“THE PLATELET PUZZLE:UNRAVELING THE MYSTERIES OF PREGNANCY COMPLICATIONS”

INTRODUCTION

Thrombocytopenia is the second most common hematological disorder encountered during pregnancy, affecting approximately 7–10% of all pregnant women. While gestational thrombocytopenia accounts for the majority of cases, a significant proportion results from pathological conditions such as immune thrombocytopenia (ITP), pre-eclampsia/ HELLP syndrome, and autoimmune diseases, including systemic lupus erythematosus (SLE). Differentiating between these etiologies is crucial, as management and maternal–fetal outcomes vary widely depending on the underlying cause.(1)

Systemic Lupus Erythematosus (SLE) is a chronic, autoimmune, multisystem disorder characterized by the production of a wide spectrum of autoantibodies against nuclear and cytoplasmic antigens, leading to immune complex formation and widespread tissue damage. It predominantly affects women of reproductive age, with a peak incidence between 15–45 years, and a female-to-male ratio of approximately 9:1 (2).

Pregnancy in women with SLE is considered high risk, as it is associated with an increased likelihood of disease flare, obstetric complications, and adverse fetal outcomes. Despite improved disease control and prenatal care, complications such as preeclampsia, preterm delivery, intrauterine growth restriction (IUGR), and fetal loss remain significant (2). The physiological immunologic and hormonal changes during pregnancy can influence disease activity, while active SLE can, in turn, adversely affect placental function and fetal well-being.

Thrombocytopenia—defined as a platelet count below 150,000/mm^3—is a common hematological manifestation of SLE, occurring in approximately 20–40% of patients (3). The causes are multifactorial and may include: Immune-mediated platelet destruction due to antiplatelet antibodies, Bone marrow suppression caused by disease activity or medications (e.g., azathioprine, cyclophosphamide), Consumption coagulopathy secondary to preeclampsia, HELLP syndrome, or disseminated intravascular coagulation (DIC), Associated antiphospholipid antibody syndrome (APS) leading to platelet activation and consumptio.(4)

The presence of thrombocytopenia can complicate pregnancy by increasing the risk of maternal hemorrhage, limiting anesthesia options during delivery, and contributing to poor perinatal outcomes due to placental insufficiency. Thus,

SLE with thrombocytopenia in pregnancy necessitates multidisciplinary management, involving obstetricians, rheumatologists, and hematologists to ensure optimal maternal and fetal outcomes. Early preconception counseling, strict disease control for at least six months before conception, and close antenatal surveillance are key to reducing complications and improving prognosis (5).

CASE REPORT

A 27 year, second gravida with previous caesarean section with short Inter-conception period presented to OPD at 6 weeks of gestation. C/o fatigue, bleeding gums, nasal bleeding 6 months back. No fresh complaints at present. Past H/o of Secondary Post Partum hemorrhage after one month of previous delivery 1.5 years back followed by 9 Units of RCC and 18 units of platelets transfusion at private hospital. She underwent appropriate haematological evaluation, including peripheral smear, coagulation profile, autoimmune markers (ANA, Anti –ds DNA), Complement levels and got tested ANA (Anti-nuclear Antibody) Positive after that she was advised for ANA Profile and was diagnosed with Systemic Lupus Erythematosus. She was started on tablet prednisolone 30mg once daily from second trimester. During her Antenatal visits Aspirin 150mg Once daily was advised and Dexamethasone coverage was done in 3rd trimester.Injection LMWH 40mg kept in continous antenatal checkup.

