

**Idiopathic Thrombocytopenic Purpura in Pregnancy: A Case Report**

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**Abstract:** Immune thrombocytopenic purpura (ITP) (platelet count less than  $150 \times 10^9/L$ ) is an autoimmune disorder characterized by persistent thrombocytopenia due to antibody mediated premature destruction of platelets. ITP occurs in 1 to 2 of every 1000 pregnancies, which in the United States. This case study describes two thrombocytopenic pregnant mothers who were first time clinically diagnosed ITP during pregnancy and successfully managed with good maternal and foetal outcome.

**Keywords:** Thrombocytopenia in pregnancy.

**INTRODUCTION**

Thrombocytopenia is defined as a platelet count less than  $150 \times 10^9/L$ . Immune (idiopathic) thrombocytopenic purpura (ITP) is an autoimmune disorder characterized by persistent thrombocytopenia due to antibody mediated premature destruction of platelets by the reticulo-endothelial system, particularly in the spleen. The American Society for Haematology guidelines [1] define ITP as “isolated thrombocytopenia with no clinically apparent associated conditions or other causes of thrombocytopenia.” Therefore, ITP is a condition generally diagnosed by exclusion of the numerous other causes of thrombocytopenia, such as infections, medications, haematological malignancies, disseminated intravascular coagulation, and other autoimmune conditions.

In ITP, persistent thrombocytopenia is seen in otherwise normal full blood count [2]. When ITP persists for more than 6 months it is called chronic ITP [3].

It is estimated that thrombocytopenia occurs in approximately 7% of pregnant women, with 74% of those with low platelet counts having incidental thrombocytopenia of pregnancy that can be managed routinely and in which the platelet count remains more than  $70 \times 10^9/L$  [4]. Additional causes of thrombocytopenia include complications of hypertensive disorders in pregnancy (21%) and immunological disorders of pregnancy, including ITP, systemic lupus erythematosus, and other secondary causes of immune thrombocytopenia (4%) [4].

ITP occurs in 1 to 2 of every 1000 pregnancies, which in the United States represents about 3000 to 6000 cases of ITP in pregnancy per year [5]. Several studies have examined pregnancy outcomes for women with ITP and found that most pregnancies were uneventful, with successful outcomes for both mothers and children [6–8].

Pregnancy represents a challenge in the management of ITP where foetal considerations, safeguarding haemostatic requirements of invasive procedures like regional anaesthesia and delivery, and

the familiarity with managing pregnancy-related diseases are added concerns exclusively encountered during pregnancy. Furthermore, occasionally there is limited time to dwell on detailed investigations or even to have adequate treatment response as with women presenting in labour and imminent delivery rendering urgent yet proper management difficult in some cases.

This case study describes two thrombocytopenic pregnant mothers who were first time clinically diagnosed ITP and successfully managed with good maternal and foetal outcome.

**CASE 1**

A 23 year old primi gravida pregnant mother with gestational diabetes mellitus on metformin 250 mg tds presented on 39 weeks and 2 days of pregnancy for planned delivery. She complained gum bleeding with brushing, but no any other bleeding manifestations. There was no significant past and family history of bleeding disorder.

General examination was normal and there were no clinical evidence of spontaneous bleeding such

as petichiae. Blood pressure was 110/80 mmHg. Spleen was not palpable. Obstetric examination revealed uterine size corresponding to her gestational age with single live foetus in utero presenting by cephalic presentation.

On investigation: Hg-13.5 mg/dl, WCC-16.16, Platelet count- $6 \times 10^9/l$ . The Blood picture showed normochromic normocytic red cells, no red cell fragmentation and no clumps but marked thrombocytopenia was seen. Reticulocyte count was 2.2 %, PT/INR-1.08.

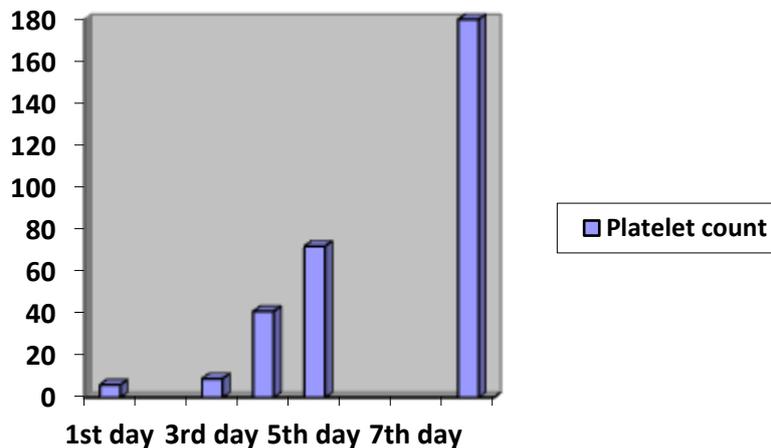
In the case of severe thrombocytopenia ITP was suspected and patient was treated with IV Immunoglobulin 1g/kg stat dose and oral prednisolone 0.5mg/kg (for pre pregnancy body weight) with supportive drugs.

