome despite profound intraoperative haemorrhagic shock.

2026-0403

Figure & Table

Figure & Table 1.



Figure 1: Patient with marked abdominal distension after delivery (picture obtained with mother's consent)

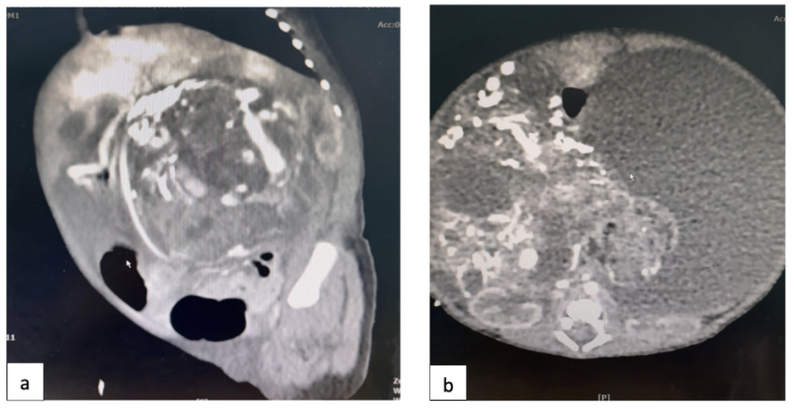


Figure 2 (a, b): CT imaging showing a large intra-abdominal complex solid cystic mass occupying the whole abdomen

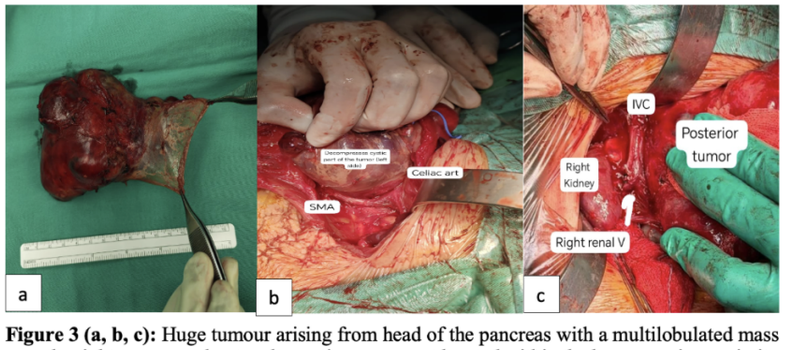


Figure 3 (a, b, c): Huge tumour arising from head of the pancreas with a multilobulated mass over the right upper quadrant and a cystic component located within the lesser sac, in proximity to the vascular and organ structures

ABSTRACT
Competition
Presentation
E-Poster

2026-0403

Figure & Table

Figure & Table 2.

Parameter	Preoperative	Intraoperative	Postoperative (Day 1)
Hemoglobin (g/dL)	15.1	3.0 (nadir) → 12.4 (end of op)	13.2
Platelets (x10⁹/L)	208	-	96
pH	-	7.099 (nadir) → 7.286 (end of op)	-
pCO2/ pO2 (mmHg)	-	46.9/28.3 → 46.2/56.4	35.1/ 67.6
Bicarbonate (mmol/L)	-	13.4 → 22.0	19.7
Base Excess (mmol/L)	-	-15.0 → -4.9	-5.1
Lactate (mmol/L)	-	5.2 → 5.1	2.9
Fibrinogen (g/L)	Not measured	Not measured	Not measured
Coagulation INR/aPTT/PT	1.2/59/13.4	-	1.7/44/18
Renal Profile Na/K/Urea/Creat	136/4.7/5.7/91	-	134/3.4/4.8/91
Liver Function Test AST/ALT/ALP/Albumin	26/6/130/29	-	74/31/84/22

NOTE: Intraoperative venous blood gas values reflect the peak of the haemorrhagic crisis (nadir) and end-of-operation recovery following massive transfusion. Serum fibrinogen was not measured; disseminated intravascular coagulation could therefore not be formally confirmed despite biochemical evidence of consumptive coagulopathy.

2026-0404

Postoperative Pain Management Using Bolus Doses Through an Adductor Canal Catheter Placed with an Epidural Catheter Set Following Total Knee Arthroplasty: A Case Report

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Introduction

Total knee arthroplasty (TKA) is a widely performed orthopedic procedure that replaces a damaged knee joint with a prosthetic implant to restore joint function and mobility. However, TKA is associated with substantial postoperative pain, making effective analgesia essential for functional recovery and early mobilization. While single-shot peripheral nerve blocks provide relatively short-lived analgesia, catheter placement enables prolonged administration of local anesthetics through continuous infusion or intermittent bolus dosing. In this case, we describe the use of an epidural catheter set for adductor canal blockade following TKA, with intermittent bolus administration of local anesthetic guided by the patient's pain intensity, resulting in effective postoperative analgesia.

Case

A 65-year-old woman with grade IV osteoarthritis of the right knee was scheduled for right total knee arthroplasty under spinal anesthesia. She weighed 70 kg, was 154 cm tall, and had a BMI of 29.5 kg/m². Her medical history was significant for well-controlled grade II hypertension. On arrival in the operating room, her blood pressure was 133/74 mmHg, heart rate was 76 beats/min, and SpO_2 was 96%. Spinal anesthesia was administered at the L3–L4 interspace using 2.5 mL of 0.5% isobupivacaine, achieving a T10 sensory block. After completion of surgery, an adductor canal catheter was placed under ultrasound guidance using a Tuohy needle and epidural catheter set. The adductor canal catheter was placed under ultrasound guidance using an 18-gauge Tuohy needle and an epidural catheter set. The transducer was initially positioned in the short-axis orientation to identify the adductor canal and adjacent neurovascular structures. The needle was advanced in-plane toward the canal, and after positioning the tip adjacent to the saphenous nerve, the transducer was rotated to the long-axis orientation. The catheter was then advanced longitudinally along the saphenous nerve using the in-plane technique. This longitudinal approach was chosen to minimize catheter kinking and potential injury to adjacent neural and vascular structures while improving catheter stability and reducing dislodgement. Following confirmation of catheter placement and negative blood aspiration, 15 mL of 0.375% ropivacaine was administered. At 1 hour postoperatively, the patient reported an NRS pain score of 0/10. After transfer to the ward, four intermittent 5-mL boluses of 0.375% ropivacaine were administered through the catheter, maintaining NRS scores of 0–1/10. Motor function was preserved, with an MRC quadriceps muscle strength score of 4–5/5. On postoperative day 1, NSAID was initiated as rescue analgesia for breakthrough pain. The catheter was removed on postoperative day 3. No erythema, swelling, tenderness, or signs of nerve irritation were observed at the catheter insertion site. The patient was able to stand on postoperative day 1 and ambulate with support on postoperative day 2, without evidence of quadriceps weakness.

Conclusion

Inadequately controlled postoperative pain following TKA may adversely affect clinical outcomes, delay ambulation, prolong hospitalization, and increase the risk of complications, including deep vein thrombosis and thromboembolism. In this case, placement of an adductor canal catheter with intermittent bolus administration of local anesthetic provided sustained and effective analgesia while preserving motor function and facilitating early functional recovery.

2026-0409

Enhancing Airway Evaluation and Management by POCUS

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Background

Point of care ultrasound is a valuable, real-time bedside imaging tool in anesthesiology, emergency medicine, and critical care. It overcomes traditional airway assessment limitations in emergency scenarios,altered anatomy, by offering rapid visual confirmation of airway structures, endotracheal tube (ETT) placement, and critical landmarks across perioperative and intensive care settings.

Methods

Equipment: High-frequency linear transducer (8-13 MHz) for shallow upper airway imaging (1-3 cm depth).

1) Anatomical Mapping & Pre-Intubation Assessment

Hyoid Bone: Transverse view above thyroid notch; visualizes a hyperechoic curve with posterior acoustic shadow.

Hyomental Distance (HMD): Distance from hyoid bone to mandibular symphysis. Extended HMD <5 cm predicts difficult laryngoscopy.

Pre-epiglottic Space Thickness (REST): Measured at the thyrohyoid membrane. Thickness >2.5 cm indicates potential difficult mask ventilation or intubation.

2) Front-of-Neck Access Landmarks (TAMS Method)

Sweep: Sagittal midline sweep from submental area to sternum.

Tracheal Rings: Visualized via the "String-of-Pearls" sign (rounded hypoechoic cartilages).

Cricoid Cartilage & Membrane: Locate the larger cricoid cartilage superiorly and identify the hyperechoic bridging Cricothyroid Membrane for emergency cricothyroidotomy (cannot intubate, cannot ventilate scenarios).

3) ETT Placement Verification

Tracheal Confirmation: Transverse probe placement at suprasternal notch during intubation.

Tracheal placement: Single bright air-mucosa interface with posterior shadowing.

Esophageal intubation: Visualized as a second adjacent air lumen ("Double-Lumen Sign").

4) Depth & Lung Verification

Bilateral Assessment: Probe at 3rd/4th intercostal space, midclavicular line.

Bilateral Lung Sliding: Confirms double-lung ventilation.

Absence of Left Sliding: Indicates right mainstem endobronchial intubation; pull back ETT until sliding returns.

Results

Difficult Airway Prediction: REST (>2.5 cm) & HMD ratio demonstrated high accuracy (Sensitivity: 82–88%, Specificity: 85–92%), outperforming traditional physical exams.

ETT Confirmation: Suprasternal sonography achieved 98–100% accuracy, detecting esophageal placement within 5–10 seconds.

Landmark Identification: Reduced CTM localization error in obese or distorted anatomy from 30–50% (palpation) to <5%.

Tracheal Sizing/Pathology: Subglottic diameter measurements accurately guided tube sizing and detected dynamic airway changes.

Conclusion

Airway POCUS is a real-time adjunct that enhances procedural safety and diagnostic accuracy in critical care and perioperative settings. Establishing standardized training guidelines will be crucial for integrating POCUS into universal standard practice.

2026-0409

Figure & Table

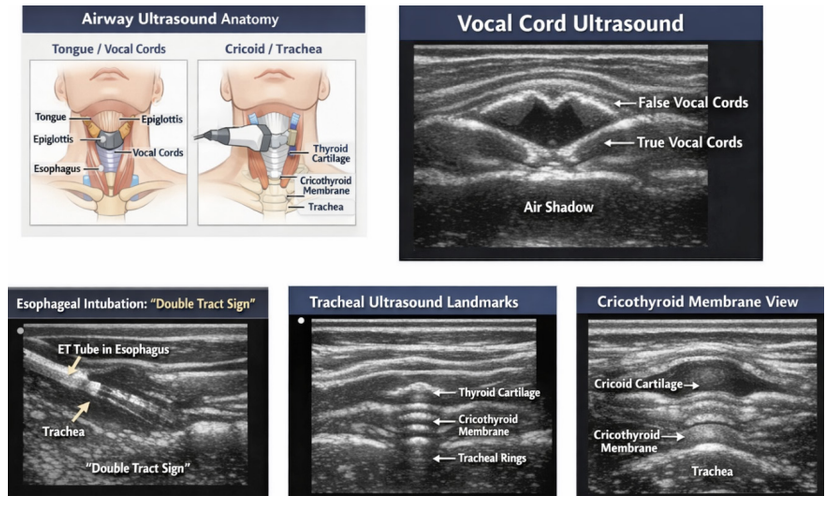
Figure & Table 1.

Core Sonographic Indicators

CLINICAL GOAL	PROBE POSITION	KEY SONOGRAPHIC FINDINGS	SIGNIFICANCE
Difficult Airway Prediction	Transverse Thyrohyoid	Distance from skin to epiglottis (>2.5 cm)	Predicts difficult laryngoscopy/mask ventilation
ETT Placement	Transverse Suprasternal Notch	"Single lumen" vs. "Double lumen sign"	Instantly distinguishes tracheal vs. esophageal intubation
Selective Intubation	Bilateral Midclavicular Line	Bilateral "Lung Sliding" (Seashore Sign on M-Mode)	Excludes right/left mainstem hyper-intubation
Cricothyroidotomy Prep	Sagittal Anterior Neck	Hyperechoic band between Thyroid & Cricoid	Accurately locates CTM when palpation is obscured

- Dr. Aruna Bharti (SGPGIMS, Lucknow, U.P, India.)

Figure & Table 2.



ABSTRACT
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2026-0422

A Case Report of Severe Anaphylactic Reaction to Sugammadex with Cardiac Arrest and Neurological Sequelae Following Robot-Assisted Partial Nephrectomy

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Introduction

Sugammadex is used to reverse neuromuscular blockade by forming stable 1:1 complexes with rocuronium. Despite its widespread clinical acceptance and generally favorable safety profile, recent studies report that sugammadex-induced anaphylaxis occurs in approximately 0.02–0.04% of cases. The mechanism of sugammadex-induced anaphylaxis remains incompletely understood. We report a severe anaphylactic reaction to sugammadex after robot-assisted partial nephrectomy (RAPN), resulting in cardiac arrest, prolonged resuscitation, and neurological sequelae.

Case

A 43-year-old male with no prior history or allergies underwent RAPN for a 3.2-cm renal mass. Anesthesia was induced with propofol 150 mg and rocuronium 50 mg, and maintained with remifentanil and desflurane. Hemodynamics remained within 20% of baseline throughout the operation.

Postoperatively, ramosetron was given for antiemetic prophylaxis, with a 4 mL loading dose of patient-controlled intravenous analgesia (PCIA). Neuromuscular monitoring showed incomplete recovery, and sugammadex 200 mg was given for reversal.

During preparation for transfer to the post-anesthesia care unit, the patient developed opisthotonic convulsions, apnea, and pulseless ventricular fibrillation. Cardiopulmonary resuscitation (CPR) was initiated. Arterial blood gas showed severe acidosis and electrolyte disturbances. Calcium gluconate, dextrose, dopamine, dobutamine, and a cumulative 23 mg epinephrine were given, with compressions sustained through nine defibrillations. Due to prolonged arrest without sustained return of spontaneous circulation (ROSC), extracorporeal membrane oxygenation (ECMO) was initiated at 37 minutes, achieving ROSC. Recurrent arrest occurred in the intensive care unit, managed with CPR, lidocaine, sodium bicarbonate, epinephrine, and 10 additional defibrillations, again achieving ROSC.

Cardiology work-up, including transesophageal echocardiography, showed no significant findings. Neurological evaluation and electroencephalography (EEG) suggested hypoxic brain injury. Magnetic resonance imaging (MRI) the following day showed subtle diffusion-weighted imaging (DWI) hyperintensity in bilateral frontoparietal regions, consistent with cytotoxic edema. Targeted temperature management was applied for 24 hours post-ECMO.

On post-incident day 6, the patient responded minimally to verbal commands. At 1 month, a provocation test confirmed a positive reaction to sugammadex, confirming sugammadex-induced anaphylaxis as the cause. At 4 months, MRI normalized, and by 7 months, language and motor function had recovered to near-baseline levels.

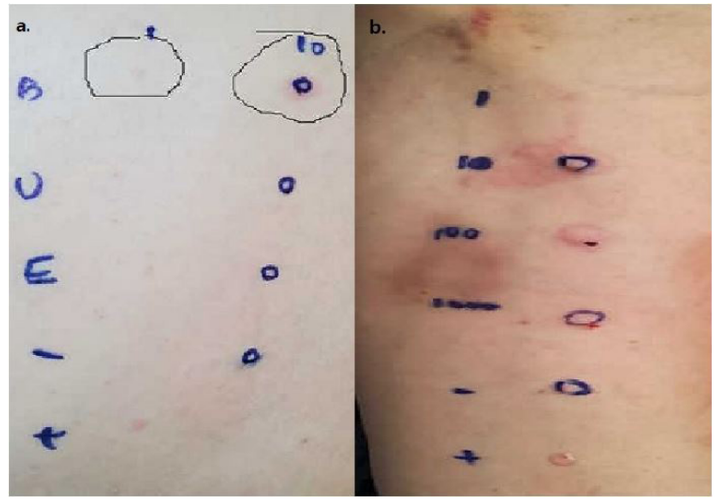
Conclusion

Although sugammadex is a highly effective and commonly used neuromuscular reversal agent, anesthesiologists must remain vigilant for potentially life-threatening adverse reactions. Continuous monitoring, readiness for immediate intervention, and heightened awareness of the early signs of cardiovascular instability are essential components of safe clinical practice during emergence from anesthesia.

2026-0422

Figure & Table

Figure & Table 1.



ABSTRACT
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2026-0428

Acute Kidney Injury Is Associated with Prolonged ICU Stay and Renal Replacement Therapy after Living-Donor Liver Transplantation: A Single-Center Cohort Study

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Background

Acute kidney injury (AKI) is a frequent complication after liver transplantation (LT), yet its impact on postoperative recovery and resource utilization in living-donor LT (LDLT) programs from resource-limited settings, and its relevance to perioperative and critical care management, remains less characterized than its incidence or risk factors. We aimed to evaluate the association between post-LT AKI, its severity, and short-term clinical outcomes in a single-center LDLT cohort.

Methods

We retrospectively studied 50 consecutive adult LDLT recipients. AKI was staged using KDIGO creatinine criteria, comparing baseline and 7-day postoperative peak creatinine. Patients were grouped by AKI status (present/absent) and severity (stage 0–1 vs stage 2–3). ICU stay, hospital stay, mechanical ventilation duration, need for renal replacement therapy (RRT), and 90-day mortality were compared using Fisher's exact test and the Mann-Whitney U test.

Results

AKI occurred in 28/50 patients (56%). Patients with AKI more often had a prolonged ICU stay (>7 days): 12/28 (43%) vs 3/22 (14%) without AKI (OR 4.75, 95% CI 1.14–19.84; p=0.033); AKI stage correlated positively with ICU length of stay (Spearman rho=0.33; p=0.021). Severe AKI (KDIGO stage 2–3, n=9) carried disproportionate risk for RRT or 90-day mortality: 3/9 (33%) vs 0/41 (0%) with stage 0–1 (p=0.004); overall, 3 patients (6%) required RRT and 2 (4%) died within 90 days, all among AKI cases. Hospital stay and mechanical ventilation duration did not differ significantly between groups.

Conclusion

Beyond its high incidence, post-LDLT AKI, particularly severe stages, was associated with meaningfully worse short-term outcomes, including prolonged ICU stay and markedly increased risk of RRT or death. These findings indicate that AKI is a clinically consequential complication warranting proactive perioperative renal-protective strategies, close postoperative surveillance, early nephroprotective intervention, and attention to modifiable intraoperative risk factors by the anesthesia and critical care team.

2026-0428

Figure & Table

Figure & Table 1.

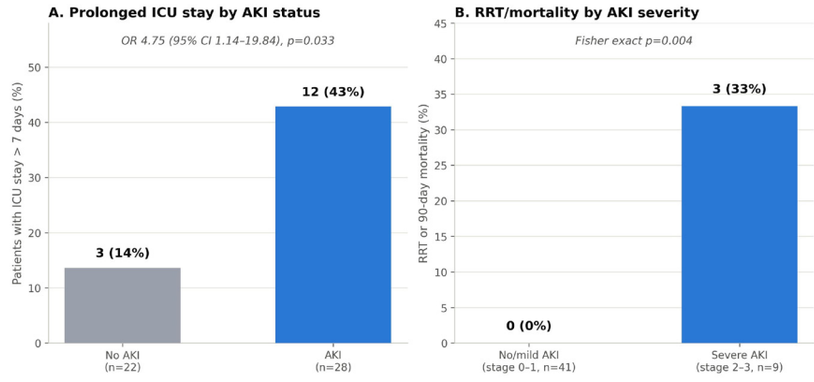


Figure & Table 2.

A. Outcomes by AKI Status

Outcome	AKI (n=28)	No AKI (n=22)	p-value
ICU stay > 7 days	12 (43%)	3 (14%)	0.033
RRT	3 (11%)	0 (0%)	—
90-day mortality	2 (7%)	0 (0%)	—
Hospital stay	n.s.	n.s.	n.s.
Mech. ventilation duration	n.s.	n.s.	n.s.

B. Outcomes by AKI Severity

Metric	Value	p-value
RRT or 90-day mortality (stage 2–3 vs. 0–1)	33% vs. 0%	0.004
ICU LOS vs. AKI stage (Spearman correlation)	rho = 0.33	0.021

ABSTRACT
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2026-0429

The Diagnostic Accuracy of Thyromental Height Test as a New Anatomical Airway Measurement for Predicting Difficult Laryngoscopy in Surgical Patients

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Background
Accurate preoperative prediction of difficult laryngoscopy remains an important component of airway assessment and perioperative patient safety. This study aimed to evaluate the diagnostic accuracy of the Thyromental Height Test (TMHT) compared with Modified Mallampati Test (MMT), Thyromental Distance (TMD), and Sternomental Distance (SMD) for predicting difficult laryngoscopy, and to determine the optimal TMHT cut-off value using receiver operating characteristic (ROC) curve analysis.

Methods
This cross-sectional observational study included 103 adult patients (ASA physical status I–II) undergoing elective surgery requiring endotracheal intubation at Hospital Al-Sultan Abdullah, UiTM Puncak Alam. Preoperative TMHT, MMT, TMD, and SMD assessments were performed before direct laryngoscopy. Glottic view was graded according to the Cormack–Lehane (CL) classification, with CL grades III-IV defined as difficult laryngoscopy. Diagnostic accuracy was assessed using ROC curve analysis, sensitivity (Sn), specificity (Sp), positive predictive value (PPV), and negative predictive value (NPV).

Results
Difficult laryngoscopy occurred in 17 patients (16.5%). TMHT demonstrated the highest area under the curve (AUC) of 0.67 (95% CI: 0.54–0.81), followed by MMT (AUC 0.64), TMD (AUC 0.63), and SMD (AUC 0.63). ROC analysis identified an optimal TMHT cut-off value of 5.5cm. TMHT showed the highest sensitivity of 94.12% and NPV of 97.06%, while MMT demonstrated the highest specificity (95.35%) and PPV (42.86%). TMHT had low specificity (38.37%) and PPV (23.19%). Overall, TMD and SMD were less effective screening tools for difficult laryngoscopy due to their lower sensitivity (11.76% and 17.65% respectively).

Conclusion
Among the airway assessment tests evaluated, TMHT demonstrated the highest sensitivity, negative predictive value and overall discriminative ability for predicting difficult laryngoscopy. However, no single bedside airway assessment was sufficiently accurate when used alone. TMHT proves to be a useful adjunct screening tool for predicting patients at risk of difficult laryngoscopy. This study provides preliminary local validation data on the use of TMHT in Malaysian surgical patients.

2026-0434

Upper-Limb Compartment Syndrome Following Rapid Infusion Catheter Extravasation During Orthotopic Liver Transplantation

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Introduction
Rapid infusion catheters (RICs) provide high-flow peripheral venous access during major haemorrhage but can cause severe tissue injury if pressurised infusion becomes extravascular. Recognition may be delayed during general anaesthesia when the limb is concealed by surgical drapes. We report acute upper-limb compartment syndrome caused by RIC extravasation during orthotopic liver transplantation.

Case
A woman in her late 60s with decompensated cryptogenic cirrhosis underwent urgent liver transplantation. Four hours before surgery, attempted placement of an 8.5 Fr RIC in the left antecubital fossa was abandoned because of guidewire resistance. Immediately before incision, a second 8.5 Fr RIC was inserted at the same site under real-time ultrasound guidance. Intraluminal position was confirmed and a 20 mL saline flush produced no resistance, swelling or leakage. The arm was subsequently covered by warming and surgical drapes. Approximately 4.5 L of blood products and resuscitation fluid were delivered through the RIC circuit over two hours using a rapid infuser, with no documented high-pressure alarm. During the dissection phase, potassium increased to 6.1 mmol/L and lactate to 5.2 mmol/L, prompting reassessment. Examination beneath the drapes revealed a cool, dusky hand with an absent radial pulse, tense swelling, extensive ecchymosis, epidermolysis and haemorrhagic bullae. RIC infusion was stopped immediately and plastic surgery performed urgent decompression in parallel with transplantation. Approximately 50–100 mL of haematoma was evacuated and the anterior upper-arm compartment released. Distal perfusion improved following decompression. The wound underwent delayed primary closure, and the patient had full motor and sensory function at hospital discharge and six-week follow-up. The patient provided written informed consent for publication of the clinical details and photographs contained in this report. Institutional ethics review was not required for this single-patient case report under local policy.

