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Anaesthetic Implications in a Patient with Thrombocytosis: A Case Report

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Abstract

Perioperative thrombocytosis can present with thromboembolic/bleeding risk. Depending on various aetiology, thrombocytosis is classified as spurious, reactionary, and clonal. The risk of thromboembolism/bleeding is more with Clonal thrombocytosis. Establishing the precise cause of thrombocytosis, therefore, requires consideration of clinical presentation, haematological parameters. We present here our experience with a patient with thrombocytosis, who underwent hysterectomy under general anaesthesia. This patient had thrombocytosis, probably due to reactive causes. The perioperative course was uneventful.

Keywords

thrombocytosis; perioperative; anaesthesia

Introduction

Thrombocytosis, defined as a platelet count of more than 450x 10^9/L. Thrombocytosis can exist in a variety of clinical situations and can have diverse underlying etiologies. It can be described as a spurious, reactive or clonal type [1]. This classification is important as it carries implications for perioperative management and outcome. Due to the risk of haemostatic complications (thrombosis, bleeding) associated with thrombocytosis, patients need to be evaluated and optimised [1,2].

Case Presentation

A 45 year female with the diagnosis of fibroid uterus with infected cervical polyp was posted for vaginal hysterectomy. Pre-operative haematological investigations were Haemoglobin: 8.5 g/dl, Total Leucocyte Counts: 15.0 x 10^9/L, Differential Leucocyte Count: Neutrophil 76%/ Lymphocyte 20%/ Eosinophil 2%/ Monocyte 2%/ Basophil 0%, Platelet count: 978 x 10^9/L. [Normal values: Haemoglobin (12-15g/dL), Total Leucocyte Counts (4-10x 10^9/L), Differential leucocyte Count (Neutrophil 40-80%/ Lymphocyte 20-40% /Eosinophil 1-6% /Monocyte2-10% /Basophil 0-2%), Platelet Counts (150-450 x 10^9/L)]. The patient received a unit of packed RBCs a day before surgery. Repeat Haemoglobin was 9.2 g/dl. But high platelet count was overlooked and hence, no perioperative action was taken. In the pre-operative holding area, while reviewing pre-Anaesthetic check-up, we noticed high platelet count. A thorough search for evidence of thrombosis (syncope, chest pain, erythromelalgia, acrocyanosis, visual change, deep vein thrombosis) and bleeding (epistaxis, haemoptysis) was done. In the absence of clinical

evidence of thrombotic and bleeding complication, a provisional diagnosis of reactive thrombocytosis (due to anaemia, infection) was made. As the patient had infected/ulcerated cervical polyp, the surgical team decided to take this case as an emergency case after written informed consent. General anaesthesia was planned as per institutional protocol with thiopentone, fentanyl, vecuronium, Oxygen, Nitrous oxide, sevoflurane. Regional Anaesthesia was avoided due to probable risk for neuraxial bleeding [3,4]. Preventive measures against thrombotic/ bleeding complications were taken, which included adequate perioperative hydration, better surgical haemostasis, and early ambulation. The perioperative period was uneventful. Post-operative repeat platelet counts were showing downtrend (platelet counts: Day1- 880x 10^9/L, Day2- 760x 10^9/L, Day4- 680x 10^9/L, Day7- 574x 10^9/L). Post-operative peripheral smear showed microcytic hypochromic RBCs, normal neutrophils and platelet morphology. This patient was not further investigated for thrombocytosis, and no specific therapy was initiated. She was discharged on 7th day.

Discussion

Thrombocytosis is a sometimes discovered incidentally [4,5]. Thrombocytosis has a multiple etiologies, and thus evaluation of a patient with thrombocytosis requires careful consideration of patient history, comorbid conditions, and hematologic parameters. Spurious thrombocytosis is primarily laboratory error, due to the presence of non-platelet structures such as cryoglobulin crystal, cytoplasmic fragments of leukemic cells or bacteria [1,2].

Reactive thrombocytosis is the most common form of thrombocytosis. It is caused by infection, tissue damage [6], chronic inflammatory disorders, hyposplenism, iron deficiency anaemia, hemolysis, malignancy, drugs, etc. [1,2]. It is associated with raised acute phase reactant such as CRP, ESR. Clonal thrombocytosis may be concomitantly present along with reactive thrombocytosis, especially in persistent thrombocytosis [2,7].

In the case of persistent thrombocytosis, the diagnostic evaluation should be done to find causes of clonal thrombocytosis such as essential thrombocythemia (ET), polycythemiavera, chronic myelogenous leukaemia, myelofibrosis, etc [1,7]. In our case, post-operative platelet counts showed downtrend (Platelet count : Day1- 880 x 10^9/L to Day7- 574x 10^9/L). This patient was not further planned for the bone marrow biopsy/aspiration to evaluate thrombocytosis.

