



“THE PLATELET PARADOX: THROMBOCYTOPENIA IN PREGNANCY- A CASE SERIES ”

Obstetrics & Gynaecology

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ABSTRACT

Introduction: Thrombocytopenia is defined as a platelet count of $<150 \times 10^9/L$. It is the second most common hematological abnormality during pregnancy [1]. It occurs in 6-15% of pregnant women and 75% of these are gestational thrombocytopenia [2]. Types of thrombocytopenia – Mild – 1.5 Lakhs/mm³ to 1 Lakh/mm³, moderate – 1 Lakh/mm³ - 50,000/mm³, severe $< 50,000/mm^3$. Commonest platelet deficiency seen in obstetrics is Gestational thrombocytopenia which is 80%. Preeclampsia & HELLP syndrome – 20%, Immune thrombocytopenic purpura (ITP), others – Obstetric coagulopathies – DIC, MTP, SLE APAS, infections like – viral and sepsis syndrome, drugs, hemolytic anemias, thrombotic microangiopathy, malignancies. There is a physiological decrease in platelet count during normal pregnancy due to hemo-dilution, increased consumption in peripheral tissue and increased aggregation. The physiological thrombocytopenia is mild and usually have no adverse effects for the mother and fetus. **Objective:** To study the clinical outcome in cases presented with thrombocytopenia. **Results:** 8 cases of thrombocytopenia in pregnancy due to various causes have been discussed. Out of which 3 cases were pre-eclampsia associated, 1 case of likely ITP, other 4 cases of isolated gestational thrombocytopenia. For the case with ITP, treated with corticosteroids showed improvement in platelet count. For those with gestational Thrombocytopenia showed improvement post delivery and observed by serial platelet monitoring. There were 2 cases of bicytopenia with anemia and thrombocytopenia, one required platelet and PRBC transfusion due to abruptio placenta but the other was monitored and did not require transfusion but showed improvement post delivery. **Conclusion:** Gestational thrombocytopenia is the most common cause of thrombocytopenia in pregnancy. Immune thrombocytopenic purpura is always a diagnosis of exclusion [1]. A thorough history and physical examination rules out most causes. In blood remainder of CBC and peripheral smear will help us to rule out other causes such as pancytopenia and platelet clumping associated with pseudothrombocytopenia [3]. Close observation of the clinical course and response to treatment is critical to establishing the correct diagnosis, which has both immediate treatment implication and potential impact on the management of future pregnancies [4]. An accurate diagnosis and risk assessment in the antenatal period are essential for developing specific plans for any antenatal interventions and for management of delivery and the postpartum periods and the neonate [1].

KEYWORDS

BACKGROUND (INTRODUCTION)

Thrombocytopenia is defined as a platelet count of $<150 \times 10^9/L$. It is the second most common hematological abnormality during pregnancy [1]. It occurs in 6-15% of pregnant women and 75% of these are gestational thrombocytopenia [2]. Types of thrombocytopenia – Mild – 1.5 Lakhs/mm³ to 1 Lakh/mm³, moderate – 1 Lakh/mm³ - 50,000/mm³, severe $< 50,000/mm^3$. Commonest platelet deficiency seen in obstetrics is Gestational thrombocytopenia which is 80%. Preeclampsia & HELLP syndrome – 20%, Immune thrombocytopenic purpura (ITP), others – Obstetric coagulopathies – DIC, MTP, SLE APAS, infections like – viral and sepsis syndrome, drugs, hemolytic anemias, thrombotic microangiopathy, malignancies. There is a physiological decrease in platelet count during normal pregnancy due to hemo-dilution, increased consumption in peripheral tissue and increased aggregation. The physiological thrombocytopenia is mild and usually have no adverse effects for the mother and fetus.

Gestational thrombocytopenia (GT) is the most common cause of thrombocytopenia during pregnancy, with incidence of 5% to 11% of all pregnancies. It may be resulted from hemodilution caused by the increased plasma volume and accelerating platelet clearance [4]. GT is observed frequently during mid- to late-second or third trimester. Because no specific laboratory tests to diagnose GT exists, Diagnosis of exclusion is needed according to onset time, Severity of thrombocytopenia, and variable clinical features that can be presented in other causes of thrombocytopenia In pregnancy [4]. Interventions as elective cesarean delivery are not indicated, and GT does not confer an increased risk of maternal bleeding complications nor fetal bleeding [5].