Conclusion
Pressurised infusion through a large-bore peripheral catheter can cause limb-threatening extravasation despite apparently satisfactory ultrasound confirmation, an unremarkable test flush and absence of a pressure alarm. Persistent or unexplained guidewire resistance should prompt reassessment, and potentially traumatised veins should be avoided for subsequent high-pressure infusion when alternative access is available. High-flow peripheral access sites should remain visible whenever feasible or undergo planned reinspection during use. Early recognition, cessation of infusion and urgent surgical decompression can result in complete functional recovery.

2026-0434

Figure & Table

Figure & Table 1.

Figure 1. Clinical appearance at recognition of the complication. (A) Marked swelling and extensive ecchymosis at the left antecubital fossa and proximal volar forearm, with haemorrhagic bullae and epidermolysis adjacent to the rapid infusion catheter site. (B) Dusky discolouration of the digits with an absent radial pulse on palpation. The photographs are presented with patient consent.

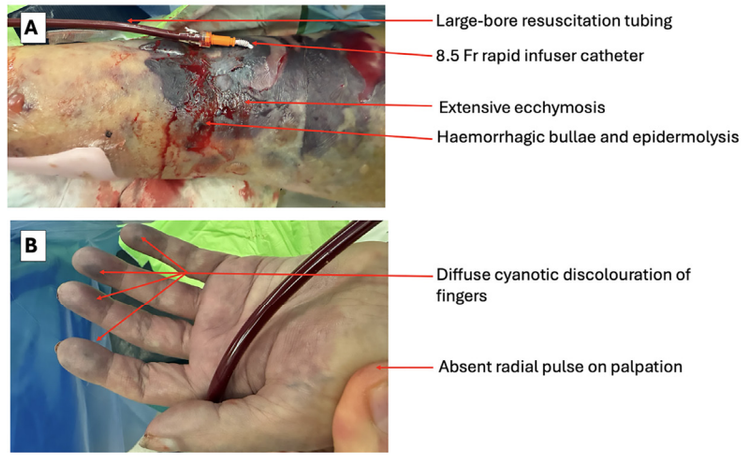
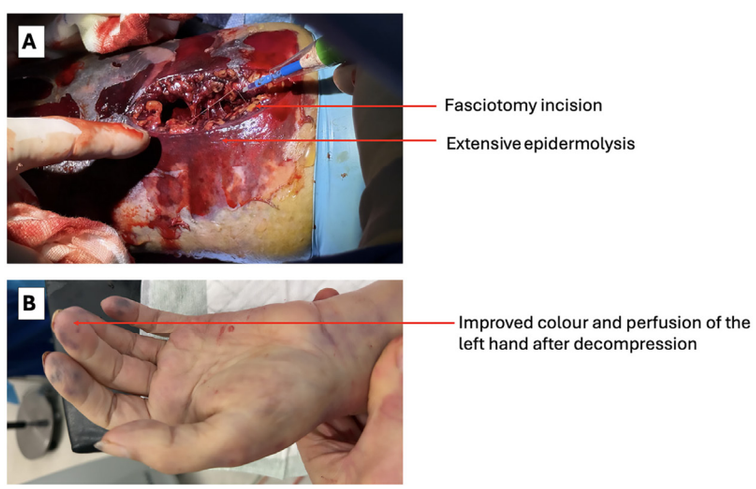


Figure & Table 2.

Figure 2. Surgical decompression and early improvement in distal perfusion. (A) Longitudinal decompression incision over the distal anterior upper arm with surrounding epidermolysis, haemorrhagic staining and oedematous tissue; approximately 50-100 mL of haematoma was evacuated. (B) Improved colour of the left hand approximately 30 minutes after decompression; capillary refill had improved to approximately four seconds.



2026-0438

Case Report: Plasmapheresis in Treatment and Medications of Tetanus

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Introduction

Tetanus is a severe, life-threatening disease caused by the potent neurotoxin tetanospasmin, which is produced by the anaerobic bacterium Clostridium tetani. Conventional management relies heavily on supportive care, deep sedation, neuromuscular blockade, wound debridement, and the administration of human tetanus immunoglobulin (HTIG) to neutralize unbound tetanospasmin. However, these traditional methods do not rapidly eliminate circulating tetanospasmin. Plasmapheresis has emerged as an innovative treatment designed to filter the patient's blood by actively removing unbound tetanospasmin and acute inflammatory markers, thereby preventing further presynaptic binding of tetanospasmin.

Case

A 48-year-old male construction worker presented to the emergency department with sudden lower back stiffness, progressive dysphagia, and marked trismus (with a 3.5-cm limitation in mouth opening). These symptoms developed nine days after he sustained an inadequately managed nail puncture wound to his left sole. He was diagnosed with generalized tetanus (Ablett Grade II) with a moderate mortality risk (Dakar score: 10-20%). Despite aggressive standard intensive care—including mechanical ventilation, escalating doses of HTIG (up to 3,000 IU), broad-spectrum antibiotics, and heavy multi-agent chemical sedation (propofol, thiopental, and diazepam drips)—the patient's condition deteriorated. By day six, he entered a refractory state, experiencing prolonged, generalized spasms.

To address the severe refractory toxemia, a multidisciplinary team initiated two cycles of plasmapheresis therapy. During the first plasmapheresis session, the patient showed improvement in the duration and frequency of spasms. After the second plasmapheresis session, the spasms and other classic tetanus symptoms resolved, leaving residual rigidity to be managed with physiotherapy. The patient also developed sepsis and ventilator-associated pneumonia due to prolonged mechanical ventilation, which were adequately treated with antibiotics, organ support, and tracheostomy. The patient eventually was liberated from ventilator and is currently undergoing rehabilitation to address residual rigidity and neuropathy to achieve complete functional recovery.

Conclusion

Plasmapheresis can effectively clear circulating tetanospasmin, offering relief from severe refractory tetanus symptoms and hindering the risk of further complications. Even though the plasmapheresis was administered in later time, the patient could still experience benefit from the treatment. Although plasmapheresis is not yet a standard recommendation in current tetanus guidelines, this report provide clinical evidence supporting its potential efficacy as an adjunctive therapy, highlighting the need for larger, multicenter trials to validate its role in future treatment protocols.

2026-0442

Perioperative Management of a 1-Month-Old with Cyanotic Congenital Heart Disease for Emergent Myelomeningocele Closure

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Introduction

The concurrent presentation of a neural tube defect requiring early surgical repair and a significant cyanotic congenital heart disease (CHD) in a neonate presents a formidable anaesthetic challenge. Myelomeningocele, a neural tube defect characterized by herniation of neural tissues and cerebrospinal fluid, is frequently associated with other congenital anomalies, including cardiac defects. The urgency for early surgical closure to prevent infection and further neurological compromise is often complicated by the presence of haemodynamically significant CHD.
The physiological impact of cyanotic lesions, particularly those with right-to-left shunting, creates a delicate hemodynamic balance. Anesthetic management must be meticulously tailored to avoid alterations in systemic and pulmonary vascular resistance that can exacerbate shunting, worsen hypoxemia, or precipitate cardiovascular collapse. Studies have consistently demonstrated that a diagnosis of CHD significantly increases the mortality risk for neonates and infants undergoing non-cardiac surgery. This case highlights the critical importance of a multidisciplinary approach in managing this high-risk scenario.

Case

This is a case of a 1-month-old infant who was admitted upon birth due to multiple congenital anomalies. During preoperative assessment, patient weighed 2660 grams, with an oxygen saturation maintained at 50-70%. Central cyanosis, an adynamic precordium, a grade 3/6 cardiac murmur, soft bulging fontanelles. and a 3cm x 3cm thoracolumbar myelomeningocele, with motor tone of both lower extremities were noted. Other laboratory workups were unremarkable. 2D Echocardiography revealed a Tricuspid valve atresia, Pulmonary valve atresia, Patent Ductus Arteriosus, and a trivial Mitral regurgitation.
Standard monitors were used, including pre-ductal and post-ductal pulse oximeters. The patient was induced under general endotracheal anesthesia, maintained with Sevoflurane using a Jackson-Rees circuit, and underwent primary closure and repair of myelomeningocele, with no remarkable intraoperative events. Patient's vital signs intraoperatively were: blood pressure ranging from 80-100/50-70, heart rate at 122-164, respiratory rate at 40-50, and oxygen saturation preductal was 52-95% and postductal was 50-92%. Patient was extubated fully awake, with good activity and good cry, and was transferred to the neonatal intensive care unit for close monitoring.

Post-operatively, the patient had stable vital signs, and with no observable post operative complications noted.

Conclusion

This case demonstrates that primary myelomeningocele repair can be safely performed in a one-month-old infant with uncorrected cyanotic congenital heart disease (tricuspid atresia, pulmonary atresia, PDA-dependent pulmonary circulation) through meticulous perioperative planning. Successful management hinged upon maintaining ductal patency, preserving the balance between pulmonary and systemic vascular resistances, and utilizing pre- and post-ductal pulse oximetry to continuously monitor shunting dynamics.

2026-0442

Figure & Table

Figure & Table 1.



ABSTRACT
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2026-0444

Occurrence and Impact of Back Pain on the Quality of Life of Healthcare Workers

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Background
Low back pain (LBP) is one of the most common work–related health problems, affecting health care professionals. For example, among nurses, a high prevalence of low back pain has been reported globally to be 64% in Africa, 72% in the USA, 77% in Turkey and 91% in Japan. High workload and stress for nurses in addition to the nature of the job tasks such as patient handling activities are believed to be risk factors for low back pain causing reduced productivity and presenteeism. The aim of this study was to determine the interdependences between subjective disability and their correlation with pain intensity and quality of life assessment among professionally active workers (nurses and assistant nurse).

Methods
The cross-sectional study enrolled 128 professionally active medical workers (nurses, assistant nurses) in the First Central Hospital of Mongolia. The study was conducted by a diagnostic survey method using 4 questionnaires: Visual Analogue Scale (VAS), Oswestry Disability Index (ODI), World Health Organization Quality of Life BREF (WHOQoL-BREF), and the authors' questionnaire.

Results
Back pain was reported by 120 respondents (93.7%). Moderate pain (pain score 4-6) was reported (Diagram 1.) by 51% of respondents and was associated with hours spent lifting heavy objects at work (p=0.002). ODI questionnaire confirmed I (minimal) and II (moderate) degrees of disability in nurses and assistant nurses. Correlations between age and ODI disability were demonstrated (p=0.004), and between ODI disability and hours spent lifting heavy objects at work (p =0.003), VAS and ODI disability (p<0.0001), ODI disability and physical health (p<0.0001) and psychological health (p<0.0001) (Table 1).

Conclusion
Back pain associated with professional activities is the consequence of overload. Health care workers should be included in a preventive programme and attend systematic ergonomics courses. Health care facilities should be retrofitted with equipment enabling work in accordance with the principles of ergonomics. The ODI questionnaire, together with the VAS method and scales for testing the quality of life, are useful tools in the clinical assessment of individuals with back pain.

2026-0444

Figure & Table

Figure & Table 1.

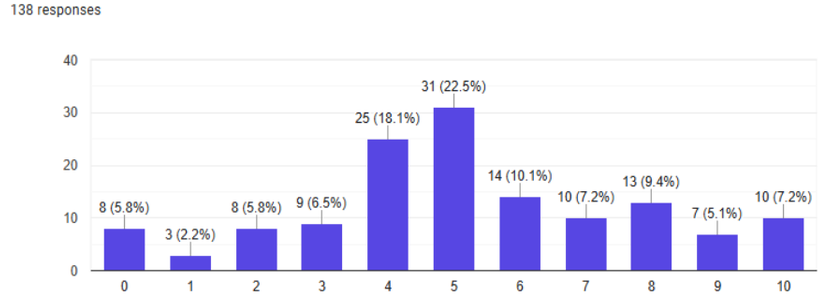
Figure 2. Correlations between ODI and independent variables (age, weekly working time, hours spent lifting heavy objects at work, VAS) and WHOQoL-BREF domain.

	Level of ODI disability	
	r	p value
Age	0.25	**0.004**
Weekly working time	-0.084	0.345
Hours spent lifting heavy objects at work	0.259	**0.003**
VAS	0.425	**<0.001**
Physical Health domain	-0.487	**<0.001**
Psychological domain	-0.31	**<0.001**
Social Relationships domain	-0.172	0.052
Environmental domain	-0.062	0.484

r – Pearson correlation

Figure & Table 2.

Figure 1. Perception of pain measured by VAS



ABSTRACT
Competition
Presentation
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2026-0449

Unexpected Failure of Videolaryngoscopy Due to Lingual Tonsillar Hypertrophy in a Patient with Crouzon Syndrome and Ankylosing Spondylitis : A Case Report

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Introduction

Crouzon syndrome may complicate facemask ventilation and tracheal intubation because of craniofacial abnormalities.[1,2] Ankylosing spondylitis further increases airway risk by severely restricting cervical spine mobility.[3] Lingual tonsillar hypertrophy (LTH) is an underrecognized supraglottic pathology that may cause unexpected difficult or failed intubation.[4,5] Current guidelines emphasize early recognition, avoidance of repeated attempts, maintenance of oxygenation, and prompt transition to an alternative strategy.[6,7,9] We report complete videolaryngoscopic failure followed by successful awake fiberoptic intubation after identification of LTH.

Case

A 54-year-old man (ASA II; 65.9 kg) with Crouzon syndrome and ankylosing spondylitis was scheduled for thoracic surgery. He had undergone corrective two-jaw surgery 25 years earlier and had no symptoms of obstructive sleep apnea, dysphagia, voice change, or chronic airway obstruction. Airway examination showed a 5-cm mouth opening, markedly limited neck extension, and Mallampati class III. Although awake fiberoptic intubation was considered, videolaryngoscopy was initially selected because mouth opening was preserved and previous maxillofacial surgery suggested adequate glottic visualization.

After induction, mask ventilation was adequate with an oral airway adjunct. Videolaryngoscopy revealed no laryngeal structures (Cormack-Lehane grade IV), and the larynx appeared fixed despite optimization maneuvers. Further attempts were abandoned, and the patient was awakened for awake fiberoptic intubation.

Awake oral fiberoptic intubation was performed in the semi-sitting position while maintaining spontaneous ventilation. Oxygen was delivered by nasal cannula at 8 L/min and 10% lidocaine spray was applied orally. Transtracheal injection and superior laryngeal nerve block were unsuccessful because anterior neck landmarks were difficult to identify and the neck structures were rigid. Fiberoptic examination revealed marked LTH encroaching on the epiglottis (Fig. 1) and atypical perilaryngeal soft tissue intermittently covering the laryngeal inlet (Fig. 2). Additional 2% lidocaine was sprayed through the bronchoscope working channel three times (2 mL each), and tracheal intubation was achieved with a 6.5-mm endotracheal tube on the second attempt. Anesthesia was re-induced and surgery proceeded uneventfully.

Conclusion

In patients with Crouzon syndrome and ankylosing spondylitis, occult LTH may cause complete videolaryngoscopic failure despite acceptable preoperative airway findings. Early transition to awake fiberoptic intubation while maintaining spontaneous ventilation is important.

2026-0449

Figure & Table

Figure & Table 1.



Fig. 1 Marked lingual tonsillar hypertrophy (yellow arrows), surrounding and partially burying the epiglottis (blue arrow), resulting in near-complete obscuration of the laryngeal inlet.

Figure & Table 2.

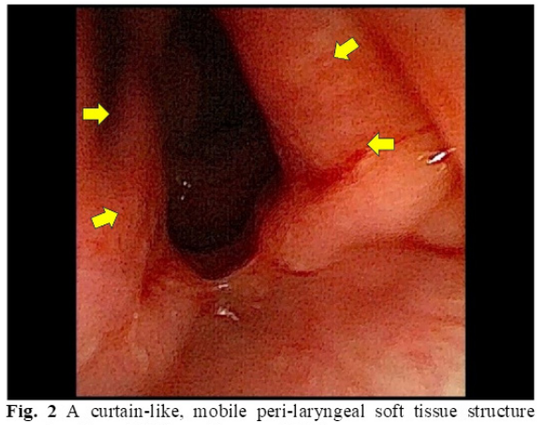


Fig. 2 A curtain-like, mobile peri-laryngeal soft tissue structure (yellow arrows) intermittently covering the epiglottis and laryngeal inlet.

ABSTRACT
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2026-0453

Navigating a Minefield: Scoliosis Correction Surgery in a Patient with Noonan Syndrome, Pulmonary Hypertension, Type 2 Von Willebrand Disease and History of Anaphylactic Shock to Fresh Frozen Plasma

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Introduction

Noonan syndrome is a multisystem genetic disorder associated with congenital cardiac disease, musculoskeletal deformities, respiratory impairment and coagulation abnormalities, making major surgery particularly challenging. In scoliosis correction surgery, these risks are amplified by the potential for massive blood loss. We present a patient whom conventional haemostatic management was not feasible due to underlying type II von Willebrand disease and a previous anaphylactic reaction to fresh frozen plasma.

Case

Our case was a 17-year-old boy (28 kg) with Noonan syndrome underwent elective posterior spinal fusion T2-L4 for his severe thoracolumbar scoliosis with a Cobb Angle of 80º. He had severe restrictive lung disease with pulmonary hypertension, complex congenital heart disease, bronchial asthma, severe pectus excavatum, type II von Willebrand disease, hiatus hernia grade 3 and G6PD deficiency. His progressive restrictive physiology resulted in worsening effort intolerance and orthopnoea. A previous attempt at this corrective surgery had been abandoned following an anaphylactic shock to fresh frozen plasma transfusion.

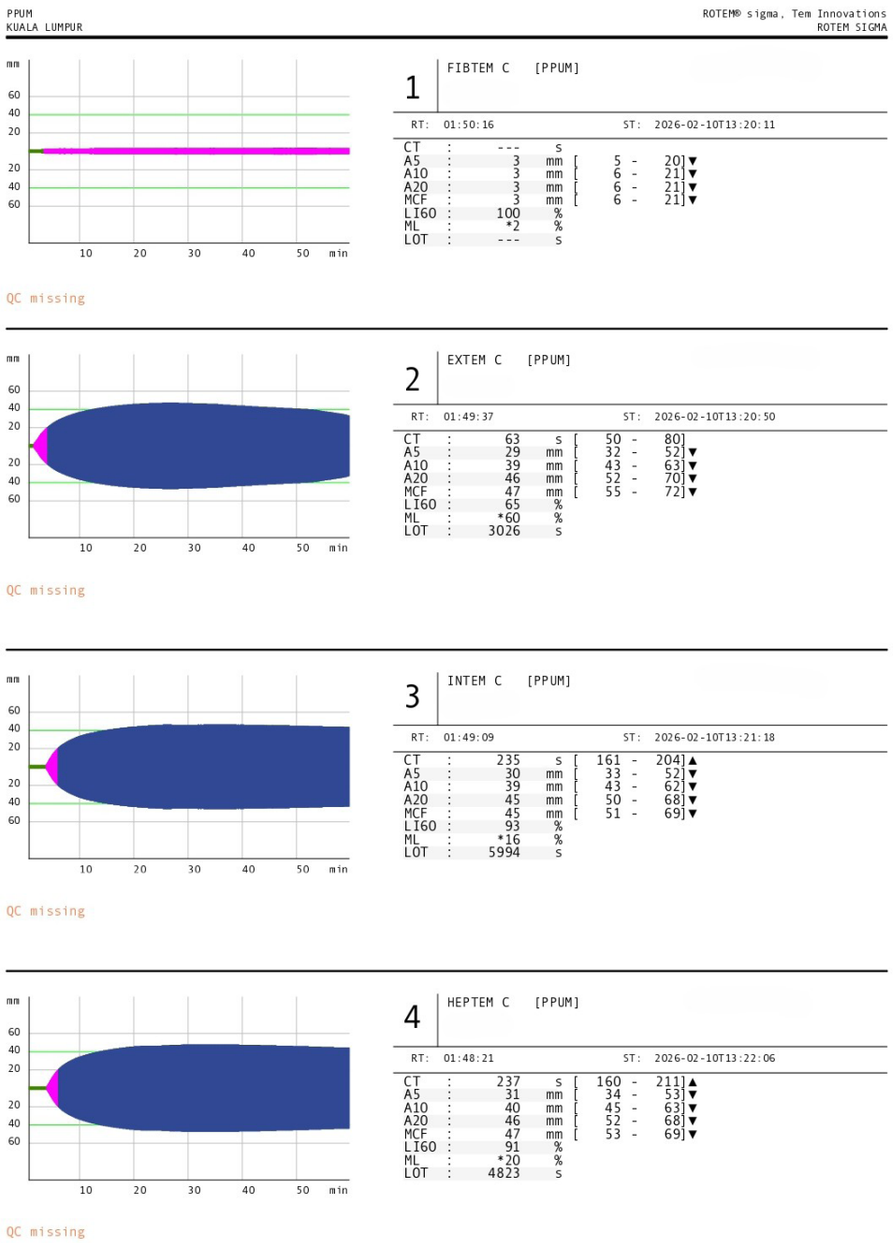
Following preoperative administration of Alphanate (plasma-derived complex of Factor VIII and von Willebrand factor), tranexamic acid and anaphylaxis prophylaxis, general anaesthesia was induced with modified rapid sequence induction, and maintained with total intravenous anaesthesia. His haemostatic management was guided by serial rotational thromboelastometry (ROTEM). The result of his first ROTEM done at estimated blood loss of 1 litre was A5EX 29 mm / A5FIB 3 mm, indicating severe hypofibrinogenaemia and prompted administration of fibrinogen concentrate. The second ROTEM was done at estimated blood loss of 2 litres, showed A5EX 26 mm / A5FIB 3 mm and CTEX 83 mm. This also indicated severe hypofibrinogenaemia and we administered another dose of fibrinogen concentrate, supplemented with prothrombin complex concentrate due to ongoing bleeding at that time. A redose of Alphanate was also given. Blood conservation was further supported by washed packed red blood cells and intraoperative cell salvage, allowing complete avoidance of fresh frozen plasma despite an estimated blood loss of 3.3 litres. Intraoperative ventilation and haemodynamics remained stable throughout surgery. Patient was extubated well at the end of surgery before being transferred to paediatric intensive care for post operative close monitoring and care.

Conclusion

This case demonstrated how goal-directed patient blood management with point of care rotational thromboelastometry facilitated safe conduct and successful completion of a major surgery in an exceptionally high-risk patient.

Figure & Table

Figure & Table 1.



2026-0453

Figure & Table

Figure & Table 2.

2026-0454

Pulsed Ventricular Tachycardia Associated with Local Epinephrine Infiltration during Anterior Colporrhaphy

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Introduction

Anterior colporrhaphy is a gynecological surgery performed to correct anterior vaginal wall prolapse, by plicating the weakened endopelvic fascial tissues to restore structural support to the anterior vaginal wall and bladder. Due to the rich vascularity of the vaginal wall, effective control of intraoperative blood loss is an important consideration during the procedure. Local submucosal infiltration of a dilute solution containing a local anesthetic and epinephrine is commonly used to facilitate hydrodissection and achieve hemostatic control. Epinephrine-mediated vasoconstriction may reduce intraoperative blood loss, but systemic absorption or inadvertent intravascular administration of epinephrine may result in clinically significant cardiovascular effects, including severe hypertension, arrhythmias, or, in severe cases, cardiac arrest.

Case

A 32-year-old woman (83 kg, 174 cm, BMI 27.4 kg/m^2) with no significant medical history was admitted for anterior colporrhaphy under spinal anesthesia. Preoperative laboratory investigations and ECG were unremarkable. On arrival in the operating room, blood pressure was 118/71 mmHg, HR 79 beats/min, and SpO_2 97%. Spinal anesthesia was performed at L3–L4 with 2 mL of 0.5% hyperbaric bupivacaine intrathecally, achieving an adequate saddle block. Ten minutes after surgical initiation, the gynecologist infiltrated 20 mL of 2% lidocaine containing epinephrine 1:200,000 into the anterior vaginal wall. The solution was administered following negative aspiration for blood. Within seconds of infiltration, the patient developed discomfort, palpitations, and blurred vision. HR increased from 60 to 154 beats/min, with BP rising from 112/62 to 154/98 mmHg. ECG immediately demonstrated monomorphic wide-QRS tachycardia consistent with ventricular tachycardia (VT) with a pulse. Surgery was interrupted. The patient remained conscious and responsive. Verbal reassurance was provided, and O_2 at 5 L/min was administered via nasal cannula. Within approximately 30 seconds, VT terminated spontaneously, converting to sinus arrhythmia, without antiarrhythmic therapy or electrical cardioversion. Her symptoms resolved completely within 4 min, with subsequent normalization of HR and BP, although sinus arrhythmia persisted transiently. Surgery was completed without further epinephrine administration. At the end of the procedure, she remained hemodynamically stable with normal sinus rhythm on ECG. The episode of pulsed VT lasted less than 30 seconds and terminated spontaneously without intervention.

