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CASE REPORT

Management of Immune Thrombocytopenia via Splenectomy in a Full-Term Pregnant Woman: A Case Report

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Abstract: Thrombocytopenia in pregnancy is most commonly gestational. However, it is important to distinguish it from immune thrombocytopenia (ITP), which carries maternal and fetal risks. The treatment options include corticosteroids, intravenous immunoglobulin (IVIG), and splenectomy in refractory cases. A 38-year-old Syrian woman at 37 weeks of gestation with a history of 6 cesarean sections presented with refractory ITP. The patient's platelet count was 5.1×10^3/mL despite receiving corticosteroids for a month. She underwent a cesarean section and splenectomy due to persistent severe thrombocytopenia (3×10^3/mL) and labor onset. Pre- and intraoperative platelet transfusions were administered to reduce the bleeding risk. The procedure revealed an accessory spleen, and a healthy neonate was delivered with normal platelet counts. Maternal platelets improved after surgery to 115×10^3/mL. First-line therapies such as corticosteroids and IVIG often suffice in ITP cases during pregnancies. Splenectomy is now viable for refractory cases, ideally in the second trimester. This case highlights the possibility of late-term splenectomy combined with the cesarean section in refractory cases to corticosteroids.

Keywords: immune thrombocytopenia, ITP, pregnancy, splenectomy, cesarean section, refractory thrombocytopenia

Introduction

Thrombocytopenia is the second most common blood disorder in pregnancy after anemia.[1] It is defined as a platelet count below 150×10^9/L and occurs in 6.6% to 11.6% of pregnancies by the third trimester.[2–5] The causes of thrombocytopenia can be either pregnancy-related or unrelated to gestation. Gestational thrombocytopenia, which is the most common form (70–80% of cases), is generally mild and harmless. In contrast, immune thrombocytopenia (ITP) is the second leading cause of low platelet counts in pregnancy, affecting about 3% of thrombocytopenic women at delivery.[5,6] Distinguishing ITP from gestational thrombocytopenia can be challenging. However, a platelet count below 100×10^9/L early in pregnancy, along with a progressive decline in platelet levels, strongly suggests ITP.[5,6]

Treatment for ITP is recommended when platelet counts fall below $20–30 \times 10^9$/L with bleeding, or in preparation for delivery or procedures. Management during delivery depends on assessing bleeding risks, particularly for vaginal birth (minimum platelet count of $20–30 \times 10^9$/L) or cesarean section (minimum of 50×10^9/L).[7–9] The treatment approach for pregnant women with ITP is similar to that for non-pregnant patients.[10,11] First-line therapies include intravenous immunoglobulin (IVIg) or corticosteroids. Other agents namely cytotoxic and immunosuppressive agents, for example, danazol, cyclophosphamide, vinca alkaloids and azathioprine are potential teratogens and are contraindicated in pregnancy.[12] Patients who do not respond to those treatments—defined as a platelet count below 30×10^9/L, less than a twofold increase from baseline, or persistent bleeding—are considered non-responders.[11] For these cases, splenectomy may be recommended.[11,13,14]

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Splenectomy leads to remission in about 75% of pregnant women, similar to non-pregnant patients.[15] The optimal time for splenectomy is the second trimester, as early surgery may trigger preterm labor, while late-term surgery can be technically difficult due to the enlarged uterus.[6] However, in cases of severe late-term thrombocytopenia or advanced gestation, intrapartum splenectomy may be considered.[12,16]

Herein, we report a case of a 38-year-old female diagnosed with refractory ITP in the last semester where she was managed with splenectomy alongside with caesarean section.

Case Presentation

A 38-year-old Syrian female presented to our hospital for preparation of a cesarean section. She was at 37 weeks of gestation, Gravida 6, with a history of 6 cesarean sections. The patient did not report any previous medical history or complications during the pregnancies. One month before admission, she had been diagnosed with immune thrombocytopenic purpura. In addition, Peripheral blood smear was done and showed isolated thrombocytopenia without abnormal cell morphology, blasts, or schistocytes which exclude other abnormalities. Initially, she was treated with prednisolone 20 mg per day for 15 days, followed by dexamethasone 40 mg per day orally for another 15 days.