Normal vaginal delivery was aimed in the absence of any obstetric complications and target

platelet count was maintained more than  $50 \times 10^9/L$ . on 5<sup>th</sup> day after admission, patient developed spontaneous onset of labour and delivered vaginally without any complications. There was no postpartum haemorrhage. It was a baby boy with the birth weight of 2.6kg and neonatal examination was normal. However the Baby was closely monitored for evidence of thrombocytopenia which showed initial count of  $20 \times 10^9/L$ .

The baby was treated with oral prednisolone 5mg/kg and repeated counts showed dramatic improvement of platelet count.

Patient was discharged on 4<sup>th</sup> post-partum day with oral prednisolone 25mg for 2 weeks and planned to follow up in haematology clinic. In puerperal period, maternal platelet count was repeated which showed dramatic improvement with value of  $180 \times 10^9/L$  on 8<sup>th</sup> day with continuous treatment.



## CASE 2

A 34 year old primigravida transferred from local hospital at her POA of 39 weeks and 5 days with thrombocytopenia ( $32 \times 10^9/L$ ). It was detected on routine full blood count check done when a pregnant mother is admitted for confinement. Upon admission she complained mild abdominal pain, bilateral upper limb and lower limb swelling, but no any bleeding manifestations. She did not complain of any pre-eclamptic symptoms.

General examination revealed bilateral upper limb and lower limb oedema. There were no petichiae. Her blood pressure was 110/70 mmHg. Spleen was not palpable. Obstetric examination revealed uterine size corresponding to her gestational age and single live foetus in presenting by cephalic presentation.

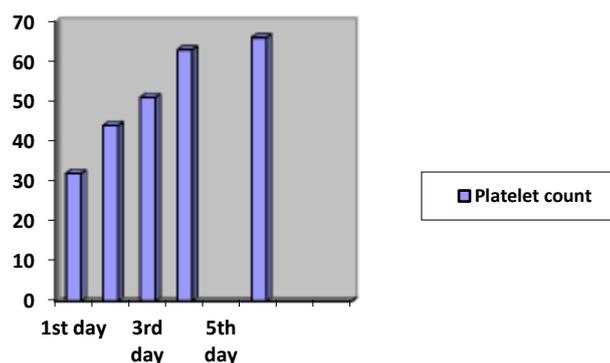
Her Investigation showed: Hg-13.2, WCC-16.2  $\times 10^3$ /platelet count-  $32 \times 10^9/L$ . The blood picture

showed normocytic normochromic red cells and marked thrombocytopenia.

Haematologist opinion was sought and ITP was suspected. 5 units of platelet transfusion were given. Even after platelet transfusion it doesn't show improvement in platelet count ( $40 \times 10^9/L$ ). on 2<sup>nd</sup> day, patient had spontaneous onset of labour and sent to labour suite. In labour suite another 5 units of platelet transfusion was given and platelet count was increased only by  $4 \times 10^9/L$ . Emergency LSCS was done under general anaesthesia on the same day due to poor progression of 1<sup>st</sup> stage of labour. Good haemostasis was achieved during surgery and total blood loss was around 500ml. patient was and transferred to intensive care unit for further management.

## Baby was admitted in SCBU

Patient was discharged with platelet count of  $66 \times 10^9/L$  on 6<sup>th</sup> post-partum day and planned to follow up in haematology clinic.



## DISCUSSIONS

As in the non-pregnant state, the diagnosis of ITP is a clinical diagnosis of exclusion. While no absolute value of the platelet count below which gestational thrombocytopenia can be excluded has been defined, the American Society of Haematology (ASH) as well as the British Committee for Standard in Haematology General Haematology Task Force (BCSH) suggest that at platelet counts below 70,000/ $\mu$ l or 80,000/ $\mu$ l, respectively, gestational thrombocytopenia becomes increasingly less likely and other causes of thrombocytopenia should be more strongly considered [1,9]. Furthermore, since many patients with apparent incidental thrombocytopenia have elevated levels of platelet-associated IgG, platelet antibody tests do not differentiate these syndromes [10]. In a large study utilizing the monoclonal antibody-specific immobilization of platelet-antigens (MAPA) assay, less than 7% of thrombocytopenic pregnant women were found to have autoantibodies, and there was no significant difference in the prevalence of autoantibodies between thrombocytopenic and non-thrombocytopenic pregnant women [11-13].

The most useful means of differentiating these syndromes is, by definition, the antenatal history [14, 15]. But in this study, both of them had no significant past medical history. A history of prior thrombocytopenia, underlying autoimmune disease or severe thrombocytopenia (< 50,000/ $\mu$ l) makes the diagnosis of ITP more likely. In the absence of a platelet count prior to pregnancy, significant thrombocytopenia in the first trimester, with a declining platelet count as gestation progresses, is most consistent with ITP. In contrast, mild thrombocytopenia developing in the second or third trimester and not associated with hypertension or proteinuria most likely represents incidental thrombocytopenia [16].

