Buying Time in Obstetric Anesthesia: Emergent REBOA for Life-Threatening Postpartum Hemorrhage

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- Postpartum Hemorrhage (PPH) is defined as cumulative blood loss ≥ 1000 mL with signs of hypovolemia following delivery and occurs in 1-3% of all births.
- PPH remains a leading cause of maternal morbidity and mortality worldwide.
- Management requires rapid assessment of blood loss and identification of the underlying etiology to guide intervention.
- In life-threatening cases refractory to standard measures, emergent resuscitative endovascular balloon occlusion of the aorta (REBOA) may be employed.

Case

A 32-year-old G2P1001 at 40 weeks with a prior cesarean delivery and known uterine septum presented to labor and delivery in active labor. An epidural was attempted but aborted due to imminent delivery.

Following vaginal delivery, the patient developed persistent hemorrhage unresponsive to uterotonics, oxytocin infusion, and bimanual massage. She was transferred emergently to the OR with a quantitative blood loss (QBL) of 1500 mL, increasing to 3700mL on arrival.

The patient underwent general anesthesia with an arterial line and additional large bore IVs placed. Additional uterotonics and tranexamic acid were administered. MTP initiated. Exploratory laparotomy and hysterotomy revealed no uterine rupture or septal bleeding. Pelvic examination identified extensive cervical, vaginal, and vulvar lacerations, though hemorrhage limited visualization for repair. An arterial bleed from deep sulcal lacerations was suspected.

With ongoing hemorrhage and a QBL of 7600 mL, general surgery consulted and REBOA deployed. Though bleeding was reduced, definitive bleeding source was still unidentified. The patient was transferred to IR, but no active extravasation identified. REBOA deflated in IR before transfer to main ORs where an AbThera device was placed and vaginal packing performed. Final QBL was 8500 mL. She received 13 PRBCs, 10 FFP, 4 platelets, and 3 cryoprecipitate.

Teaching Points

- Severe PPH may result in hypovolemic shock, multiorgan ischemia, disseminated intravascular coagulation, pulmonary edema, and postpartum hypopituitarism.
- Zone III REBOA occludes uterine arteries and most internal iliac branches but does not occlude ovarian arteries, allowing for potential continued bleeding.
- Therapeutic REBOA for massive PPH has been associated with low in hospital mortality rate (0-7%) and may reduce blood product utilization and hysterectomy rates. Although procedural complications are possible, the overall risk remains low.

References

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