Upon admission, laboratory exams revealed a low platelet count of 5.1×10^3/mL, which contradicted an immediate cesarean section, leading to her admission for monitoring. Over the next 10 days, the patient received 10 units of platelets and four doses of 40 mg intravenous dexamethasone. Despite this, labor contractions began without responding to the tocolytics, and her platelet count further decreased to 3×10^3/mL. Hematological consultation recommended platelet transfusion before and during the surgery, along with splenectomy during the procedure. Additionally, salpinx ligation was planned due to the multiple cesarean sections and the patient's overall condition.

The surgery was performed jointly by a combined team of general surgeons and obstetrician/gynecologists. Ten units of platelets were transfused before surgery, and an additional eight units during the procedure. A median incision was made in the abdomen, and the general surgery team resected the spleen, including an accessory spleen that was discovered. Afterward, the gynecology team performed an inferior uterine incision and delivered a male infant, who was then handled to the pediatrician. The Apgar scores were 6 at 1 minute and 8 at 5 minutes. The uterus was closed with a single-layer suture, and the fallopian tubes were ligated. A drainage tube was placed in the Douglas pouch before closing the abdominal incision.

The newborn's examination at birth was normal, with no purpura or ecchymosis noted. The Apgar score was 6 at one minute and improved to 8 by five minutes. The initial platelet count was 135,000/mL at birth, which subsequently normalized to 240×10^3/mL by the second week of life. Postoperatively, the patient's platelet counts improved to 115,000/mm^3. She recovered smoothly and was discharged a few days later to be followed up with hematologists.

Discussion

Isolated thrombocytopenia during pregnancy can result from various causes. A mild, asymptomatic decrease in platelet counts (between 90,000/mL and 150,000/mL) is typically classified as gestational thrombocytopenia, which has no major clinical implications. However, lower platelet levels may indicate immune thrombocytopenic purpura (ITP).[17]

Although ITP accounts for only approximately 1 case of thrombocytopenia per 1000 pregnancies and 5% of cases of pregnancy-associated thrombocytopenia, it remains the leading cause of significant thrombocytopenia in the first trimester.[6] Furthermore, a platelet count below 50,000/mL in the first or second trimester strongly suggests ITP.[5] Pregnancy-related ITP poses serious risks for both the mother and the fetus, with symptoms often worsening in the third trimester.[18]

Between 1% and 5% of women with gestational thrombocytopenia exhibit platelet counts below 100×10^9/L, with only a minority presenting values under 75×10^9/L. Counts below 50×10^9/L have been attributed to gestational thrombocytopenia only in rare circumstances, and typically after exclusion of alternative etiologies. At present, no specific biomarkers exist to confirm the diagnosis, which complicates differentiation from mild ITP, early preeclampsia, or HELLP syndrome (hemolysis, elevated liver enzymes, and low platelets).[8] Moreover, there is no definitive laboratory test capable of distinguishing ITP from gestational thrombocytopenia or other causes of maternal thrombocytopenia. Consequently, the diagnosis of ITP relies on clinical context, including a personal history of bleeding, documentation of

thrombocytopenia prior to pregnancy, and/or a family history that rules out hereditary thrombocytopenia. In practice, ITP is diagnosed primarily by exclusion of other conditions, or retrospectively based on response to ITP-specific therapy. Notably, some women present without a pregestational history. ITP should be suspected when an otherwise healthy pregnant woman—without relevant family history, gestational complications, or medication use—demonstrates platelet counts consistently below 70–80 $\times$ 10^9/L.[5,8]

In the case under discussion, the patient's platelet count fell below 10 $\times$ 10^9/L during the final trimester, in the absence of family or past medical history, thereby excluding gestational thrombocytopenia and hereditary thrombocytopenia and supporting a diagnosis more consistent with ITP. Furthermore, the absence of hypertension, abnormal hepatic or renal function tests, and hemolytic episodes effectively ruled out other differential diagnoses.

