

# Immune Thrombocytopenia Purpura during Pregnancy: A Case Report

Vidya Saraswati Putri Duarsa<sup>1</sup>, I Komang Yogi Arta Suarlin<sup>2</sup>, I Gusti Mayun Surya Darma<sup>3</sup>

<sup>1</sup>General Practitioner, Wangaya Regional General Hospital, Denpasar, Indonesia

<sup>3</sup>Obstetrician & Gynecologist, Wangaya Regional General Hospital, Denpasar, Indonesia

**Abstract:** *Immune thrombocytopenia purpura (ITP) is an autoimmune disorder characterized by autoantibody binding to platelet antigens causing premature platelet destruction by the reticuloendothelial system, particularly the spleen. The prevalence thrombocytopenia in pregnancy between 7% and 12% of all pregnant women. There are many causes of thrombocytopenia in pregnancy. A 21 years old female primigravida at 41 weeks came to the emergency obstetrics and gynecology department with a vaginal discharge of clear fluid, with no uterine contractions or bleeding since 4 hours prior and active fetal movement. Regarding her history since childhood, she had epistaxis and bruises. From physical examination was within normal limit. The obstetric examination revealed her fundal height was 2 fingers below xiphoid process, fetal heart rate was 148 x/minutes, the spleen and liver had normal size. The vaginal toucher examination showed one finger of cervical opening, 25 percent dilatation of cervical, and slightly blood slime. Lakmus test was positive. Her hematological examination revealed that leucocyte 9.330/ $\mu$ L, erythrocyte 4.460/ $\mu$ L, hematocrit 40.1%, platelet count 18.000/ $\mu$ L, Hemoglobin 13.4 g/dl, bleeding time 2 min and clotting time 12 min of blood. Peripheral blood smear test revealed platelet count is decreased with some giant platelets, the morphology of erythrocyte and leucocyte was normal. The patient was diagnosed with immune thrombocytopenia purpura and premature rupture of the membrane in pregnancy. During hospitalization, She was transfused with platelet concentrates and treated with amoxicillin and methylprednisolone. Immune thrombocytopenia purpura (ITP) is the problem hematological abnormality occurring during pregnancy. Corticosteroid is the most commonly used first-line therapy to stop further destruction of platelets. ITP in pregnancy requires monitoring and may need treatment to improve platelet counts for delivery.*

**Keywords:** Immune Thrombocytopenia Purpura, Pregnancy

## 1. Introduction

Thrombocytopenia is a common hematological abnormality in pregnancy is defined by a platelet count of less than 150.000/ $\mu$ L. Thrombocytopenia is the disorder caused by increased platelet destruction or decreased platelet production. In pregnancy, most cases are because of increased platelet destruction, which can be caused by an immunologic impairment, abnormal platelet activation, or platelet consumption that is a result of excessive bleeding or exposure to abnormal vessels.<sup>2</sup> The prevalence thrombocytopenia in pregnancy between 7% and 12% of all pregnant women.<sup>1</sup> There are many causes of thrombocytopenia in pregnancy. Some of them, are unique to pregnancy, such as gestational thrombocytopenia, preeclampsia, and HELLP (hemolysis, elevated liver function tests, low platelets) syndrome. While the cause other of thrombocytopenia in pregnancy that may occur in non-pregnant conditions are immune thrombocytopenia purpura (ITP), systemic lupus erythematosus (SLE), antiphospholipid antibodies syndrome (APLA), or bone marrow dysfunction.<sup>2</sup> Approximately, among women with thrombocytopenia in pregnancy, 1% to 4% of them have primary immune thrombocytopenia purpura (ITP).<sup>3</sup>

Immune thrombocytopenia purpura (ITP) is an autoimmune disorder characterized by autoantibody binding to platelet antigens causing premature platelet destruction by the reticuloendothelial system, especially the spleen.<sup>12</sup> ITP is common in women of reproductive age and affects women in 1–2 of every 1000 pregnancies. It can occur in any trimester but generally, platelet counts start to decline in early pregnancy then continue to decline until delivery.<sup>4</sup>

Unlike most pregnancy-related thrombocytopenia, which is usually mild, ITP can have devastating consequences for mother, fetus, and neonate.<sup>3</sup> Maternal concerns with ITP relate to bleeding risks particularly at the time of delivery. Fetal concerns relate to maternal antiplatelet antibodies crossing the placenta causing neonatal thrombocytopenia with a risk of a cerebral hemorrhage.<sup>4</sup>

Here we present a case report of 21 years old female primigravida with Immune thrombocytopenic purpura (ITP) diagnosed in pregnancy.

