



PERIOPERATIVE ANESTHETIC MANAGEMENT AND AIRWAY STRATEGY IN A PARTURIENT WITH COMPOUND THROMBOCYTOPENIA: THE TRIAD OF CHRONIC ITP, SEVERE PREECLAMPSIA, AND HELLP SYNDROME. ANAESTHETIC MANAGEMENT OF ITP, PREECLAMPSIA AND HELLP TRIAD

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ABSTRACT

Background: The anesthetic management of a parturient with the rare overlap triad of Immune Thrombocytopenic Purpura (ITP), severe preeclampsia, and HELLP syndrome presents extreme perioperative challenges. Profound thrombocytopenia strictly contraindicates neuraxial anesthesia due to the catastrophic risk of spinal-epidural hematoma, necessitating General Endotracheal Anesthesia (GETA). However, preeclampsia-induced airway edema, blunting the hypertensive response to laryngoscopy, and antibody-mediated clearance of transfused platelets complicate airway securing and hemostasis. **Case Presentation:** We report the anesthetic strategy for a 29-year-old primigravida at 33+4 weeks gestation presenting with chronic ITP, severe preeclampsia, and HELLP syndrome with a critical platelet count of 16,000/ μ L. Perioperative success was achieved using video laryngoscopy for an edematous upper airway, rapid sequence induction with pressor response attenuation, timed "bridge" platelet transfusions, and multimodal non-neuraxial analgesia. **Conclusion:** Successful perioperative care requires prompt multidisciplinary management, avoidance of neuraxial blockade, anticipation of a difficult airway, and precise timing of platelet transfusion to ensure maternal and fetal safety.

KEYWORDS : Obstetric Anesthesia, Immune Thrombocytopenic Purpura, HELLP Syndrome, Severe Preeclampsia, Epidural Hematoma Risk, Video laryngoscopy, Rapid Sequence Induction.

INTRODUCTION:

Thrombocytopenia affects up to 10% of all pregnancies [1]. While benign gestational thrombocytopenia accounts for the majority, severe pathological causes include Immune Thrombocytopenic Purpura (ITP), Preeclampsia (PE), and HELLP (Hemolysis, Elevated Liver enzymes, Low Platelets) syndrome [2]. When chronic ITP coexists with severe preeclampsia and HELLP, the anesthetist faces a complex double-edged sword: autoimmune antiplatelet destruction (ITP) compounded by microangiopathic platelet consumption and endothelial damage (HELLP) [3].

For the consultant anesthetist, key perioperative priorities include: (1) managing absolute contraindications to neuraxial blockade, (2) securing a hyper-reactive, edematous airway under Rapid Sequence Induction (RSI), (3) controlling pressor responses to laryngoscopy to prevent intracranial hemorrhage or flash pulmonary edema, and (4) optimizing hemostasis via precise timing of platelet therapy [4].

CASE REPORT:

Patient Profile & Baseline Airway Assessment

A 29-year-old primigravida at 33 weeks and 4 days gestation presented to the obstetric emergency unit complaining of persistent frontal headache, epigastric discomfort, and blurry vision. Her history was significant for chronic ITP diagnosed 3 years prior, maintained with baseline platelet counts between 60,000/ μ L and 85,000/ μ L. Airway examination demonstrated Mallampati Class III features (progressed from Class II earlier in pregnancy due to pharyngeal edema), significant facial edema, macroglossia, and a short neck, posing a high risk for difficult laryngoscopy and mask ventilation [5].