Conclusion

Although epinephrine infiltration provides effective hemostasis, systemic cardiovascular effects may occur at conventionally safe doses and negative aspiration. In our case, non-sustained ventricular tachycardia (NSVT) developed immediately following epinephrine infiltration. NSVT is defined as ≥3 consecutive ventricular complexes at a rate >120 beats/min lasting <30 seconds. The NSVT occurred immediately after epinephrine infiltration and terminated spontaneously within 30 seconds without pharmacologic or electrical intervention. This case demonstrates that even in patients without pre-existing cardiovascular disease or symptoms on preoperative assessment, clinicians should remain vigilant and prepared for cardiovascular crisis following epinephrine infiltration.

2026-0455

Successful Hemodynamic Recovery Using Flumazenil in a Case of Suspected Remimazolam-Induced Anaphylaxis: A Case Report

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Introduction
Remimazolam is an ultrashort-acting benzodiazepine with favorable hemodynamic properties, but anaphylaxis has been reported in a substantial number of cases. While epinephrine remains the cornerstone of anaphylaxis management, the role of flumazenil is unclear.

Case
A 56-year-old man weighing 65 kg was scheduled for open reduction and internal fixation of an open fracture of the right fibula. He had received 33 mg of remimazolam without adverse events 23 days earlier. A total of 24 mg of remimazolam was administered over approximately 8 min with remifentanil and rocuronium. After receiving remimazolam, the patient complained of dyspnea and diaphoresis. No rash, flushing, urticaria, angioedema, or bronchospasm was observed, and oxygen saturation remained 98–100%. Within minutes, he became unconscious, his heart rate increased to 120–130 beats/min, and blood pressure dropped to 68/49 mmHg. Remimazolam was immediately discontinued. Despite 1.5 L of crystalloid, 5 mg of intravenous dexamethasone, two doses of epinephrine (100 μg each), and phenylephrine infusion at 40 μg/min, blood pressure did not rise above approximately 70/40 mmHg. Finally, 22 min after symptom onset, flumazenil 1.2 mg was administered as a single intravenous bolus. Immediately, systolic blood pressure increased to above 100 mmHg and heart rate decreased to <90 beats/min, with sustained hemodynamic stability. Because fluids and vasopressors were administered before flumazenil, the improvement could not be attributed to flumazenil alone. Acute serum tryptase measured approximately 8 min after symptom onset was 7.0 μg/L, compared with a baseline value of 2.6 μg/L, supporting mast-cell activation. A second hypotensive episode after tourniquet release was considered separately from the initial suspected hypersensitivity reaction and may have reflected reperfusion-related hemodynamic changes. The hemodynamic course is illustrated in Figure 1. The patient was discharged on postoperative day 8 without further complications.

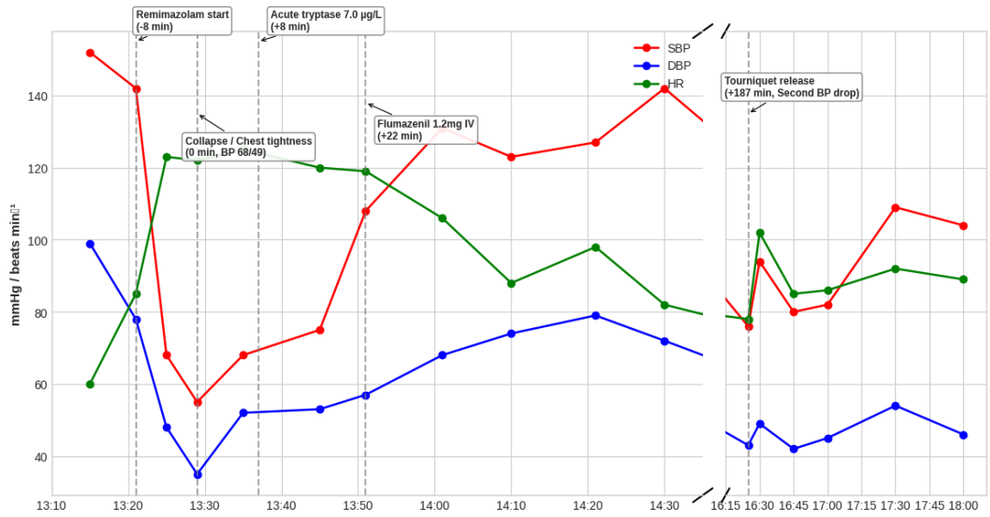
Conclusion
Although flumazenil may reverse the pharmacological cardiovascular depression induced by remimazolam, it cannot replace definitive treatment for anaphylaxis, for which standard epinephrine-based management remains essential.

2026-0455

Figure & Table

Figure & Table 1.

Figure 1. Perioperative Hemodynamic Course with Expanded Acute Phase



ABSTRACT
Competition
Presentation
E-Poster

2026-0466

Ventilation-Induced Gastric Rupture after Extubation in the ICU: A Case Report

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Introduction
Gastric rupture is a rare yet potentially fatal complication that has been reported during cardiopulmonary resuscitation (CPR). This is generally attributed to acute gastric overdistension caused by chest compressions combined with positive-pressure ventilation. Ventilation-induced gastric rupture after planned extubation in the intensive care unit (ICU) is rare.

Case
An 80-year-old man developed acute gastric rupture shortly after planned ICU extubation following lumbar spinal surgery. Quantitative neuromuscular monitoring was not performed prior to extubation. Four minutes after extubation, repeated bag-mask ventilation and laryngeal mask airway-assisted ventilation were administered prior to successful reintubation. Progressive abdominal distension was observed during rescue ventilation. Imaging demonstrated massive pneumoperitoneum, while emergency surgery identified a 5-cm longitudinal perforation along the lesser curvature of the stomach without evidence of ischemic discoloration. No CPR was conducted. The patient required prolonged mechanical ventilation and died 2 months later from progressive nosocomial pneumonia.

Conclusion
Repeated positive-pressure ventilation after ICU extubation may result in gastric rupture even in the absence of CPR. Awareness of progressive abdominal distension, objective neuromuscular assessments before extubation, and careful control of inspiratory pressure may improve airway safety in high-risk patients.

2026-0466

Figure & Table

Figure & Table 1.

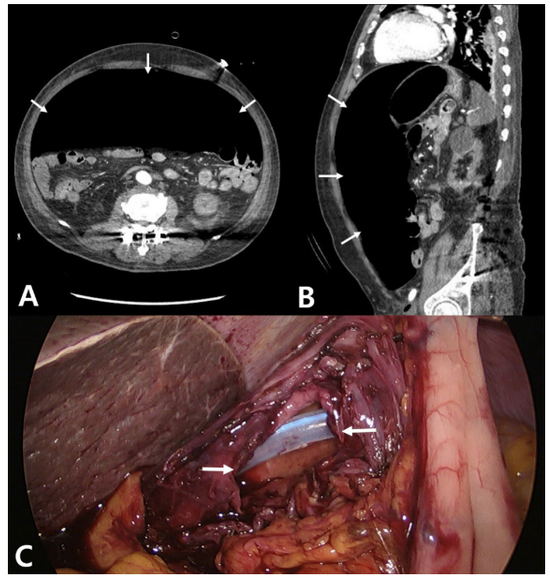
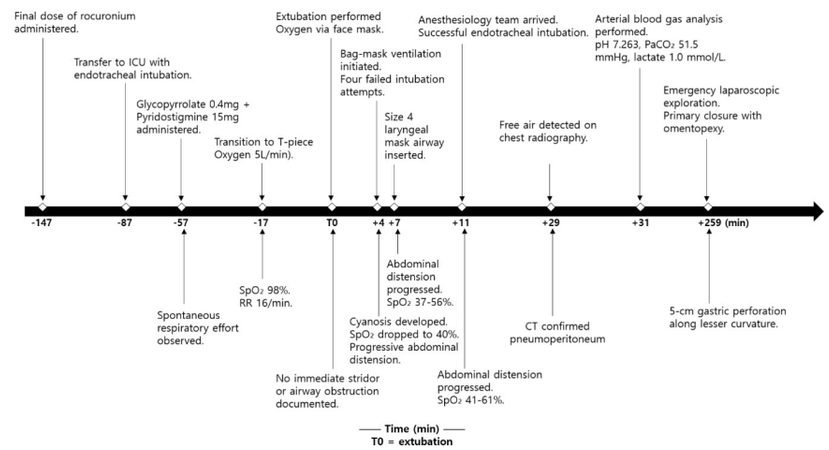


Figure & Table 2.



2026-0469

Veno-Venous Extracorporeal Membrane Oxygenation-Assisted Tube Exchange for Unexpected Blood Clot Obstruction of a Double-Lumen Tube during Thoracoabdominal Aortic Surgery: A Case Report

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Introduction

Obstruction of an endotracheal or double-lumen tube (DLT) by a blood clot is uncommon but potentially life-threatening. Suction or bronchoscopic removal usually restores patency; when these fail, tube exchange is the definitive treatment. However, immediate exchange can be hazardous when airway manipulation itself risks catastrophic hypoxemia. We report a case of near-complete blood clot obstruction of the tracheal lumen of a double-lumen tube (DLT) during thoracoabdominal aortic surgery, managed with veno-venous extracorporeal membrane oxygenation (VV ECMO) as a rescue bridge for safe tube exchange.

Case

A 55-year-old woman with Marfan syndrome underwent emergency Crawford type II thoracoabdominal aortic aneurysm repair. A 35-Fr left-sided DLT was placed, and one-lung ventilation was maintained in the right lateral position. About 3 h after cardiopulmonary bypass (CPB) initiation, bleeding was noted from the bronchial lumen; tracheal lumen suctioning was initially clear, and the oxygenation decline was attributed to prolonged one-lung ventilation. After CPB weaning, airway resistance progressively increased and tidal volume fell; a suction catheter could not be advanced through the tracheal lumen. Bronchoscopy confirmed a blood clot occluding the distal tracheal lumen. Despite repeated suction attempts, obstruction worsened: tidal volume fell to 40-50 mL, peak inspiratory pressure rose to 70 cmH2O, and SpO2 declined to 85%. Immediate tube exchange was considered unsafe because of ongoing surgical bleeding, lateral positioning, severe oropharyngeal edema precluding safe reintubation, and limited oxygenation reserve. VV ECMO was therefore established before airway manipulation. During ECMO preparation, repeated suctioning transiently displaced the clot, allowing chest closure and repositioning to supine. The DLT was then exchanged for a single-lumen tube under bronchoscopic guidance, with immediate improvement in ventilation and oxygenation. VV ECMO was weaned and the patient was decannulated on postoperative day 3.

Conclusion

When immediate DLT exchange for clot obstruction carries prohibitive risk, VV ECMO can serve as an effective rescue bridge to safe tube exchange and restoration of adequate oxygenation.

2026-0469

Figure & Table

Figure & Table 1.

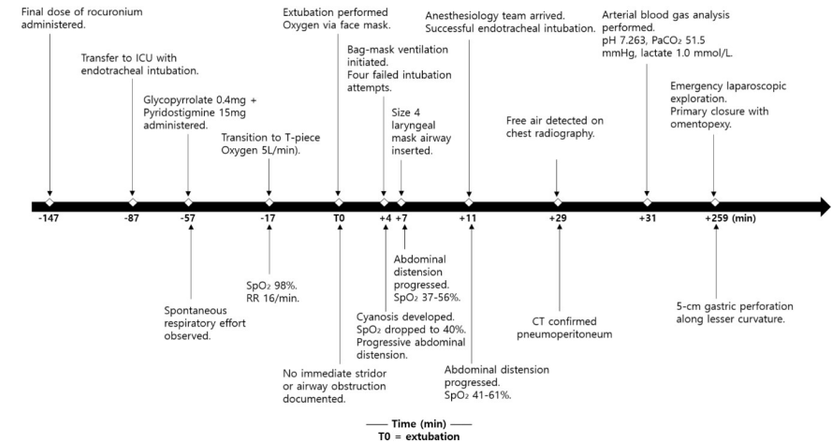


Figure & Table 2.

Table 1. Serial arterial blood gas analyses during the perioperative course.

Time point	Clinical status	FiO_2	pH	$PaCO_2$ (mmHg)	PaO_2 (mmHg)	HCO_3^- (mmol/L)
3 h 30 min	Before CPB	0.5	7.44	36.4	243.0	24.7
4 h 30 min	Early phase of CPB	0.7	7.57	30.7	316.0	28.6
7 h 30 min	Bronchial lumen bleeding (3 h after CPB initiation)	0.7	7.41	35.6	73.7	22.7
9 h 30 min	CPB weaning	1.0	7.28	48.8	62.9	21.5
12 h 30 min	Progressive ventilatory deterioration	1.0	7.13	67.6	78.1	22.9
Postoperative ICU	After surgery (on VV ECMO)	0.8	7.49	29.8	161.0	22.8

Time points are expressed as the time elapsed after the start of surgery. FiO_2 is expressed as a fraction. CPB: cardiopulmonary bypass, FiO_2: fraction of inspired oxygen, $PaCO_2$: partial pressure of arterial carbon dioxide, PaO_2: partial pressure of arterial oxygen, HCO_3^-: bicarbonate, ICU: intensive care unit, VV ECMO: veno-venous extracorporeal membrane oxygenation.

ABSTRACT
Competition
Presentation
E-Poster

2026-0471

Early Bronchoscopic Confirmation of Acute Noncardiogenic Pulmonary Edema Presenting as Unexplained Extubation Failure: A Case Report

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Introduction
Post-extubation respiratory failure is a potentially life-threatening complication that requires rapid etiologic differentiation to guide appropriate management. Acute noncardiogenic pulmonary edema is an important but underrecognized cause of immediate extubation failure, and its diagnosis is frequently presumptive in the absence of direct confirmatory findings.

Case
A 41-year-old obese man developed immediate respiratory failure following apparently uneventful extubation after dental surgery under general anesthesia. No signs of upper airway obstruction, laryngospasm, or vigorous inspiratory effort were observed. Despite adequate neuromuscular reversal and normal cardiac function on echocardiography, oxygen saturation rapidly decreased to below 80%, necessitating reintubation within 1–2 minutes. Early bronchoscopy performed after reintubation demonstrated diffuse frothy serous secretions throughout the bronchial lumen, consistent with alveolar flooding, without evidence of aspiration or airway obstruction. Chest radiography confirmed bilateral diffuse pulmonary infiltrates. The findings were considered most consistent with acute noncardiogenic pulmonary edema. The patient was managed with mechanical ventilation, fluid restriction, and diuretic therapy, and was successfully extubated approximately 24 hours later without further complications

Conclusion
Acute noncardiogenic pulmonary edema may present as immediate extubation failure without typical precipitating factors, and early bronchoscopy enables rapid etiologic confirmation while simultaneously excluding alternative diagnoses.

2026-0471

Figure & Table

Figure & Table 1.

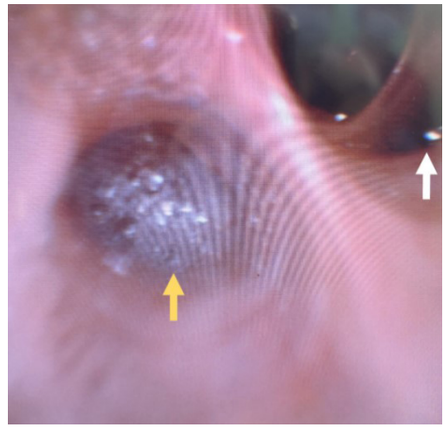
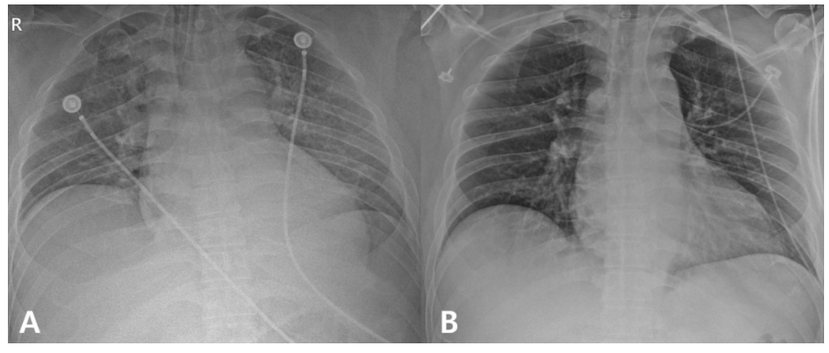


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0472

Femoral–Femoral VV-ECMO for Prolonged Apneic General Anesthesia in Severe Tracheal Obstruction: A Case Report

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Introduction

Veno-venous extracorporeal membrane oxygenation (VV-ECMO) can provide complete extracorporeal gas exchange during prolonged apnea in airway procedures. When prolonged apnea is required, adequate ECMO blood flow is essential to maintain oxygenation and carbon dioxide removal. Femoral–internal jugular cannulation generally allows high extracorporeal blood flow, and a previous case demonstrated adequate gas exchange during 530 minutes of apnea using this configuration. In contrast, femoral–femoral cannulation may provide more limited flow, and prolonged apnea supported exclusively by VV-ECMO using this configuration has not been reported. Here, we report a case in which femoral–femoral VV-ECMO successfully maintained adequate oxygenation and carbon dioxide elimination during 150 minutes of apnea under general anesthesia.

Case

An 81 year old man with a large thyroid mass presented with progressive dyspnea, wheezing, and stridor. Computed tomography revealed marked tracheal narrowing caused by a large goiter extending into the upper mediastinum (Figure 1,2). The minimum tracheal diameter was 4 mm. Because induction of general anesthesia and tracheal intubation were considered high risk due to the severe airway obstruction, VV-ECMO was established before induction. As the right internal jugular vein was inaccessible because of the surgical field, femoral–femoral cannulation was performed. The positions of the cannula tips were confirmed using portable chest radiography. General anesthesia was then induced without tracheal intubation, and gas exchange was maintained exclusively by VV-ECMO during apnea. After partial resection of the thyroid mass relieved the tracheal obstruction, endotracheal intubation was successfully performed. Adequate oxygenation and carbon dioxide removal were maintained during 150 minutes of apnea without airway ventilation, and VV-ECMO was subsequently weaned without complications.

Conclusion

Femoral–femoral VV-ECMO successfully maintained adequate gas exchange during 150 minutes of apnea under general anesthesia in a patient with severe tracheal obstruction. This case suggests that femoral–femoral VV-ECMO may be a useful alternative for prolonged apneic support when conventional airway management is hazardous and internal jugular cannulation is undesirable.

2026-0472

Figure & Table

Figure & Table 1.

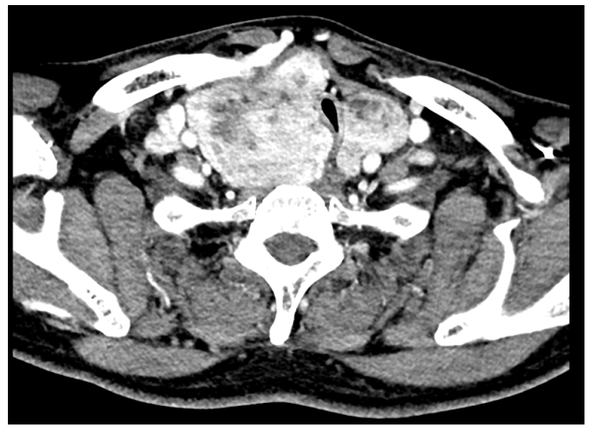


Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0488

Anesthetic Management of an Infant with Ornithine Transcarbamylase Deficiency Undergoing Emergency Re-Liver Transplantation for Primary Graft Nonfunction

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Introduction

Ornithine transcarbamylase deficiency (OTCD) is an X-linked urea-cycle disorder in which metabolic stress and catabolism can precipitate severe hyperammonemia and neurological injury. Liver transplantation (LT) provides definitive treatment; however, perioperative management is particularly challenging when primary graft nonfunction (PNF) necessitates emergency re-transplantation. We report the perioperative anesthetic management of an infant with OTCD who underwent LT followed by re-LT during the same admission.

Case

A 5-month-old, 7-kg male infant presented with generalized tonic-clonic seizures at 48 hours of life. Initial blood ammonia was 1,409 μmol/L and genetic testing confirmed OTCD. He subsequently experienced three episodes of hyperammonemic crisis requiring continuous renal replacement therapy (CRRT) secondary to respiratory infections. Serum ammonia was subsequently stabilized below 150 μmol/L via protein restriction. Given the maternal X-linked OTCD carrier status and paternal hepatitis B carrier status, a deceased-donor liver transplant was arranged following informed consent. A preoperative multidisciplinary conference established a personalized management protocol. To suppress catabolism, perioperative hypercaloric therapy (86 kcal/kg/day) was administered using 25% dextrose (glucose infusion rate 11.5 mg/kg/min), insulin infusion, and 20% lipid emulsion. Serum ammonia was measured every 2 hours, with CRRT immediately available if ammonia exceeded 200 μmol/L. The 10-hour transplantation was completed uneventfully, with cold and warm ischemia times of 492 and 51 minutes, respectively.

On postoperative day 1, he developed hemodynamic instability, severe transaminitis, and coagulopathy consistent with PNF. Hemodynamic support and rotational thromboelastometry-guided transfusion were provided while the metabolic protocol was continued. Three days later, emergency living-donor re-LT was performed using a paternal graft. The same metabolic strategy was maintained, and serum ammonia remained below 250 μmol/L throughout both transplantations. Following re-LT, hepatic function, coagulation parameters, and ammonia progressively normalized. CRRT was required for 8 days for acute kidney injury and volume overload, and the patient was successfully extubated on postoperative day 11 and discharged from PICU on POD 14.

Conclusion

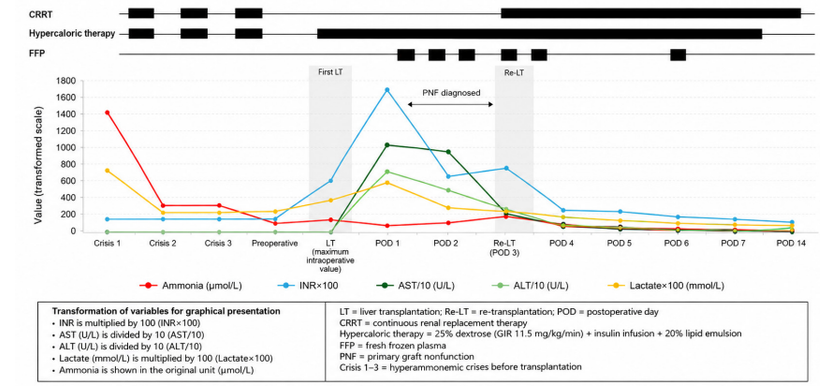
This case highlights the anesthetic challenges of maintaining metabolic stability in an infant with OTCD during prolonged LT, acute graft failure, and emergency re-LT. Continuous anti-catabolic therapy, frequent ammonia surveillance, predefined CRRT criteria, and multidisciplinary planning were associated with metabolic control despite primary graft nonfunction.

2026-0488

Figure & Table

Figure & Table 1.

Figure 1. Perioperative course of ammonia, liver enzymes, coagulation status, and lactate with treatments during liver transplantation and re-transplantation.



Note: Different units and scales were used for the variables. To allow simultaneous visualization of trends over time, INR was multiplied by 100, AST and ALT were divided by 10, and lactate was multiplied by 100.

