

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20261612>

Original Research Article

Fetomaternal outcomes in pregnancies complicated by thrombocytopenia: a retrospective study

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Received: 31 March 2026

Accepted: 15 May 2026

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ABSTRACT

Background: Thrombocytopenia is defined as a platelet count below 1.5 lakh/mm³. After anaemia, it is the second most common haematological disorder encountered during pregnancy. It affects approximately 6-15% of pregnancies, with an average incidence of around 10%.

Methods: This was a hospital-based retrospective observational study conducted in the Department of Obstetrics and Gynaecology at C. U. Shah Medical College and Hospital from 1 January 2024 to 31 August 2024. A total of 75 pregnant women with thrombocytopenia out of 700 delivered cases during the study period were included in the study.

Results: Out of 700 delivered cases, 75 women were found to have thrombocytopenia, while 625 had normal platelet counts. The incidence of thrombocytopenia in the present study was 10.7%. Gestational thrombocytopenia was the most common cause. Postpartum hemorrhage was the most common maternal complication, while intrauterine growth restriction and prematurity were the most common neonatal complications.

Conclusions: Thrombocytopenia in pregnancy is associated with significant maternal and neonatal morbidity. Routine antenatal platelet count monitoring facilitates early diagnosis and timely management, thereby improving fetomaternal outcomes.

Keywords: Thrombocytopenia, Pregnancy, Gestational thrombocytopenia, HELLP syndrome, Maternal outcome, Neonatal outcome

INTRODUCTION

Thrombocytopenia is defined as a platelet count below 1.5 lakh/mm³. After anaemia, it is the second most common haematological disorder encountered during pregnancy. It affects approximately 6-15% of pregnancies, with an average incidence of around 10%. Thrombocytopenia is caused by accelerated platelet destruction or decreased platelet production. During pregnancy, haemodilution due to increased plasma volume leads to a reduction in platelet count by approximately 6-7% during 3rd trimester, although absolute platelet count remains within the normal reference range in most women. Thrombocytopenia can be classified as mild (100,000-150,000/mm³), moderate (50,000-100,000/mm³), and severe (<50,000/mm³).

Thrombocytopenia in pregnancy may occur due to gestational thrombocytopenia (GT), obstetric disorders, or medical conditions.

Obstetric causes include hypertensive disorders of pregnancy such as preeclampsia, eclampsia, and HELLP syndrome (haemolysis, elevated liver enzymes, and low platelet count), amniotic fluid embolism, and disseminated intravascular coagulation (DIC). Medical causes include thrombotic thrombocytopenic purpura (TTP), haemolytic uremic syndrome (HUS), autoimmune disorders such as systemic lupus erythematosus (SLE), idiopathic thrombocytopenic purpura (ITP), antiphospholipid syndrome, infections, sepsis, hypersplenism, and primary bone marrow dysfunction.

Other causes include pseudothrombocytopenia and drug-induced thrombocytopenia. Thrombocytopenia is commonly associated with mucosal bleeding as a result of primary haemostasis deficiency.¹⁻⁶

Clinical manifestations include epistaxis, gingival bleeding, irregular uterine bleeding, petechiae, and ecchymosis. Life-threatening bleeding is uncommon and usually occurs only in patients with extremely low platelet counts, presenting as hematuria, gastrointestinal bleeding, or rarely, intracranial haemorrhage. Platelet counts greater than 50,000/mm³ are generally asymptomatic if platelet function is preserved.

Objectives

Objectives were to study the various factors responsible for thrombocytopenia in pregnancy and to evaluate fetomaternal outcomes in pregnancies complicated by thrombocytopenia.

METHODS

Study design and setting

This was a hospital-based retrospective observational study conducted in the Department of Obstetrics and Gynaecology at C. U. Shah Medical College and Hospital, Surendranagar, Gujarat, India, over a period of 8 months from 1 January 2024 to 31 August 2024.

Study population

Pregnant women diagnosed with thrombocytopenia and admitted for delivery during the study period were included in the study.

Sample size

A total of 75 cases of thrombocytopenia in pregnancy out of 700 delivered cases registered during the study period were included in the study.

Inclusion criteria

All pregnant women with thrombocytopenia (platelet count <1.5 lakh/mm³) were included in the study.

Exclusion criteria

Pregnant women with incomplete medical records were excluded from the study.