## 2. Case Report

A 21 years old female primigravida at 41 weeks came to the emergency obstetrics and gynecology department with a vaginal discharge of clear fluid, with no uterine contractions or bleeding since 4 hours prior, and active fetal movement. She didn't complain of shortness of breath, chest pain, palpitation, fatigue, blurred vision, epigastric pain, and history of seizures. There was no history of disease such as hypertension, diabetes mellitus, allergies. Regarding her history since childhood, she had epistaxis and bruises, but she had no purpuric spot or gum bleeding. The family members didn't have the same illness as her. She didn't do a routine antenatal journey and never do the laboratory examination during pregnancy.

From the physical examination, the patient looked well, with a blood pressure of 120/80 mmHg, a pulse of 88 x/minutes, respiratory rates of 20 x/minutes, and axillary temperature of 36.1 °C. The lymph node was within the normal limit. The obstetric examination revealed her fundal height was 2

fingers below xiphoid process, fetal heart rate was 148 x/minutes, the spleen and liver had normal size. The vaginal toucher examination showed one finger of cervical opening, 25 percent dilatation of cervical, and slightly bloodslime. Lakmus test was positive. The results of fetal health assessment were normal. Her hematological examination revealed that leucocyte 9.330/ $\mu\text{L}$ , erythrocyte 4.460/ $\mu\text{L}$ , hematocrit 40.1%, platelet count 18.000/ $\mu\text{L}$ , Hemoglobin 13.4 g/dl, bleeding time 2 min and clotting time 12 min of blood. Peripheral blood smear test revealed platelet count is decreased with some giant platelets, the morphology of erythrocyte and leucocyte was normal. Her baselineliver and renal functions, viral markers, and other laboratory evaluation were within normal limits.

Based on anamnesis, physical examination, and laboratory results, the patient was diagnosed with immune thrombocytopenia purpura and premature rupture of the membrane in pregnancy.

The management for premature rupture of the membrane was followed by administering amoxicillin 500 mg every 8 hours orally and then administering intravenous Ringer Laktat. She has transfused five units of platelet concentrates for severe thrombocytopenia. During the third transfusion, she complained of intermittent contractions. The abdominal examination revealed adequate contractions, fetal heart rate was 140 x/minutes. The vaginal toucher examination showed 4 cm of cervical opening, 50 percent dilatation of cervical, head palpable, Hodge II, there was no palpable of small part or umbilical cord. After the fifth transfusion, platelet levels reached 70.000/ $\mu\text{L}$  and two hours later she entered the second stage of labor.

She delivered a male baby weighted 2800 gram, Apgarscores 7-8, and had mild postpartum hemorrhage, which was managed medically. The baby had normal platelet counts on day one and day three of delivery. She continued platelet concentrates transfusion treatment until the platelet reaches over 100.000/ $\mu\text{L}$  and the patient was treated with methylprednisolone every 12 hours (62, 5mg) intravenous. She was discharged in a good condition three days after the vaginal delivery and platelet levels reached 97.000/ $\mu\text{L}$ .

### 3. Discussion

Thrombocytopenia is the second problem after anemia as a common hematological abnormality occurring during pregnancy and is observed in approximately 8-10% of pregnancies.<sup>1</sup> There are various causes of thrombocytopenia in pregnancy, and some are associated with significant maternal or fetal morbidity and mortality. As ITP is a diagnosis of exclusion, it is therefore advisable to consider all causes of thrombocytopenia, as management is different depending on the cause.<sup>5</sup>

Immune thrombocytopenia purpura (ITP) occurs in 0.1-0.2% of all pregnancies and is responsible for 5% of all cases of thrombocytopenia diagnosed in pregnancy. Of a few cases of primary immune thrombocytopenia, about two-third of patients have pre-existing disease and the remaining one-third are diagnosed for the first time during

pregnancy.<sup>1</sup> Based on the criteria of the American Society of Hematology in 2011, the diagnosis of ITP can be made based on the history according to thrombocytopenia without other constitutional symptoms, such as weight loss and bone pain, in the absence of hepatosplenomegaly and lymphadenopathy. Patients may present with epistaxis, bruising, purpura, gum bleeding, or sometimes may be asymptomatic. These signs and symptoms are by the patient's condition.<sup>9</sup>

Thrombocytopenia is classified as mild with a platelet count of 100.000-150.000/ $\mu\text{L}$ , moderate with 50.000-100.000/ $\mu\text{L}$ , and severe with less than 50.000/ $\mu\text{L}$ . ITP is characterized by persistent thrombocytopenia (platelet count <100.000/ $\mu\text{L}$ ) without abnormalities in erythrocyte and leukocyte, with or without peripheral giant platelets, absence of splenomegaly and exclusion of systemic diseases or drugs that are known to cause thrombocytopenia.<sup>8</sup> The platelet count in this patient was 18.000/ $\mu\text{L}$  that indicates severe thrombocytopenia and peripheral blood smear test in this patient revealed the platelet count is decreased with some giant platelets.