2026-0492

Spinal Anaesthesia in a Parturient With Previous Transverse Myelitis and Complete Neurological Recovery: A Case Report

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Introduction
Transverse myelitis is a rare inflammatory neurological disorder of the spinal cord that damages the myelin covering the spinal cord and thus produces sensory, motor, and autonomic symptoms. With an incidence of approximately 1–5 per million annually, its aetiology is diverse including post-infectious, autoimmune, demyelinating and systemic inflammatory disorders. The administration of neuraxial anaesthesia to patients with a history of transverse myelitis may be challenging because of concerns regarding postoperative neurological deterioration and potential autonomic dysreflexia.

Case
A 32-year-old primigravida at 38 weeks and 3 days of gestation with a history of transverse myelitis following COVID-19 infection in 2022 was scheduled for lower-segment Caesarean section for breech presentation. Her initial presentation included bilateral lower-limb weakness, sensory disturbance up to the thoracic level and subsequent bilateral upper-limb numbness. MRI demonstrated spinal cord involvement from C3 to L1. She was treated with intravenous corticosteroids for one week and subsequently achieved complete neurological recovery. Follow-up MRI in 2023 showed resolution of the previous abnormalities. At presentation for delivery, she had no neurological deficits or significant autonomic dysfunction. Following multidisciplinary assessment and discussion of the potential risks and benefits, spinal anaesthesia was chosen. General anaesthesia was considered less desirable because of the increased airway and respiratory risks associated with obesity in pregnancy. A baseline neurological examination was documented. Spinal anaesthesia was performed at L3–L4 using a 27-gauge Pencan needle in a single attempt. Intrathecal drugs consisted of 0.5% hyperbaric bupivacaine 1.9 mL, fentanyl 15 μg and morphine 100 μg, achieving a T5 sensory block. The intraoperative course was uneventful with stable haemodynamics. Postoperatively, neurological status remained unchanged from baseline, with no new motor or sensory deficits. She was discharged well on postoperative day 2.

Conclusion
Previous transverse myelitis should not necessarily be considered an absolute contraindication to neuraxial anaesthesia in a neurologically stable parturient. Careful preoperative neurological assessment, documentation of baseline neurological function, evaluation for autonomic dysreflexia, individualized risk–benefit assessment and close postoperative neurological monitoring are essential. In selected patients with stable neurological disease and satisfactory neurological recovery, spinal anaesthesia may be considered following individualized risk–benefit assessment.

2026-0502

Venoarterial Extracorporeal Membrane Oxygenation as a Bridge to Surgical Repair in Penetrating Cardiac Injury with Tamponade: A Case Report

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Introduction
Penetrating cardiac injuries are highly lethal and generally require immediate thoracotomy and direct cardiac repair. However, repair of a beating heart in the presence of active hemorrhage, hypotension, and tachycardia can be technically challenging and often associated with secondary myocardial injury. We report a case in which peripheral venoarterial extracorporeal membrane oxygenation (VA-ECMO) was used as a bridge to definitive surgical repair in a patient with tamponade-dominant physiology who had not progressed to cardiac arrest.

Case
A 59-year-old man presented with multiple stab wounds to the right neck, left thorax, and left wrist, including a penetrating left ventricular apical injury complicated by cardiac tamponade. On arrival, his blood pressure was 88/58 mmHg, heart rate was 110 beats/min, and Glasgow Coma Scale score was 7. Computed tomography revealed a moderate pericardial hematoma. Pericardiocentesis yielded approximately 100 mL of blood, with only modest improvement in blood pressure. After initial resuscitation, the patient was transferred to the operating room without cardiac arrest. Because of persistent hemodynamic instability and the anticipated difficulty of cardiac repair under severe physiologic stress, peripheral VA-ECMO was initiated through the left femoral artery and vein. Systemic anticoagulation was initially withheld because of concern for ongoing hemorrhage. Midline sternotomy revealed a moderate pericardial hematoma and a 2-cm laceration of the left ventricular apex with active pulsatile bleeding. VA-ECMO provided circulatory support during surgical exposure and repair. To facilitate precise myocardial repair and reduce bleeding, systolic blood pressure was deliberately reduced to approximately 80 mmHg and heart rate to below 60 beats/min by discontinuing norepinephrine and administering intermittent intravenous esmolol and labetalol. During 45 minutes of controlled hypotension, oxygen saturation remained 100%, cardiac index remained above 2.1 L/min/m^2, and bispectral index ranged from 26 to 40. The ventricular laceration was repaired with horizontal mattress sutures using 3-0 Prolene and reinforced with surgical adhesive. Subsequent repair of the neck injuries was completed during the same operation. VA-ECMO was successfully discontinued on postoperative day 2, and no thrombotic complications occurred despite the initial heparin-free strategy. The patient recovered without major complications and was discharged on postoperative day 18.

Conclusion
In selected patients with penetrating cardiac injury and tamponade-dominant physiology who had not progressed to cardiac arrest, early VA-ECMO may provide hemodynamic stabilization and facilitate controlled definitive cardiac repair. This approach may be considered as a bridge to definitive surgery rather than as an alternative to emergent thoracotomy. Careful patient selection, individualized anticoagulation, and immediate availability of cardiothoracic surgical and ECMO expertise are essential.

2026-0503

A Survey of Knowledge and Behavior of Neuromuscular Blocking Agents, Reversal Agents and Neuromuscular Monitoring among Anesthesia Personnel in Thailand

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Background
Quantitative neuromuscular monitoring is recommended to guide the administration of neuromuscular blocking agents (NMBAs) and reduce the incidence of residual neuromuscular blockade (rNMB). Despite established recommendations, data regarding the use of neuromuscular monitoring among anesthesia personnel in Thailand remain limited. This study aimed to evaluate the practices of Thai anesthesia personnel regarding the management of neuromuscular blocking agents and the use of neuromuscular monitoring.

Methods
Thai anesthesia personnel, including anesthesiologists and certified registered nurse anesthetists, were invited to complete an anonymous questionnaire. Paper-based questionnaires were distributed by postal mail to 487 hospitals, with a QR code and URL linking to the online questionnaire. The questionnaire consisted of questions assessing participants' knowledge, attitudes, and practices regarding neuromuscular monitoring and the management of neuromuscular blocking and reversal agents.

Results
A total of 552 responses were collected, including 58 paper-based responses from 25 hospitals and 494 online responses. Although more than 30% of respondents recognized the necessity of neuromuscular monitoring, only 3% reported routinely using it. In the absence of neuromuscular monitoring, 92.4% of respondents relied on clinical judgment before extubation, such as adequate spontaneous ventilation and tidal volume.

Conclusion
Although quantitative neuromuscular monitoring is strongly recommended to reduce the incidence of rNMB, its routine use among Thai anesthesia personnel remains extremely low.

2026-0505

Intraoperative Awareness during Remimazolam-Based Anesthesia in a Patient with Long-Term Benzodiazepine Use and Obesity: A Case Report

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Introduction
Remimazolam is an ultra-short-acting benzodiazepine (BZD) used for general anesthesia. Long-term BZD use may increase remimazolam dose requirements because of reduced drug sensitivity, whereas obesity may warrant lower dosing to avoid excessive administration based on total body weight. These opposing considerations make dose selection challenging when both coexist. We report a case of intraoperative awareness with explicit recall during remimazolam-based general anesthesia with bispectral index (BIS) monitoring in a patient with obesity receiving multiple BZDs.

Case
A 47-year-old woman with medically refractory ulcerative colitis underwent laparoscopic Hartmann's procedure. After substantial weight gain during prolonged high-dose corticosteroid therapy, she was 167.6 cm tall and weighed 95.5 kg (body mass index, 34.0 kg/m^2). She had received psychiatric treatment for approximately 1 year and was prescribed multiple psychotropic medications, including three BZDs, at the time of surgery. Preoperative cardiac evaluation revealed a focal apical wall-motion abnormality of unclear etiology, with preserved left ventricular ejection fraction and no significant coronary artery disease.
General anesthesia was induced and maintained with remimazolam, remifentanil, and rocuronium. Given her obesity, remimazolam dosing was guided by corrected body weight (CBW; 73.8 kg) and titrated to clinical response. After loss of consciousness, the infusion was maintained at 70 mg/h (approximately 0.95 mg/kg/h based on CBW). BIS was monitored throughout and generally remained in the high 40s to low 60s. Several episodes of increased heart rate and blood pressure were managed by adjusting the remifentanil infusion and administering intermittent esmolol boluses. As the procedure was prolonged, maintenance was switched to sevoflurane after approximately 4.5h of remimazolam-based anesthesia.
Postoperatively, the patient recalled several intraoperative events that occurred during remimazolam-based anesthesia before conversion to sevoflurane, including medical staff discussing an arterial-line malfunction after patient positioning, surgical draping, skin incision, portions of the operative procedure, and intraoperative pain. The episode was disclosed and discussed with the patient, and psychiatric follow-up was arranged.
Three months later, she underwent Hartmann's reversal, under planned sevoflurane-based general anesthesia with no postoperative recall.

Conclusion
In this patient, the coexistence of long-term BZD use and obesity may have complicated remimazolam dose selection and contributed to inadequate hypnosis. This case highlights that intraoperative awareness may occur even without a sustained marked increase in BIS. Remimazolam dosing should be individualized by considering various factors, and further studies are needed to establish appropriate dosing strategies in patients with obesity and long-term BZD use. BIS should not be relied upon in isolation but interpreted alongside other clinical indicators, including hemodynamic responses.

2026-0507

Navigating Hemodynamic Challenges in Cesarean Delivery: Anesthetic Management of Severe Rheumatic Mitral Stenosis–Regurgitation with HFpEF and Hyperthyroidism

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2. Anesthesiology and Intensive Care, Tangerang District General Hospital, Indonesia

Introduction

Rheumatic heart disease (RHD) is the most common acquired valvular heart disease encountered during pregnancy, particularly in low- and middle-income countries. Mitral stenosis associated with RHD can cause obstruction to left ventricular inflow, leading to elevated left atrial and pulmonary pressures. Pregnancy in patients with rheumatic heart disease and severe mitral valve disease presents a major anesthetic challenge because physiological cardiovascular changes during pregnancy, labor, and the postpartum period may precipitate hemodynamic decompensation. The coexistence of severe mitral stenosis, severe mitral regurgitation, heart failure with preserved ejection fraction (HFpEF), pulmonary hypertension, and hyperthyroidism with atrial fibrillation further complicates the optimization of preload, afterload, heart rate, and cardiac output. Neuraxial anesthesia may be advantageous for cesarean delivery but requires careful management to avoid abrupt sympathetic blockade and hypotension.

Case

A 36-year-old woman, G3P1A1 at 25 weeks and 3 days of gestation, weighing 43 kg, was scheduled for elective cesarean section and modified ovarian wedge procedure. Preoperative evaluation revealed rheumatic heart disease with severe mitral stenosis and severe mitral regurgitation, HFpEF with left ventricular ejection fraction of 55%, reduced right ventricular function, high probability of pulmonary hypertension, and hyperthyroidism complicated by atrial fibrillation. The patient was classified as ASA Physical Status III. Spinal anesthesia was selected with invasive arterial blood pressure monitoring and central venous catheterization. Norepinephrine infusion at 0.03 μg/kg/min was initiated before neuraxial blockade to maintain vascular tone and prevent significant hypotension. Spinal anesthesia was performed at the L3–L4 interspace using heavy Bupivacaine 6 mg, fentanyl 50 μg, and morphine 100 μg, achieving a T4 sensory level. Hemodynamics remained stable throughout the procedure with norepinephrine support. Estimated blood loss was 300 mL, urine output was 200 mL, and 900 mL of crystalloid was administered. Norepinephrine was discontinued before transfer to the recovery area, followed by postoperative intensive care unit monitoring.

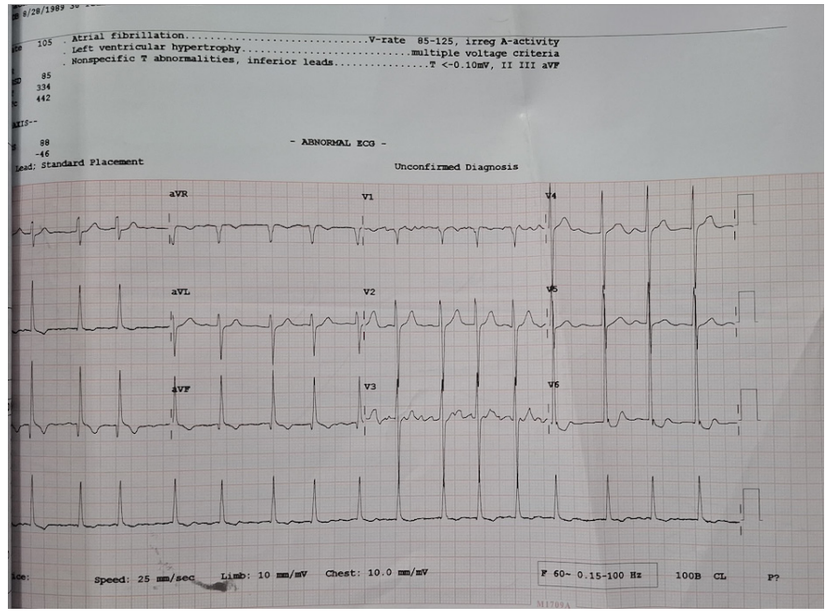
Conclusion

Spinal anesthesia can be successfully performed in selected patients with severe rheumatic mitral valve disease when accompanied by meticulous hemodynamic planning. Early low-dose norepinephrine infusion, invasive arterial pressure monitoring, restrictive and goal-directed fluid management, and postoperative intensive care monitoring may help maintain hemodynamic stability during cesarean delivery in patients with severe mitral stenosis–mitral regurgitation, HFpEF, pulmonary hypertension, and hyperthyroidism.

2026-0507

Figure & Table

Figure & Table 1.



2026-0508

A Comparative Study of Anesthetic Techniques for Achilles Tendon Repair Surgery: Popliteal Nerve Block vs Spinal Anesthesia

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Background
Achilles tendon rupture is a common injury among physically active individuals and often requires surgical repair. Effective postoperative pain management is essential for early mobilization, enhanced recovery, and improved surgical outcomes. Spinal anesthesia is widely used for lower limb surgery; however, it may be associated with systemic adverse effects such as hypotension, urinary retention, and nausea. In contrast, popliteal sciatic nerve block provides targeted regional anesthesia with prolonged postoperative analgesia and fewer systemic complications.

Methods
This prospective randomized controlled study was conducted between June and December 2025 at the National Trauma and Orthopedic Research Center. A total of 40 patients aged 18–65 years with acute Achilles tendon rupture and ASA physical status I–III were enrolled and randomly allocated into two groups: popliteal sciatic nerve block (n=20) and spinal anesthesia (n=20). The popliteal block was performed under ultrasound guidance using 0.5% ropivacaine, whereas spinal anesthesia was administered with hyperbaric bupivacaine at the L3–L4 level. Postoperative pain was assessed using the Visual Analog Scale (VAS) at 6, 12, 24, and 48 hours. Duration of analgesia, opioid consumption, time to mobilization, patient satisfaction, and complications were evaluated

Results
VAS pain scores were significantly lower in the popliteal nerve block group at all postoperative time points ($p<0.05$). Patients receiving popliteal block demonstrated prolonged analgesia, reduced opioid consumption, earlier mobilization, and higher patient satisfaction. Complications such as hypotension, nausea, and urinary retention were more frequent in the spinal anesthesia group.

Conclusion
Popliteal sciatic nerve block provides superior postoperative analgesia with fewer complications compared to spinal anesthesia in Achilles tendon repair surgery. It may represent a safer and more effective anesthetic option for lower extremity orthopedic procedures.

2026-0508

Figure & Table

Figure & Table 1.

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Эмнэлэг код: 299815

Рентген зураг

Огноо: 2025/07/28 15:25

Овог: MadridMorgado **Нэр:** Daniel **Нас:** 34 **Хүйс:** Эр **РД:** ESP9112078M3

Шинжилгээнд:

1. Цээжний эгц байрлалын рентген зураг:Цээжний хэлбэр зөв.
Уушгинд голомтот болон нэвчдэст өөрчлөлтгүй.
Уушгины зураглал хоёр талд хэвийн. Уушгины үгууд хэвийн.
Өрцний сүүдэр хэвийн. Хавирга өрцний синус хоёр талдаа чөлөөтэй.
Зүрх болон голтын сүүдэр хазайлтгүй.
Хавирга яснуудад хугаралгүй. 2. Зүүн түнхний үений 2 байрлалын рентген зураг: Зүүн талын дунд чөмөгний их бага төвгөр дайрсан ясны хэлтэрхий бүхий зөрүүтэй хугаралтай.

Зөвлөгөө:

Радиологийн эмчийн дүгнэлт нь эцсийн онош биш бөгөөд эмчлэгч эмч эмнэлзүйн шинж болон бусад шинжилгээтэй харьцуулан дүгнэлт хийж оношийг тавина.

Дүгнэлт бичсэн эмч: Д.Сарангэрэл

ABSTRACT
Competition
Presentation
E-Poster

2026-0509

Postoperative Involuntary Movement following General Anaesthesia: A Case Report

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Introduction

Movement disorders may be encountered in the post operative setting. Though unlikely to cause serious morbidity or threat to life, they may cause significant distress to patient and healthcare staff. There have been multiple case reports of involuntary movements being observed after general anaesthesia (GA), with symptoms ranging from rhythmic dystonic movement [1] to myoclonic movement [2] to atypical movements that are not classified under any known pattern of movement disorders [3].

Case

We report a case of patient presenting with involuntary movement in the post anaesthesia care unit (PACU) after receiving general anesthesia for abscess surgery.

A 33-year-old female (64.7 kg, BMI 28 kg/m^2) with no significant medical history presented for incision and drainage of a groin abscess under general anaesthesia. Previous general anaesthetics had been uneventful. Anaesthesia was induced with intravenous lignocaine, fentanyl and propofol, and maintained with sevoflurane via a laryngeal mask airway. The 20-minute procedure was uneventful, with stable haemodynamics throughout.

Approximately 15 minutes after removal of the laryngeal mask airway in the post-anaesthesia care unit, the patient developed intermittent involuntary movements involving all four limbs. The movements were irregular, writhing and variable in distribution, symmetry, duration and speed, with intermittent thoracic and pelvic thrusting. She remained fully conscious, oriented and neurologically intact between episodes, with no gaze deviation, jaw clenching, facial weakness or pupillary abnormalities. Vital signs remained stable, and she maintained oxygen saturation on room air.

Point-of-care blood gas demonstrated respiratory alkalosis, while electrolytes, glucose and subsequent laboratory investigations were largely unremarkable apart from mild leukocytosis, elevated lactate and transiently elevated thyroid-stimulating hormone with normal free T4. A trial of intravenous midazolam 0.5 mg provided no significant improvement. Neurology review was obtained, and urgent CT brain showed no acute intracranial abnormality.

The abnormal movements gradually decreased in frequency and resolved approximately 45 minutes after onset. The patient was subsequently monitored in the high-dependency unit without recurrence. On further history, she reported a previous episode of unilateral involuntary jerking during epidural anaesthesia for childbirth, which had resolved spontaneously. Outpatient MRI brain and EEG were normal. Repeat thyroid function was also normal.

Conclusion

In conclusion, though not commonly cited as a side effect of anaesthesia or surgery, various case reports have demonstrated that involuntary movements can occur after anaesthesia or surgery, as a manifestation of functional movement disorder, be it due to a combination of adverse drug reaction or precipitated by stress. Awareness should be raised with regards to the possibility of such reactions, so that clinicians will be better equipped to expect and manage such occurrence in the recovery unit. Further studies are required to elucidate the exact cause and precipitating factors, as well to study effective pharmacological agents to abort such episodes.

2026-0518

When the Image Anchors the Diagnosis: Diagnostic Bias in Recurrent Extubation Failure

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Introduction

Large hiatal hernias with intrathoracic gastric herniation are a recognized, if underappreciated, cause of dyspnea and compressive atelectasis due to mechanical mass effect on adjacent lung parenchyma.

This case illustrates how anchoring on an initial radiological diagnosis can propagate diagnostic and confirmation bias throughout multidisciplinary critical care, delaying identification of the true underlying pathology

Case

A middle-aged man with a known hiatal hernia was admitted with abdominal pain, discomfort, and dyspepsia. CT imaging reported a large hiatal hernia with intrathoracic gastric displacement causing compression of the left lung. He progressed to type 2 respiratory failure in the general ward requiring intubation and ICU admission for positive pressure ventilation. Point-of-care ultrasound of the left hemithorax yielded poor acoustic windows, attributed at the time to gastric contents obscuring the view which was consistent with the radiological narrative. He subsequently failed extubation twice, including a trial of BiPAP, with deteriorating consciousness and arterial blood gases demonstrating carbon dioxide narcosis (PaCO2 in the 80s mmHg), necessitating reintubation. Upper gastrointestinal surgeons performed bedside endoscopic PEG tube insertion to anchor the stomach subdiaphragmatically, with no improvement in ventilatory status. Only after continued clinical deterioration was the original CT Thorax report amended, revealing a large left empyema as the cause of lung compression. The patient was subsequently transferred to the medical ICU under respiratory team care.

Conclusion

This case demonstrates how an initial, plausible radiological anchor can generate downstream confirmation bias across multiple specialties, with clinicians interpreting ambiguous or difficult findings (such as suboptimal POCUS windows) in a manner that reinforces the prevailing diagnosis rather than prompting reconsideration.

The patient underwent an invasive procedure (PEG insertion) that did not address the primary respiratory pathology, potentially delaying treatment of a life-threatening empyema. This underscores the importance of re-evaluating imaging when clinical trajectory does not match the presumed diagnosis, maintaining diagnostic humility despite ostensibly definitive imaging reports, and fostering a low threshold for independent re-review of imaging by radiology and treating teams when a patient fails to respond as expected.

Diagnostic anchoring and confirmation bias can propagate across a multidisciplinary team once an initial imaging interpretation is accepted, potentially resulting in unnecessary invasive intervention and delayed treatment of the true pathology. Clinicians should maintain a structured approach to diagnostic uncertainty in the ICU, particularly when clinical response diverges from expected outcomes based on the working diagnosis.

2026-0521

An Angel's Awakening: Delayed Emergence Following Laparoscopic Cholecystectomy under Propofol Total Intravenous Anesthesia in a Patient with Angelman Syndrome

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Introduction

Angelman Syndrome (AS) is a rare neurogenetic disorder (prevalence 1 in 12,000 to 20,000) from loss of function of the maternally inherited UBE3A gene on chromosome 15q11-q13, presenting with developmental and intellectual delay, speech impairment, ataxic gait, seizures, sleep disturbance, happy demeanor, and craniofacial dysmorphism. Under the 2005 consensus guidelines, diagnosis can be established through clinical certainty—a crucial pathway in resource-limited populations where genetic testing is financially inaccessible.

AS carries unpredictable pharmacodynamic sensitivity to GABAergic agents like Propofol. Warner et al. and Kim et al. documented these as drug resistance, profound delayed emergence, complex airway challenges and high vagal tone causing bradyarrhythmias. This is especially relevant in laparoscopic surgery, where pneumoperitoneum is a trigger for vagally-mediated bradycardia. While a few international cases exist, to our knowledge, this is the first Philippine case report detailing anesthetic management of AS for a laparoscopic procedure.

Case

A 34-year-old male, ASA 3 with clinically diagnosed AS and major depressive disorder was scheduled for laparoscopic cholecystectomy for symptomatic cholecystitis. Prior clubfoot surgery at age 8 with no subsequent adult surgeries raised consideration for malignant hyperthermia, prompting the selection of a total intravenous anesthesia with Propofol. Airway assessment showed Mallampati II airway, short neck, receding chin, macroglossia, and thoracic levoscoliosis. With the anticipated potential airway difficulty and prolonged recovery, the family was counseled regarding delayed extubation and extended PACU stay.

Induction used Propofol TCI (Eleveld) at 5 mcg/mL and IV Fentanyl 50 mcg; difficult mask ventilation required an oral airway adjunct. Rocuronium 50 mg/IV (0.6 mg/kg) was then administered, allowing video laryngoscopy-guided intubation. Given the vagal risk of AS and pneumoperitoneum, lower insufflation pressure of 10 mmHg was targeted while confirming adequate surgical field; no bradyarrhythmia occurred.