Data collection

Data regarding demographic profile, obstetric history, severity and etiology of thrombocytopenia, maternal complications, and neonatal outcomes were collected retrospectively from hospital records and case files.

Statistical analysis

The collected data were entered into Microsoft excel and analyzed using descriptive statistics. Results were expressed as frequencies and percentages.

Ethical approval

The study was conducted after obtaining approval from the institutional ethics committee.

RESULTS

A total of 700 delivered cases were analyzed during the study period, among which 75 pregnant women were diagnosed with thrombocytopenia, giving an incidence of 10.7%.

A greater proportion of thrombocytopenic women were unbooked cases, indicating inadequate antenatal care among affected patients. The majority of women were multigravidas, particularly in the second to fourth gravida group.

Gestational thrombocytopenia was the most common etiology, followed by hypertensive disorders of pregnancy, HELLP syndrome, and infectious causes such as malaria and dengue. Mild thrombocytopenia constituted the majority of cases.

Postpartum hemorrhage (20%) was the most common maternal complication observed among thrombocytopenic women. Other maternal complications included eclampsia, placental abruption, disseminated intravascular coagulation, and wound hematoma.

Among neonatal outcomes, intrauterine growth restriction (56%) and prematurity (50%) were the most common neonatal complications. A high rate of NICU admission was also observed. Neonatal mortality was noted in 6.67% of cases.

Table 1: Demographic profile of thrombocytopenic women.

Types of patients	N	Percentage (%)
Booked patient	26	34.66
Unbooked patient	49	65.34
Total	75	100

Table 1 shows the demographic profile of thrombocytopenic women included in the study. A majority of women were unbooked cases (65.34%), indicating inadequate antenatal care among affected patients. Only 34.66% of women were booked cases with regular antenatal follow-up. The higher proportion of unbooked patients may contribute to delayed diagnosis and increased maternal and neonatal complications. Regular antenatal surveillance plays an important role in

the early detection and management of thrombocytopenia during pregnancy.

Table 2: Obstetric profile of thrombocytopenic women.

Parity	N	Percentage (%)
Primigravida	18	24
2 nd 4 th gravida	52	69.34
>4 th gravida	05	6.67
Total	75	100

Table 2 demonstrates the obstetric profile of thrombocytopenic women. Most patients belonged to the second to fourth gravida group (69.34%), while primigravidas constituted 24% of cases. Only 6.67% of women were gravida more than four. These findings suggest that thrombocytopenia was more commonly observed among multigravida women. Increased parity may be associated with a higher incidence of pregnancy-related complications including thrombocytopenia.

Table 3: Factors responsible for thrombocytopenia.

Factors responsible for thrombocytopenia	N	Percentage (%)
Gestational thrombocytopenia	20	26.22
Hypertensive disorders	15	20.00
HELLP syndrome	10	13.33
DIC	03	04
Immune thrombocytopenia	02	2.6
Dengue	10	13.33
Malaria	13	17.33
Thrombotic thrombocytopenic purpura	02	2.6
Total	75	100

Table 3 shows the etiological distribution of thrombocytopenia among study participants. Gestational thrombocytopenia was the most common cause (26.22%), followed by hypertensive disorders of pregnancy (20%) and malaria (17.33%). HELLP syndrome and dengue each accounted for 13.33% of cases. Less common causes included immune thrombocytopenia and thrombotic thrombocytopenic purpura. The findings indicate that both obstetric and infectious causes contributed significantly to thrombocytopenia during pregnancy.

Table 4: Severity of thrombocytopenia.

Severity of thrombocytopenia	N	Percentage (%)
Mild	39	52
Moderate	25	33.34
Severe	11	14.6
Total	75	100

Table 4 depicts the severity of thrombocytopenia among pregnant women included in the study. Mild thrombocytopenia was observed in the majority of women (52%), followed by moderate thrombocytopenia in 33.34% of cases. Severe thrombocytopenia was present in 14.6% of women. Most patients therefore had mild to moderate disease requiring close monitoring and conservative management. Severe thrombocytopenia was associated with a greater risk of maternal and neonatal complications.

Table 5: Maternal complications observed among thrombocytopenic women.

