

## Peri-Operative Management in a Case of Idiopathic Thrombocytopenic Purpura - A Case Report

**Priyanka Mishra\* and Shipra Verma***Department of Anaesthesiology and Critical Care, All India Institute of Medical Sciences, Rishikesh, India***\*Corresponding Author:** A: Priyanka Mishra, Department of Anaesthesiology and Critical Care, All India Institute of Medical Sciences, Rishikesh, India.**Received:** May 25, 2021**Published:** June 24, 2021© All rights are reserved by **Priyanka Mishra\* and Shipra Verma****Abstract**

The treatment of Idiopathic thrombocytopenic purpura (ITP) includes long term steroid therapy. Avascular Necrosis of femoral head, Diabetes Mellitus and various secondary infections are the complications of such long term steroid medications. We after taking informed consent are presenting a successfully managed case of 52 years old patient with chronic ITP, diagnosed with bilateral AVN femoral head and posted for unilateral core decompression and fibular graft surgery. Atraumatic airway management, adequate platelet transfusion and meticulous hemodynamic and coagulation profile monitoring are some of the major peri-operative concerns in a patient of ITP. A meticulous knowledge of various anesthetic considerations can help in improving the prognosis of a patient of ITP posted for surgery.

**Keywords:** Idiopathic Thrombocytopenic Purpura; Peri-Operative; Steroid Therapy; Anesthesia**Introduction**

Idiopathic thrombocytopenic purpura (ITP) is characterized by Reticulo-Endothelial System (RES) mediated autoimmune pre-mature destruction of platelets [1]. Avascular Necrosis (AVN) of the femoral head is a known complication of long-term steroid therapy in the treatment of ITP. Perioperative care and anesthetic management pose great risks and challenges while managing a patient with ITP (Table 1) [2]. After taking written informed consent, we hereby present a successfully managed case of chronic ITP diagnosed with bilateral AVN femoral head.

**Case Report**

A 52 years old male patient, a known case of ITP (since seven years) with 62 kg body weight was posted for unilateral core decompression and fibular graft surgery. He had controlled Diabetes Mellitus and Hypertension for the last two years and was on Tablet Metformin 500 mg OD, Telmisartan-Chlorothiazide 40/12.5 mg OD and danazol orally. He had a positive history of pulmonary tuberculosis three years back. Four cycles of Rituximab were given

- 1. Weight gain and obesity:** Risk factor for DM, Difficult airway.
- 2. Immune suppression:** High risk of infections.
- 3. Adrenal crisis:** Life threatening situation in advent of sudden steroid withdrawal
- 4. Hypertension.**
- 5. Glucose intolerance:** Predisposing to Type II DM.
- 6. Gastritis/ gastroesophageal reflux:** High risk of aspiration.
- 7. Osteoporosis:** Caution while transfer and positioning of patient.
- 8. Myoglobinuria:** Predisposing to renal injury.
- 9. Adverse behavioral changes:** Gentle peri-operative counselling and care.
- 10. Delayed puberty, Hirsutism, cataract.**

**Table 1:** Side effects of long term steroids and their anesthetic considerations.

seven months ago and steroid treatment was stopped one year back. The pre-anesthetic assessment revealed hemorrhagic spots in oral mucosa, New York Heart Association (NYHA) class II dyspnea [3] and Echocardiography showed moderate concentric Left Ventricular Hypertrophy (LVH), Hemoglobin (Hb) of 10.2 mg/dl, platelet count of 30,000/c.mm which was raised to 1,00,000/c.mm pre-operatively by transfusing one unit of single donor platelet (SDP) and six units of random donor platelets (RDP). Other investigations were within normal limits. The patient was pre-medicated with Tab. Pantoprazole and midazolam. Pre-operative fasting sugar was recorded as 110 mg/dl. The decision to give general anesthesia (GA) was made over regional anesthesia (RA). After shifting the patient inside Operating Room, standard monitors were attached. Baseline HR 64/min, Blood Pressure (BP) - 136/88mmHg, and oxygen saturation - 99% were recorded. Foley's catheter was inserted. Two wide bore intravenous (i.v) cannula and an arterial line in the left radial artery were secured in single attempts. Patient was induced after pre-oxygenation with Injection (Inj.) etomidate (0.3 mg/kg), fentanyl (2 mcg/kg) and atracurium i.v (0.5 mg/kg). The airway was secured with Proseal Laryngeal mask airway (PLMA) to avoid airway trauma. Anesthesia was maintained with sevoflurane, nitrous, and oxygen (60:40) and Inj. atracurium. One hour into the surgery, the patient started losing more blood (800 ml in the first hour and a total of 1800 ml by the end of surgery) and there was a brief duration of hemodynamic instability. We transfused 1200 ml of crystalloids, 500 ml of colloids, three units of RDP, and two units of whole blood to maintain hemodynamic stability. Inj. Tranexamic acid 1 gram i.v was given. Arterial Blood Gas sampling came out within the normal range. Analgesia was supplemented with injection 1gram paracetamol and 100 mg tramadol i.v. NSAIDs and intramuscular (i.m) injections were avoided. The surgery continued for 2.5 hours. At the end of the surgery, after complete neuromuscular recovery of the patient, PLMA was removed. The patient was shifted to the post-operative unit with stable hemodynamics and random blood sugar of 136 mg/dl. The patient had an uneventful recovery and was discharged with Hb of 9.2 mg/dl and a platelet count of 80,000/c.mm.