Sugammadex was given incrementally with a total of 200 mg (~3 mg/kg) to completely achieve reversal. Despite spontaneous breathing with adequate exhaled TV on PSV-Pro and stable hemodynamics, the patient emerged after 70 minutes. Supportive management was maintained until safe extubation was achieved after protective reflexes and wakefulness fully returned; discharged to the ward uneventfully.

Conclusion

Despite titratable Propofol TCI, slower laparoscopic insufflation, Sugammadex reversal, and advanced ventilator modes, the patient still developed profound delayed emergence likely from GABA-A alterations potentiated by daily psychotropic therapy. Safe anesthetic care in AS relies on preoperative risk communication, proactive planning, individualizing management, and maintaining vigilance. By presenting this case, we contribute to the limited but growing literature on perioperative management in AS and highlight the ongoing need for individualized strategies to optimize safety in this rare population.

2026-0521

Figure & Table

Figure & Table 1.



Figure 1. Craniofacial abnormalities of patient with Angelman Syndrome

ABSTRACT
Competition
Presentation
E-Poster

2026-0522

Effectiveness of High-Voltage Pulsed Radiofrequency for Chronic Lumbosacral Radicular Pain

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Background

Chronic lumbosacral radicular pain (CLRP) affects up to 10% of the population annually, reducing the functional capacity and quality of life. Pulsed radiofrequency (PRF) offers a minimally invasive alternative to surgery, but its efficacy remains inconclusive. Higher voltage may improve analgesic outcomes by strengthening the electromagnetic field and increasing neuromodulation, yet the comparative effectiveness of high-voltage (HV) PRF versus low-voltage (LV) PRF in managing CLRP is still unclear. This study aimed to evaluate the effectiveness and safety of HV versus LV PRF in CLRP patients.

Methods

We conducted a randomized controlled trial from February to May 2025 at Sultan Agung Hospital, Semarang, Indonesia, with an average of 6 weeks follow-up. Ethical approval was obtained, and all patients provided written informed consent. A specialist performed fluoroscopy-guided monopolar PRF at 42°C for three 120-second cycles. A nurse set the voltage at 45 V (LV) or 60 V (HV) based on group allocation. Both physician and patient were blinded to the voltage setting. IRB number was assigned by Health Research Ethics Committee Sultan Agung Islamic Teaching Hospital: 28/KEPK-RSISA/I/2025.

Results

Twenty-two adult patients with CLRP lasting ≥12 weeks were randomly assigned to either the HV (n=11) or LV PRF group (n=11). Outcomes were changes in pain intensity, self-reported disability, and the pain biomarker interleukin-6 (IL-6). Both interventions resulted in significant reductions in visual analog scale (VAS) ($F(1,20) = 72.45$, $p<0.001$), numeric rating scale (NRS) ($F(1,20) = 59.72$, $p<0.001$), and Oswestry Disability Index (ODI) scores ($F(1,20) = 13.94$, $p<0.001$). Changes in VAS, NRS, ODI, and IL-6 did not differ statistically between groups. However, HV group showed 33.3% larger positive effect in IL-6 levels compared to LV group. No complications were reported.

Conclusion

Both HV and LV PRF were equally effective and safe for managing CLRP. Although the clinical outcomes were similar, HV PRF showed a potential in reducing pain biomarkers. Larger trials are needed to confirm these findings and identify patient subgroups most likely to benefit from HV PRF.

2026-0522

Figure & Table

Figure & Table 1.

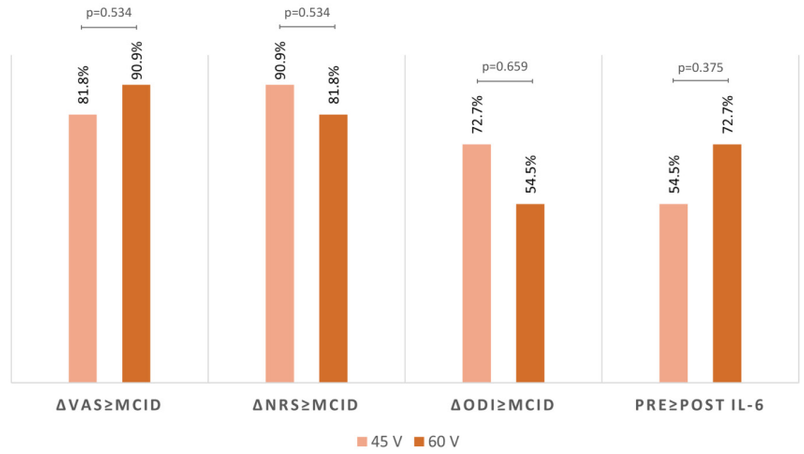


Figure 1. Proportion of patients with decreased VAS, NRS, and ODI scores meeting the MCID threshold and whose IL-6 levels were maintained or reduced after the procedure.

Δ, delta score (pre minus post); VAS, visual analog scale; NRS, numeric rating scale; ODI, Oswestry Disability Index; MCID, minimal clinically important difference; IL-6, interleukin-6.

Figure & Table 2.

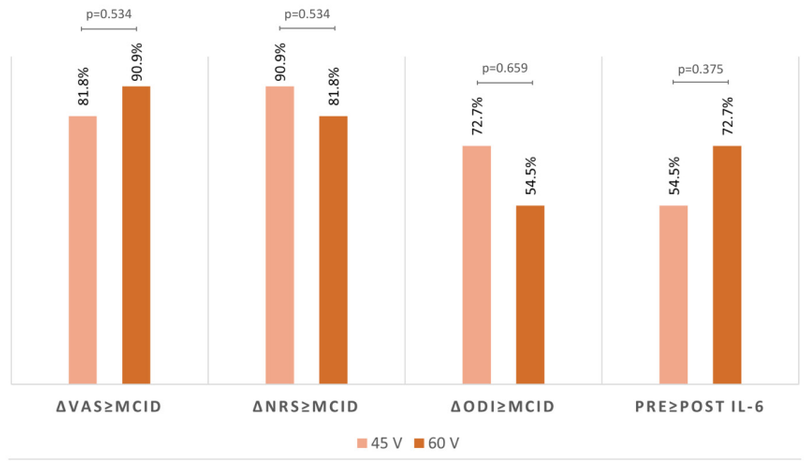


Figure 1. Proportion of patients with decreased VAS, NRS, and ODI scores meeting the MCID threshold and whose IL-6 levels were maintained or reduced after the procedure.

Δ, delta score (pre minus post); VAS, visual analog scale; NRS, numeric rating scale; ODI, Oswestry Disability Index; MCID, minimal clinically important difference; IL-6, interleukin-6.

ABSTRACT
Competition
Presentation
E-Poster

2026-0524

Anaesthetic Management of Decortication and Wedge Resection for Thoracic Empyema and Bronchopleural Fistula in a Patient with Ankylosing Spondylitis: A Case Report.

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Introduction
Surgical management of chronic thoracic empyema with a bronchopleural fistula presents significant anaesthetic challenges, particularly when complicated by an anticipated difficult airway and restrictive pulmonary physiology due to ankylosing spondylitis. The requirement for one-lung ventilation (OLV), potential for major blood loss, and risk of postoperative pulmonary complications further increase the difficulty. We present the anaesthetic management of a patient undergoing decortication and wedge resection in this setting.

Case
A 58-year-old man with ankylosing spondylitis presented with right-sided chest pain and shortness of breath for 8 months. He had a history of fever and haemoptysis one year prior to presentation. HRCT of the thorax revealed right-sided empyema with a subsegmental bronchopleural fistula. Pulmonary function test demonstrated a restrictive pattern (FEV_1 68%, FVC 72%, FEV_1/FVC 95%) with moderately reduced diffusing capacity of the lungs for carbon monoxide (DLCO). Preoperative airway assessment revealed an anticipated difficult airway due to restricted neck extension secondary to cervical dystonia, thoracic kyphosis, and modified Mallampati class III. The patient was considered to be at high risk for postoperative pulmonary complications, postoperative mechanical ventilation, and major intraoperative blood loss. General anaesthesia was induced. Lung isolation was achieved using a 37-Fr left-sided double-lumen tube under video-laryngoscopic guidance, with a percentage of glottic opening (POGO) score of 30%. An arterial line was secured for continuous haemodynamic monitoring. Intraoperatively, the patient had an estimated blood loss of approximately 1.5 L and underwent resuscitation with crystalloids and blood products. Noradrenaline infusion was initiated and titrated to maintain adequate haemodynamics. The patient was successfully extubated. He was haemodynamically stable during the postoperative period. Analgesia was provided with NSAIDs and an intravenous fentanyl infusion.

Conclusion
This case emphasizes the complexity of anaesthetic management in a high-risk thoracic surgery in the presence of an anticipated difficult airway due to ankylosing spondylitis. Meticulous preoperative planning, preparedness to manage a challenging airway and major haemorrhage, invasive haemodynamic monitoring, and multidisciplinary collaboration are essential for safe perioperative management.

2026-0524

Figure & Table

Figure & Table 1.



ABSTRACT
Competition
Presentation
E-Poster

2026-0529

Continuous Low-Dose Ketamine and Stellate Ganglion Block for Acute Exacerbation of Chronic Neuropathic Pain in Paraneoplastic Syndrome Secondary to Papillary Thyroid Carcinoma: A Case Report

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Introduction
Paraneoplastic syndromes may present with disabling neuropathic pain years before the causative tumour is identified. Once central sensitization is established, escalating opioid-based regimens frequently fail. We report an acute exacerbation of chronic neuropathic pain managed with continuous low-dose ketamine and stellate ganglion block in a patient whose paraneoplastic syndrome proved secondary to papillary thyroid carcinoma.

Case
A 63-year-old woman was referred to the Acute Pain Service with a two-year history of progressive neck and bilateral arm pain accompanied by hyperalgesia and allodynia, together with upper motor neuron tetraparesis. Symptoms had begun with left arm paraesthesia and weakness; brain MRI, EEG and lumbar puncture were unremarkable, and transverse myelitis versus complex regional pain syndrome was considered. In the two weeks before referral, pain became constant (NRS 8–10) despite a fentanyl patch 25 mcg/h, intravenous morphine 15 mg/24 h, gabapentin, carbamazepine, amitriptyline, baclofen and methylprednisolone.
Continuous subanaesthetic ketamine was commenced without opioid (0.2 mg/kg/h daytime, 0.4 mg/kg/h overnight). Within 24 hours NRS fell to 2–5 and sleep was restored. A single breakthrough episode on day two required morphine, which was tapered and stopped by day five; ketamine was titrated down to 0.09 mg/kg/h by the second week.
Re-evaluation prompted by a palpable neck mass revealed, on contrast cervical MRI, a long-segment intramedullary lesion extending from the posterior medulla oblongata to C7 with cord thickening at C1–C3, and a 3.3 × 4.5 × 6.2 cm solid-cystic right thyroid mass displacing the trachea. The patient was clinically and biochemically euthyroid. Total thyroidectomy was performed, followed by stellate ganglion block with 7 mL bupivacaine 0.25% and ketamine 0.5 mg/kg as adjuvant. After one day in intensive care, pain was intermittent at NRS 0–4 on morphine 5 mg/24 h, and hyperalgesia and allodynia had resolved. Histopathology confirmed papillary carcinoma of the right thyroid lobe with adenomatous goitre on the left, supporting a paraneoplastic aetiology.

Conclusion
Continuous low-dose ketamine provided effective analgesia and substantial opioid sparing in an acute exacerbation of chronic neuropathic pain refractory to escalating opioids and adjuvants, and stellate ganglion block with ketamine adjuvant after tumour resection consolidated the response. Both interventions target central sensitization and maladaptive neuroplasticity. Multidisciplinary care involving anaesthesiology, neurology, endocrine and oncologic surgery was essential, and refractory neuropathic pain of unclear origin should prompt a search for occult malignancy.

2026-0533

Pioneering Advanced Epilepsy Care in Middle-Income Country: A Retrospective Review of 18 Stereotactic Electroencephalography (SEEG) Electrode Implantations.

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2. Anaesthesiology, Universiti Malaya, Malaysia
3. Neurosurgery, Universiti Malaya, Malaysia
4. Medicine, Universiti Malaya, Malaysia

Background
Stereotactic Electroencephalography (SEEG) is a highly precise, invasive diagnostic technique for localizing epileptogenic foci in medically refractory focal epilepsy. Providing general anaesthesia for SEEG presents unique challenges. We report our institutional anaesthetic experience in managing patients undergoing SEEG electrode implantation in Universiti Malaya Medical Center, Malaysia.

Methods
A retrospective review of all patients who underwent SEEG electrode implantation at our tertiary neurosurgical center between September 2019 and July 2026 (n=18). Anaesthetic goals focused on stable induction, haemodynamic control to maintain optimal cerebral perfusion pressure, absolute intraoperative patient immobility and smooth emergence. Maintenance of general anaesthesia was delivered either Total Intravenous Anaesthesia (TIVA) or Sevoflurane with target-controlled infusion (TCI) remifentanil. Standard American Society of Anaesthesiologist (ASA) physiological monitoring was applied pre-induction of anaesthesia, with invasive arterial line insertion post-induction to guide real-time blood pressure regulation during high stimulus steps.

Results
All 18 cases were completed successfully without intraoperative patient movement or anaesthetic-related intraoperative complications. The use of TIVA or Sevoflurane with TCI remifentanil maintained appropriate depth of anaesthesia. Arterial line monitoring enables precise titration of haemodynamics, preventing hypertensive surges during painful manipulation and hypotensive episodes during maintenance.

Conclusion
Anaesthetic management for SEEG implantation using a balanced approach of TIVA or Sevoflurane with TCI Remifentanil is safe and clinically feasible in a middle-income country context. This strategy balances demands of surgical immobility and hemodynamic control, demonstrating that high-standard neuroanaesthetic care for advanced epilepsy surgery can be effectively delivered in a developing country.

2026-0535

Beyond the Tick-Box: Transitioning from Passive Monitoring to Active Central Line-Associated Bloodstream Infection (CLABSI) Surveillance in a Tertiary ICU

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Background
Central Line-Associated Bloodstream Infection (CLABSI) remains a preventable cause of morbidity and mortality in critically ill patients. At Hospital Canselor Tuanku Muhriz (HCTM), Universiti Kebangsaan Malaysia, the General Intensive Care Unit (GICU) recorded a median CLABSI rate of 3.2 per 1,000 catheter days (2020–2025), with a characteristic sawtooth pattern indicating unsustained control. Despite generic checklist compliance of 93%, active auditing revealed true compliance of only 80% — exposing a critical compliance–infection disconnection mainly due to passive monitoring, a high 60% femoral line insertion rate, and absence of daily necessity review. A structured Quality Improvement Programme (QIP) was initiated to address these systemic failures.

Methods
A prospective quasi-experimental pre-post intervention study was conducted in the GICU, reported per SQUIRE 2.0 guidelines. A dedicated one-month prospective baseline (April 2026) was established using the APSIC 2024 CLABSI Audit Form (Section A: Insertion Bundle; Section B: Maintenance Bundle; Section C: Site Monitoring), digitalised via Google Forms for real-time bedside record. A multimodal intervention followed: structured education, full APSIC bundle implementation, iterative PDSA cycles, and monthly Statistical Process Control feedback. Primary outcomes were CLABSI rate (per 1,000 catheter days) and all-or-nothing bundle compliance, analysed using Poisson regression and independent samples testing (α=0.05, power=80%).

Results
Analysis of 547 prospective audit episodes (April–July 2026) across 113 patients demonstrated 100% compliance for hand hygiene and hub scrubbing across all shifts. Daily necessity review improved from 89.5% to 100%. However, CHG-impregnated dressing compliance declined from 76.8% to 46.7%, and antiseptic barrier cap compliance fell from 95.9% to 82.5%, both attributed to supply-chain deficiencies rather than staff behaviour. All-or-nothing bundle compliance was 34.8%–43.2%. A CVC Care Skills Workshop in August 2026 served as the critical intervention catalyst, incorporating simulation-based training, bedside visual aids, and peer-champion development. Satellite ICU expansion is accelerated to October 2026.

Conclusion
Transitioning from passive tick-box monitoring to active APSIC-structured surveillance exposed lack of compliance previously masked by administrative checklists, identifying supply-chain failures as the primary modifiable barrier. This phased, multimodal QIP demonstrates feasibility and early positive trends of improvement.

2026-0537

From Breakthrough Pain to Pain Freedom: Successful Splanchnic Nerve Neurolysis for Refractory Pancreatic Cancer Pain - An Evidence Based Case Report

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2. Department of Anesthesiology and Intensive Care, Dr. Cipto Mangunkusumo General Hospital, Faculty of Medicine Universitas Indonesia, Indonesia

Introduction
Pancreatic cancer is the fifth leading cause of cancer-related mortality worldwide. Pain is a major clinical concern, affecting nearly 90% of patients with pancreatic cancer. This study presents a successful case of splanchnic nerve neurolysis in a patient with pancreatic cancer pain refractory to opioid therapy, supported by evidence-based recommendations regarding its effectiveness in pain management and clinical outcomes at 2-weeks follow-up.

Case
A 17-year-old female with cancer pain due to a pancreatic tumor involving the head and tail with metastases presented with severe upper abdominal pain radiating to the back. Despite multimodal analgesia and opioid escalation, the patient continued to experience frequent breakthrough pain (BTP), prompting an interventional approach. Due to extensive tumor involvement and distorted celiac anatomy, fluoroscopy-guided splanchnic nerve neurolysis was performed. Following the intervention, pain intensity decreased from Numeric Rating Scale (NRS) 10 to 0. At the 2-weeks follow-up, complete pain relief was maintained, accompanied by improvement in daily functional activity. Several studies have demonstrated that splanchnic nerve neurolysis significantly reduces pain intensity, decreases opioid consumption, and improves quality of life, with the longest duration of analgesic effects lasting up to 6 months. Other studies comparing splanchnic nerve neurolysis with celiac plexus neurolysis found no significant difference in pain reduction between the two techniques.

Conclusion
Splanchnic nerve neurolysis is an effective interventional option for pancreatic cancer pain, providing significant pain relief, reducing opioid consumption, and improving quality of life. Its efficacy is comparable to celiac plexus neurolysis, making it a valuable alternative when celiac neurolysis cannot be performed.

2026-0537

Figure & Table

Figure & Table 1.

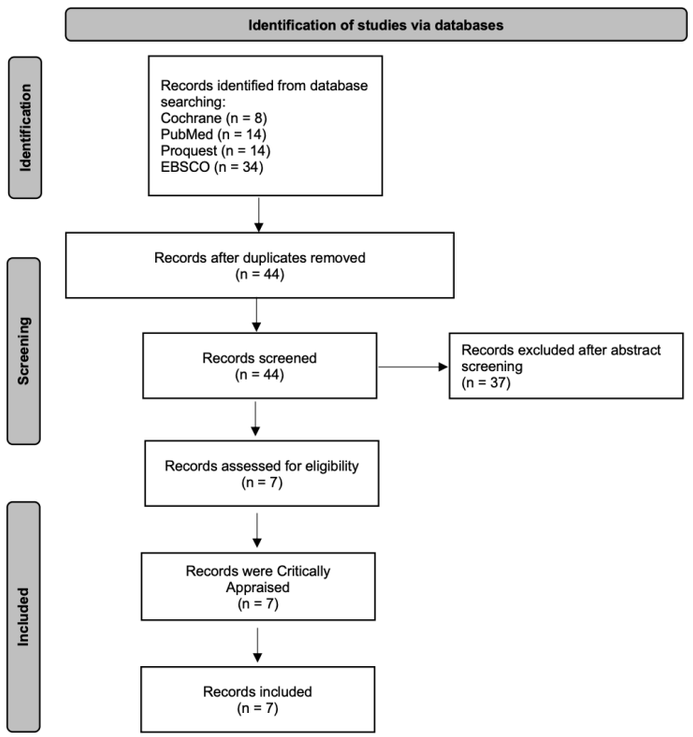
Table 1.

Trend of Estimated daily morphine equivalent dose (MEDD)

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
Oral morphine (mg/day)	30	40	40	40	40	40
Intravena morphine (mg/day)	9 ~ 27	9 ~ 27	12 ~ 36	12 ~ 36	6 ~ 18	15 ~ 45
Fentanyl patch (μg/hour)	0	0	0	12 ~ 30	12 ~ 30	12 ~ 30
MEDD (mg)	57	67	76	106	88	115

Figure & Table 2.

Figure 2. Literature Search Flowchart



2026-0541

Perioperative Airway Management in a Patient with Cervical Myelopathy and Spinal Canal Stenosis Decompression

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Introduction

Airway management in patients with cervical spinal cord compression requires careful planning because airway instrumentation may involve cervical movement. Obesity and an anticipated difficult airway may further complicate tracheal intubation.

We present the anesthetic management of a patient with cervical myelopathy and spinal canal stenosis undergoing cervical decompression.

Case

A 44-year-old woman, 163 cm in height and weighing 98 kg (BMI 36.8 kg/m^2), presented with severe pain, numbness, and paresthesia involving the upper extremities, as well as bilateral lower-extremity sensory disturbances, pain, gait instability, and episodes of knee buckling. Her medical history included hypertension, metabolic disorder, hypothyroidism, and chronic moderate iron-deficiency anemia. Preoperative Magnetic resonance imaging demonstrated spinal canal stenosis and thickening of the posterior longitudinal ligament from C6 to T2, resulting in minimal displacement and compression of the spinal cord. A central disc herniation at T7/8 also resulted in minimal spinal cord displacement and compression. Focal increased intramedullary signal at T11 raised the possibility of thoracic myelopathy.

General anesthesia was planned for C7–T1 laminectomy, removal of the ligamentum flavum, and neural decompression. Given the cervical spinal pathology and anticipated difficult airway, video laryngoscopy was chosen for tracheal intubation. A C-MAC video laryngoscope provided a Cormack–Lehane grade III view, and successful tracheal intubation was achieved on the first attempt. Intraoperative analgesia was maintained with continuous intravenous fentanyl infusion (200 μg diluted in 50 ml of 0.9% sodium chloride) at a rate of 10 ml/h using an infusion pump. Intraoperative vital signs remained stable without significant hemodynamic or respiratory events.

The patient underwent the procedure in the prone position. The operation lasted 2 hours and 45 minutes, with an estimated blood loss of 100 ml. At the end of surgery, she was repositioned supine and extubated. She was monitored in the post-anesthesia care unit without anesthetic complications, and her preoperative neurological symptoms improved postoperatively.

Conclusion

This case emphasizes the importance of individualized airway planning in patients with cervical spinal cord pathology. Despite obesity, a Mallampati III airway, and a Cormack–Lehane grade III laryngoscopes view, first-attempt tracheal intubation was successfully achieved using a C-MAC video laryngoscope, followed by uneventful cervical decompression and postoperative neurological improvement.

Careful preoperative assessment, appropriate airway management, maintenance of intraoperative physiological stability, and postoperative neurological monitoring are important components of perioperative care in these patients.

2026-0548

Awake Carotid Endarterectomy Using Combined Superficial and Deep Cervical Plexus Block

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Introduction

Carotid endarterectomy is one of the most effective and safe treatment methods for carotid artery stenosis, and the use of regional anesthesia to alleviate severe pain during and after surgery is becoming an increasingly developing approach in the field of modern anesthesiology. In patients at high risk of hemodynamic fluctuations and with a high risk of airway-related complications, performing surgery in an awake and highly monitored condition with the assistance of regional and local nerve blocks may be an alternative and safe option to overcome instability associated with induction, extubation, and surgical stimulation. Since carotid endarterectomy is performed with temporary interruption of blood flow through the carotid artery, the patient's neurological status can be assessed promptly during surgery, allowing timely interventions according to any changes in the neurological status.