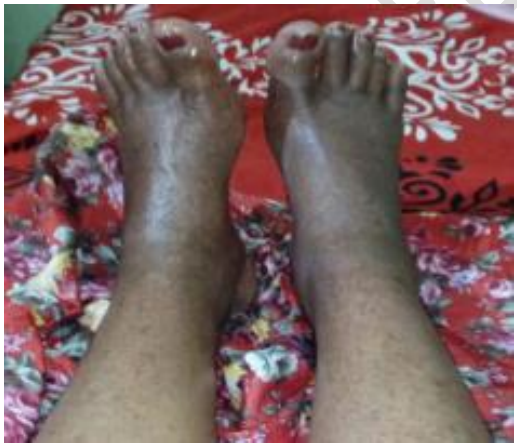
She was admitted at 37 weeks for safe confinement. No any fresh Complaints at present, perceiving fetal movements well.All blood and blood products were arranged. Her platelet count was 32,000. 4units Random donor platelet and 2 units Single donor platelets were transfused to her prior to planned elective caesarean section. Injection vitamin K 10 mg IV once daily for 3 doses. Elective lower segment cesarean section (LSCS) at term. A live female child weighing 2.9 kg was delivered with good APGAR score. In the postoperative period, daily platelet monitoring was done, and platelet transfusions were administered as an when required. On day 1 her platelet count was 41,000 , On day 3- 61,000, On Day 5- 32,000 ,On day 6 platelet count had dropped to 20,000. Hematologist opinion , 4 units of random donor platelet was transfused and prednisolone dose increased to 1mg/kg/day as advised (60mg).
On Day 8 her repeat manual platelet count was 68,000 and her discharge was planned. As post-operative recovery was uneventful both mother and child were discharged in stable condition.

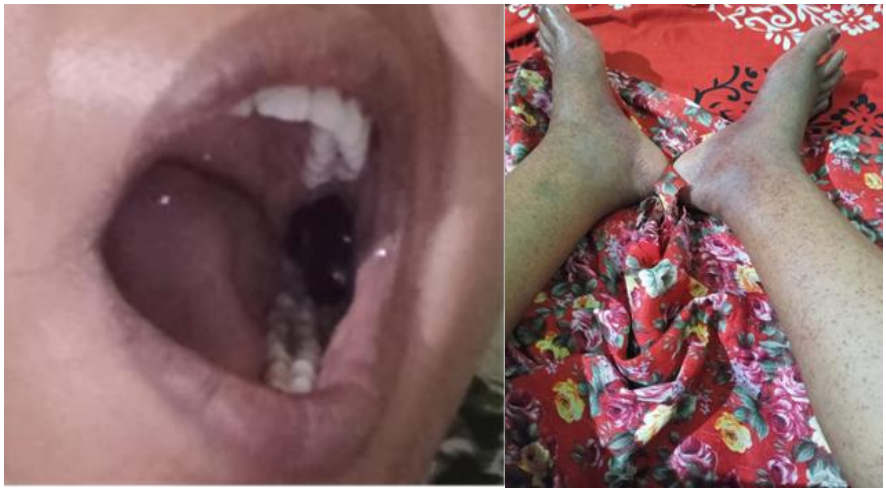
On Admission-

Hb	12.3gm/dl	Serum Na	143
WBC	12000	Serum K	4.25
Platelet	32 lac	Serum CL	105
urea	17	uric acid	2.8
Serum creatinine	0.35	PT-INR	14.5/1.09

0n discharge-

Hb	11.2gm/dl	Serum Na	137
WBC	11000	Serum K	4.0
Platelet	68 Lacs	Serum CL	101
urea	19	uric acid	2.3
Serum creatinine	0.37	PT-INR	13.8/1.02





DISCUSSION

Thrombocytopenia is one of the most common hematological abnormalities encountered during pregnancy, with a wide suspected diagnosis including gestational thrombocytopenia, immune thrombocytopenia (ITP), pre-eclampsia/HELLP syndrome, and autoimmune conditions such as systemic lupus erythematosus (SLE) . In this case, the patient initially presented with moderate–severe thrombocytopenia, and further evaluation subsequently led to the diagnosis of SLE.

SLE is a chronic multisystem autoimmune disorder that may flare during pregnancy and is associated with hematological manifestations such as immune-mediated platelet destruction (6). Thrombocytopenia in SLE results from autoantibody-mediated peripheral platelet destruction and impaired platelet production . Pregnancy itself can exacerbate autoimmune activity, making timely diagnosis and management essential to prevent maternal and fetal complications (7).

