

## **Emergency caesarean section with severe thrombocytopenia (8000/mm<sup>3</sup>)**

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## Case Report

### Emergency caesarean section with severe thrombocytopenia (8000/mm<sup>3</sup>)

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## ABSTRACT

Thrombocytopenia is defined as a blood platelet count below  $150,000/\text{mm}^3$ . It is the most common hemostatic abnormality in pregnancy. The risk of thrombocytopenia during pregnancy is 6-15%. The most common causes of thrombocytopenia are benign gestational thrombocytopenia (79.5%), pre-eclampsia (16%), HELLP Syndrome (2.5%), immune thrombocytopenia (1%), and HCV (1%).

In this case report, we present a 37-week pregnant woman diagnosed as immune thrombocytopenic purpura (ITP), in whom emergency caesarean was performed due to fetal distress despite platelet levels as low as  $8000/\text{mm}^3$ . A single liveborn male infant of 2560 g weight and 40 cm length with an Apgar score of 8/10 was delivered. No complications were encountered during the operation. Her platelet count returned to normal levels after steroid treatment (methylprednisolone: 2 mg/kg for three weeks and then 1 mg/kg for three weeks). The case was diagnosed with ITP.

The etiology should be determined and treatment should be planned in pregnant women with thrombocytopenia. With failure to act promptly and accurately, maternal and/or fetal morbidity, even mortality, may occur. In the literature, it is rare to perform caesarean, even any surgery, in cases with a platelet count below  $10,000/\text{mm}^3$ . In this study, we aimed to show that a caesarean can be performed in cases with a platelet level of  $8,000/\text{mm}^3$  when the life of the fetus is at risk.

**KEYWORDS:** cesarean section, immune thrombocytopenic purpura, gestational thrombocytopenia

## INTRODUCTION

Thrombocytopenia is defined as a blood platelet count below  $150,000/\text{mm}^3$ . Normal pregnancy is characterized by a left shift in platelet distribution in addition to a physiologic drop in platelet count associated with increased breakdown, reduced platelet synthesis or dilutional causes. The risk of thrombocytopenia during pregnancy is 6-15%. Many thrombocytopenia cases during pregnancy present with mild-to-moderate decreases in thrombocytopenia levels. If the cutoff point for thrombocytopenia is considered as a platelet count below  $100,000/\text{mm}^3$ , this rate may decline to about 1%<sup>[1,2]</sup>.

The most common causes of thrombocytopenia are benign gestational thrombocytopenia (79.5%), pre-eclampsia (16%), HELLP Syndrome (2.5%), immune thrombocytopenic purpura (ITP) (1%), and HCV (1%)<sup>[3]</sup>.

The presence of thrombocytopenia during emergencies in pregnancy may be a serious problem. In emergency surgical patients with thrombocytopenia, the underlying cause should be determined and treated accordingly. Spontaneous hemorrhage is rarely seen in patients with platelet levels above  $10,000/\text{mm}^3$ . Surgical hemorrhage at platelet levels above  $50,000/\text{mm}^3$  often does not pose a threat. When emergency surgery is planned, platelet transfusion is recommended to elevate the platelet count above  $50,000/\text{mm}^3$ <sup>[4]</sup>.

In this case report, we present a 37-week pregnant woman in whom emergency caesarean was performed due to fetal distress despite platelet levels as low as  $8000/\text{mm}^3$ .

## CASE REPORT

The 20-year-old, primigravid patient with 37-week pregnancy presented to a healthcare center because of pain and she was referred to our hospital due to thrombocytopenia ( $19,000/\text{mm}^3$ ). The history revealed no hemorrhage.

Based on the date of last menstruation, she was 36 weeks and five days pregnant. Ultrasound examination demonstrated a living, single, 35/36 week pregnancy in a headfirst position. Vaginal examination showed a 60% effaced and 3-cm dilated cervix. According to the blood workup, Hb was 12.3 g/dl, WBC count was  $2500/\text{mm}^3$ , and platelet count was  $8000/\text{mm}^3$ . The patient was hospitalized due to a prediagnosis of pain and thrombocytopenia.

Although preparations for platelet suspension transfusion were planned, since the NST of the patient revealed severe late decelerations, emergency caesarean was performed under general anesthesia due to a diagnosis of fetal distress before transfusion was initiated. A single liveborn male infant of 2560 g weight and 40 cm length with an Apgar score of 8/10 was delivered. No complications were encountered during the operation.

The first platelet suspension transfusion was performed after the sixth hour from operation due to difficulties in providing and provision. The patient received 6 units of platelet suspension because of the CBC performed at postoperative 2-hours showing the following results: Hb, 9.9g/dl; WBC,  $3100/\text{mm}^3$ ; and platelets,  $8000/\text{mm}^3$ . Based on the follow-up test results (Hb, 10.3g/dl; WBC,  $2800/\text{mm}^3$ ; platelets,  $9000/\text{mm}^3$ ), the patient was referred to the Hematology Clinic. The bone marrow biopsy and peripheral blood smear that included schistocytes were compatible with immune thrombocytopenic purpura (ITP). Her platelet count returned to normal levels after steroid treatment that started one day later from operation (methylprednisolone: 2 mg/kg for three weeks and then 1 mg/kg for three weeks). The case was diagnosed with ITP. The patient's written consent was obtained for case report.

