

Multi-system Crises and Postpartum Hemorrhage After Cesarean Delivery Requiring ECMO and Subsequent Neurosurgical Intervention

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Introduction

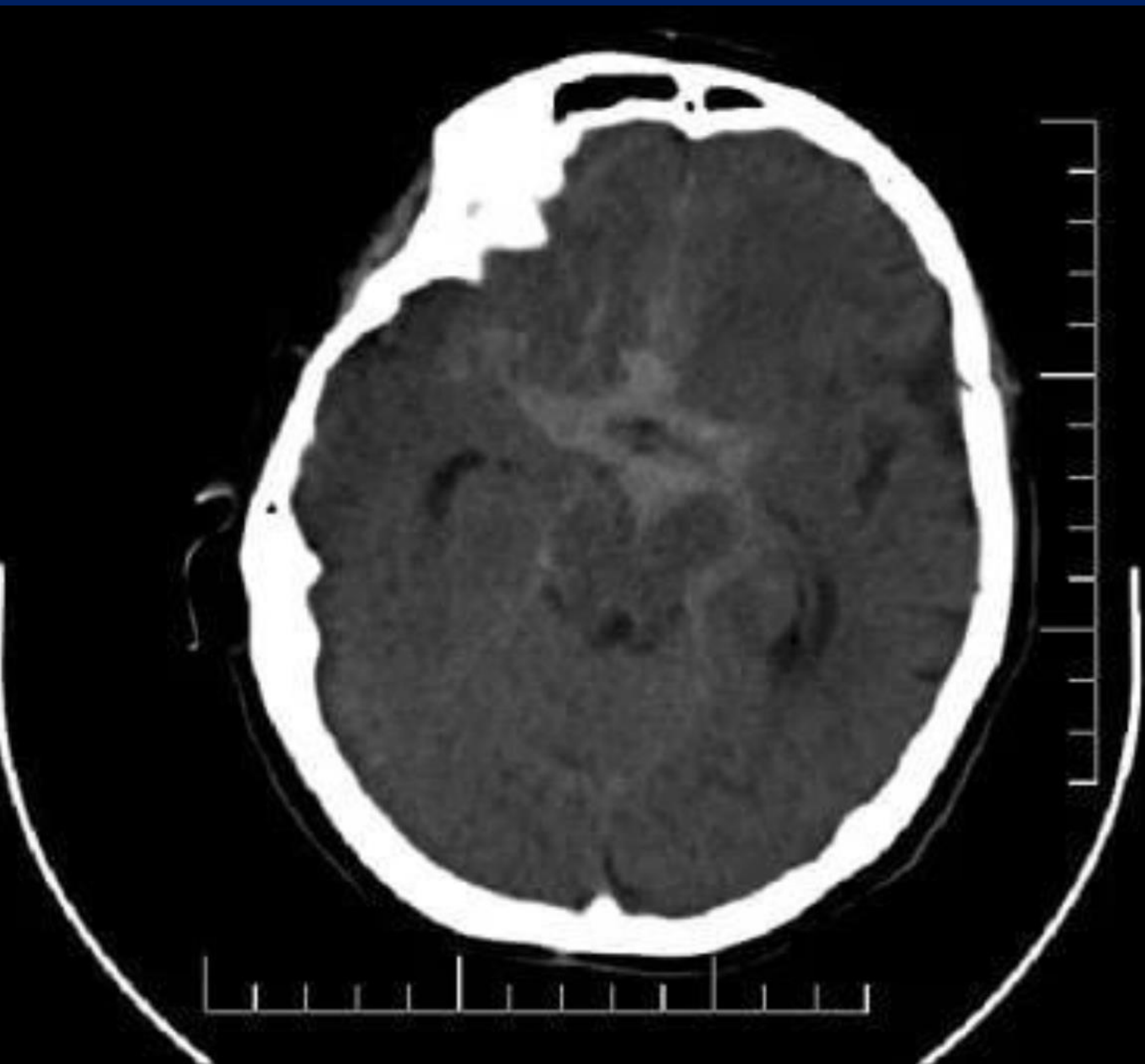
- Postpartum hemorrhage (PPH) is a leading cause of maternal morbidity and mortality. While uterine atony is most common, unusual sources of bleeding and evolving perioperative complications necessitate vigilance, rapid diagnosis, and multidisciplinary management.
- We present a medically challenging case of massive hemorrhage following cesarean delivery recognized via point of care ultrasound in the PACU that subsequently led to transfusion related acute lung injury requiring ECMO support, which was further complicated by intracerebral bleeding.

Methods

- A 34-year-old G2P1 underwent emergency cesarean delivery under epidural anesthesia for non-reassuring fetal heart tracings. The intraoperative course was unremarkable; however, in the PACU she developed significant hypotension and lethargy. Obstetric evaluation revealed good uterine tone without vaginal bleeding. Point-of-care ultrasound (POCUS) using a focused assessment with sonography in trauma (FAST) performed by anesthesia demonstrated free fluid in the splenorenal recess.
- The patient underwent emergent laparotomy for hemoperitoneum, ultimately requiring hysterectomy and massive transfusion with 16 units of packed red blood cells, 16 units of fresh frozen plasma, 3 units of platelets, and 2 units of cryoprecipitate, along with multiple doses of tranexamic acid and calcium. Despite eventual hemostasis, the patient developed worsening hypoxemia with frothy pulmonary secretions, increasing airway pressures, and a widening alveolar–arterial oxygen gradient, concerning for transfusion-related acute lung injury.
- The blood bank was notified and the ECMO team was mobilized to assess for initiation of veno–venous ECMO. The patient was transported to interventional radiology where arterial embolization facilitated hemostasis and ECMO cannulation. Following cannulation, the patient developed transient hypertension requiring intermittent nicardipine. She was subsequently transferred to the cardiovascular intensive care unit (CVICU).
- In the CVICU, anisocoria was noted and emergent head CT revealed subarachnoid hemorrhage likely secondary to a ruptured aneurysm.
- This posed a significant challenge given systemic heparinization for ECMO. Despite anticoagulation, the patient underwent emergent craniotomy for decompression.
- She was ultimately weaned from ECMO and, following multiple neurosurgical interventions, gradually regained neurologic function and was discharged to inpatient rehabilitation.

Focus of Case Study

- Post-Partum Hemorage
- Point of Care Ultrasound
- ECMO
- Transfusion related complications
- Multisystem Crisis
- Acute Co-Morbidities



Conclusion

- Maternal resuscitation in the setting of hemorrhage and hypoxemia requires broad diagnostic consideration, early use of perioperative POCUS, and coordinated multidisciplinary care. This case highlights three critical lessons.
- First, postpartum hemorrhage etiologies extend beyond purely intrauterine causes, and intrabdominal bleeding must be considered even in the absence of vaginal bleeding.
- Second, life-saving therapies such as massive transfusion and ECMO carry substantial iatrogenic risks. Although ECMO can be life-saving in severe transfusion-related acute lung injury, required anticoagulation may exacerbate bleeding.
- Lastly, continuous reassessment is essential, as critically ill patients may evolve to require additional specialty interventions.

References

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