The management of ITP in pregnancy requires close collaboration between the obstetrician, internist, and neonatologist. Upon diagnosis, the severity of thrombocytopenia should be ascertained, and platelet counts should be increased and stabilized to a safe level in pregnancy.<sup>5</sup> ITP is not an indication for cesarean delivery. Uncomplicated vaginal delivery has been reported even in several ITP cases with platelet counts 20.000-50.000/ $\mu\text{L}$ . However, patients with platelet count less than 50.000/ $\mu\text{L}$  are at risk of life-threatening bleeding during vaginal delivery. Various treatment combinations of platelet transfusion, steroid, IVIG, or splenectomy can be used to reach the optimal platelet count. Prophylactic platelet transfusions are not usually recommended in ITP patients. In clinical practice, however, physicians often perform platelet transfusion for patients with ITP right before delivery.<sup>7</sup>

The American Society of Hematology (ASH) and the British Committee for Standards in Hematology (BCSH) guide what is considered a safe platelet level for delivery and procedures, as well as when to institute treatment. The ASH suggests a safe platelet count of at least 50.000/ $\mu\text{L}$  for both vaginal delivery and cesarean section. The BCSH suggests a safe platelet count of at least 50.000/ $\mu\text{L}$  and 80.000/ $\mu\text{L}$  for vaginal delivery and cesarean section respectively. A minimum platelet count of 80.000/ $\mu\text{L}$  is considered safe for epidural analgesia. With regards to peripartum management in patients with ITP, the risk of maternal hemorrhage is minimized by ensuring minimum platelet counts required for vaginal delivery.<sup>11</sup> In this case, the patient had a safe platelet count for vaginal delivery.

The clinical management of pregnancy-related ITP requires corticosteroids to stop further destruction of platelets. At least 80% of patients with ITP initially respond to corticosteroids, although most of these individuals relapse when steroids are tapered. This patient was given methylprednisolone 62, 5 mg every 12 hours after delivery. Alternatively, Intravenous immunoglobulin (IVIg) can be considered as first-line therapy for pregnancy-associated ITP, especially when therapy is needed for a shorter

duration, as it is less likely to induce toxicities such as hypertension. However, IVIg is an expensive mode of treatment and it was not given to any of our patients because of cost-related issues.<sup>10</sup>

The platelet destruction in ITP is mediated by immunoglobulin G antibodies, which can cross the placenta and may impact the fetus and neonate. Neonatal thrombocytopenia occurs in 8.9% to 14.7% of women with ITP. Although platelet count, platelet-associated antibodies, and a history of splenectomy do not correlate with the risk or degree of neonatal thrombocytopenia, neonates born to mothers with newly diagnosed ITP during pregnancy have a higher risk of neonatal thrombocytopenia. Intracranial hemorrhage occurs in 1.5% of infants born to mothers with ITP. No maternal treatment has been shown to decrease the risk of neonatal thrombocytopenia. Even though intravenous immunoglobulin (IVIg) and corticosteroids do cross the placenta, treatment with these has not been shown to impact neonatal platelet counts.<sup>3</sup> On the other hand, in this case, the baby had a normal platelet count and there were no congenital anomalies.

#### 4. Conclusion

Immune thrombocytopenia purpura (ITP) is the second problem after anemia as a hematological abnormality occurring during pregnancy. ITP presents (platelet count  $<100,000/\mu\text{L}$ ) persistent thrombocytopenia in the absence of other causes that may be associated with thrombocytopenia or as a secondary disorder, most commonly associated with autoimmune disease or chronic infections. Corticosteroid is the most commonly used first-line therapy to stop further destruction of platelets. ITP in pregnancy requires monitoring and may need treatment to improve platelet counts for delivery.

#### 5. Author Contribution

All authors contributed equally.

#### 6. Conflict of Interest

There is no conflict of interest in this case report.

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