

**A FALSE SENSE OF FAIR MEDICAL CONDITION IN PLACENTAL ABRUPTION AND COEXISTING PREECLAMPSIA: HAEMOCONCENTRATION**Sonay Kasapoglu Brown<sup>1\*</sup> and Simge Tezel Yozgat<sup>2</sup><sup>1</sup>Manisa City Hospital, Department of Obstetrics and Gynecology, Manisa City Hospital, Sehzadeler, Manisa, Turkey.<sup>2</sup>Izmir Katip Celebi University School of Medicine, Department of Obstetrics and Gynecology, Izmir Katip Celebi University School of Medicine, Karabaglar, Izmir, Turkey.**\*Corresponding Author: Dr. Sonay Kasapoglu Brown**

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Article Received on 16/11/2018

Article Revised on 06/12/2018

Article Accepted on 26/12/2018

**ABSTRACT**

Placental abruption, preeclampsia, and low birth weight share the same pathophysiology and belong to the group of ischemic placental diseases, potentially leading to several complications associated with maternal-foetal morbidity and mortality. Haemoconcentration in preeclampsia is a finding indicating complications related to placental pathology. In this case report, we aimed to present a case having a combination of preeclampsia, haemoconcentration, and placental abruption; which has long been not addressed in the literature.

**KEYWORDS:** Abruption placentae, blood viscosity, pre-eclampsia.**INTRODUCTION**

The placental abruption, "abruptio placentae" in Latin, is an emergency obstetric disease that begins with bleeding in the decidua basalis layer of the placenta before delivery, resulting in the separation of all or part of the placenta. The placental abruption has been associated with disseminated intravascular coagulation, hemorrhagic shock, massive blood transfusion, a requirement of an emergency peripartum hysterectomy, and acute renal failure leading to maternal morbidity and mortality. It has also been associated with foetal morbidity and mortality due to prematurity, low birth weight, and foetal asphyxia.<sup>[1]</sup> Placental abruption belongs to the group of ischemic placental diseases, including preeclampsia and low birth weight as well, sharing the same pathophysiology.<sup>[2]</sup> Haemoconcentration is considered to be a sign of placental dysfunction in preeclampsia and is associated with both fetal and maternal morbidity and mortality.<sup>[3]</sup>

**CASE REPORT**

A 36-year-old pregnant woman at the 33 weeks of gestational age, determined based on the date of the last menstruation, was admitted due to vaginal bleeding and water breaks. The medical history informed that she had previously undergone a cesarean section and has a surviving child. In the first examination, the general condition of the patient was moderately well, her body temperature was 38.6 C<sup>0</sup>, pulse was 92/min, and her blood pressure was 140/90 mmHg. The patient had a moderate level of pretibial oedema. Urinary protein was 3+ on the proteinuria scale. There was no cervical dilatation or active vaginal bleeding in the obstetric

examination. In the obstetric ultrasound examination, the amniotic fluid volume was decreased significantly, there was a single dead foetus with findings compatible with at 32 weeks of age, and anechoic structures were observed posterior to the placenta.

The patient's haemoglobin value was 10.8 g / dL (reference interval: 11-15g/dL) at the time of the first presentation. A caesarean section was performed due to the presence of the dead foetus of 32-weeks-old, and due to the diagnosis of preeclampsia, placental abruption, and the medical history of a previous caesarean section. The haemoglobin value of 12 g/dL just before the operation suggested the presence of haemoconcentration. During the caesarian section, abruption was observed in 70% of the placenta and Couvelaire uterus was seen. As the emergent atonia and haemorrhagia were controlled with 40 IU of oxytocin infusion, hysterectomy was not performed. The haemoglobin value of the patient was 9.1 g/dL in the postoperative fourth hour. As the levels of haemoglobin were evaluated incompatible relative to the amount of bleeding, two units of erythrocyte suspension and two units of fresh frozen plasma were transfused to the patient. The haemoglobin value was 7.7 g/dL after blood transfusion.

**DISCUSSION**

Placental abruption is an early separation of the placenta from the uterus before the completion of the second stage of labour. It is a rare but severe complication of pregnancy, threatening the lives of both the foetus and the mother.<sup>[4]</sup> Placental abruption belongs to the ischemic placental diseases group and shares the same

pathophysiology with other diseases in this group including preeclampsia and low birth weight. Haemoconcentration is an indicator of placental complications, probably due to an increase in the blood viscosity.<sup>[2,3]</sup>

In this present case, the higher haemoglobin value before the operation, compared to the haemoglobin level obtained at the time of admission, indicated haemoconcentration. The foetus was found dead due to the placental abruption in this 33-week pregnancy, supporting the associations between the haemoconcentration in preeclampsia and placental complications. Because of maternal vascular endothelial dysfunction triggered by abnormal placentation in preeclampsia, the fluid leaks from the intravascular space to intertissue spaces.<sup>[5,6]</sup> This situation may increase the viscosity of the blood and cause placental abruption, which has already developed abnormally.<sup>[3]</sup>

Placental abruption is an indication for emergency peripartum hysterectomy. The first step in the management of bleeding is high-dose oxytocin infusion.<sup>[7]</sup> Therefore, informed consent was obtained for hysterectomy from the patient before surgery and the surgical team was informed for the possibility of a requirement for blood transfusion and a high-dose oxytocin infusion. In this patient, Couvelaire uterus developed due to the placental abruption as observed during surgery. As the emergent atonia and bleeding were controlled by infusing 40 IU oxytocin, a hysterectomy was not performed. In addition to caesarean section; gestational hypertension, low birth weight, and premature birth are factors contributing to the risk of blood transfusion due to obstetric haemorrhage.<sup>[8]</sup> Therefore, four units of erythrocyte suspension and fresh frozen plasma were stored for this patient in this current case presentation before the operation.

Evidence of haemoconcentration was present before surgery. The placental abruption involved 70% of the plasma and Couvelaire uterus developed as observed during the caesarean section. Therefore, the amount of the blood loss was estimated > 1500 ml, therefore, two units of erythrocyte suspension was transfused to the patient although the postoperative haemoglobin level was 9.1 g/dL. The haemoglobin value was found to be 7.7 g/dL despite the transfusion of 2 units of erythrocyte suspension. This may be due to the blood returning from the intertissue spaces back to the intravascular space, resulting in haemodilution. If our patient did not receive a blood transfusion, exceedingly low haemoglobin values could be seen.

## CONCLUSION

In conclusion, in preeclampsia, haemoconcentration is an indicator of placental abruption and also indicates that these patients should be closely monitored as

haemoglobin concentrations may falsely be high enough and the blood loss is masked.

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