Case

A 70-year-old male patient, E.B., presented with complaints of a headache and inability to walk.
In 2025, the patient underwent two surgeries for clipping of cerebral arterial aneurysms. Atherosclerotic plaque in the right carotid artery, cerebral arterial stenosis, and ischemia were diagnosed, and the patient was scheduled for carotid endarterectomy (CEA). The patient had a history of smoking, COPD, hypertension, and primary liver cancer.
The patient experienced shortness of breath on exertion. Cardiac sounds were clear and regular, and peripheral pulses were palpable. BP-180/97 mmHg, HR-70 beats per minute, and SpO_2-94%.
Brain CT with contrast:
Severe stenosis was observed at the bifurcation of the right carotid artery.
Anesthetic Technique
Ultrasound-guided deep and superficial cervical plexus blocks were performed. The patient was placed in the supine position with the head turned to the left. After antiseptic preparation of the puncture site on the right anterior aspect of the neck, a linear ultrasound probe and a 22-gauge block needle were used. A total of 10 mL of 0.375% ropivacaine solution was injected incrementally along the posterior border of the sternocleidomastoid (SCM) muscle to perform a superficial cervical plexus block.
At the C4–C5 levels, the needle was advanced until contact with the posterior transverse processes, and 2–3 mL of 0.375% ropivacaine solution was injected at each vertebral level, for a total volume of 10 mL, to perform a deep cervical plexus block. The block was successful, and no hematoma was observed at the injected area.
Also NIRS (near-infrared spectroscopy) sensors were placed bilaterally on the patient's forehead to continuously monitor regional cerebral tissue oxygen saturation. During surgery, the right carotid artery was completely clamped during plaque removal, cerebral oxygenation was monitored using NIRS.

Conclusion

The gold standard treatment for internal carotid artery stenosis is carotid endarterectomy. In Mongolia, this procedure has been performed under general anesthesia at the State Central Clinical Hospital. However, this was the first case in which the procedure was successfully performed under regional anesthesia using a combination of superficial and deep cervical plexus blocks while the patient fully awake. The patient experienced no intraoperative and min postoperative pain and did not require opioid analgesics.
In high-risk patients, avoiding endotracheal intubation and extubation may help prevent hemodynamic fluctuations associated with airway manipulation and reduce the risk of postoperative complications.

2026-0552

The Efficacy and Safety of Thermosoftening Techniques for Endotracheal Tubes in Nasal Intubation: Systematic Review and Meta-Analysis with Trial Sequential Analysis

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Background

Nasal intubation is frequently associated with epistaxis and nasal mucosal injury due to the narrow and delicate anatomy of the nasal passage. Thermosoftening of the endotracheal tube has been proposed as a simple technique to reduce nasal trauma, but evidence from individual trials remains inconsistent. This study aimed to evaluate the efficacy and safety of thermosoftened endotracheal tubes during nasal intubation.

Methods

A systematic review and meta-analysis of randomized controlled trials was conducted following PRISMA 2020 guidelines and a prospectively registered protocol (PROSPERO CRD420261425175). Comprehensive searches of major databases and gray literature were performed through July 2026. Eligible studies compared thermosoftened versus standard endotracheal tubes in adult or pediatric patients undergoing nasal intubation. Primary and secondary outcomes included epistaxis, intubation time, number of intubation attempts, nasal pain, and mucosal injury. Random-effects models were used to calculate pooled effect estimates. Heterogeneity, publication bias, and trial sequential analysis (TSA) were performed. Certainty of evidence was assessed using GRADE.

Results

Eight studies (511 patients; 11 sub-studies) reported bleeding outcomes. Thermosoftening significantly reduced epistaxis (27.1% vs. 53.7%; RR 0.503, 95% CI 0.380–0.664; I^2=53.6%). TSA showed that 43.8% of the required information size (RIS) was accrued, and the cumulative Z-curve crossed both the conventional and monitoring boundaries. Four studies (475 patients) reported intubation time, demonstrating shorter intubation time with thermosoftening (SMD −0.821, 95% CI −1.467 to −0.175; I^2=88.2%). Four studies (389 patients) reported the number of intubation attempts, showing no significant difference (MD −0.097, 95% CI −0.230 to 0.035; I^2=10.5%). TSA indicated that RIS was achieved and the cumulative Z-curve crossed the futility boundary. Four studies (379 patients) reported nasal pain, showing reduced incidence with thermosoftening (RR 0.477, 95% CI 0.267–0.853; I^2=0%). TSA showed insufficient accrued information size (9.3%) and the Z-curve crossed the conventional boundary but not the monitoring boundary. Three studies (449 patients) reported blood crust or mucosal tearing, demonstrating reduced injury with thermosoftening (RR 0.489, 95% CI 0.362–0.661; I^2=0%). TSA indicated that 34.5% of RIS was accrued and the Z-curve crossed both boundaries. Across all outcomes with ≥10 sub-studies, publication bias assessments—including funnel plots, Egger's test, trim-and-fill, selection models, PET-PEESE, and Bayesian sensitivity analyses—showed consistent results, suggesting minimal influence of publication bias.

Conclusion

Thermosoftening of the endotracheal tube significantly reduces epistaxis, mucosal injury, and nasal pain during nasal intubation and may shorten intubation time. Evidence for reducing the number of intubation attempts remains inconclusive. TSA indicates that while some outcomes have sufficient evidence, others require additional trials to confirm effectiveness. Thermosoftening represents a simple, inexpensive, and clinically beneficial technique, but further high-quality studies with standardized protocols are warranted.

2026-0553

Closing the Pre-Warming Gap: A Malaysian Quality Improvement Initiative in Perioperative Temperature Management

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3. Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Background

Inadvertent perioperative hypothermia (IPH, core temperature <36.0°C) is a common, preventable surgical complication. A regional survey (n=1,203, 6 countries) identified preoperative forced-air warming (FAW) as the most underutilised perioperative thermal intervention in Malaysia, with low compliance to international guidelines. This quality improvement initiative aimed to close the pre-warming gap through structured audit, national guideline development, and post-implementation evaluation in elderly surgical patients.

Methods

This quality improvement project was executed in three sequential phases. Phase 1 (baseline) comprised a 3-month temperature audit evaluating post-induction temperatures in the absence of pre-warming interventions. [1] In Phase 2 (intervention), Malaysia's first national perioperative temperature management recommendations were formulated. [5] In Phase 3 (post-implementation), a prospective randomized trial at Universiti Kebangsaan Malaysia evaluated elective non-cardiac surgical patients aged ≥60 years (surgery duration ≤180 minutes, ASA I–III). Patients were randomized to Group A (30 minutes of preoperative FAW at 38.0°C via Bair Hugger™ 775, continued intraoperatively) or Group B (preoperative passive cotton blanket, identical intraoperative FAW). Core temperature was measured intraoperatively at 20-minute intervals using a nasopharyngeal probe, and postoperatively in the PACU using a tympanic thermometer. Postoperative shivering was evaluated via the Bedside Shivering Assessment Scale (BSAS).

Results

Baseline audit revealed post-induction temperatures of 33.0°C-34.0°C without pre-warming. Partial improvement (34.0°C 35.0°C) occurred with upper-body FAW, whereas normothermia (≥36.0°C) required combining pre-warming with underbody FAW blankets. Post-implementation (n=32), Group A (n=14) achieved a mean baseline intraoperative temperature of 36.14°C compared to 35.92°C in Group B (n=18), reflecting a >2.0°C improvement from baseline. Intraoperative hypothermia rates were 57.1% (A) vs 72.2% (B) (p=0.465). Hypothermia at PACU arrival was 15.4% (A) vs 38.9% (B) (p=0.237), and at 30 minutes was 23.1% (A) vs 50.0% (B) (p=0.158) demonstrating a consistent and persistent thermal benefit of pre-warming into recovery. No postoperative shivering occurred in either group (BSAS=0).

Conclusion

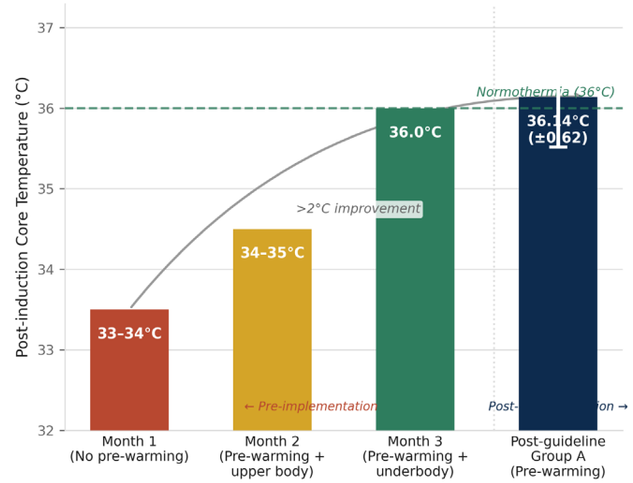
This QIP demonstrates progressive improvement in perioperative normothermia following structured audit, national guideline roll-out, and targeted pre-warming in elderly patients. Pre-warming provides clinically meaningful protection against hypothermia extending into early recovery. Post-induction temperatures improved from 33–34°C at baseline to 36.14°C post-implementation.

2026-0553

Figure & Table

Figure & Table 1.

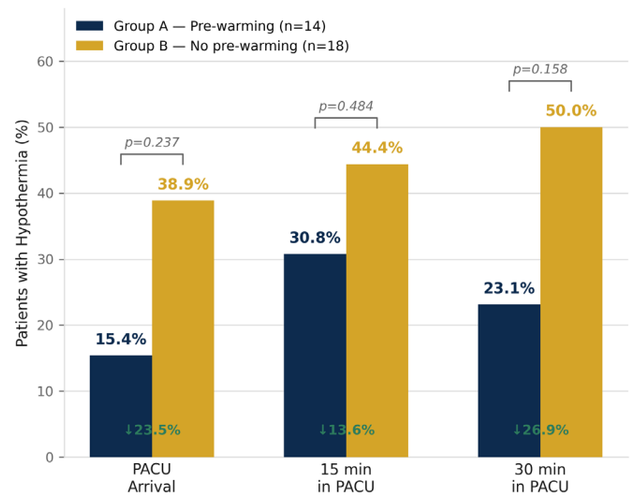
Figure 1. Stepwise Improvement in Post-induction Temperature: Pre- vs Post-Guideline Implementation



Pre-implementation: audit data (Rasiah R et al., 2019), presented as range.
Post-implementation: prospective RCT (Abdullah AA et al., 2025), presented as mean ± SD.

Figure & Table 2.

Figure 2. Postoperative Hypothermia Rates in PACU: Group A (Pre-warming) vs Group B (Control)



n=32. Post-guideline implementation. Green values = absolute reduction in hypothermia rate.

ABSTRACT
Competition
Presentation
E-Poster

2026-0572

Suprazygomatic Maxillary Nerve Block for Pediatric Tonsillectomy in High-Risk Children: A Case Series

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2. Social Preventive Medicine, University Malaya, Malaysia

Background
Children with obstructive sleep-disordered breathing and chronic respiratory disease may be particularly vulnerable to opioid-related respiratory depression following tonsillectomy. Suprazygomatic maxillary nerve (SZMN) block is an emerging regional analgesic technique that may provide effective analgesia while minimizing opioid exposure. We describe our experience using bilateral SZMN block as part of multimodal analgesia in high-risk children undergoing tonsillectomy or adenotonsillectomy.

Methods
We retrospectively reviewed 15 high-risk pediatric patients who underwent tonsillectomy or adenotonsillectomy with bilateral ultrasound-guided SZMN block between March and August 2026 at a single center. High-risk features included obstructive sleep apnea/sleep-disordered breathing, chronic respiratory disease and other significant comorbidities. Where available, sleep-disordered breathing was assessed using polysomnography-derived apnea-hypopnea index (AHI) or overnight pulse oximetry-derived 4% desaturation event index (DEI-4). Postoperative pain scores (FLACC/Numeric Rating Scale), rescue analgesic requirements, respiratory events, postoperative respiratory support, length of stay, and block-related complications were reviewed.

Results
Fifteen children aged 3–11.8 years underwent bilateral SZMN block using 0.2% ropivacaine at 0.15mL/kg per side with dexmedetomidine at 2mcg/mL. Eight patients had documented OSA/sleep-disordered breathing, and five had chronic respiratory disease, with overlapping comorbidities. Sleep assessment reflected real-world practice, with PSG-derived AHI available in some patients and OPO-derived DEI-4 in others. Postoperative analgesia was consistently effective: 13/15 (86.7%) patients reported pain 0/10 at 1 hour and 14/15 (93.3%) at both 6 and 24 hours. Only one patient (6.7%) required rescue fentanyl in PACU (5 μg), and no patient required postoperative opioid administration on the ward. Paracetamol was documented for all patients, with additional ibuprofen documented in one patient. No patient required postoperative respiratory support, additional respiratory monitoring, HDU/PICU admission or unplanned escalation of care. One patient experienced transient perioral numbness that resolved completely approximately 20 hours after the block. Fourteen patients (93.3%) were discharged on postoperative day 1.

Conclusion
In this series of high-risk children undergoing tonsillectomy, bilateral SZMN block was associated with consistently low postoperative pain scores and minimal rescue analgesic requirements. No postoperative opioid administration or respiratory escalation was required, and all patients were managed safely on the general ward. SZMN block may be a useful component of multimodal analgesia when opioid avoidance is particularly desirable. Prospective comparative studies are warranted to evaluate its opioid-sparing efficacy and respiratory outcomes in high-risk pediatric populations.

2026-0581

Predicting Elective Orthopedic OR-Day Completion Time and Overtime Risk: A Simulation-Validation Study

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3. Department of Community Medicine, Faculty of Medicine, Chiang Mai University, Thailand

Background
OR scheduling is challenging because surgical duration varies by procedure type and complexity. Inaccurate scheduling can lead to OR overtime, resource inefficiency, and late-day case cancellations[1 2]. At our tertiary hospital, 22% of elective procedures continued beyond regular operating hours (15:30), with orthopedic surgery accounting for the highest proportion. Current scheduling relies on surgeons' clinical judgment, and the lack of a quantitative tool may result in inaccurate predictions[3] of whether the case list can be completed on time. This study developed and validated a simulation model to predict OR-day completion time and the risk of exceeding overtime thresholds.

Methods
This retrospective study included elective orthopedic OR days between 2022 and 2025. Data from 2022–2024 (1,045 OR days; 2,704 cases) were used to develop the model and underwent five-fold cross-validation. Data from 2025 (357 OR days; 931 cases) were reserved for independent validation. A Bayesian hierarchical posterior predictive model was used to estimate case duration and intercase intervals, accounting for case sequence and hierarchical procedure groups. Monte Carlo simulation with 10,000 replications per OR day was used to generate predicted completion times and corresponding uncertainty intervals. The primary endpoint was agreement between actual total time and the predicted median total time within ±15%. If this criterion was not met, prespecified decision metrics for predicting last-case entry after 14:30 cutoff time and OR completion after 15:30 were evaluated as co-primary endpoints.

Results
In the validation cohort, actual total time was within ±15% of the predicted median total time on 43.1% of OR days (95% CI, 37.9%–48.5%), with a mean absolute percentage error of 21.3% (95% CI, 19.7%–23.0%) (Figure 1). Although the prespecified ±15% agreement criterion was not met, calibration of the prediction intervals was good, with observed coverage of 49.9%, 78.2%, and 88.5% for the nominal 50%, 80%, and 90% intervals, respectively. For predicting OR completion after 15:30, the model achieved an AUROC of 0.757, with 68.8% sensitivity and 64.3% specificity. For predicting last-case entry after 14:30, the model achieved a PR-AUC of 0.325, with 31.5% sensitivity and 93.1% specificity (Table 1).

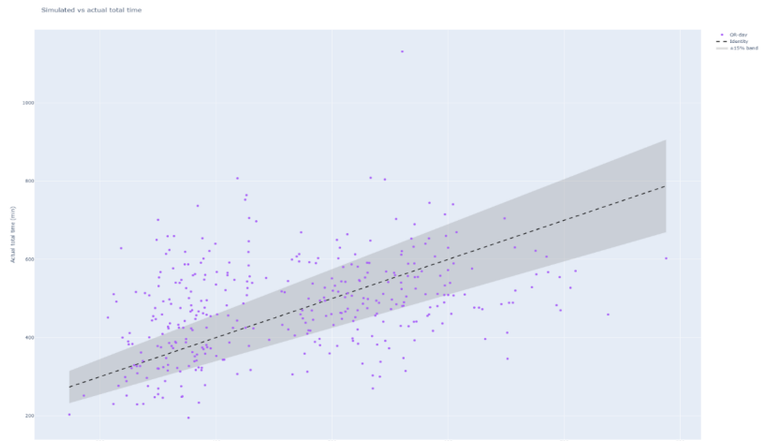
Conclusion
The model provided well-calibrated predictions and useful discrimination for identifying OR days at risk of overtime. Although the prespecified ±15% agreement target was not met, the estimated probabilities of exceeding key scheduling thresholds may support daily OR planning and proactive overtime management. Future studies should evaluate whether incorporating additional factors can improve model performance.

2026-0581

Figure & Table

Figure & Table 1.

Figure 1 Predicted versus actual total time



Simulated vs. actual total time, identity line, ±15% band.

Figure & Table 2.

Table 1 Model performance for predicting last-case entry after 14:30 and operating-room overtime after 15:30

Primary (continuous margin). Predicted vs. actual minutes of margin to each threshold, scored by CRPS/pinball loss and calibrated coverage over all 357 holdout days:

Outcome	Coverage 50%	Coverage 80%	Coverage 90%
14:30 last entry	52.1% [46.8%, 57.4%]	83.8% [79.5%, 87.4%]	93.3% [90.2%, 95.6%]
15:30 last release	49.9% [44.6%, 55.2%]	78.2% [73.5%, 82.3%]	88.5% [84.7%, 91.6%]

Secondary (binary), at the pre-specified p* = 0.50

Outcome	n events	Brier	AUROC / PR-AUC	Sens.	Spec.	PPV*	NPV*
14:30 cutoff breach	54	0.131	PR-AUC 0.325	31.5% [18.7%, 43.6%]	93.1% [89.9%, 95.7%]	44.7% [27.8%, 60.0%]	88.4% [84.7%, 91.8%]
15:30 overtime	231	0.200	AUROC 0.757	68.8% [63.1%, 75.3%]	64.3% [56.2%, 72.8%]	77.9% [71.9%, 83.4%]	52.9% [45.3%, 61.1%]

* PPV and NPV are base-rate dependent and non-transferable across cohorts with a different event rate

2026-0584

Identifying Asian Community Pain Intervention Programmes: A Scoping Review

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Background
Chronic pain imposes a substantial burden on healthcare systems globally. Recognizing the importance of community-based pain management, Singapore is beginning to make strategic shifts to transition from a tertiary hospital-based traditional system. Establishing sustainable, community-centric models is critical to alleviate this systemic strain. Therefore, this scoping review aims to map and characterize existing community-based pain management programs across Asian populations to identify culturally and operationally adaptable frameworks for the Singapore context.

Methods
Guided by the PRISMA-ScR framework, a scoping review of peer-reviewed randomized controlled trials and observational studies evaluating non-pharmacological, community-delivered pain management programs in Asia was conducted. Electronic databases (PubMed, EMBASE, and Web of Science) were searched from inception to June 11, 2026, without language or publication status restrictions.

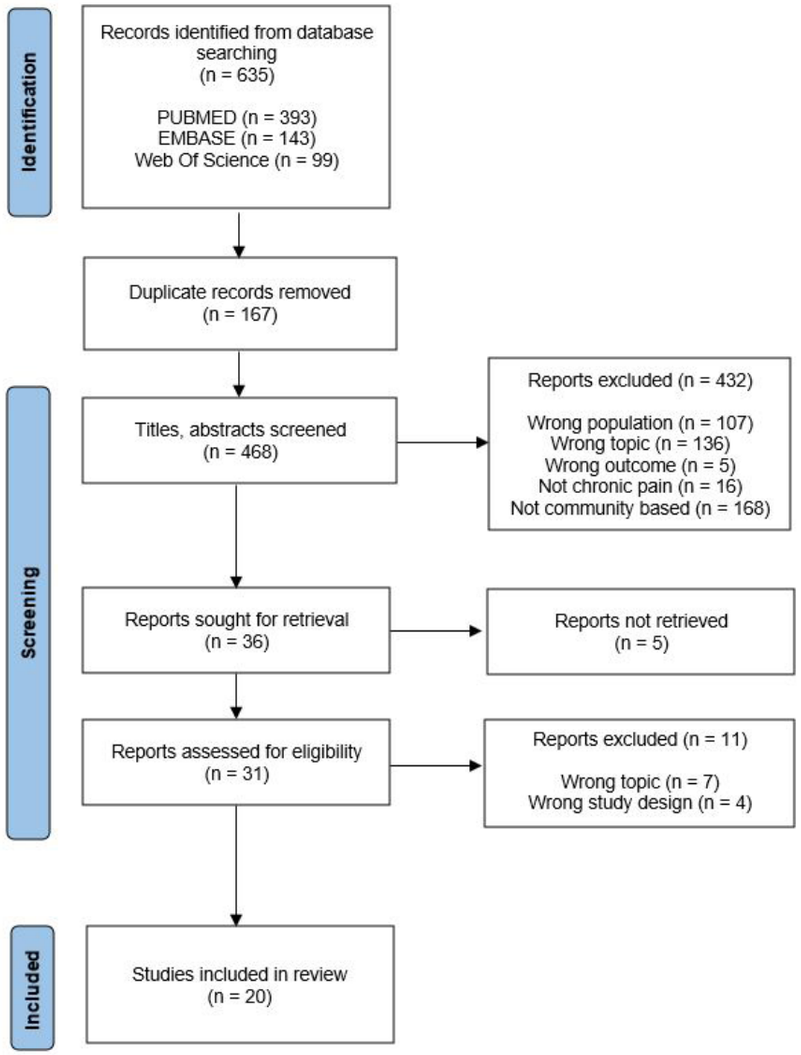
Results
20 studies met the inclusion criteria, spanning India, Malaysia, Japan, Thailand, Hong Kong, and one New Zealand-based study targeting Asian immigrant cohorts (Vietnamese, Mandaean, and Assyrian). Core interventions identified fell into three primary domains: multimodal self-management (patient education, cognitive behavioral therapy, and peer-led support groups); complementary modalities (mindfulness meditation, aromatherapy, and movement-to-music therapy); and digital health interventions (telemedicine and virtual reality-guided exercises). These modalities consistently demonstrated efficacy in patient empowerment and functional improvement.

Conclusion
This review identifies diverse, culturally congruent, and effective community-based interventions with high potential for translation to the Singaporean landscape. Prioritizing research into the cultural acceptability and operational feasibility of these programs is essential. Successful integration of these frameworks will alleviate pressure on acute tertiary services and provide the longitudinal, patient-centered support required to manage chronic pain sustainably.

2026-0584

Figure & Table

Figure & Table 1.



2026-0585

Airway Management in Tessier Cleft Type 3

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Introduction

Tessier cleft number 3 runs from the philtrum of the superior lip, traverses the ala of the nose and ends at the medial canthus of the eye leaving a big defect which interferes with feeding. This poses a challenge to the anaesthetist in securing airway.

Case

We are presenting a case of a 1y/o child who presented with congenital craniofacial defect of tessiers classification 3 to the plastic surgery OPD. The child had underwent eyelid repair 2 months ago and was now planned for cleft lip repair. The child had no syndromic association. The anaesthetic plan was administering general anaesthesia by inhalational induction as there was no iv access in preoperative. Standard ASA monitoring was instituted upon arrival in the operating room. The patient was preoxygenated with 100% oxygen via face mask. Inhalational induction was carried out using incremental concentrations of sevoflurane in 100% oxygen. Following induction, bag-mask ventilation was attempted but was noted to be difficult as was anticipated due to the large craniofacial defect. Adequate ventilation was achieved with appropriate airway maneuvers. After attaining sufficient depth of anesthesia, intravenous access was secured and fentanyl 2μg/kg was given. A check laryngoscopy was performed using a C-MAC video laryngoscope to assess the glottic view. The POGO score was 100%. Intravenous atracurium 0.5 mg/kg was given to facilitate endotracheal intubation with a cuffed endotracheal tube of size 4mm ID under C-MAC guidance, and correct placement was confirmed by continuous capnography and bilateral chest auscultation. The surgery lasted for 120 minutes uneventfully. After completion of surgery, the patient was extubated and was shifted to intensive care unit (ICU) for monitoring.

Conclusion

In conclusion, bag mask ventilation was achieved after multiples manoeuvres to ensure there was no leak and the patient doesn't desaturate .

2026-0585

Figure & Table

Figure & Table 1.



Figure & Table 2.



