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Case Report

Reactive leuco-thrombocytosis in a post splenectomized pregnant woman in labour: A case report

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ABSTRACT

Post-splenectomy diagnosis of infection based on WBC and platelet elevation is confounded by the fact that leucocytosis is a physiologic response to splenectomy, similar to the phenomenon of post-splenectomy platelet count elevation. Previous reports suggest that the WBC post-splenectomy in patients with sepsis is greater and more persistent than the WBC in patients without sepsis. However, specific values that can be used at the bedside to distinguish between a "normal" and "pathologic" WBC or platelet elevation are lacking. The clinician is often challenged to identify an infection in a post-splenectomy patient with an elevated WBC and prevent thrombotic events in case of thrombocytosis.

1. Introduction

Splenectomy is a therapeutic intervention employed in various medical conditions, including sickle cell anaemia, thalassemia, immune thrombocytopenia (ITP), Hodgkin's disease, hereditary spherocytosis, and lymphoma. While it proves beneficial in alleviating symptoms, it comes with an inherent risk of increased susceptibility to infections. Notably, overwhelming post-splenectomy infection (OPSI) poses a severe threat, with Streptococcus pneumoniae being the predominant causative organism.[1] Hereditary spherocytosis, the most prevalent red cell membrane disorder, exhibits diverse clinical manifestations, membrane protein defects, and inheritance patterns, primarily autosomal dominant. Severity categorization spans mild, moderate, and severe forms, with approximately 3-5% of patients experiencing the latter.[2] Splenectomy is considered a potential therapeutic strategy however, the decision to pursue splenectomy necessitates careful evaluation due to the associated heightened infection risks, emphasizing the importance of a judicious, multidisciplinary approach to patient care.[3]

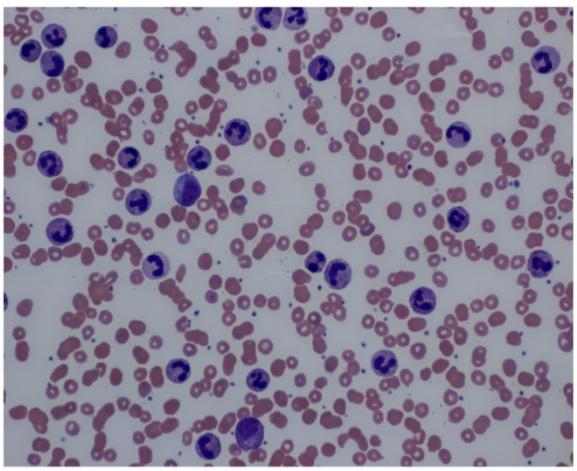

Figure 1: Peripheral blood smear of the patient with Hereditary Spherocytosis

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Table 1: Investigations chart

INV	21/6/22	22/6/22	23/6/22	24/6/22	25/6/22	8/7/22
TC	29900	43000	35900	26500	21400	11900
PMN	51.1%	45.4%	79.0%	71%	65.4%	46.2%
LYMP	20%	8.1%	15.4%	22%	26.5%	43.3%
PLT	4.12 L	4.89 L			4.25 L	4.12 L
CRP		12.7 mg/dl				
Pro-calcitonin		0.09 ng/ml		0.37 ng/ml		

2. Case Report

We report a 23 years, G2A1, at 38 weeks of gestation, with Gestational Diabetes Mellitus, history of Hereditary spherocytosis – post splenectomy, with cephalic presentation, who came in latent labour. She had regular menstrual cycles. Her first pregnancy was a missed miscarriage of Dichorionic diamniotic twins at 9 weeks and 5 days for which Medical termination of pregnancy of pregnancy was done. Her present pregnancy also was a spontaneous conception, with all trimesters uneventful except GDM on Oral hypoglycemic drugs. She was started on Tab. Ecospirin 75mg OD as per the haematologist opinion. Routine Inj. Tdap, Flu vac were given. Hematologist reviews taken frequently. In the past she had recurrent episodes of jaundice, fever with abdominal pain for which she was evaluated and diagnosed to have hereditary spherocytosis since 2015. Following which she underwent Laparoscopic Splenectomy and was on prophylactic antibiotics. In our patient, there were no hematological abnormalities in any of the family members, she developed the disease sporadically.

