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Case Report

Circumvallate placenta with placental abruption in a high-risk pregnancy

Sumanjot Kaur*

Department of Obstetrics and Gynaecology, PGIMER, Chandigarh, India

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***Correspondence:**
Sumanjot Kaur,
E-mail: sumanjot83@gmail.com

ABSTRACT

Circumvallate placenta is a placental morphological variation in which the fetal membranes fold back on the fetal surface, forming a thickened, elevated ring at the placental edge. This abnormal configuration can limit the functional exchange area at the feto-maternal interface. Clinically, it has been associated with complications such as antepartum haemorrhage, preterm birth, fetal growth restriction and adverse neonatal outcomes making its recognition important in obstetric practice.

Keywords: Circumvallate placenta, Fetal growth restriction, Placental abruption, EHPVO

INTRODUCTION

Circumvallate placenta is a rare morphological abnormality of placental development in which the chorionic plate is smaller than the basal plate, resulting in a raised and folded placental margin. This extrachorial placental anomaly has been associated with adverse obstetric outcomes including antepartum hemorrhage, placental abruption, preterm labor, oligohydramnios and fetal growth restriction. The abnormal placental architecture is thought to contribute to chronic placental insufficiency and impaired uteroplacental perfusion, thereby increasing fetal and maternal morbidity.[1]

Placental abruption remains one of the most serious obstetric emergencies and is characterized by premature separation of the placenta from the uterine wall. Circumvallate placenta is considered an important predisposing factor for abruption because of defective placental implantation and marginal hematoma formation. In addition, chronic placental dysfunction associated with circumvallate placenta may compromise fetal oxygenation and nutrient transfer, leading to fetal growth restriction and abnormal fetal surveillance findings during labor.[1,2] Prenatal diagnosis of circumvallate placenta is often difficult, and many cases are identified only after delivery on placental examination. Consequently, recognition of associated clinical manifestations such as recurrent vaginal bleeding, fetal growth restriction, and signs of placental insufficiency is crucial for optimizing maternal and fetal outcomes.[1]

We report a case of circumvallate placenta diagnosed intraoperatively in a primigravida with extra-hepatic portal vein obstruction and thrombocytopenia, complicated by placental abruption and fetal growth restriction, culminating in emergency cesarean delivery for pathological cardiotocography with favorable maternal and neonatal outcomes.

CASE REPORT

A 27-year-old primigravida presented at 30 weeks of gestation to our tertiary care teaching hospital with thrombocytopenia. Upon evaluation she was diagnosed to have extra-hepatic portal vein obstruction based on

ultrasound findings of massive splenomegaly, absent flow in main portal vein, dilated splenic and superior mesenteric veins and no reversal of flow.

Figure 1: Placental membranes attaching away from the edge instead of at the edge. The rolled placental margin with inward folding of the chorionic plate is depicted with the arrows forming a circumferential ridge or ring.

Her upper Gastrointestinal endoscopy revealed grade 1 esophageal varies. Patient was started on oral propranolol. Complete hemogram and liver function tests were monitored every weekly for following trends of platelet, liver enzymes and bilirubin.

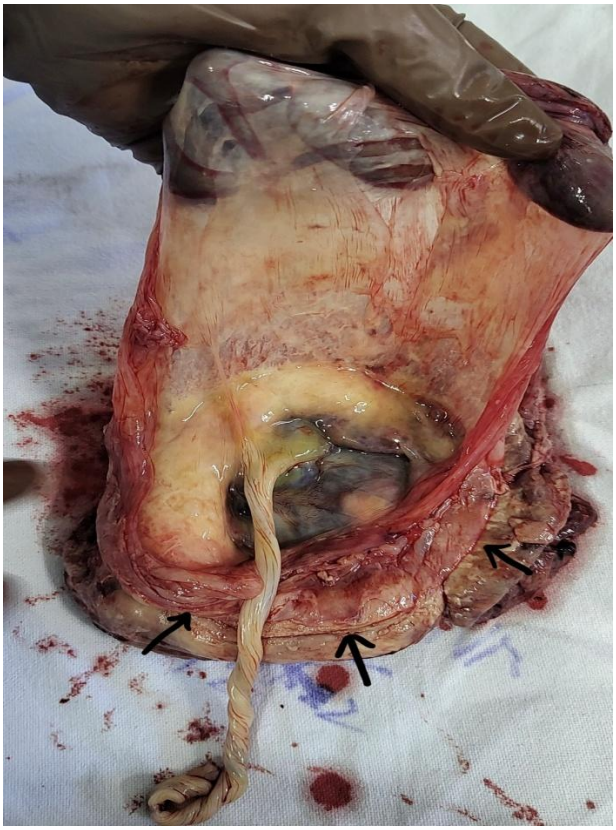

Figure 2: Fetal surface of the placenta, the chorionic plate much smaller than basal plate.