This patient underwent hematological evaluation, including peripheral smear, coagulation profile, autoimmune markers (ANA, anti-dsDNA), complement levels, and exclusion of obstetric causes such as preeclampsia/HELLP . Given the significantly low platelet counts and the need for safe obstetric interventions, Single Donor Platelets (SDP) and Random Donor Platelets (RDP) transfusions were administered. SDP transfusion is preferred due to higher platelet yield and reduced alloimmunization risk (8), while RDP may be used when rapid correction is required or SDP is not immediately available.

The patient responded well to platelet transfusions, with adequate improvement in platelet count enabling safe continuation of pregnancy and peripartum care. Concurrent management of SLE was initiated with pregnancy-safe medications such as low-dose steroids and hydroxychloroquine, accompanied by regular monitoring of maternal disease activity and fetal well-being (9). Multidisciplinary involvement—including obstetrics, rheumatology, and transfusion medicine—was essential in optimizing care .

Timely identification and correction of thrombocytopenia minimized maternal risks such as bleeding, postpartum hemorrhage, and the need for operative interventions (10). Fetal surveillance with serial growth scans and Doppler studies helped assess and exclude SLE-related complications such as fetal growth restriction or neonatal lupus. The pregnancy continued uneventfully afterward, resulting in a healthy neonate and stable maternal condition.

Thus, early diagnosis of SLE, appropriate use of SDP/RDP transfusions, and coordinated multidisciplinary management contributed to an excellent maternal and perinatal outcome in this case. This emphasizes the importance of a structured, etiological approach to thrombocytopenia in pregnancy and individualized management based on the underlying pathology .

CONCLUSION

This case highlights the importance of thorough evaluation of thrombocytopenia in pregnancy, as it may be the first manifestation of an underlying autoimmune disorder such as systemic lupus erythematosus. Early diagnosis, timely initiation of appropriate immunomodulatory therapy, and prompt correction of severe thrombocytopenia with SDP/RDP transfusions were crucial in ensuring maternal safety. Coordinated multidisciplinary management with close maternal and fetal monitoring resulted in a successful pregnancy course and excellent maternal and perinatal outcome. This case emphasizes that with proactive, well-structured care, even high-risk pregnancies complicated by SLE-associated thrombocytopenia can achieve optimal outcomes.

Declarations

Conflict of interest

We declare there are no conflicts of interest for the conduct of this study and preparation of this manuscript which is to be published in compliance with the ethical standards section of the manuscript.

Footnotes

Dr. Smrity Naik, MD is an Associate Professor; Dr. Anjum Khan is an Assistant Professor (MS-Obs & Gynae) ; Dr. Shweta Singh Dhruw is an Assistant Professor (MS-Obs & Gynae); Dr. M. Soni Ratnakar is a Post Graduate Resident .

REFERENCES

1. Petri M, et al. Systemic lupus erythematosus. N Engl J Med. 2012;366(6):601–611.

2. Clowse MEB. Lupus activity in pregnancy. Rheum Dis Clin North Am. 2010;36(1):15–23.

3. Cervera R, et al. Clinical and immunologic manifestations and outcomes in systemic lupus erythematosus: A multicenter study of 1000 patients. Medicine (Baltimore). 2009

4. Branch DW, Khamashta MA. Antiphospholipid syndrome: Obstetric diagnosis, management, and controversies. Obstet Gynecol. 2003;101(6):1333–1344.

5. Østensen M, Andreoli L. Management of autoimmune diseases in pregnancy. Nat Rev Rheumatol. 2017;13(7):443–455.

6.Lateef A, Petri M. Systemic lupus erythematosus and pregnancy. Rheum Dis Clin North Am. 2017;43(2):215-26.

7. Buyon JP, Kim MY, Guerra MM, et al. Predictors of pregnancy outcomes in patients with lupus: a cohort study. Ann Intern Med. 2015;163(3):153-63.

8. McCrae KR. Thrombocytopenia in pregnancy: differential diagnosis, pathogenesis, and management. Blood Rev. 2003;17(1):7-14.

9. Pacheco LD, Saade G, Hankins G. Platelet transfusion during pregnancy: indications and guidelines. Am J Perinatol. 2011;28(8):659-66.