3. Management

The patient was admitted at term in latent labour. Epidural analgesia given at her request. A few hours later she developed fever spikes and was treated with anti-pyretics, hydration and tepid sponging. Blood and urine investigations were done which revealed leuco-thrombocytosis (TC-29900, Platelets -4.12 L), CRP-12.7 mg/dl, Procalcitonin was negative. Epidural catheter removed to avoid further infection. Infectious disease specialist and Intensivist opinions were obtained. Patient was started prophylactically on Inj.Cefaperazone Sulbactum 3 gm iv bd. Her labour progressed well and she delivered vaginally. Postnatally she was afebrile but repeat TC remained elevated. All the Culture and sensitivity tests were normal. After extensive review of literature and expert opinions it was diagnosed as Reactive leuco-thrombocytosis. IV antibiotics were stopped and her blood counts started reducing gradually. Patient was discharged on postnatal day 3 and followed up with blood tests. Two weeks later her TC was 11900. She received her Pneumococcal vaccine postnatally.

4. Investigations

Urine routine culture and sensitivity: Culture shows no growth after 48 hours of incubation. High vaginal swab culture and sensitivity: Culture shows scanty growth of genital commensals after 48 hours of incubation.

5. Discussion

Splenectomy plays a critical role across diverse medical scenarios, serving as a life-saving measure in traumatic incidents, a therapeutic intervention for hematological disorders, a life-preserving strategy in malignant conditions, and a diagnostic tool for certain diseases. Early after the procedure, reactive thrombocytosis and leukocytosis are commonly observed. While reactive thrombocytosis often resolves within 6 to 12 months, persistent cases are not uncommon. The enduring leukocytosis, primarily characterized by elevated neutrophils, may persist for many years post-splenectomy.[4,5]

A recognized consequence of splenectomy is an elevated risk of infections, particularly the severe overwhelming post-splenectomy infection (OPSI). This medical emergency demands swift diagnosis and management, involving fluid resuscitation and immediate administration of empirical antimicrobials, with mortality rates reaching up to 50%.[1,6] Consequently, individuals undergoing or recovering from splenectomy are strongly advised to undergo vaccination against encapsulated organisms. Streptococcus pneumoniae, Neisseria meningitidis, and Haemophilus influenzae are the primary pathogens associated with OPSI. Elective splenectomy candidates are recommended to receive vaccinations approximately two weeks before the surgery to ensure an adequate immune response. Conversely, those undergoing emergency splenectomy should be vaccinated around two weeks after the procedure to optimize their immune protection.[2]

There are very few case series and reports concerning pregnancy complications post splenectomy. A case report by Sabita P. et al shows a Hereditary spherocytosis pregnant woman presenting with haemolytic crisis and benefitting with splenectomy. She does not have post-splenectomy crisis.[7] A retrospective study by Gershovitz M et al. comparing pregnancies of women who have and have not undergone splenectomy. Higher rates of fertility treatment, previous caesarean delivery and severe

preeclampsia were found among post-splenectomy women and was significantly associated with pregnancy and labour complications, such as caesarean delivery, preterm labour, pneumonia during pregnancy, and complications of anaesthesia and sedation during labour.[8] Mahey R et al. report two cases of refractory ITP during pregnancy where in one patient, splenectomy was carried out at 24 weeks and in the second patient it was carried out during the caesarean section. Both pregnancies had uneventful antenatal and postnatal periods.[4]

6. Conclusion

Hence, this was a rare case of reactive leuco-thrombocytosis in a pregnant woman post splenectomy (done 7 years back) which was caused by her labour stress rather than her tendency to acquire infections easily. So it needed only a symptomatic management and the WBC and Platelet count fell back to normalcy postpartum gradually on its own. Transient increase of the serum white blood cell count (WBC) and platelet count (PC) are normal physiologic responses for a post splenectomy patient.

7. Source of Funding

None.

8. Conflict of Interest

None.

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