Definitive management for splenomegaly was deferred till postpartum. She underwent spontaneous onset of labor, she underwent emergency caesarean delivery for pathological cardiotocography (late decelerations in latent labor). She delivered a female child weighing 1023 grams. Intraoperatively circumvallate placenta was seen with 80 cc retroplacental clots denoting placental abruption as shown in the attached figure 1, 2 and 3 which shows a gross image of the placental membranes attach away from the edge instead of at the edge, the rolled placental margin with inward folding of the chorionic plate is depicted with the arrows forming a circumferential ridge or ring. Postoperative period was uneventful with favorable for the mother. However, the neonatal had a long tardy course in neonatal intensive care unit for 1 month. Both mother and baby however are doing well at 3 months follow-up.

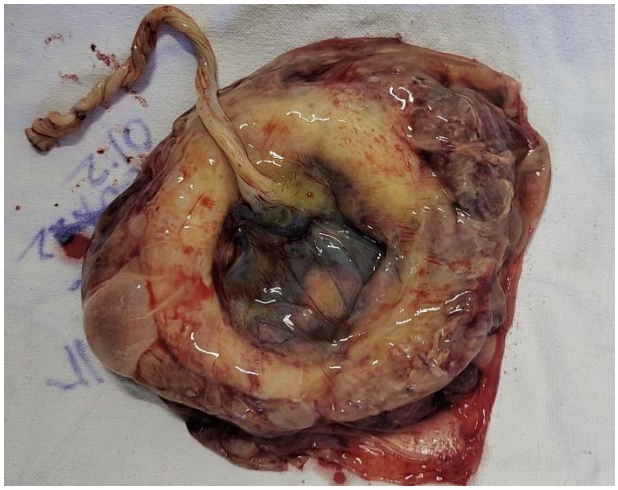

Figure 3: Gross image of circumvallate placenta.

DISCUSSION

Circumvallate placenta is an uncommon type of extrachorial placental abnormality characterized by a chorionic plate that is smaller than the basal plate, resulting in inward folding of the placental membranes at the edges. It has been reported in approximately 1-2% of pregnancies and is linked to adverse obstetric outcomes such as antepartum bleeding, preterm birth, placental abruption, and fetal growth restriction. These are thought to arise from abnormal placental development and persistent separation at the placental margins, which promote fibrin accumulation and subchorionic hematoma formation. These changes may disrupt uteroplacental blood flow, resulting in placental insufficiency and impaired fetal growth.[1,2]

Association between circumvallate placenta and placental abruption has been established in literature. Taniguchi et al reported that circumvallate placenta was linked with preterm delivery, placental abruption and fetal adverse events such as small-for-gestational-age babies and neonatal death. Suzuki et al highlighted that diagnosis of circumvallate placenta should be considered when patients present with antepartum hemorrhage and growth

restriction as they indicate ongoing placental dysfunction.[3,4]

In the present case, the intraoperative finding of circumvallate placenta with retroplacental clots was suggestive of placental abruption occurring in the setting of abnormal placentation. The coexistence of fetal growth restriction further supports the presence of chronic uteroplacental insufficiency, the weight of neonate corresponded to 5th percentile for the gestational age.

The diagnosis of circumvallate placenta before delivery remains challenging. Ultrasonographic findings may include uplifted placental edges, marginal shelves or circumferential thickened rings; however, sensitivity is low and many cases are diagnosed only after placental inspection postpartum.[5]

This case highlights the importance of considering placental abnormalities such as circumvallate placenta in patients presenting with fetal growth restriction and intrapartum fetal compromise. Early recognition and vigilant antenatal monitoring are essential to improve maternal and neonatal outcomes.

CONCLUSION

Obstetricians should maintain a high index of suspicion in pregnancies complicated by recurrent bleeding, placental abruption, oligohydramnios or fetal growth restriction not explained by fetal infections, aneuploidies or fetal anomalies.

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