Thrombocytopenia associated with hypertensive disorders: Preeclampsia (PEC) is characterized by the new onset of hypertension after 20 weeks of gestation and proteinuria. The pathogenesis of PEC may be related with abnormal placental angiogenesis and vascular function. PEC should be suspected if high blood pressure and/or proteinuria is observed after 20 weeks of gestation. Platelet counts are usually above $100 \times 10^9/L$ and rarely below $50 \times 10^9/L$. Thrombocytopenia ($<100 \times 10^9/L$) is one of the criteria for severe PEC. Delivery is definite management, but inpatient expectant management

until 34 weeks can be considered for some patients who are <34 weeks of gestation [4]. HELLP syndrome is characterized by platelet count $<100 \times 10^9/L$, elevated liver enzyme, and microangiopathic hemolytic anemia, occurring in approximately 0.2–0.8% of all pregnancies. DIC occurs in 20% of cases, which can result in massive bleeding, placental abruption, and hepatic rupture. Urgent delivery is the cornerstone of management to prevent rapid deterioration, regardless of gestational age [4].

Immune thrombocytopenia (ITP) is an acquired auto-immune disorder characterized by accelerate platelet destruction and impaired platelet production, accounting for 1–4% of pregnancy thrombocytopenia. Because no definite diagnostic tests are lacking, diagnosis of ITP is based mainly on the exclusion of other cause of thrombocytopenia in pregnancy. Although most cases present with platelet count of $>70 \times 10^9/L$, approximately 20% of cases may require treatment before labor. Corticosteroids and intravenous immunoglobulin (IVIG) are first-line treatment options [4].

Objective

- To study the clinical outcome in cases presented with thrombocytopenia

MATERIALS & METHODS

The study was a retrospective observational study, carried out in the R L Jalappa hospital, Kolar. Status of women who had presented to R L Jalappa hospital at various gestational age with platelet count of $<150 \times 10^9/L$ and delivered either vaginally or by cesarean section between January 2025 and MARCH 2025 after taking exclusion and inclusion criteria into consideration. Following details were noted which included clinical history, examination, investigations and treatments were reviewed and obtained.

Inclusion Criteria:

- Women who gave birth to a singleton baby
- Pregnant women with platelet count of $<150 \times 10^9/L$

Exclusion Criteria:

- Women with platelet count $>150 \times 10^9/L$

Case Series

Case -1 : A 18 year old Primigravida with 39 weeks 4days gestation with cephalic presentation with pre-eclampsia and thrombocytopenia presented with increased BP readings with vitals of BP-150/100mmHg PR- 94bpm, investigations were sent and reported as Hb-11.2g/dl and Plt- 110 Th/mm³. On per abdomen examination- uterus term size , cephalic presentation, 1C/10"/10' , FHR resent. On per vaginal examination , cervix 1 cm dilated , 2.5 cm long cervix , soft , Ppvx at -2 station. Patient was induced in view of pre-eclampsia and underwent Emergency LSCS in view of Cephalopelvic disproportion in active labour and delivered a single live term male baby of birth weight 3.42Kgs at 12:39 AM on 18/12/2024. Post delivery vitals were stable. Post operative investigations sent and reported as Hb- 9.6g/dl, Plt- 177 Th/mm³. Puerperium period was uneventful.

Case-2

A 39year old G4P1L1A2 with 35 weeks 1 day gestation with cephalic presentation with previous caesarean section with preeclampsia and thrombocytopenia presented with complaints of pain abdomen in latent labour. Vitals were stable on arrival, investigations were sent and reported as thrombocytopenia with Plt- 105 Th/mm³. On per abdomen examination- uterus term size , cephalic presentation, 2C/25"/10' , FHR present. On per vaginal examination , cervix 2 cm dilated , 2 cm long cervix , PPVx at -2 station. She had Emergency LSCS in view of previous caesarean section in preterm labour and delivered a single live term female baby of birth weight 1.82Kg at 7:31 PM on 29/12/24. Post delivery vitals were stable. Patient was started on antihypertensive drugs and tapered accordingly. Discharge time investigations reported as Hb-9.8g/dl and Plt- 201 Th/mm³. Puerperium period was uneventful.

