

Adjuvants

- Consider using local anesthetic without epinephrine for local infiltration/nerve blocks.

Postoperative Period

- Cataplexy/sleep paralysis may mimic postop residual curarization.
- Hallucinations may be misdiagnosed as postop/emergence delirium.
- Consider longer than usual PACU stay or ICU admission (overnight) for pts on sodium oxybate, depending on length of case, sedatives/hypnotics

administered intraop, and expected opioid requirements postop (increased risk for airway obstruction/respiratory depression and death).

- If shivering occurs in pts on SSRIs, meperidine may trigger serotonin syndrome.

Anticipated Problems/Concerns

- Retrospective study with 10 pts and 27 elective procedures under general anesthesia and endotracheal intubation showed no increase in periop complications; in this study only pts who received their

narcolepsy medication (five of them were on methamphetamine, none on modafinil or sodium oxybate) before the procedure were included.

- Although existing literature suggests that pts with narcolepsy do not have an increased risk for periop complications, clinical suspicion—especially for narcoleptic drug-anesthetic interaction and narcoleptic symptoms complicating the periop course—must be maintained.

Necrotizing Enterocolitis

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Risk

- Most common life-threatening intestinal surgical emergency in the newborn.
- Occurs predominantly in premature infants, with 75% in infants weighing <1500 g.
- Increasing incidence in term and near-term neonates as well.

Perioperative Risks

- CV instability, acidosis, shock, bowel ischemia, bacteremia, patent ductus arteriosus, polycythemia

Worry About

- Persistent metabolic acidosis and intestinal perforation are ominous signs.

Overview

- Presents commonly with generalized signs of sepsis, including glucose instability, hypothermia, apnea, feeding intolerance, and metabolic acidosis.
- The terminal ileum is most commonly involved, followed by the distal small bowel and ascending colon. Bowel ischemia may lead to gangrene of the bowel with perforation as well as peritonitis, CV and respiratory collapse, shock, and death.
- Multisystem failure commonly involves the respiratory, CV, renal, and hepatic systems. Abnormal elevated inflammatory mediators, such as TNF, IL-6, and PAF, are associated.

- In severe cases, the abdominal wall may be erythematous, signifying intestinal perforation and peritonitis.
- Pneumatosis intestinalis is evident as a linear collection of air and hydrogen gas in the wall of a dilated loop of bowel; it may extend into the portal venous circulation.

Etiology

- Associated with bowel ischemia, enteral feeds, infection, and prematurity. Clearest link is with prematurity, leading to the theory that an underlying developmental immaturity of bowel is potentially the initiating problem leading to this life-threatening condition.

Assessment Points

System	Effect	Assessment by Hx	PE	Test
CV	Shock PDA	Pulm edema, RDS, shock	Murmur BP/HR	ABG, BP UO
RESP	RDS	Apnea or tachypnea		ABG CXR
ID	Sepsis	Bacteremia Peritonitis	Abdominal wall cellulitis, peritonitis	Blood and peritoneal fluid cultures
GI	Peritonitis, bloody stools, malabsorption	Large feeding residuals, bilious emesis	Residuals, guaiac stools	Lytes, bowel sounds, KUB examination Temperature instability
RENAL	Prerenal failure		UO, BP	BUN, Cr
HEME	DIC Polycythemia	Bleeding		Hct, plt count, fibrinogen PT/PTT

Key Reference: Henry MC, Moss RL: Necrotizing enterocolitis, *Annu Rev Med* 60:111–124, 2009.

Perioperative Implications**Preoperative Preparation**

- Most neonates can be treated medically with fluid resuscitation, antibiotics, ventilatory support, and hyperalimentation.
- Surgery is indicated for pneumoperitoneum from intestinal wall perforation, intestinal gangrene (detected by abdominal paracentesis), and the presence of portal vein gas. Other indications include clinical deterioration, abdominal wall erythema, and an unresolved ileus.
- Discontinue enteral feeds and insert NG tube connected to suction for intestinal decompression.
- Therapeutic goals include normalization of vital signs and ensuring adequate oxygenation and ventilation (e.g., tracheal intubation, mechanical ventilation, adequate perfusion).

- Ensure vigorous fluid resuscitation to keep up with third-space losses from peritonitis and sepsis.
- Correct metabolic acidosis (achieved through fluid resuscitation).
- Inotropic agents such as dopamine and dobutamine may be required to optimize cardiac output.
- Correct coagulopathy with FFP, plts, and packed RBCs.
- Administer broad-spectrum antibiotics, with anaerobic coverage highly considered as well.

Monitoring

- Routine plus glucose and lytes

Induction/Maintenance

- Potent anesthetic agents are poorly tolerated.
- A carefully titrated narcotic and muscle relaxant technique is satisfactory.
- N₂O is usually avoided because of its potential for causing bowel distention.

- Fluid resuscitation (lactated Ringer solution, 5% albumin, and sometimes packed RBCs) is actively carried out during surgical procedures.

Postoperative Period

- Closely monitor in NICU for ongoing fluid requirements as third-space loss continues.
- Prolonged TPN is often required.
- Stricture formation leading to partial or total bowel obstruction is a common complication in both medically and surgically treated neonates.
- Short-bowel syndrome can occur, leading to long-term complications.

Anticipated Problems/Concerns

- Hypovolemia and bowel ischemia
- Acidosis, shock, and death