Section: Anaesthesiology

Case Report

PERIOPERATIVE MANAGEMENT IN CASE OF IMMUNE THROMBOCYTOPENIC PURPURA POSTED FOR RETROGRADE INTRARENAL SURGERY: A CASE REPORT

Madhu[1], Shelly Goyal[1], Mansi Sukhija[2], Asha[3]

[1]Senior Resident, Department of Anaesthesiology, PT BDS PGIMS, Rohtak, Haryana, India
[2]Postgraduate Student, Department of Anaesthesiology, PT BDS PGIMS, Rohtak, Haryana, India
[3]Assistant Professor, Department of Anaesthesiology, PT BDS PGIMS, Rohtak, Haryana, India

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Corresponding Author:
Dr. Madhu,
Email: madhuahlawat27@gmail.com

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Abstract

Immune Thrombocytopenic Purpura (ITP) is an autoimmune disease in which there is low platelet count without any abnormality in the bone marrow. This case report presents a 42-year-old male with a history of ITP undergoing retrograde intrarenal surgery (RIRS) for renal stone disease. The patient's medical history included orthopaedic surgery in childhood under general anaesthesia and typhoid fever with subsequent renal failure necessitating dialysis. Preoperative optimization involved increasing platelet count with romiplostim and platelet transfusions. Anaesthetic management included spinal anaesthesia which was uneventful. This report highlights the challenges and considerations in managing patients with complex medical histories and hematologic disorders like ITP.

INTRODUCTION

ITP is an acquired disorder in which there is immune mediated destruction of platelets and inhibition of platelet release from megakaryocyte. The antibodies coating up the platelets cause them to be vulnerable to premature destruction by macrophages within the reticuloendothelial system.[1] ITP can be acute or chronic. Acute ITP usually occurs in children and lasts upto 6 months and recovery occurs without treatment. Chronic ITP usually occurs in adults and it doesn't resolve independently, so treatment is essential.[2] Patients with ITP presents unique challenges in surgical setting due to their predisposition to bleeding complications. In case of elective setting, the patient can be optimized prior to surgery. This case underscores the multidisciplinary approach required to optimize such patients preoperatively, including haematological management and cardiac assessment. The choice of anaesthesia must consider both the haematological condition and cardiac assessment.

CASE REPORT

A 42 year old male with a known case of ITP since last 2 years presented with renal stone disease, was scheduled for retrograde intrarenal surgery. Preoperative assessment was done. There was a surgical history for fracture calcaneum in childhood under general anaesthesia. There was also a history of typhoid fever and acute renal renal failure for which the patient had undergone 8 cycles of hemodialysis on alternate days. there was also history of multiple blood transfusion in view of anaemia and thrombocytopenia.There was also history of bilateral DJ stenting. The patient on further investigations was diagnosed as ITP and the patient was started on corticosteroid treatment for 6 weeks. There was no history of epistaxis, bruising and hemorrhage. The patient was chronic smoker and occasional alcoholic. On examination patient was average built. On auscultation heart sounds were normal and chest was clear. On investigations complete blood count revealed thrombocytopenia with a platelet count of 32000 which was increased to 85000 preoperatively. The platelet counts were optimized with inj romiplostim 250 mcg biweekly and platelet transfusion. The kidney function test were deranged with a blood urea of 59 and serum creatinine of 2.2 mg/dl. ECG shows T wave inversion in leads 1, aVL, V5 and V6 for which cardiology opinion was done and 2D echo was advised which reveals normal left ventricular systolic function with ejection fraction of 55% and mild concentric left ventricular hypertrophy. On airway examination, mallampati grading was III and patient was having normal denture, spine and fexion extension at atlantooccipital joint. Adequate blood products were arranged preoperatively. 4 unit platelet rich plasma was transfused on the day of surgery. Patient was kept fasted for 6 hours for solids and 2 hours for