Case-3

A 30 year old G3P1L1A1 with 36 weeks 6 days gestation with cephalic presentation with previous caesarean section with PROM more than 28 hours prior to admission with thrombocytopenia. Vitals were stable on the time of admission, investigations were sent and reported as thrombocytopenia as Plt- 98 Th/mm³. On per abdomen examination-uterus term size , cephalic presentation, 1C/20"/10' , FHR present. On per vaginal examination , cervix 1cm dilated , 2cm long , Ppvx at -1 station. Patient did not give any history of fever or any documentation of previous investigations with thrombocytopenia. She underwent Emergency LSCS in view of previous caesarean section with PROM and delivered a single live female baby of birth weight 2.96 kgs at 12:55PM on 13/01/2025. Baby cried immediately after birth , baby shifted to NICU introduction view of respiratory distress. Post delivery vitals were stable and investigations repeated and reported as follows Hb- 11.2g/dl and Plt- 125 Th/ mm³. Serial platelet monitoring showed gradual increase in platelet count. Puerperium period was uneventful.

Case-4

A 21 year old Primigravida with 39 weeks 5 days gestation with cephalic presentation with bicytopenia (anemia and thrombocytopenia) in latent labour. Vitals were stable on the time of admission, investigations were sent and reported as Hb-8.5g/dl and Plt-89 Th/mm³. On per abdomen examination- uterus term size , cephalic presentation, 2C/20"/10' , FHR present. On per vaginal examination cervix 3cm dilated, 1cm long, soft, mid position. She gave history thrombocytopenia since 8 months of amenorrhea and previous investigations showing platelet count of 80-90 Th/mm³. She had syntocin augmented vaginal delivery of a single live term male baby of birth weight 2.9 kgs at 8:42 AM on 19/01/2025. Post delivery vitals were stable. At discharge time Plt reported to be 189 Th/mm³ and Hb as 8.6/dl. Patient was advised to take iron supplements and advised for parenteral iron sucrose infusion. Puerperium period was uneventful.

Case-5

A 22 year old G2P1L1 with 37weeks 5days gestation with cephalic presentation with previous caesarean section in latent labour. Patient gave a history of fever since 1 week and investigations revealed Platelet count to be 110 Th/mm³ Dengue, Malaria, leptospirosis tests reported negative and patient underwent Emergency LSCS and delivered a single live term Male baby of birthweight 1.64 Kg at 1:48 AM on 4/01/25. Post delivery vitals were stable. Conservative management for fever was given and repeat investigations reported to be Platelet as 201 Th/mm3. Puerperium period was uneventful.

Case-6

A 30 year old Primigravida with 35weeks gestation with cephalic presentation with thrombocytopenia in preterm labour, referred from SNR government hospital in view of thrombocytopenia. Relevant investigations sent and Hb reported as 12.6gm% and Platelets 51 Th/mm3. Physician opinion has taken in view of low platelet count and advised for Inj. Dexamethasone 40mg in 100ml Normal saline over 1 hour. Patient had a spontaneous preterm vaginal delivery of a single live term female baby of birth weight 2.24kg at 10:13am on 24/2/2025. Baby cried immediately after birth.

Post delivery investigations reported as Platelet 60 Th/mm3. Puerperium period was uneventful. Discharge time investigations reported Platelet as 108 Th/mm³.

Case-7

A 20 year old Primigravida with 38weeks gestation with cephalic presentation with gestational Thrombocytopenia in latent labour. She presented with complaints of pain abdomen and previous investigations showing thrombocytopenia of 100 Th/mm3. On admission vitals were stable and no history of fever or increased BP readings was noted. On admission investigations were sent and Platelet reported to be 96 Th/mm³. She had an Emergency LSCS in view of Cephalopelvic disproportion in labour and delivered a single live term male baby of birthweight 3.08 Kg at 5:25PM on 14/03/25. Post delivery vitals were stable. Investigations repeated and Platelet reported to be 145 Th/mm3 during the time of discharge.