Diagnostic Findings

Laboratory investigations confirmed compounded, critical thrombocytopenia alongside microangiopathic hemolysis and hepatocellular injury:

Parameter	Patient Value	Reference Range	Anesthetic Impact & Risk Evaluation
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Platelet Count	16,000 / μ L	150,000–400,000 / μ L	Neuraxial Blockade Absolute Contraindication (< 50,000/ μ L) [6]
Blood Pressure	172/108 mmHg	< 120/80 mmHg	Risk of Intracranial Hemorrhage & Airway Bleeding during RSI [7]
Hemoglobin / Hct	7.8 g/dL / 23.5%	11.0–14.0 g/dL	Compromised Oxygen Delivery Capacity during Induction Apnea
AST / ALT / LDH	342 / 298 / 1,120 U/L	< 35 / < 35 / < 245 U/L	Altered Drug Metabolism & Microangiopathic Hemolysis [8]
PT / aPTT / Fibrinogen	12.1s / 31.4s / 310 mg/dL	Normal limits	Preserved Plasma Factors; Defect is Isolated Platelet Clearance

Anesthetic Decision-Making & Intraoperative Protocol

Neuraxial anesthesia (spinal/epidural) was strictly contraindicated due to the extreme risk of spinal epidural hematoma with a platelet count of 16,000/ μ L [6]. General Endotracheal Anesthesia (GETA) was chosen.

- Attenuating Laryngoscopy Pressor Response:** IV Labetalol (20 mg) and IV Esmolol (1.5 mg/kg) were administered prior to induction to prevent hypertensive surges during intubation [7].
- Rapid Sequence Induction (RSI):** Pre-oxygenation was performed in a 30° ramped position. RSI was executed using Propofol (2 mg/kg) and Succinylcholine (1.5 mg/kg). Primary intubation was performed using a video laryngoscope (GlideScope) with a size 6.5 mm endotracheal tube on first pass without airway trauma [5].
- Targeted "Bridge" Platelet Transfusion:** Because circulating autoantibodies in ITP rapidly destroy transfused platelets, infusion of 2 units of single-donor apheresis platelets was intentionally started simultaneously with skin incision alongside high-dose IVIG (1 g/kg) and IV Dexamethasone (10 mg) [9].
- Surgical Delivery & Maintenance:** Emergency Cesarean section delivered a live male infant weighing 1,840g

(APGAR 6 and 8 at 1 and 5 minutes). Anesthetics were maintained with Sevoflurane (<1.0 MAC) and IV Remifentanyl post-delivery. Total intraoperative blood loss was 600 ml.

DISCUSSION:

Managing a parturient with chronic ITP, severe preeclampsia, and HELLP syndrome requires addressing two distinct mechanisms of platelet clearance: Fc-mediated autoimmune clearance (ITP) and microangiopathic endothelial consumption (HELLP) [3]. Diagnostic overlap is challenging, as onset of HELLP degrades liver integrity and accelerates intravascular hemolysis [8].

Key Anesthetic Management Principles:

- **Neuraxial Safety Thresholds:** ASRA and SOAP guidelines advise against neuraxial procedures at platelet counts <50,000/ μ L due to catastrophic spinal hematoma risk [6].
- **Airway Management in Preeclampsia:** Severe preeclampsia causes upper airway hyperemia and mucosal edema. Video laryngoscopy and smaller endotracheal tube selection (6.0–6.5 mm) reduce airway trauma and intubation failure rates [5].
- **Platelet Transfusion Timing:** Prophylactic platelet transfusions in ITP have short half-lives due to circulating IgG antibodies. Transfusing at the moment of surgical incision creates a functional "hemostatic bridge" during active surgical resection [9].
- **Postoperative Analgesia:** Post-op pain was managed using ultrasound-guided bilateral Transversus Abdominis Plane (TAP) blocks (0.25% Bupivacaine) combined with IV paracetamol and IV fentanyl PCA, entirely avoiding NSAIDs due to preeclamptic renal impairment [10].

CONCLUSION:

Managing the triad of chronic ITP, severe preeclampsia, and HELLP syndrome tests every facet of obstetric anesthesia. Key takeaways include strict adherence to general anesthesia when platelets are below 50,000/ μ L, universal preparation for a difficult airway using video laryngoscopy, pharmacological blunting of the pressor response, timed "bridge" platelet transfusions, and multimodal non-neuraxial regional analgesia.

Ethical Approval: Institutional Ethics Committee approval was obtained. Patient confidentiality and anonymity were maintained throughout.

Conflict Of Interest: None declared.

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