Maternal complications	N	Percentage (%)
Eclampsia	08	10.66
Abruption	10	13.22
Postpartum hemorrhage	15	20
DIC	04	5.3
Acute renal failure	02	2.6
Pulmonary edema	01	1.3
Episiotomy hematoma	05	6.6
CS incision site oozing wound hematoma	03	4.0
Maternal mortality	01	1.3
No complication	26	34.67
Total	75	100

Table 5 summarizes the maternal complications observed among thrombocytopenic women. Postpartum hemorrhage was the most common complication (20%), followed by placental abruption (13.22%) and eclampsia (10.66%). Other complications included disseminated intravascular coagulation, wound hematoma, pulmonary edema, and acute renal failure. Maternal mortality was observed in 1.3% of cases. However, 34.67% of women did not develop any significant maternal complications.

Table 6: Neonatal outcome among study participants.

Neonatal outcome	N	Percentage (%)
Prematurity	38	50
Intrauterine growth restriction	42	56
Still birth	02	2.6
Birth asphyxia	20	26.66
Meconium stained liquor	16	21.33
Neonatal thrombocytopenia	01	1.33
NICU admission	45	60.0
Neonatal mortality	05	6.67
IUD	03	4.00
Total	75	100

Table 6 demonstrates the neonatal outcomes among pregnancies complicated by thrombocytopenia. Intrauterine growth restriction was the most common neonatal complication (56%), followed by prematurity

(50%) and birth asphyxia (26.66%). NICU admission was required in 60% of neonates, reflecting increased neonatal morbidity. Neonatal thrombocytopenia was observed in 1.33% of cases, while neonatal mortality occurred in 6.67% of neonates. These findings highlight the adverse impact of maternal thrombocytopenia on neonatal outcomes.

DISCUSSION

In the present study, mild thrombocytopenia was observed in 52% of women, while 33.34% had moderate thrombocytopenia and 14.6% had severe thrombocytopenia. Similar findings have been reported in previous studies, where mild thrombocytopenia constituted the majority of cases.^{6,12}

Gestational thrombocytopenia (26.66%) was the most common etiology observed in the present study, followed by hypertensive disorders of pregnancy (20%). This finding was comparable with studies conducted by Shehata et al and Meshram et al which also identified gestational thrombocytopenia as the leading cause during pregnancy.^{6,10}

A majority of patients in the present study were multigravidas, particularly in the second to fourth gravida group (69.34%). Additionally, 65.34% of patients were unbooked cases, highlighting the importance of adequate antenatal care and regular monitoring during pregnancy.

Among maternal complications, postpartum hemorrhage (20%) and eclampsia (10.66%) were the most common complications observed. Similar maternal complications have been reported in previous studies involving thrombocytopenic pregnancies.^{5,15} Severe thrombocytopenia was associated with increased maternal morbidity due to a higher risk of bleeding complications.

The most common neonatal complications observed in the present study were intrauterine growth restriction (56%), prematurity (50%), and birth asphyxia (26.66%). These adverse neonatal outcomes may be attributed to placental insufficiency and hypertensive disorders associated with maternal thrombocytopenia. A high rate of NICU admission was also observed among neonates born to thrombocytopenic mothers.

Overall, the findings of the present study emphasize the importance of early diagnosis, regular antenatal surveillance, timely intervention, and multidisciplinary management in improving fetomaternal outcomes in pregnancies complicated by thrombocytopenia.

Limitations

The present study was limited by its retrospective design and relatively small sample size. Being a single-center study, the findings may not be representative of the general

population. Long-term maternal and neonatal follow-up could not be assessed.

CONCLUSION

Thrombocytopenia in pregnancy is associated with significant maternal and neonatal morbidity, particularly in women with hypertensive disorders and severe thrombocytopenia. Gestational thrombocytopenia was the most common etiology observed in the present study. Maternal complications such as postpartum hemorrhage and eclampsia, along with neonatal complications including intrauterine growth restriction, prematurity, birth asphyxia, and NICU admission, were frequently encountered. Unbooked pregnancies were associated with poorer fetomaternal outcomes, emphasizing the importance of adequate antenatal care. Early diagnosis, regular platelet monitoring, timely intervention, and multidisciplinary management are essential for improving fetomaternal outcomes in pregnancies complicated by thrombocytopenia.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Patel DD, Jadeja HK, Airao BB. Fetomaternal outcomes in pregnancies complicated by thrombocytopenia: a retrospective study. *Int J Reprod Contracept Obstet Gynecol* 2026;15:2074-8.