Case-8

A 31 year old Primigravida with 32weeks 4days gestation with cephalic presentation with intrauterine fetal demise with abruptio placenta and pre eclampsia with partial HELLP syndrome. Relevant investigations sent and Hb is reported as 7.9 gm%, Plt- 51 Th/mm3 and LDHi- 1000U/L. One pint PRBC and Two pints platelets transfused on 28/03/2025. Patient had a Misoprostol induced vaginal delivery of a single DEAD FEMALE baby of weight 1.2kgs at 6:30 am on 29/03/25. Retro placental clots of 400 gm noted. Tab cabergoline 0.5mg stat given and breast binding advised. Repeat investigations were sent and Hb reported as 10.9 g/dl, Plt as 111 Th/mm3 at the time of discharge. Puerperium period was uneventful.

Gra vida	Gestati on	Admissi on platelet	Mode of delivery	Associated condition	Dischar ge platelet	Neonatal outcome
Prim i	39week s 4days	110 Th/ mm3	LSCS	Pre eclampsia	177 Th/ mm3	Healthy
G4P 1L1 A2	35week s 1day	105 Th/mm3	LSCS	Previous LSCS Pre eclampsia	201 Th/mm3	Healthy
G3P 1L1 A1	36week s 6days	98 Th/mm3	LSCS	Previous LSCS	125 Th/mm3	Healthy
Prim i	39week s 5days	89 Th/mm3	FTVD	Bicytopenia	189 Th/mm3	Healthy
G2P 1L1	37week s 5days	110 Th/mm3	LSCS	Previous LSCS Fever	201 Th/mm3	Healthy
Prim i	35week	51 Th/mm3	PTVD		108 Th/mm3	Healthy
Prim i	38week	100 Th/mm3	LSCS		145 Th/mm3	
Prim i	32week s 4days	51 Th/mm3	PTVD	Abruptio Pre eclampsia	111 Th/mm3	IUD

RESULTS :

8cases of thrombocytopenia in pregnancy due to various causes have been discussed. Out of which 3 cases were pre-eclampsia associated, 1 case of likely ITP, other 4 cases of isolated gestational thrombocytopenia. For the case with ITP, treated with corticosteroids showed improvement in platelet count. For those with gestational Thrombocytopenia showed improvement post delivery and observed by serial platelet monitoring. There were 2 cases of bicytopenia with anemia and thrombocytopenia, one required platelet and PRBC transfusion due to abruptio placenta but the other was monitored and did not require transfusion but showed improvement post delivery.

CONCLUSION:

Gestational thrombocytopenia is the most common cause of thrombocytopenia in pregnancy. Immune thrombocytopenic purpura is always a diagnosis of exclusion [1]. A thorough history and physical

examination rules out most causes. In blood remainder of CBC and peripheral smear will help us to rule out other causes such as pancytopenia and platelet clumping associated with pseudothrombocytopenia [3]. Close observation of the clinical course and response to treatment is critical to establishing the correct diagnosis, which has both immediate treatment implication and potential impact on the management of future pregnancies[4]. An accurate diagnosis and risk assessment in the antenatal period are essential for developing specific plans for any antenatal interventions and for management of delivery and the postpartum periods and the neonate[1].

DISCUSSION:

The study showed that cases with gestational Thrombocytopenia showed improvement in platelet count without any intervention postnatally. Usually no risk noted for baby or mother. In this study no complications related to anesthesia were also observed. In these cases a platelet count should be obtained before epidural anesthesia, in most of the guidelines reference value is around 75,000-80,000/mm³ for providing anaesthesia[3].

Singh et al reported gestational thrombocytopenia for Majority of cases of thrombocytopenia in pregnancy (50%) followed by hypertensive disorders (22.4%). It was further followed by ITP (11.11%) and dengue (5.5%) [8].

Interventions this study 5 cases underwent LSCS while 3 cases delivered vaginally. No fetal thrombocytopenia noted in these 8 cases.

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