liquids prior to the surgery. Premedication was done with tablet pantoprazole 40 mg and tab anxit 0.25 mg on the night before and day of the surgery. Preoperative counselling was done and informed and written consent was taken from patient and attendants. Patient was then shifted to operation theatre. All the emergency drugs were kept ready. Expected surgical time was 45 minutes. Standard ASA monitoring was done. Baseline vital parameters were heart rate of 85/min, blood pressure of 124/84 mmHg and oxygen saturation of 98% on room air. Intravenous access was secured in right hand with 18 G cannula and ringer lactate was used as maintenance fluid. Under all aseptic precautions spinal anaesthesia was given using 25 G Quincke's needle in L3-L4 intervertebral space and 2.5 ml of inj bupivacaine 0.5% heavy was injected in subarachnoid space. The upper limit of sensory blockade was T8. The surgery lasted for 1 hour and the patient was shifted to recovery room. The intraoperative and postoperative periods were uneventful.

DISCUSSION

This case report illustrates the intricacies and challenges involved in providing surgical care to individuals with complex medical histories. ITP, characterized by immune-mediated platelet destruction and suppression of platelet production, poses significant perioperative management challenges due to the inherent risk of bleeding complications.[1] The first line treatment includes high dose corticosteroids, intravenous immunoglobulin, Rh anti-D and the second line includes rituximab, thrombopoietin receptor agonists. Surgical management comprises splenectomy.[3] This 42-year-old male presented with a history of chronic ITP, alongside a complex medical background including previous orthopaedic surgery under general anaesthesia during childhood, a history of typhoid fever complicated by renal failure requiring hemodialysis, and multiple blood transfusions for anaemia and thrombocytopenia.

Prior to undergoing retrograde intrarenal surgery for renal stone disease, meticulous preoperative assessment and optimization were paramount. The patient's platelet count, initially low at 32,000/µL, was increased to 85,000/µL through the administration of romiplostim and platelet transfusions, aiming to minimize perioperative bleeding risk. Single donor platelets should be preferred over random donor platelets. Each single unit of RDP increases platelet count by 3000-5000. A SDP is equal to 6-8 RDP.[4] This step highlights the critical role of hematology consultation and targeted management strategies to achieve safe surgical outcomes in such high-risk patients.

Cardiac evaluation revealed mild concentric left ventricular hypertrophy on 2D echocardiography, necessitating collaboration with cardiology to ensure cardiovascular stability during anaesthesia and surgery. Despite T wave inversions noted on ECG, the patient's left ventricular systolic function was within normal limits, underscoring the importance of comprehensive preoperative cardiac assessment in mitigating potential cardiovascular complications.

Anaesthetic management played a pivotal role in ensuring patient safety. Several authors reported various anaesthetic management in thrombocytopenic patients, by both general and regional anaesthesia.[5-7] Spinal anaesthesia was chosen over general anaesthesia to avoid the risks associated with general anaesthesia in a patient with significant medical history and concurrent renal impairment and also the platelet count returns to 85000 on the day of surgery. The procedure was reported atraumatic, with adequate sensory blockade achieved and intraoperative monitoring confirming stable vital signs throughout the surgery. The decision to administer 4 units of platelet-rich plasma on the day of surgery further exemplifies the proactive approach taken to optimize hemostasis and reduce bleeding risk perioperatively.

Beyond hematologic and cardiac considerations, meticulous attention was paid to other aspects of perioperative care. Preoperative fasting, appropriate premedication, and meticulous airway assessment were conducted to ensure optimal conditions for anaesthesia induction and surgical intervention. This case report underscores the multidisciplinary approach essential in managing patients with complex medical backgrounds and hematologic disorders like ITP. It emphasizes the critical role of preoperative optimization, including hematologic stabilization, cardiac assessment, and selection of appropriate anaesthetic techniques to minimize perioperative risks effectively.

CONCLUSION

By addressing haematological, renal and cardiovascular concerns, while selecting appropriate anaesthesia techniques, we can mitigate perioperative risks and ensure safe and successful surgical outcome in challenging cases such as ITP. By optimizing the platelet count prior to surgery spinal anaesthesia can be considered in patients with ITP.

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