## DISCUSSION

Thrombocytopenia is an important clinical entity in pregnancy. With failure to act promptly and accurately, maternal and/or fetal morbidity, even mortality, may occur. Gestational thrombocytopenia is the most common thrombocytopenia seen in pregnancy. Although the exact pathogenesis is not known, it is believed to be a variant of physiologic thrombocytopenia in normal pregnancy<sup>[5]</sup>. Definitive diagnosis in gestational thrombocytopenia is achieved by ruling out other causes of thrombocytopenia. ITP should be the first disease to be eliminated in differential diagnosis.

Immune thrombocytopenic purpura, also known as idiopathic thrombocytopenic purpura, is an immune-mediated acquired disease of adults and children characterized by a transient or persistent decrease of platelet count and, depending upon the degree of thrombocytopenia, increased risk of bleeding<sup>[6]</sup>. Criteria for the differential diagnosis of ITP include occurrence of thrombocytopenia before the third trimester, presence of thrombocytopenia prior to pregnancy, platelet levels lower than  $75,000/\text{mm}^3$  and persistence of thrombocytopenia after birth.

When platelet levels drop below  $20,000/\text{mm}^3$  in pregnant women with immune thrombocytopenia, the mother is under spontaneous hemorrhage risk, while the risk of neonatal thrombocytopenia and

intracranial hemorrhage is 9-15% and 1%, respectively. These risks are not observed in pregnant women with gestational thrombocytopenia<sup>[7]</sup>.

In our case report, in the hematology clinic, bone marrow biopsy and peripheral blood smear that includes schistocytes were compatible with ITP. Echocardiography in cardiology consultation was compatible with KMP. Also, her platelet count returned to normal levels (137,000-167,000/mm<sup>3</sup>) after six week steroid treatment. Following discharge, follow-up assessments indicated no postoperative problem and she was retrospectively evaluated as a case of ITP.

The American Society of Hematology and the British Society for Haematology recommend treatment of pregnant women with severe thrombocytopenia or mild thrombocytopenia coupled with spontaneous hemorrhage. Treatment is recommended when the platelet level is below 10,000/mm<sup>3</sup> at any time of pregnancy or when the platelet level drops below 30,000/mm<sup>3</sup> during the second or third trimester of pregnancy<sup>[8]</sup>. However, in our case, thrombocytopenia was determined incidentally in emergency settings and caesarean section had to be performed without having the chance to apply any treatment beforehand.

For emergency surgical patients with thrombocytopenia, the underlying cause should be determined and the proper treatment should be started. Spontaneous bleeding is uncommon at platelet levels above 10,000/mm<sup>3</sup>. Surgical bleeding at platelet levels above 50,000/mm<sup>3</sup> often do not pose a serious problem. Platelet transfusion is recommended to increase the platelet level above 50,000/mm<sup>3</sup> in patients scheduled for emergency surgical intervention<sup>[4]</sup>.

In one case reflecting the general approach in such cases, Wood *et al* performed a successful caesarean in a pregnant ITP patient with a platelet level of 21,000/mm<sup>3</sup>, following a  $5 \times 10^{11}$  allogeneic platelet transfusion elevating the platelet level to 97,000/mm<sup>3</sup> <sup>[9]</sup>. In the literature, the number of patients receiving surgical treatment because of serious thrombocytopenia is limited due to a common perception aiming to avoid possible complications. However, successful outcomes achieved in patients with severe thrombocytopenia show that surgical intervention is also an option in emergency cases. Ashoub *et al* successfully performed a coronary artery bypass grafting in a patient with a platelet count of 19,000/mm<sup>3</sup> <sup>[10]</sup>. Incebiyik *et al* conducted a successful vaginal birth in a pregnant woman with gestational thrombocytopenia reflected by a platelet count of 7916/mm<sup>3</sup> <sup>[11]</sup>. Harde *et al* performed a successful caesarean section by intraoperatively delivering 10 units of platelets in a pregnant woman with hypocellular bone marrow and pancytopenia characterized by a platelet count of 7000/mm<sup>3</sup> <sup>[12]</sup>.

## CONCLUSION

In conclusion, the etiology should be determined and treatment should be planned in pregnant women with thrombocytopenia. With failure to act promptly and accurately, maternal and/or fetal morbidity, even mortality, may occur. If emergency surgical intervention is planned, platelet transfusion aiming to elevate the platelet count above 50,000/mm<sup>3</sup> is recommended. In the literature, it is rare to perform caesarean, even any surgery, in cases with a platelet count below 10,000/mm<sup>3</sup>. In this study, we aimed to show that a caesarean can be performed in cases with a platelet level of 8,000/mm<sup>3</sup> when the life of the fetus is at risk.

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**Authors Contribution**

Buğra Çoşkun and Selçuk Erkilinc conceived, designed and editing of manuscript

Buğra Çoşkun, did data collection and manuscript writing

Selçuk Erkilinc and A.Seval Özgü-Erdinc did review

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