2026-0587

Persistent Postoperative Shock Following Endovascular Revascularisation: A Case of Catastrophic Retroperitoneal Haemorrhage and Abdominal Compartment Syndrome

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Introduction

Abdominal compartment syndrome (ACS) is a life-threatening condition associated with significant morbidity and mortality in critically ill patients. Early diagnosis is challenging, particularly when occult retroperitoneal haemorrhage occurs following vascular interventions. We present a fatal case of ACS complicated by profound haemodynamic instability, severe metabolic acidosis, and refractory hyperkalaemia following endovascular treatment of acute-on-chronic limb ischaemia.

Case

A 78-year-old man with atrial fibrillation on apixaban, heart failure with preserved ejection fraction, chronic obstructive pulmonary disease, chronic kidney disease, diabetes mellitus, and previous cerebrovascular disease presented with Rutherford 2B acute-on-chronic left lower limb ischaemia. He underwent successful AngioJet thrombectomy and angioplasty of the superficial femoral, popliteal, anterior tibial and dorsalis pedis arteries, followed by postoperative intravenous heparin therapy.

His admission was subsequently complicated by upper gastrointestinal bleeding from multiple Forrest IIA duodenal ulcers requiring urgent endoscopic haemostasis. Following endoscopy, he developed atrial fibrillation with rapid ventricular response and haemodynamic instability requiring cardioversion and vasopressor support. Shortly thereafter, he deteriorated with escalating vasopressor requirements, abdominal distension, severe metabolic acidosis (pH 7.09, lactate 15.5 mmol/L), coagulopathy, and refractory hyperkalaemia (peak potassium 7.2 mmol/L).

Computed tomography demonstrated active bleeding from the left external iliac artery with a large pelvic extraperitoneal and retroperitoneal haematoma causing ACS. Despite activation of a massive transfusion protocol, triple vasopressor support, correction of metabolic derangements, and successful endovascular stenting of the bleeding vessel, intra-abdominal pressure reached 53 mmHg with progression to multiorgan dysfunction syndrome. The patient developed refractory shock and ventricular tachycardia and died despite maximal intensive care support.

Conclusion

This case highlights the importance of maintaining a high index of suspicion for occult retroperitoneal haemorrhage in deteriorating post-endovascular patients. Progressive abdominal distension, escalating vasopressor requirements, severe acidosis, and hyperkalaemia should prompt urgent evaluation for ACS. Early recognition and source control remain critical to improving outcomes in this devastating critical care emergency.

2026-0588

Severe Dilutional Metabolic Acidosis and Transient Intracranial Hypertension Following Dural Tear During Revision Biportal Endoscopic Spinal Surgery: A Case Report

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Introduction

Biportal endoscopic spinal surgery (BESS) uses continuous high-volume normal saline (N/S) irrigation to maintain the surgical field. Although relatively safe, incidental dural tear (IDT) can occur, particularly during adhesiolysis of scar tissue in revision surgery. We analyzed the pathophysiology underlying severe metabolic acidosis and acute-phase symptoms-violent movement, hypertension, tachycardia, and hyperventilation-after a dural tear during revision BESS.

Case

A 47-year-old man underwent revision BESS discectomy for recurrent L5-S1 disc herniation. During adhesiolysis of scar tissue, a 6-mm dural tear occurred and was repaired; vital signs remained stable throughout surgery. On emergence, the patient showed violent movement, uncontrolled hypertension, tachycardia, and hyperventilation. Arterial blood gas analysis revealed severe metabolic acidosis (pH 7.296, BE -15, HCO3 11.2 mmol/L). Hemoglobin, hematocrit, total protein, and albumin decreased by 11-22% from preoperative values. Metabolic acidosis was corrected within 2 hours after NaHCO3 administration. Brain CT was normal, excluding hemorrhage or edema; however, hypertension, mental confusion, headache, and hyperventilation-associated respiratory alkalosis persisted for about 10 hours before gradually resolving. The patient became mentally alert, remained stable, and was discharged without further symptoms.

Conclusion

Similar cases of IICP or spinal hypertension after dural tear have been reported, but none have analyzed severe metabolic acidosis of unclear etiology in this setting. Severe agitation with attempts to rise, uncontrolled hypertension and tachycardia, and agitation and respiratory alkalosis persisting after acidosis correction are consistent with IICP. During the ~4.5-hour surgery, only balanced solutions were used IV, and despite a net fluid balance of only +500 mL, severe metabolic acidosis with clear dilutional findings developed. With other major causes excluded, findings suggestive of dilutional acidosis were confirmed, attributable only to the irrigation saline. This suggests that severe epidural adhesion with dural tear during BESS can allow systemic absorption of irrigation fluid, as recognized in TURP. BESS remains safe overall, but careful monitoring is needed in such situations.

Figure & Table

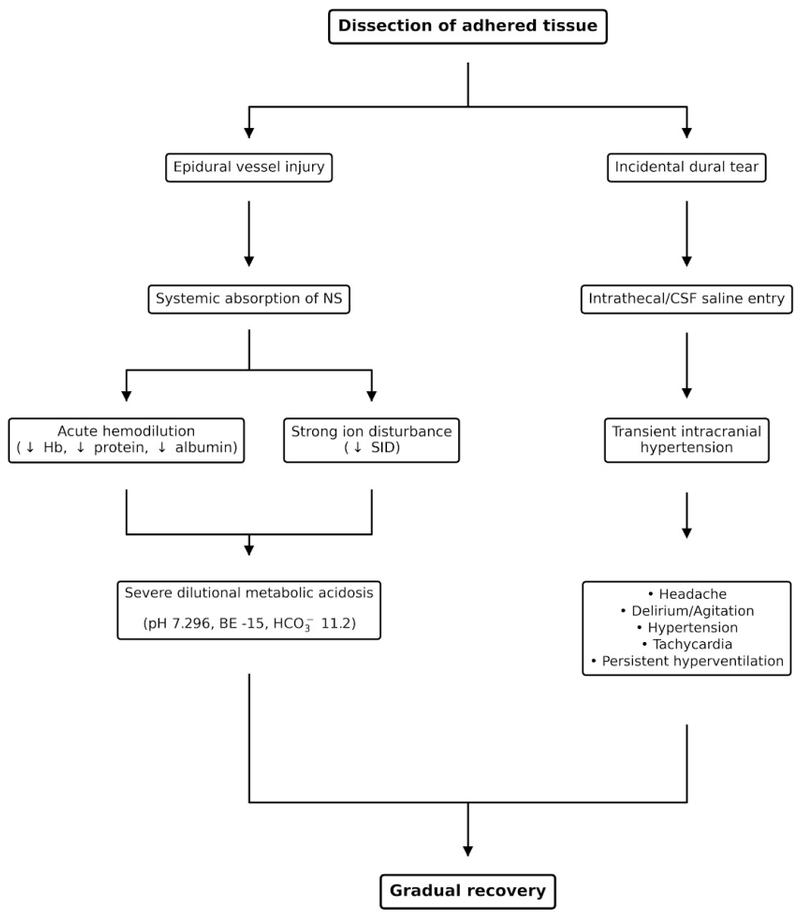
Figure & Table 1.

Table 1. Timeline (relative to surgery end) of acid-base and dilutional changes.

Time	Event	pH	PCO_2 (mmHg)	HCO_3^- (mmol/L)	BE(ecf) (mEq/L)	Hgb (g/dL)	Hct (%)	TP / Alb (g/dL)	Na^+ / K^+ / Cl^- (mmol/L)	Ca(total) (mg/dL)
Pre-op	Admission	—	—	—	—	16.5	49.5	7.3 / 4.7	141 / 4.3 / 102	9.8
~30 min after surgery	Severe metabolic acidosis; $NaHCO_3$ 80 mEq (in 0.45% saline 500 mL)	7.296	23.0	11.2	-15	—	—	—	143 / 3.6 / —	—
~1 h after surgery	$NaHCO_3$ 280 mEq (in 5% D/W 1 L)	7.491	20.1	15.0	-8.3	14.6	44.1	5.7 / 3.7	139 / 4.0 / 103	8.0
~8 h after surgery	Gradual recovery	7.389	30.3	18.4	-6.8	14.0	41.4	5.7 / 3.7	137 / 4.3 / 104	—

BE(ecf) = base excess of extracellular fluid; TP/Alb = total protein/albumin; D/W = dextrose in water; — = not measured.

Figure & Table 2.



2026-0595

The Midnight Rambutan: Multidisciplinary Rescue of Impending Complete Airway Obstruction in a Child with Down Syndrome

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Introduction
Foreign body aspiration can rapidly progress to life-threatening airway obstruction, particularly in children with anatomical and physiological features that increase airway vulnerability. We report the successful out-of-hours management of impending complete upper-airway obstruction in a child with Down syndrome, highlighting the importance of prompt escalation, preservation of spontaneous ventilation, and multidisciplinary preparedness for emergency surgical airway access.

Case
A 4-year-old girl with Down syndrome was brought to the emergency department at midnight following suspected foreign body aspiration. On arrival, she was obtunded (Glasgow Coma Scale E4V2M2), centrally cyanosed, and had inspiratory stridor, with an oxygen saturation of 50% on room air.
Immediate management included high-flow oxygen, which improved oxygen saturation to 100% , and intravenous fluid resuscitation. Initial bedside attempts at foreign body dislodgement, including back blows and abdominal thrusts, were unsuccessful. Further manipulation was deferred because of concern that agitation or instrumentation could convert partial obstruction into complete airway obstruction.
Given the imminent risk of airway collapse, the patient was transferred urgently to the operating theatre. A multidisciplinary airway plan involving anaesthesia, otorhinolaryngology, emergency medicine, and paediatric intensive care teams was instituted. The primary plan was removal of the foreign body under inhalational induction while maintaining spontaneous ventilation; emergency tracheostomy was prepared as a rescue strategy.
Sevoflurane inhalational induction was used to preserve spontaneous respiratory effort. Intravenous induction agents and neuromuscular blockade were avoided. Direct laryngoscopy identified an intact rambutan pulp impacted at the hypopharynx, which was removed successfully using Magill forceps. Subsequent tracheoscopy showed no residual foreign body. The trachea was then intubated using videolaryngoscopy, and the patient was admitted to the paediatric intensive care unit. She was extubated the following day and made a full neurological recovery.

Conclusion
Impending complete airway obstruction from foreign body aspiration requires immediate recognition, decisive escalation, and a carefully planned airway strategy. In a child with Down syndrome and critical upper-airway obstruction, preserving spontaneous ventilation, avoiding interventions that may worsen obstruction, and ensuring early otorhinolaryngology support with readiness for emergency surgical airway access were central to a successful outcome. This case underscores the value of coordinated multidisciplinary management during an out-of-hours paediatric airway emergency.

2026-0595

Figure & Table

Figure & Table 1.

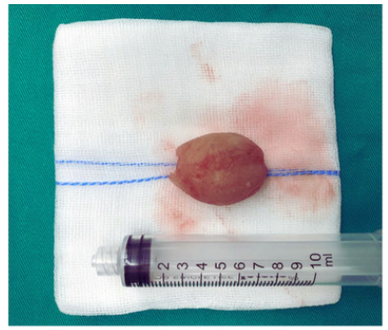


Figure 1: Retrieved rambutan pulp

Figure & Table 2.

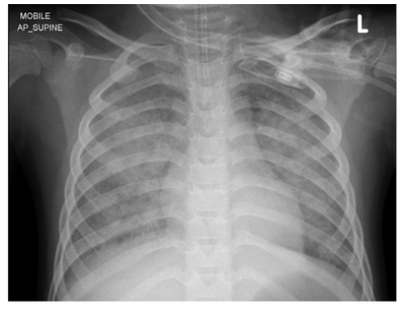


Figure 2: Chest radiograph taken post-removal of foreign body.

ABSTRACT
Competition
Presentation
E-Poster

2026-0596

A Missing Voice Prosthesis and a Hypoxic Lung: Anaesthetic Management of Bronchial Obstruction and Anaesthetic and Procedural Challenges

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Introduction

Migration of a tracheoesophageal voice prosthesis (TEP) into the tracheobronchial tree is an uncommon but potentially life-threatening complication after total laryngectomy. Acute bronchial obstruction may cause severe hypoxaemia, while airway management is complicated by altered anatomy and the risk that positive-pressure ventilation could worsen obstruction or displace the prosthesis distally. We describe successful multidisciplinary management of a migrated TEP causing critical hypoxaemia.

Case

A 65-year-old man with a TEP following total laryngectomy for transglottic carcinoma, and with coexisting inclusion body myositis, developed acute respiratory distress. His oxygen saturation was 70% on presentation. High-flow oxygen produced only marginal improvement to 80%; however, he remained conscious with a Glasgow Coma Scale score of E4VtM6.

Flexible bronchoscopy through the tracheostoma demonstrated absence of the voice prosthesis. Chest radiography showed left-sided pulmonary opacities and a focal radiopaque shadow within the left main bronchus, consistent with a migrated prosthesis. In view of persistent hypoxaemia, gentle bag-assisted ventilation was commenced. Adaptive-support ventilation with PEEP 0 and FiO2 1.0 improved oxygen saturation to above 90%.

Dexmedetomidine infusion at 0.2-0.4 mcg/kg/hour was initiated to relieve dyspnoea while maintaining spontaneous ventilation. Urgent fibreoptic bronchoscopic retrieval was performed under conscious sedation, with dexmedetomidine carefully titrated to 0.6 mcg/kg/hour. Following successful removal of the prosthesis, anaesthesia was deepened with sevoflurane to facilitate bronchoalveolar lavage and biopsy. A lung-recruitment manoeuvre was performed before transfer to the intensive care unit. He was weaned from mechanical ventilation several hours later.

Conclusion

A migrated TEP should be considered in any post-laryngectomy patient with a missing prosthesis and acute respiratory compromise. This case illustrates the need to balance the risks of positive-pressure ventilation against the immediate need to correct life-threatening hypoxaemia. Low-pressure ventilatory support, preservation of spontaneous breathing, dexmedetomidine-facilitated conscious sedation, and early multidisciplinary coordination enabled safe bronchoscopic retrieval and a favourable outcome.

2026-0596

Figure & Table

Figure & Table 1.

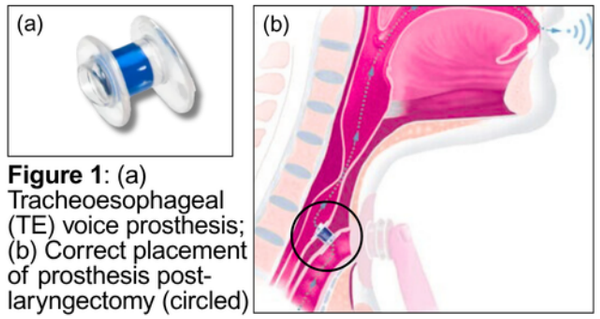


Figure 1: (a) Tracheoesophageal (TE) voice prosthesis; (b) Correct placement of prosthesis post-laryngectomy (circled)

Figure & Table 2.

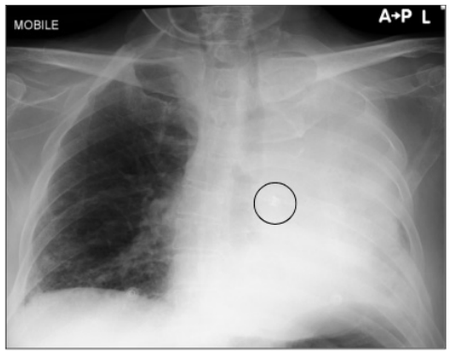


Figure 2: Patient's chest radiograph taken prior to bronchoscopy demonstrates a radiodense foreign body (circled), with resultant near-total opacification of the left lung.

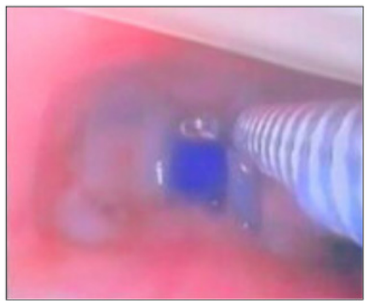


Figure 3: Bronchoscopic view of the prosthesis lodged within the left main bronchus during retrieval process

ABSTRACT
Competition
Presentation
E-Poster

2026-0597

Relaxation Without Paralysis: Neuromuscular Blocker-Free Anesthesia for Laparoscopic Gynecologic Surgery in Myasthenia Gravis

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Introduction

Myasthenia gravis (MG) is an autoimmune disorder of neuromuscular transmission characterized by fluctuating skeletal muscle weakness. Patients with MG are particularly sensitive to nondepolarizing neuromuscular blocking agents (NMBAs), while responses to depolarizing agents may be altered by acetylcholine-receptor reduction and anticholinesterase therapy (Daum et al., 2021). These altered responses may increase the risk of prolonged weakness and postoperative respiratory complications. Although rocuronium with sugammadex is an option, NMBA-free anesthesia may be considered when satisfactory conditions can be achieved without paralysis (Kaye et al., 2025). NMBA-free anesthesia has been reported in selected MG patients (Hien et al., 2023), but experience in laparoscopic gynecologic surgery remains limited. This case presents a multimodal anesthetic approach combining general and epidural anesthesia for laparoscopic gynecologic surgery.

Case

A 45-year-old nulligravid female with stable MG, receiving pyridostigmine 520 mg/day and prednisone 5 mg twice weekly, underwent total laparoscopic hysterectomy, bilateral salpingectomy, and cystoscopy for abnormal uterine bleeding secondary to adenomyosis and myoma. Respiratory status was monitored clinically without quantitative neuromuscular monitoring as no NMBA was administered. An L4–L5 epidural was placed before induction. General anesthesia was induced with fentanyl, propofol, and sevoflurane. Video laryngoscopy was used for tracheal intubation without NMBA. Anesthesia was maintained with sevoflurane and pressure-control ventilation with volume guarantee. Epidural motor blockade was established with 0.5% isobaric bupivacaine, 10 mL initially followed by two 5-mL boluses at 30-minute intervals. Satisfactory intubating conditions and surgical relaxation were achieved without NMBA. Hemodynamic and respiratory parameters remained stable without intraoperative complications. The patient was transitioned to pressure-support ventilation and extubated fully awake. In PACU, Aldrete score was 10/10 and Bromage score was 0. No postoperative respiratory complications, nausea, or vomiting occurred. Pain control was satisfactory, and she was discharged on postoperative day 2.

Conclusion

NMBA-free anesthesia was feasible for laparoscopic gynecologic surgery in this patient with stable MG. General anesthesia combined with epidural segmental abdominal motor blockade provided satisfactory surgical conditions without neuromuscular blockade or pharmacologic reversal. This case adds to the limited experience with NMBA-free anesthesia in laparoscopic gynecologic surgery and highlights regional motor blockade as a potential multimodal strategy in selected patients with MG. The absence of quantitative neuromuscular monitoring limits objective assessment of intraoperative neuromuscular effects. This approach should be individualized according to disease stability, airway characteristics, surgical requirements, and anesthetic expertise.

2026-0598

When Left Goes Right... and Right Goes Wrong: Anesthetic Management of a Parturient with Unrepaired Ventricular Septal Defect and Suspected Eisenmenger Syndrome During Emergency Cesarean Delivery - A Case Report

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Introduction

Congenital heart disease complicates 0.8–1% of pregnancies and increases maternal and fetal morbidity and mortality. Ventricular septal defect (VSD) is a common congenital cardiac lesion and is often well tolerated when hemodynamically insignificant. However, longstanding unrepaired VSD may cause progressive pulmonary vascular remodeling and pulmonary hypertension, eventually resulting in bidirectional or right-to-left shunting and Eisenmenger physiology. Pregnancy, labor, and the postpartum period impose significant hemodynamic stress through increased cardiac output, reduced systemic vascular resistance, pain, blood loss, and postpartum autotransfusion. These changes may precipitate hypoxemia, right ventricular failure, and pulmonary hypertensive crisis. Anesthetic management therefore requires careful maintenance of systemic and pulmonary vascular resistance, preservation of right ventricular function, and avoidance of hypoxia, hypercarbia, acidosis, and hypotension. We present a 24-year-old primigravida with an unrepaired perimembranous VSD and moderate pulmonary hypertension who developed progressive hypoxemia and respiratory deterioration during labor, requiring emergency cesarean delivery under general anesthesia. Despite multidisciplinary management, she developed a fatal pulmonary hypertensive crisis on the second postoperative day.

Case

K.B. was a known case of unrepaired perimembranous ventricular septal defect (VSD), previously asymptomatic and without maintenance medications. She initiated prenatal care at 23 5/7 weeks AOG and was classified as high-risk, with cardiology co-management. During pregnancy, she developed intermittent dyspnea, syncope, and desaturation as low as 88% on room air. Echocardiography showed a 0.77-cm VSD with predominant left-to-right shunting, moderate pulmonary hypertension, anterior mitral valve prolapse with mild mitral regurgitation, eccentric LV hypertrophy, and preserved systolic function (EF 55%). At 35 weeks AOG, digoxin 0.25 mg OD was started.
At 37 weeks AOG, she was admitted as G1P0, cephalic, gravidocardiac due to perimembranous VSD (NYHA II, mWHO II), with diet-controlled GDM and a small-for-gestational-age fetus. She was initially planned for assisted vaginal delivery under epidural anesthesia. On admission, she had persistent desaturation (79–86%) and tachycardia (101–108 bpm), requiring O_2 at 5–6 L/min via face mask. ECG showed sinus tachycardia; CBC and electrolytes were acceptable. Pro-BNP was elevated at 1,029 pg/mL. ABG showed pH 7.45, $PaCO_2$ 23.7, PaO_2 60.8, HCO_3^- 16.6, consistent with mixed respiratory alkalosis and metabolic acidosis. NST was reactive and CST negative. Epidural analgesia with bupivacaine 0.125% was initiated. After 4 hours of labor, desaturation worsened to 78% with increased respiratory effort and minimal fetal heart rate variability. Due to worsening maternal respiratory status and non-reassuring fetal status, emergency cesarean delivery was performed.

Conclusion

This case highlights the high maternal risk of unrepaired VSD with pulmonary hypertension during pregnancy. Early recognition of worsening hypoxemia and evolving Eisenmenger physiology, close monitoring, and multidisciplinary management are essential. Anesthetic care should maintain SVR, minimize PVR, and preserve right ventricular function. Despite optimal care, advanced pulmonary vascular disease may lead to fatal maternal deterioration.

2026-0601

Airway Reboot- Rewriting the Route in Congenital Torticollis with Fibreoptic Bronchoscope

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Introduction

Congenital muscular torticollis produces persistent ipsilateral head tilt with contralateral chin rotation, restricting cervical mobility and distorting upper airway anatomy. When such patients require general anesthesia, conventional laryngoscopy may be impossible. Awake fibreoptic bronchoscopy — preserving spontaneous ventilation throughout — remains the gold standard for the anticipated difficult airway in this setting.We report successful awake fibreoptic bronchoscope (FoB)-guided intubation in a 71-year-old male with congenital left torticollis and hypertension, posted for total thyroidectomy for papillary thyroid carcinoma, following a prior failed intubation at a referring institution.

Case

A 71-year-old hypertensive male, with congenital torticollis to the left present since birth, was referred to our institution for total thyroidectomy for biopsy-confirmed papillary thyroid carcinoma (Bethesda VI). Critically, the procedure had been abandoned at the referring facility due to failed intubation under general anesthesia.

Examination revealed a short, stiff neck with fixed leftward torticollis, marked restriction of cervical mobility in all planes, and visible lateral tracheal displacement. Oral examination was unremarkable. Flexible laryngoscopy confirmed bilateral vocal cord mobility with no glottic lesions.

Given the prior failed intubation and the clinical anatomy, awake FoB-guided nasal intubation was planned with surgical tracheostomy standby. Airway topicalisation included glycopyrrolate, 4% lignocaine- adrenaline nebulization, intranasal oxymetazoline, and transtracheal block.With the patient awake and spontaneously breathing, the fibreoptic bronchoscope was advanced nasally, negotiating the distorted anatomy to achieve clear glottic visualization. The tracheal tube was railroaded over the bronchoscope under direct vision and confirmed by capnography and auscultation. The patient tolerated the procedure well throughout, following which anaesthesia was deepened for surgery

Discussion:

This case highlights two key principles. First, a documented failed intubation demands a fundamentally different re-attempt strategy. The fixed neck deviation, tracheal displacement, and lateralized laryngeal structures of congenital torticollis render conventional laryngoscopy unreliable; awake fibreoptic bronchoscopy allows navigation under direct vision irrespective of external neck positioning. Second, maintaining spontaneous ventilation throughout affords a critical safety margin — the procedure can be abandoned at any point if the airway cannot be secured, a safeguard unavailable once neuromuscular blockade has been administered in an already-induced patient.