Managing ITP in pregnant women can be challenging. If the mother shows no symptoms and the fetal platelet count is normal, treatment may not be necessary.[17] However, in severe cases, most patients respond well to standard therapies such as corticosteroids and immunoglobulins, with splenectomy rarely required.[19]

The advent of Thrombopoietin receptor agonists (TPO-RAs) has represented a significant paradigm shift in the therapeutic management of ITP. Nevertheless, their use during pregnancy remains unapproved, primarily due to insufficient evidence and concerns regarding potential fetal effects arising from transplacental transfer.[20] TPO-RAs can elevate platelet counts within 2–3 weeks in pregnant women with ITP.[21] Overall, the available literature suggests that TPO-RAs in pregnancy are associated with high response rates and appear to be well tolerated. Nonetheless, routine use is not recommended, and administration during the first trimester should be deferred until more robust evidence is available.[20–26]

A study reviewing 92 women with ITP across 119 pregnancies over 11 years found that those with pre-existing ITP required treatment less often than those newly diagnosed, though bleeding complications were similar in both groups.[7]

Severe ITP (platelet count below 20,000/mL) that does not respond to prednisone or high-dose IVIG makes pregnancy and delivery particularly high-risk. In such cases, a cesarean section (CS) is recommended to prevent fetal intracranial hemorrhage, and splenectomy may be performed simultaneously as an effective treatment.[18]

Previously considered high-risk, splenectomy during pregnancy is now a viable second-line option for refractory ITP due to advances in surgical techniques and neonatal care.[12] Moreover, Laparoscopic splenectomy has also been successfully performed in pregnant patients.[6,11,12,17]

In this case, despite optimal medical treatment, the patient's platelet count remained critically low (<5000/mL), necessitating splenectomy. Since she was at 37 weeks of gestation, a cesarean section was performed immediately after the splenectomy. Open surgery was chosen due to concurrent splenectomy with the cesarean section.

The primary concern for ITP patients undergoing surgery is bleeding risk. Platelet counts above 30,000/mL are generally sufficient to prevent hemorrhage, but patients with counts below 10,000/mL and mucosal bleeding should receive prophylactic platelet transfusions. Typically, 4–8 units of random donor platelets or one unit of apheresis platelets are used to manage bleeding in thrombocytopenic patients.[16] In our case, the patient received 10 units before surgery and an additional 8 units during the procedure.

There is no direct link between the severity of maternal thrombocytopenia and neonatal thrombocytopenia risk.[10] However, infants born to mothers with ITP should be closely monitored for low platelet counts and bleeding, as thrombocytopenia often develops between the second and fifth day of life.[16] Their platelet count usually decreases during second to fifth day of life.[10] In this case, the newborn was healthy with no signs of bleeding, showing a platelet count of 135,000/mL in the first week, which later improved to 240,000/mL by the second week.

The main limitation in our case was the absence of IVIG therapy prior to surgery. This is common in low-resource settings, where not all treatment options are consistently available, and when available, they may not be affordable for patients. Another limitation was lack of long-term follow-up, as the patient recovered but did not did not return to the hospital for continued evaluation.

Conclusion

Thrombocytopenia in pregnancy is usually gestational, but distinguishing it from immune thrombocytopenia (ITP) is crucial due to maternal and fetal risks. This case describes a 38-year-old woman with refractory ITP at 37 weeks who

underwent cesarean section and splenectomy, resulting in improved platelet counts and delivery of a healthy neonate. It highlights that while corticosteroids and IVIG are first-line therapies, splenectomy can be considered even late in pregnancy when standard treatments fail.

Abbreviation

ITP, Immune Thrombocytopenia.

Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethics Approval and Consent to Participate

This study is exempt from ethical approval in our institution.

Consent for Publication

Written informed consent was obtained from the patient for publication of this case report.

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Disclosure

The authors declare that they have no conflicts of interest to disclose.

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