

Case Presentation

37-year-old female at 38 weeks gestation with chronic hypertension admitted for induction of labor (Figure 1).

- Cesarean section later performed due to fetal intolerance of labor
- Postoperative hemodynamic instability led to concern for sepsis given newly elevated lactic acid and acute kidney injury, with bladder or ureteral damage as possible sources
- Formal abdominal ultrasound revealed small volume ascites. The patient was booked for emergent exploratory laparotomy (ex-lap).
- The anesthesiologist performed point-of-care ultrasound (POCUS) of the heart, lungs, and abdomen. The abdomen demonstrated a large amount of free fluid
- Bowel perforation, as indicated by POCUS, was diagnosed intraoperatively. POCUS helped narrow the differential diagnosis for this patient and assisted in rapid, safe care.
- The patient’s hospital course was complicated by multiple follow-up procedures, before eventual resolution of symptoms.

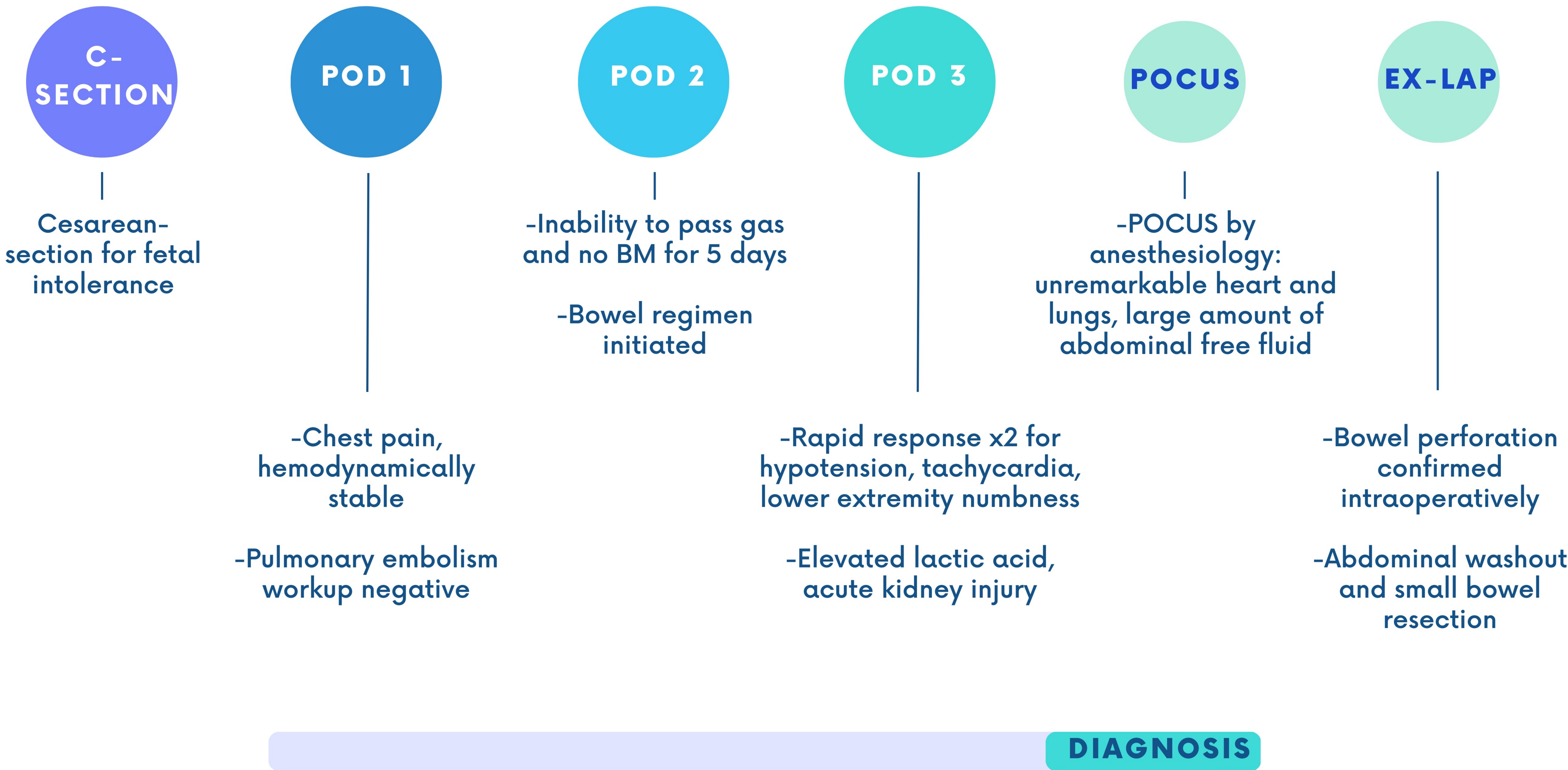


Figure 1. Case Presentation. POD = Post-operative day. Ex-lap = exploratory laparotomy.