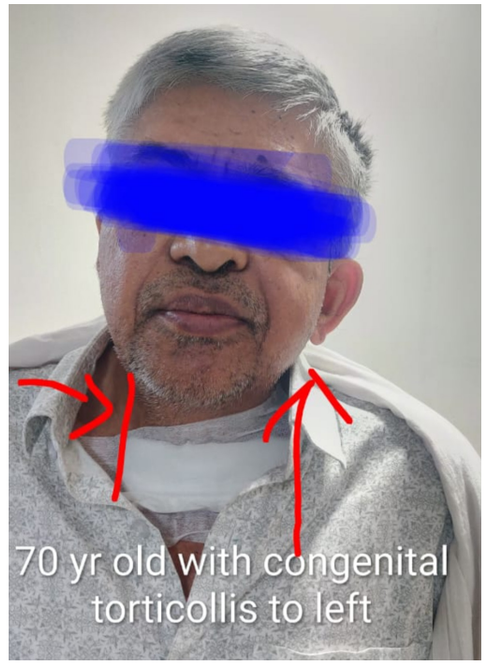
Conclusion

Awake fibreoptic bronchoscope-guided intubation is a safe and effective airway strategy in patients with congenital torticollis and a prior failed intubation. Early recognition of an anticipated difficult airway and commitment to an awake technique are essential for patient safety in this high-risk population

2026-0601

Figure & Table

Figure & Table 1.



ABSTRACT
Competition
Presentation
E-Poster

2026-0602

Management of Accidental Retention of Guide Wire during Dialysis Catheter Insertion in a Multidisciplinary Team Approach; A Case Report.

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Introduction

Dialysis catheter insertion is a common procedure for emergency dialysis in varied clinical settings including Chronic Kidney Disease (CKD). Accidental arterial puncture, hematoma to the local site, pneumothorax and catheter related infections are common to the catheter insertion. Retained guide wire, though rare is a serious complication requiring urgent clinical attention. Timely multidisciplinary team approach including Anesthesiology, Critical Care and Interventional Radiology (IR) is a key to consider for the favorable outcome.

Case

78 years old male a known case of Acute Exacerbation of Chronic Obstructive Pulmonary Disease (COPD), Diabetes Mellitus with Diabetic Kidney Disease, Hypertension, and Benign Enlargement of Prostate (BEP) under regular medications (Amlodipine, Losartan, Prazocin, Dapagliflozin, Budesonide and Salmeterol inhaler) presented to Emergency Department (ED) with complain of worsening shortness of breath and reduced urine output for one day. Working diagnosis of Acute Pulmonary Edema (APE) with Severe Metabolic Acidosis was made and advised for emergency Hemodialysis. Patient was immediately shifted to Intensive Care Unit (ICU) and a 12 Fr Jugular Hemodialysis Catheter was inserted in Right Internal Jugular Vein (RIJV) by Registrar Anesthesiologist (RA) on duty. Upon completion of the procedure RA didn't notice the guide wire in the Catheter insertion set. Attention to the site and removal of the catheter was done in view of catheter retrieval under ultrasound guidance. However the guidewire was not retrieved and seen within the Venous lumen in Right Internal Jugular Vein (RIJV). Immediate Chest X-ray showed the location of guidewire in Right Atrium coiled singly with J tip at Internal Jugular Vein. Worsening dyspnoea and unstable hemodynamics managed with another hemodialysis catheter insertion at Right Femoral Vein. Hemodialsis session was completed via the femoral catheter at the moment. After the patient became hemodynamically stable and comfortable, patient was shifted to IR suite. In IR suite, with all aseptic precautions 6 Fr Femoral sheath (Terumo, Japan)was secured at Right Femoral Vein. 5 fr Cobra catheter (Boston Scientific) with 0.035 guide wire (Terumo, Japan) was railroaded and reached to right subclavian and Jugular vein. Catheter exchanged with snare and the snare loop (Merit Medical, USA) was used to retrieve the retained guidewire via the femoral sheath.

Conclusion

Retained catheter is a rare but a serious complication following Central Venous Catheter insertion including insertion of dialysis catheter. Timely diagnosing the guide wire retention and the multidisciplinary team approach including Anesthesiologists, Intensivists and IR team is a key to succeeding timely retrieval without further morbidity.

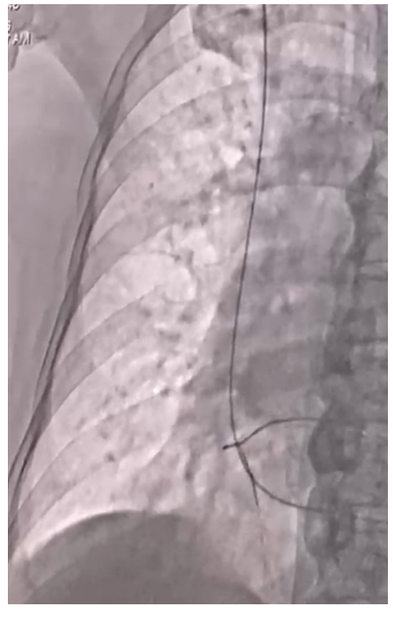
2026-0602

Figure & Table

Figure & Table 1.



Figure & Table 2.



ABSTRACT
Competition
Presentation
E-Poster

2026-0604

Combined Total Intravenous and Inhalational Anaesthesia for Separation Surgery of Pygopagus Conjoined Twins: A Case Report

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Introduction
Pygopagus conjoined twins, joined at the sacrococcygeal region, account for approximately 6-19% of conjoined twin cases, with a combined incidence of roughly 1 in 200,000 live births. Surgical separation of shared spinal cord and neural elements requires intraoperative neuromonitoring (IONM) with transcranial motor evoked potentials (TcMEP) and electromyography (EMG) to preserve neurological function. Volatile anesthetics attenuate evoked potential amplitude in a dose-dependent manner, making total intravenous anesthesia (TIVA) the preferred technique during the monitoring-dependent phase. We report a case in which TIVA was used specifically during neuromonitoring and discontinued in favour of inhalational anesthesia once separation was complete and monitoring was no longer required.

Case
28 days-old premature (32 weeks) pygopagus conjoined twin girls, joined at the sacrum, coccyx, thecal sac and communicating distal cords with shared neural elements were scheduled for emergency surgical separation following increasing cardiorespiratory support of Twin 2 compromising the management of both twins. Preoperative MRI demonstrated shared distal spinal cords with separated urogenital structures and limited cross-circulation. Both twins had anorectal malformation with rectovestibular fistula. Two independent anesthesia teams managed each twin using duplicated equipment and colour-coded medications.
Anesthesia was induced with TCI Propofol Eleveld model and Remifentanil (mass infusion rate) followed by maintenance with propofol 2.5-4mcg/ml and remifentanil (0.2-0.3 mcg/kg/min) to optimise IONM signal quality, guided by BIS/DSA monitoring. TcMEP and EMG were recorded throughout the neural dissection and separation phase without significant signal attenuation. Following successful anatomical separation of Twin 1 and 2, TIVA was discontinued for Twin 1 and anesthesia was converted to servoflurane at 0.5 MAC, as further neuromonitoring was no longer required for this twin's remaining procedure of anorectoplasty and skin closure . TIVA was continued for Twin 2 post separation for remaining procedure of anorectoplasty, synthetic patch to myelomeningocele and skin closure. Hemodynamics for both twins remained stable throughout intra-operatively with no notable events. Total surgical time was 9 hours. Twin 1 was extubated to CPAP in NICU with an unremarkable postoperative course. Twin 2 however succumbed at day 29 post separation due to respiratory failure in view of her underlying left hypoplastic lung anomaly.

Conclusion
Tailoring anaesthetic technique to different stages of surgery requiring neuromonitoring with TIVA is both feasible and practical in pyopagus twin separation surgery. This staged approach may reduce total intravenous drug exposure while preserving neuromonitoring fidelity during the critical dissection phase, offering a reusable strategy for future conjoined twin separations requiring IONM

2026-0606

Intensive Care Management of Disseminated Klebsiella pneumoniae Syndrome Originating from a Bartholin's Abscess

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Introduction
Klebsiella pneumoniae represents a common Gram-negative bacterium and a recognized cause of nosocomial and community-acquired infections. The emergence of hypervirulent Klebsiella pneumoniae (hvKp) expanded the organism's pathogenic potential, causing Invasive Klebsiella Syndrome (IKS)—a severe condition featuring primary abscesses and a high propensity for hematogenous dissemination. We report a rare case of IKS originating from a Bartholin's abscess.

Case
A 61-year-old female with poorly controlled diabetes presented with an infected Bartholin's cyst. Gynecology performed emergent incisional drainage. Post-operatively, the patient rapidly decompensated into septic shock and acute respiratory failure, prompting intensive care unit (ICU) admission. Computed tomography (CT) demonstrated extensive systemic dissemination, including septic pulmonary emboli, splenic micro-abscesses, and a right frontal lobe infarction. Blood and swab cultures grew Klebsiella pneumoniae. Targeted intravenous amoxicillin-clavulanate cleared the bacteremia; however, the patient suffered poor neurological recovery secondary to the central nervous system insult and ultimately required a tracheostomy.

Conclusion
Disseminated K. pneumoniae requires a high index of clinical suspicion, even when originating from localized sources such as a Bartholin's abscess. Successful ICU management dictates rapid hemodynamic resuscitation, precise antimicrobial pharmacokinetic/pharmacodynamic optimization, and vigilant monitoring for multi-organ metastatic complications.

2026-0606

Figure & Table

Figure & Table 1. Cultures drawn during initial resuscitation (peripheral blood, tracheal aspirates, and a high vaginal/labial swab) all yielded *Klebsiella pneumoniae*.

Date Collected	Specimen / Source	Organism Isolated	Key Notes
14/06/2022	Pus/Swab (Labial)	*Klebsiella* species	Initial source culture.
14/06/2022	Blood (Aerobic & Anaerobic)	*Klebsiella pneumoniae*	Confirmed bacteremia.
20/06/2022	Pus/Swab (Left Pararectal)	*Klebsiella pneumoniae*	Subsequent localized swab.

Figure & Table 2. *Table 2: Procalcitonin (PCT) Trends*

Date	Result (ng/ml)	Clinical Interpretation
27/06/2022	1.59	Significant systemic inflammatory response
06/07/2022	0.66	Moderate systemic inflammation
13/07/2022	1.18	Sustained systemic inflammation
18/07/2022	1.26	Sustained systemic inflammation

2026-0609

Calculated Deviation: Anesthetic Management of a 2-Year-Old Patient with Edward's Syndrome, Uncorrected Double Outlet Right Ventricle, and Focal Epilepsy Undergoing Cleft Lip Repair under General Endotracheal Anesthesia

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Introduction

Syndromic patients with complex and mixed congenital heart disease (CHD) present profoundly conflicting anesthetic requirements across cardiac, airway, neurological, and analgesic domains. This report describes a pathophysiology-driven hierarchical approach to navigating these intersecting clinical dilemmas.

Case

A 2-year and 9-month-old, 13.8-kg female (ASA IV) with Trisomy 18, uncorrected Double Outlet Right Ventricle (DORV) with severe pulmonary stenosis and moderate tricuspid regurgitation (TR), focal epilepsy, and a complete unilateral cleft lip with alveolar cleft presented for cheiloplasty, primary rhinoplasty, and central line insertion. Induction was performed with atropine (0.02 mg/kg), midazolam, and fentanyl (1.8 mcg/kg). Ketamine and propofol were deferred; sevoflurane permitted titratable systemic vascular resistance (SVR) reduction to promote forward systemic flow. Seizures were preemptively mitigated through preoperative optimization of maintenance anti-epileptics, midazolam co-induction, and intraoperative normocapnia. The standard difficult airway guideline advocating spontaneous ventilation was deemed unsuitable. Rapid neuromuscular blockade with rocuronium guaranteed an apneic, controlled intubation, preventing dynamic pulmonary vascular resistance (PVR) elevation from agitation-induced hypoxia and hypercarbia. Zero intraoperative positive end-expiratory pressure (PEEP) preserved preload in a hypertrophied right ventricle serving both circulations. An opioid-sparing bilateral infraorbital nerve block (bupivacaine 0.125%) preserved spontaneous respiratory drive while minimizing the risk of self-inflicted surgical site trauma. PEEP (5 cmH2O) was applied at emergence to recruit dependent alveoli prior to awake extubation. The patient remained hemodynamically stable with SpO2 maintained at baseline, no intraoperative ischemic or ictal events were observed, and the patient was discharged without untoward complications.

Conclusion

This case highlights the profound clinical complexities encountered when standard anesthetic guidelines for syndromic, cardiac, and neurological comorbidities directly contradict one another. In these patients, compartmentalized problem lists and rigid adherence to standard protocols prove grossly inadequate. Safe management requires a highly individualized, pathophysiology-driven hierarchical approach. By integrating titratable afterload reduction, PVR spike prevention, strategic alveolar recruitment, and opioid-sparing techniques, the anesthetic plan navigated multiple intersecting dilemmas in a patient with limited physiologic reserve.

2026-0609

Figure & Table

Figure & Table 1.

Table 1. Clinical Rationale for Deviation from Standard Guidelines

Standard of Care	Patient-Specific Contraindication	Alternative Intervention	Clinical Rationale
Ketamine for cardiac stability, or Propofol for seizure suppression.	**Minimizing Myocardial O2 Demand vs. Preserving CPP vs. Seizure Suppression** Ketamine increases SVR and induces tachycardia, which increases myocardial oxygen demand due to elevated wall tension and decreases myocardial oxygen supply and systemic oxygen delivery due to severely restricted diastolic filling time in a stiff, hypertrophied RV already facing combined pressure and volume overload from co-existing moderate tricuspid regurgitation. Propofol-induced systemic vasodilation causes a sudden mean arterial pressure (MAP) drop, which compromises both coronary perfusion pressure and systemic oxygen delivery. Additionally, continuous IV agents suffer from unpredictable pulmonary recirculation in mixed congenital heart disease with substantial systemic-to-pulmonary shunting.	**Primary Intervention:** Sevoflurane. **Adjunctive Mitigation:** Preoperative optimization with maintenance antiepileptics, midazolam co-induction, and intraoperative normocapnia.	Sevoflurane safely unloads the right ventricle through highly titratable SVR reduction, promoting forward systemic flow while maintaining adequate coronary perfusion pressure. Inhalational pharmacokinetics remain highly predictable despite severe shunting. Preoperative optimization alongside midazolam co-induction and intraoperative normocapnia preemptively mitigate epileptogenesis.
Spontaneous ventilation to maintain intrinsic airway tone in a predicted difficult syndromic airway.	**Airway Safety vs. Preserving Pulmonary Circulation** In severe pulmonary stenosis, pulmonary flow is a fixed baseline obstruction. Agitation and uncontrolled spontaneous ventilation increase metabolic oxygen demand and impair alveolar gas exchange. The subsequent hypoxia, hypercarbia, and respiratory acidosis act as potent dynamic triggers that acutely elevate pulmonary vascular resistance and compromise remaining pulmonary perfusion.	**Primary Intervention:** Rocuronium. **Adjunctive Mitigation:** Video laryngoscopy and immediate sugammadex availability.	Rapid neuromuscular blockade guarantees an apneic, controlled intubation devoid of hypercarbia-induced elevations in pulmonary vascular resistance. This is safely indicated when video laryngoscopy and immediate reversal agents are available to mitigate the risk of a cannot-ventilate scenario.
Positive End-Expiratory Pressure (PEEP) to prevent dependent atelectasis during mechanical ventilation.	**Alveolar Recruitment vs. RV Preload** Excessive positive intrathoracic pressure compresses the pulmonary vasculature, severely decreasing venous return and cardiac output in right ventricular outflow tract obstruction. This reduces preload in a hypertrophied right ventricle already facing high combined pressures from both systemic and pulmonary circulation, further compounded by moderate tricuspid regurgitation.	**Primary Intervention:** Zero intraoperative PEEP. **Adjunctive Mitigation:** Application of 5 cmH2O PEEP towards end of procedure and during emergence.	Maintaining zero PEEP during the maintenance phase preserves venous return and right ventricular preload, accepting the minor risk of microatelectasis. Targeted alveolar recruitment towards the end of the procedure successfully mitigates atelectasis without causing prolonged intraoperative hemodynamic compromise.
Systemic opioids for blunting major surgical pain and postoperative stress.	**Sympathetic Blunting vs. Respiratory Drive** Systemic opioids cause postoperative respiratory depression and hypoventilation, which rapidly elevates PVR. This leads to a delayed dynamic PVR spike and potential hypoxic decompensation in the recovery phase.	**Primary Intervention:** Bilateral infraorbital nerve block. **Adjunctive Mitigation:** Analgesic concentration of bupivacaine (0.125%).	An opioid-sparing regional block maintains spontaneous respiratory drive. Utilizing lower local anesthetic concentrations provides sufficient sensory analgesia while deliberately minimizing dense prolonged numbness, a known risk factor for postoperative self-inflicted surgical site trauma in pediatric cheiloplasty.

Abbreviations: CPP, coronary perfusion pressure; MAP, mean arterial pressure; PEEP, positive end-expiratory pressure; PVR, pulmonary vascular resistance; RV, right ventricle; SVR, systemic vascular resistance.

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Transient Perioperative Visual Loss Following Adolescent Scoliosis Surgery

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Introduction

Perioperative Visual Loss (POVL) is a rare debilitating complication that may arise following spine surgery. It is characterised by profound painless central or peripheral vision loss, which is often bilateral. The incidence is approximately 0.09% to 0.2% in spine surgeries.

Case

We present a case of a 14-year-old girl, weighing 33kg and 153cm in height. She was diagnosed with Adolescent Idiopathic Scoliosis, with thoracic Cobb angle of 55^{0}and Lumbar of 44 ^{0}, without neurological deficit. She was scheduled for elective Posterior Spinal Instrumentation and Fusion from T2 to L4 with Intraoperative Neurophysiological Monitoring under General Anaesthesia with Total Intravenous Anaesthesia. Induction was uneventful, and she was positioned prone with knee in flexed position. All pressure points were padded, body supported on chest and pelvic bolsters. Her head was supported on foam with special cut-out for eyes, nose and mouth . Her eyes were taped, padded and kept free with regular intraoperative eye-checks.

During the six-hour surgery, she developed massive blood loss, estimated to be 1.8 litres, requiring transfusion of blood products. She also developed hypothermia despite conventional warming. Transient reductions in cardiac output occurred during surgical manipulation. Her blood pressure was labile, requiring Noradrenaline up to 0.24mcg/kg/min, which was tapered off by the end of surgery. There was intermittent loss of Motor Evoked Potential, returned to baseline after readjustment of instrumentation. Following delayed awakening, she was extubated and was sent to recovery bay for close monitoring. Her vitals were stable and pain managed with PCA morphine. Approximately 40 minutes later, she complained of painless bilateral visual loss. Her bilateral upper limb and lower limb neurology was intact. Low dose of IVI Noradrenaline was recommenced to maintain mean arterial pressure of 80-90 mmhg. She underwent urgent ophthalmological assessment and brain imaging. Her visual acuity was 6/21 bilaterally, no relative afferent pupillary defect and normal fundoscopy. Urgent CT Brain imaging was normal. Provisional impression was Optic Nerve Hypoperfusion due to Acute Blood Loss. Her visual symptoms started to show signs of recovery an hour later while full visual recovery was attained by 12-hour post op. She was monitored overnight and transferred to the ward the following morning.

Conclusion

This case highlights that POVL may occur despite appropriate positioning and regular intraoperative eye checks. Early recognition, optimisation of hemodynamic and urgent ophthalmological assessment are essential to exclude irreversible causes of visual loss.

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Use of Liposomal Bupivacaine for Adductor Canal Blockade: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

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Background
The adductor canal block (ACB) is a regional anesthesia technique that targets the saphenous nerve, a sensory branch of the femoral nerve (1). It has emerged as an essential element in multimodal pain management for surgeries involving the lower limb (2). Liposomal bupivacaine is an extended-release formulation designed to deliver prolonged analgesia, potentially lasting up to 72 hours from a single dose (3, 4). Adding liposomal bupivacaine to adductor canal blocks may enhance postoperative pain control following lower limb procedures. This study aimed to assess the analgesic efficacy of adding liposomal bupivacaine to adductor canal blocks compared to using non-liposomal local anaesthetics alone.

Methods
A systematic search of the literature was conducted across PubMed, Web of Science, EMBASE, CNKI, ClinicalTrials.gov, and the Cochrane Library up to February 27, 2026. Studies eligible for inclusion were randomized controlled trials (RCTs) that compared the use of liposomal bupivacaine to non-liposomal local anaesthetics in adductor canal blocks. The primary outcome was the pain score at rest 24 hours after surgery. Effect sizes were evaluated using raw mean differences (MD), with a difference of 1/10 on the pain scale considered as being minimally clinically important (MCID). Secondary outcomes included pain scores at multiple time points and opioid consumption. The certainty of the evidence for each meta-analysis outcome was assessed using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) framework (5).

Results
A total of 16 randomized controlled trials encompassing 1,448 patients were analysed. The use of liposomal bupivacaine was associated with statistically significantly lower resting pain scores at 24 hours postoperatively compared to non-liposomal local anaesthetics (MD = −0.93; 95% CI = −1.20 to −0.66; $p < 0.001$). Significant heterogeneity was observed ($Q = 80.68$, $p < 0.001$; $I^2 = 81.4\%$), and the evidence was rated as a rating of moderate GRADE. Furthermore, liposomal bupivacaine resulted in statistically significant reductions in both resting and dynamic pain scores at 48 and 72 hours ($p < 0.05$). It also resulted in statistically significantly decreased opioid consumption during the postoperative periods of 0–24, 25–48, and 49–72 hours ($p < 0.05$).

Conclusion
Liposomal bupivacaine was associated with a statistically significant reduction in pain scores at 24 hours post-surgery, but the reduction was not clinically significant. There were statistically significant reductions in pain scores at other time points and reduced opioid consumption. The results suggest that liposomal bupivacaine in the adductor canal block can improve postoperative analgesia, but the clinical relevance may be small.

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Anaesthetic Management of an Adult Patient with Ebstein Anomaly Associated with Ostium Secundum Atrial Septal Defect Undergoing Surgical Repair

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Introduction
Background: Ebstein anomaly is a rare congenital cardiac malformation characterized by apical displacement of the tricuspid valve, severe tricuspid regurgitation, right ventricular dysfunction, and frequently an associated atrial septal defect (ASD). Anaesthetic management is challenging because of altered right ventricular physiology, intracardiac shunting, and the risk of arrhythmias and paradoxical embolism.
Aim: To highlight the perioperative anaesthetic challenges and successful management of an adult patient with Ebstein anomaly associated with a large ostium secundum ASD undergoing surgical repair.

Case
A 26-year-old female presented with progressive breathlessness, bluish discoloration on tongue, and clubbing. Echocardiography revealed Ebstein anomaly with severe tricuspid regurgitation, a large ostium secundum ASD (29 mm) with predominant right-to-left shunt, marked right atrial and right ventricular dilatation, and preserved left ventricular systolic function, LVEF = 55%, Gose Score = 2.2 (>1.5): Grade 4. On CT Pulmonary Angio - Prominent SVC & IVC . The patient underwent cone reconstruction of the tricuspid valve with ASD closure under cardiopulmonary bypass. Anaesthetic goals included preservation of right ventricular function, maintenance of preload and systemic vascular resistance, avoidance of factors increasing pulmonary vascular resistance, and meticulous prevention of air embolism. This was achieved using intraoperative TEE, Invasive monitoring and cardiopulmonary bypass with controlled rewarding and inotropic support.

Conclusion
Successful perioperative management of Ebstein anomaly requires meticulous haemodynamic control, preservation of right ventricular function, vigilant monitoring, and a multidisciplinary approach.