## Discussion

Treatment with long-term high dose steroids (as in our patient with ITP) is a major risk factor for developing AVN. Efficient peri-operative management involves detailed pre-operative assessment and recognition of various co-morbidities associated with ITP and

its medications. The first line of treatment for ITP includes high-dose corticosteroids, intravenous immunoglobulin (IVIg) and IV Rh anti-D. The Second-line of therapy mainly comprises rituximab and immunosuppressants. Surgical management comprises splenectomy [4], however, our patient responded well to medical therapy. Pre-operative increase in the platelet count in these patients can be achieved by platelet transfusion (Single donor platelets are preferred over RDP). Every single unit of RDP is expected to increase the platelet count by 3000 - 5000/cmm.

A single donor platelet is nearly equal to 6 to 8 RDP units [5]. Atraumatic airway management, meticulous hemodynamic and coagulation profile monitoring should be done using ASA standard monitors [6], invasive arterial monitoring, and Thromboelastography (TEG) respectively. However, TEG was not available in our setting. Platelet concentrates, whole blood, anti-fibrinolytic agents like tranexamic acid and epsilon amino-caproic acid (EACA) should be kept ready in case of need. Effective control of bleeding and replenishment of blood loss helped us in the successful management of our patient. The major peri-operative concerns and goals for an anesthetist in the case of ITP are described in figure 1 [7].

### PRE-OPERATIVE

- Platelet transfusion (Single donor platelet preferred over RDP).
- IVIg and steroids till surgery.

### INTRA-OPERATIVE

- GA preferred over RA.
- Arterial line and Central venous cannulation if bleeding is expected.
- Monitoring for haemorrhagic complications (TEG).
- Use of antifibrinolytics (EACA, tranexamic acid)
- AVOID - NSAIDs, thrombocytopenic drugs (Ranitidine, Sulfonamides, Furosemide, statins, Quinidine etc).
- AVOID nasal intubation, airway trauma, im injections.

### POST-OPERATIVE

- Monitoring for haemorrhagic complications.
- Continuation of steroids and IVIg.

**Figure 1:** Peri-operative concerns and goals in a patient of ITP.

## Conclusion

To conclude, meticulous knowledge of various anesthetic considerations can help in improving the prognosis of a patient of ITP posted for surgery.

### Previous Presentation in Conferences

None.

### Conflict of Interest

No potential conflict of interest relevant to this article was reported.

### Funding Support

Not applicable.

### Bibliography

1. Gernsheimer T. "Chronic idiopathic thrombocytopenic purpura: mechanisms of pathogenesis". *Oncologist* 14.1 (2009): 12-21.
2. Fardet L., *et al.* "Corticosteroid-induced adverse events in adults: frequency, screening and prevention". *Drug Safety* 30 (2007): 861-881.
3. Zhang R., *et al.* "Discovering and identifying New York heart association classification from electronic health records". *BMC Medical Informatics and Decision Making* 18.2 (2018): 48.
4. Warriar R and Chauhan A. "Management of immune thrombocytopenic purpura: an update". *Ochsner Journal* 12.3 (2012): 221-227.
5. Mohanty D. "Current concepts in platelet transfusion". *Asian Journal of Transfusion Science* 3.1 (2009): 18-21.
6. Daabiss M. "American Society of Anaesthesiologists physical status classification". *Indian Journal of Anaesthesia* 55 (2011): 111.
7. Wajekar AS. "Anaesthesia management in a patient with severe idiopathic thrombocytopenia with antepartum haemorrhage for emergency caesarean section". *Indian Journal of Anaesthesia* 59.10 (2015): 689-690.

### Volume 2 Issue 7 July 2021

© All rights are reserved by Priyanka Mishra and Shipra Verma