In this study, both mothers had severe thrombocytopenia diagnosed in 3<sup>rd</sup> trimester. There were no significant past medical and family history. In the 1<sup>st</sup> case, mother well responded to ITP treatment

regimen and platelet count showed dramatic improvement. In the 2<sup>nd</sup> case mother was treated with platelet transfusion because of unavailability of time to start standard treatment regimen of ITP in which steroids need considerable time to act.

However, some of the more severe cases of gestational thrombocytopenia cannot be reliably distinguished from mild cases of ITP, as platelet counts in these two disorders overlap and patients with either disorder may be otherwise asymptomatic [17].

Laboratory investigation of the pregnant patient with suspected ITP should include a complete blood count with platelet count. Examination of the peripheral blood film is essential to exclude not only pseudo thrombocytopenia, but other thrombocytopenic disorders such as TTP or preeclampsia, in which the peripheral blood film may reveal increased numbers of fragmented red cells [18].

Other studies that should be considered include liver enzyme tests, urinalysis. Bone marrow examination is not recommended unless other hematologic abnormalities or unusual findings on physical examination are identified. As in non-pregnant individuals, a lack of response to standard ITP therapy in a pregnant patient with thrombocytopenia should prompt consideration of a bone marrow examination

Management of ITP in pregnancy can be a complex and challenging task, and may be complicated by foetal/neonatal thrombocytopenia.

The first line of treatment in ITP is corticosteroid therapy [19, 20]. Maternal platelet antibody can cross the placenta and induce neonatal thrombocytopenia; in this case study one baby developed marked thrombocytopenia, (platelet count - 20,000/ml) however, as seen in previous studies, there was no serious hemorrhagic complication, such as intracranial haemorrhage [21-25].

Maternal platelet count cannot predict neonatal platelet count, which can be obtained through foetal scalp sampling during labour or by percutaneous umbilical blood sampling (PUBS) prior to delivery. These two procedures are invasive, fraught with complications such as foetal scalp hematoma or foetal bradycardia, and not considered necessary [26]. If neonatal thrombocytopenia does occur it is diagnosed and managed postpartum. Because of the risk of maternal and/or foetal haemorrhage, choosing the ideal route of delivery in women with ITP has been a matter of debate during the previous decades. Traditionally, most of these mothers were delivered by caesarean section however there are no data to support the superiority of caesarean section in lowering the risks for the thrombocytopenic foetus as compared to vaginal delivery [19, 26, 27].

In his case study, one mother underwent caesarean section for obstetric indications, and not because of thrombocytopenia. While performing the caesarean section with a platelet count of 44000/ml, there was no profuse bleeding and good haemostasis was achieved.

#### **CONCLUSION**

ITP is an uncommon, but important cause of thrombocytopenia in pregnancy. Though most commonly presenting in the first trimester, ITP may present at any point during gestation.

The diagnosis of ITP in pregnancy is complicated by a wide differential diagnosis that includes several other disorders that can cause thrombocytopenia in this setting. Gestational or "incidental" thrombocytopenia remains the most common cause of thrombocytopenia in pregnancy, accounting for approximately 75% of cases, and may be impossible to distinguish from mild ITP. However, gestational thrombocytopenia is not associated with adverse maternal or foetal outcomes. Preeclampsia, the HELLP syndrome, and TTP/HUS are other disorders that may cause thrombocytopenia in pregnancy. These disorders are generally not difficult to distinguish from ITP, but in some individuals the presenting feature may be thrombocytopenia, and thus these disorders should be considered in any pregnant patient with a low platelet count. Meticulous attention to accurate diagnosis of these disorders generally allows them to be separated from ITP, and is critical for their successful management.

Though ITP is associated with a significant incidence of neonatal thrombocytopenia, it is generally not associated with major morbidity if properly managed. IVIg and low-dose corticosteroids comprise the mainstays of treatment in ITP, but high doses of corticosteroids or prolonged corticosteroid therapy are associated with significant toxicity in the pregnant patient and should be avoided. Despite the development

of severe thrombocytopenia in approximately 5-10% of the offspring of patients with ITP, the incidence of neonatal intracranial haemorrhage in these individuals is extremely low. Thus, invasive procedures for establishing the foetal platelet count are associated with a degree of risk that likely exceeds that of foetal intracranial haemorrhage, and are not indicated in most cases. Moreover, delivery by caesarean section has not been shown to decrease the risk of neonatal intracranial haemorrhage compared to vaginal delivery, and thus the mode of delivery in pregnant patients with ITP should be solely dictated by obstetric factors.

We conclude that a safe outcome of pregnancy in women with ITP requires teamwork between haematologists, obstetricians and neonatologists.

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