Thrombotic Thrombocytopenic Purpura in a Parturient Leading to Life Threatening Thrombocytopenia and Fetal Demise

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Introduction

- Thrombocytopenia is common in pregnancy; common causes include gestational thrombocytopenia, preeclampsia with severe features (sPRE) and immune thrombocytopenia (ITP)
- Thrombotic Thrombocytopenic Purpura (TTP) is caused by an acquired or congenital deficiency in ADAMTS13
- There is a clinical overlap with sPRE, which makes diagnosis difficult; however, the management is different
- Acquired TTP is rare, and often triggered by pregnancy.[3]

Clinical Significance

- Thrombocytopenia involves 12% of pregnancies.[1]
- TTP is rare, however, life threating with multiple organ ischemic failure.[2]
- Diagnosis is difficult, prompt diagnosis is lifesaving.
- A multidisciplinary team, including MFM/anesthesiologist/intensivist/hematology is vital

Case Presentation

- 31 yo G3P1 at 26w3d w/PMHx of Factor V Leiden and DVT on prophylactic enoxaparin transferred after presenting with bruising and blurry vision
- **Platelet count at outside hospital was 19,000/µL**
- Combination of thrombocytopenia and fetal growth restriction led to working diagnosis of sPRE
- Anesthesia consulted when urgent cesarean delivery was pursued
- At that point platelets nadired at **14,000/µL**

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Figure 1: Schistocytes in admission blood smear

Case

- On multidisciplinary discussion it was noted that her blood pressure was only mildly elevated, LFTs were normal, and haptoglobin was undetected, which is uncommon in sPRE.
- A peripheral blood smear showed schistocytes (Figure 1a); TTP was suspected, and hematology was consulted
- In a shared decision with the patient, cesarean delivery was deferred given the increased maternal risks and unlikely favorable neonatal outcome
- Plasma exchange (TPE) was started immediately after initiation of 1 mg/kg prednisone and within 12 hours of admission in our center
- Diagnosis was confirmed with undetectable ADAMTS13
- The patient responded well to treatment and platelets recovered to 60,000/µL in 12 hours (Figure 1b)
- Unfortunately, she experienced fetal demise after induction of labor
- She was later transitioned to rituximab and continues to do well

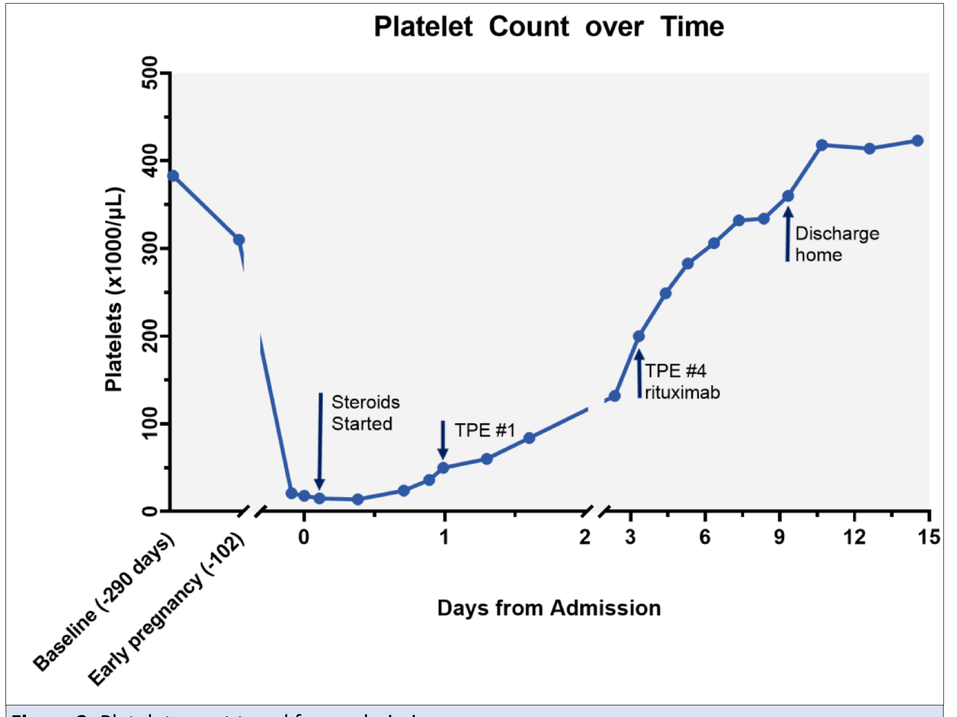

Figure 2: Platelet count trend from admission

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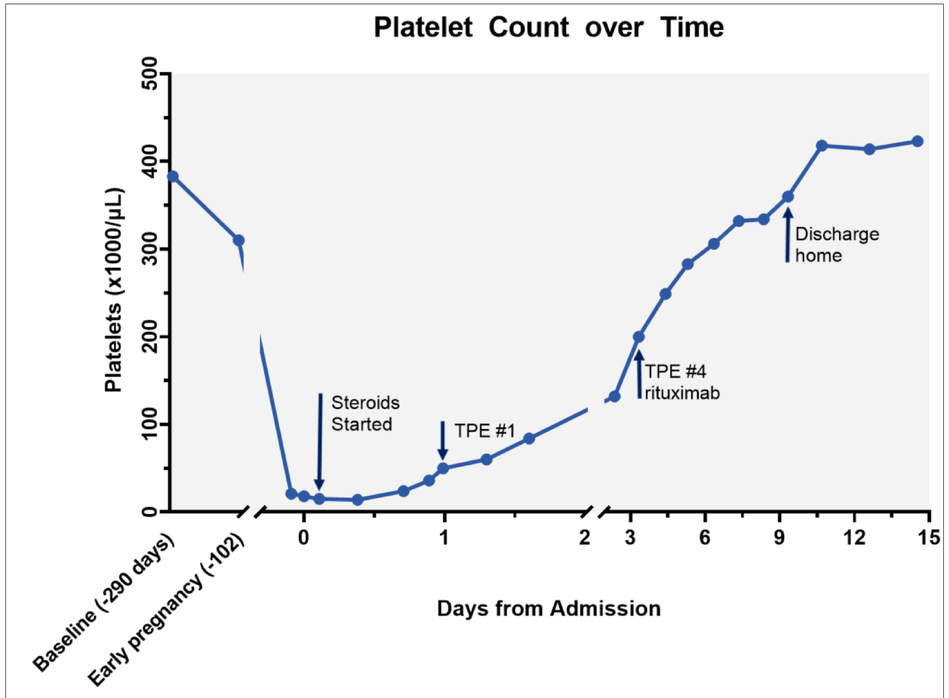
Discussion

- Thrombocytopenia is common in pregnancy.
- There is significant overlap between TTP and sPRE; however, treatment modalities differ significantly.
- OB anesthesiologists must be intimately familiar with the differential diagnosis and treatment.
- Hallmark signs of TTP, such as end organ ischemia, extremely low platelet count and rapid decline in platelet must be recognized, such as in this case
- This case further highlights the improved outcomes in tertiary centers with multidisciplinary care. Early intervention was likely lifesaving.

References

1. Anesth Analg 2021;6:1531–44
2. J Thromb Thrombolysis 2021;1:187–93
3. Nat Rev Dis Primers. 2017 Apr 6;3:17020



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