Discussion

- Although POCUS is routinely used by anesthesiologists to help guide regional anesthesia and other procedures, they rarely use it as a diagnostic tool in the acute care setting.
- One study of 188 patients found that ultrasound had a sensitivity of 92 percent in diagnosing pneumoperitoneum, a condition that strongly indicates intraoperative bowel perforation.¹
- Other uses for POCUS by anesthesiologists in the peripartum period (Figure 2) include gastric, airway, and cardiac ultrasound for the evaluation of aspiration risk, airway dimension changes during prolonged labor, and peripartum cardiomyopathy, respectively.²

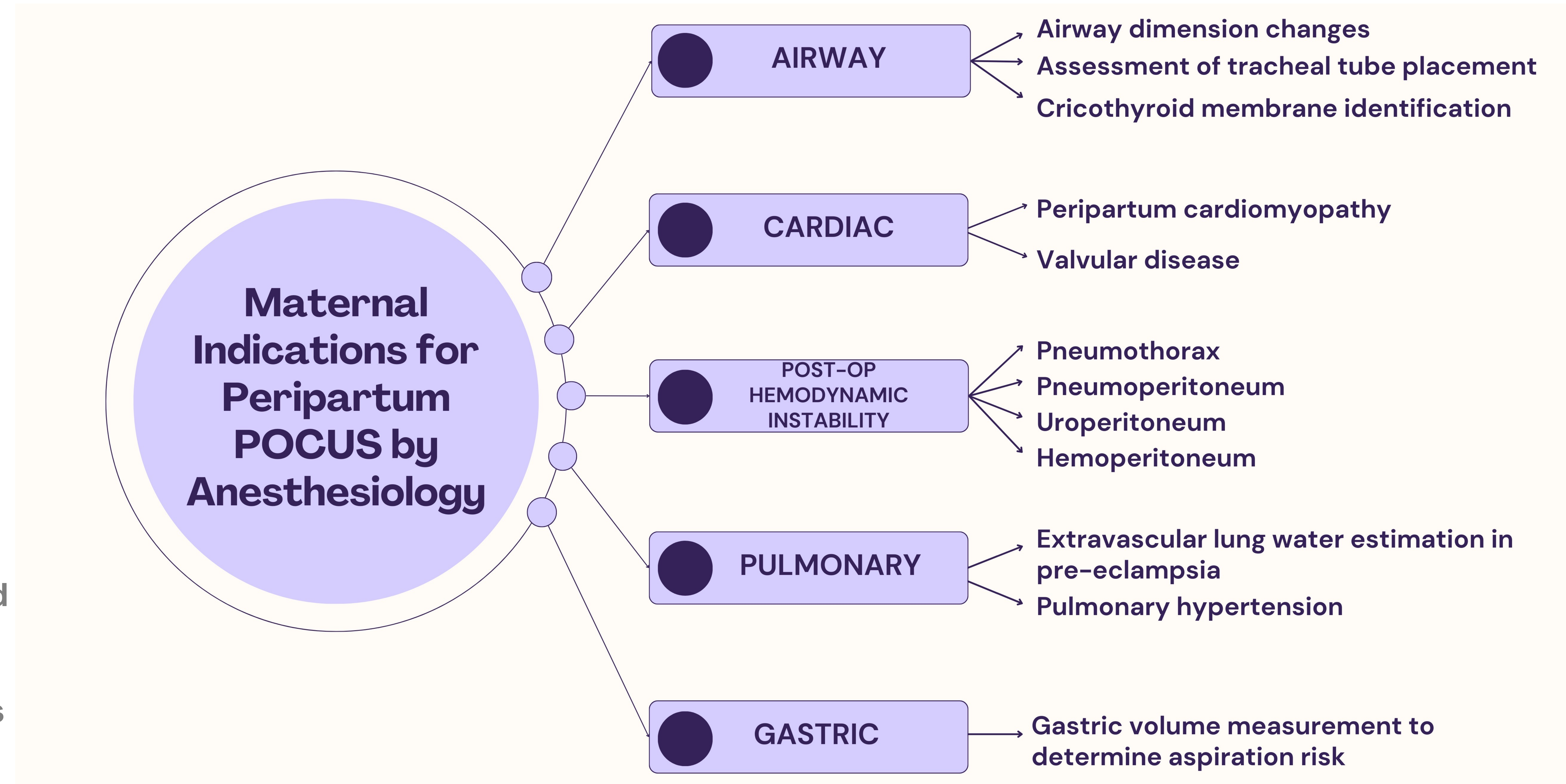


Figure 2. Maternal Indications for Point-of-Care Ultrasound (POCUS) by Anesthesiology.



Figure 3. Sagittal view of the liver on ultrasound. Peritoneal stripe sign is depicted within the white circle.³

Pneumoperitoneum on Ultrasound

- Air in the peritoneum is best detected in the right upper quadrant.
- Its presence results in increased echogenicity of the peritoneal stripe, known as the “peritoneal stripe sign”. This occurs in association with reflection artifacts.³ An example of these findings is shown in Figure 3.

Conclusion

- This case highlights the potential use of POCUS by anesthesiologists to aid in diagnosis and management, especially in the peripartum period.
- Anesthesiologists are often faced with sudden changes in patient hemodynamics requiring prompt identification of etiology that may be achieved with real-time ultrasound imaging.

REFERENCES:

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