In clonal thrombocytosis, hemostatic complications are causes of morbidity and mortality. Many patients with clonal thrombocytosis can present with microvascular (headache, syncope, chest pain, erythromelalgia, acrocyanosis, visual changes), macrovascular (Stroke, Angina, Deep vein thrombosis) thrombotic symptoms [1,2].

The incidence of hemostatic complication associated with reactive thrombocytosis (1.6 %) is less as compared to clonal causes (10-40 %) [2,7]. But the presence of prothrombotic risk factors such as perioperative period or malignancy, the incidence of thrombosis may be higher [6]. The incidence of bleeding specially mucocutaneous is more in patients with clonal thrombocytosis [2].The platelet function abnormalities play a significant role for bleeding risk. Another mechanism for increased risk of bleeding is acquired von Willebrand's syndrome. Acquired Von Willebrand syndrome is due to the absorption of von Willebrand factor by the high number of circulating platelets [2,7].

Meyer et al reported a case of massive subcutaneous haemorrhage following multiple epidural punctures in a patient with thrombocythemia due chronic myeloid leukemia [3].

The perioperative management in patients with thrombocytosis depends on its type. Reactive thrombocytosis is self-limiting. It does not require antiplatelet therapy. Still necessary perioperative thromboprophylaxis can be considered especially in the presence of prothrombotic risk factor [1,4,5]. The underlying cause of the reactive disease should be searched and treated.

In this patient, most probable causes of thrombocytosis were infected polyp and mild anaemia. Basic precaution of thrombosis/bleeding were taken in the perioperative period. As high platelet counts were not persistent and peripheral smear didn't show particular feature except iron deficiency anaemia, further evaluation for clonal cause was not done. The removal of the source of infection (Infected cervical polyp) and anaemia correction can be attributed this gradual fall in platelet counts toward normal.

Further evaluation of distinguishing between the various causes of clonal thrombocytosis is done by bone marrow biopsy/aspiration, platelet aggregation studies and a various clonal marker such as JAK2 V617F. For clonal thrombocytosis depending on the specific cause and patient-related risk factor, cytoreductive or/and antiplatelet therapies are given [1,2,7].

Kimura et al have reported anaesthesia for two patients with thrombocytosis due to myeloproliferative disorder. In one case, after myelosuppression therapy, the pre-op platelet count was normal. For this case they used the combination of general anaesthesia with epidural. In the second case, only general anaesthesia was planned as the platelet count was high [8].

Conclusion

To conclude, preoperative thrombocytosis needs to be evaluated and treated accordingly. Due to associated thromboembolic/bleeding risk, patients with thrombocytosis requires thorough clinical assessment, haematological investigation, and subsequently appropriate perioperative management strategies.

References

1. Jonathan S. Bleeker and William J. Hogan. Thrombocytosis: Diagnostic Evaluation, Thrombotic Risk Stratification, and Risk-Based Management Strategies. Thrombosis.2011.

2. Harrison CN, Bareford D, Butt N, Campbell P, Conneally E, Drummond M, et al. British Committee for Standards in Haematology. Guideline for investigation and management of adults and children presenting with a thrombocytosis. Br J Haematol 2010;149:352-75.

3. Meyer HH, Mlasowsky B, Ziemer G, Tryba M. Massive haemorrhage following multiple epidural punctures as a late complication in thrombo cythemia. Anasth Intensivther Notfallmed. 1985;20:287–8.

4. Kiranlata Kiro, Pragati Ganjoo, Deepti Saigal, Upendra Hansda. Incidental thrombocytosis: Should it concern the anesthesiologist? J Anaesthesiol Clin Pharmacol. 2014 Apr;30(2):281-3.

5. TV Bharath Kumar, Poorna Madhusuda. Anaesthesia for a patient with thrombocytosis. Saudi J Anaesth. 2013 Oct-Dec; 7(4): 480–481.

6. N. Valade, F. Decailliot, Y. Re ´bufat, Y. Heurtematte, P. Duvaldestin and F. Ste ´phan. Thrombocytosis after trauma: incidence, aetiology, and clinical significance. Br J Anaesth. 2005 Jan;94(1):18-23.

7. Khan FA, Khan RA, Iqbal M, Hussain S. Polycythemiavera: Essential management protocols. Anaesth Pain Intensive Care 2012;16:91-7.

8. Kimura Y, Yamaguchi S, Nagao M, Mishio M, Okuda Y, Kitajima T. Anesthetic management of two patients with essential thrombocythemia. Masui, Japanese J Anaesthesiol. 2001;50:545–7.

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