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Large Placental Chorioangioma in a Monochorionic Diamniotic Twin Pregnancy: A Case Report with Prenatal Ultrasound and Histopathological Correlation

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Abstract

Background: Chorioangioma is the most common benign non-trophoblastic tumor of the placenta, typically asymptomatic and discovered incidentally. However, large or vascular chorioangiomas can lead to significant maternal and fetal complications. Twin pregnancies, particularly monochorionic diamniotic (MCDA), pose additional challenges due to shared placental circulation and increased baseline risk.

Case Presentation: We report a rare case of a 27-year-old woman second gravida with previous one abortion with a monochorionic diamniotic twin gestation, diagnosed at 27+6 weeks of gestation with a large vascular placental chorioangioma measuring 65 × 54 × 63 mm on routine anomaly scan. Color Doppler revealed prominent vascularity within the mass. One fetus exhibited a single umbilical artery and mild growth discordance. Serial ultrasonography was performed for close monitoring of fetal well-being and tumor progression. Histopathological examination post-delivery confirmed the diagnosis of chorioangioma, revealing proliferation of capillary-sized vessels within scant stroma and areas of infarction, fibrosis, and calcification.

Management and Outcome: The patient was managed conservatively with intensive antenatal surveillance. Despite the size and vascularity of the tumor, no evidence of polyhydramnios, fetal anemia, or hydrops fetalis was noted. Delivery was planned at term with multidisciplinary preparedness. Postpartum recovery was uneventful.

Conclusion: This case underscores the significance of early diagnosis and vigilant monitoring of large placental chorioangiomas in twin pregnancies. Conservative management with regular

follow-up may result in favorable outcomes even in the presence of significant placental pathology.

Keywords: Chorioangioma, Placental tumor, Monochorionic diamniotic twins, Prenatal ultrasound, Single umbilical artery, Vascular placental mass, Histopathology, Fetal monitoring.

Introduction-

Preterm labor, defined as the onset of regular uterine contractions leading to cervical changes before 37 weeks of gestation, remains a major cause of neonatal morbidity and mortality worldwide. The risk of preterm delivery is significantly heightened in multiple gestations, particularly in monochorionic diamniotic (MCDA) twin pregnancies, which are associated with unique challenges including vascular anastomoses and increased placental pathology. The presence of a structural placental anomaly such as placental chorioangioma further compounds the risk.[1]

Placental chorioangioma is the most common benign non-trophoblastic tumor of the placenta, with an incidence ranging from 1 in 9,000 to 1 in 50,000 pregnancies.[2] Although most chorioangiomas are small and clinically insignificant, large or vascularized chorioangiomas (>5 cm) may lead to serious obstetric complications, including polyhydramnios, fetal anemia, hydrops fetalis, intrauterine growth restriction (IUGR), and preterm labor. The pathophysiology primarily involves shunting of blood through the tumor, resulting in increased fetal cardiac output and secondary complications.[3]

In women with a history of spontaneous abortion, subsequent pregnancies already warrant heightened surveillance due to increased emotional stress and possible underlying reproductive or anatomical factors. When combined with a high-risk scenario such as MCDA twins and placental pathology, the pregnancy outcome depends heavily on vigilant antenatal monitoring and timely obstetric interventions.[4]

This case report describes a gravida 2 female with a monochorionic diamniotic twin pregnancy and a prior spontaneous abortion who presented with preterm labor at 27+6 weeks gestation and managed conservatively. At 34 weeks of gestation patient presented with preterm premature rupture of membranes and had preterm vaginal delivery. The clinical course was complicated by the presence of a significant placental chorioangioma. This report emphasises the importance of early detection of placental abnormalities and outlines the clinical decision-making and management strategies employed to optimize maternal and fetal outcomes.

Case report

A 27-year-old woman, gravida 2, abortion 1, presented to the obstetric emergency department with complaints of backache and lower abdominal pain since the previous night. She was at 27 weeks and 1 day of gestation according to her last menstrual period. Obstetric ultrasonography confirmed a spontaneously conceived monochorionic diamniotic twin gestation. twin A corresponding to 27+2 weeks and twin B to 27+6 weeks by ultrasound dating. The patient had a history of a spontaneous abortion 5 months prior, which was managed expectantly without the need for dilatation and evacuation. In view of a diagnosis of cervical incompetence and the

presence of twin gestation, she underwent cervical cerclage placement at 18 weeks. The patient's medical history was otherwise unremarkable, and she had been married for one year.

The anomaly scan revealed a large hypoechoic lesion at the lower placental margin, measuring approximately 65 x 54 x 63 mm (AP x TR x CC). Color Doppler imaging showed significant internal vascularity with both arterial and venous flow, suggestive of a placental chorioangioma. There was no evidence of mass effect or compression on either fetus. In addition, Fetus B was noted to have a two-vessel umbilical cord, indicating a single umbilical artery. The patient was managed conservatively, and in view of preterm labor symptoms, she was administered tocolytic therapy along with injectable progesterone. Following resolution of her preterm labor symptoms, the patient was discharged in stable condition. She was counseled in detail regarding the need for regular weekly follow-up visits to monitor the placental chorioangioma and ensure continued fetal surveillance.

At 34 weeks of gestation, the patient presented to the labor room with complaints of per vaginal leaking of fluid for 2 hours, accompanied by lower abdominal and back pain. On examination, cervical stitch was removed, and she was managed with intravenous antibiotics and intramuscular betamethasone for fetal lung maturation. Labor was allowed to progress spontaneously. The patient had a preterm vaginal delivery with twin A male child of 2 kg weight and twin B male child 1.8 kg weight. Both babies were shifted to the neonatal ICU.

Active management of third stage of labour was done, and the placenta was delivered. Gross examination of the placenta revealed a well-defined, greyish-brown lesion measuring approximately 7.5 × 5.5 × 4.5 cm, with a soft to firm consistency (Figure-1) The mass was located at the placental margin and was attached by a vascular pedicle (Figure-2), suggestive of a vascular tumor such as chorioangioma. The placenta specimen was sent for histopathological examination. Following delivery, the episiotomy was repaired, and adequate

Vol. 25, No. 1. (2025)
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hemostasis was ensured. The patient was subsequently transferred to the postnatal ward and was closely monitored for signs of postpartum hemorrhage.

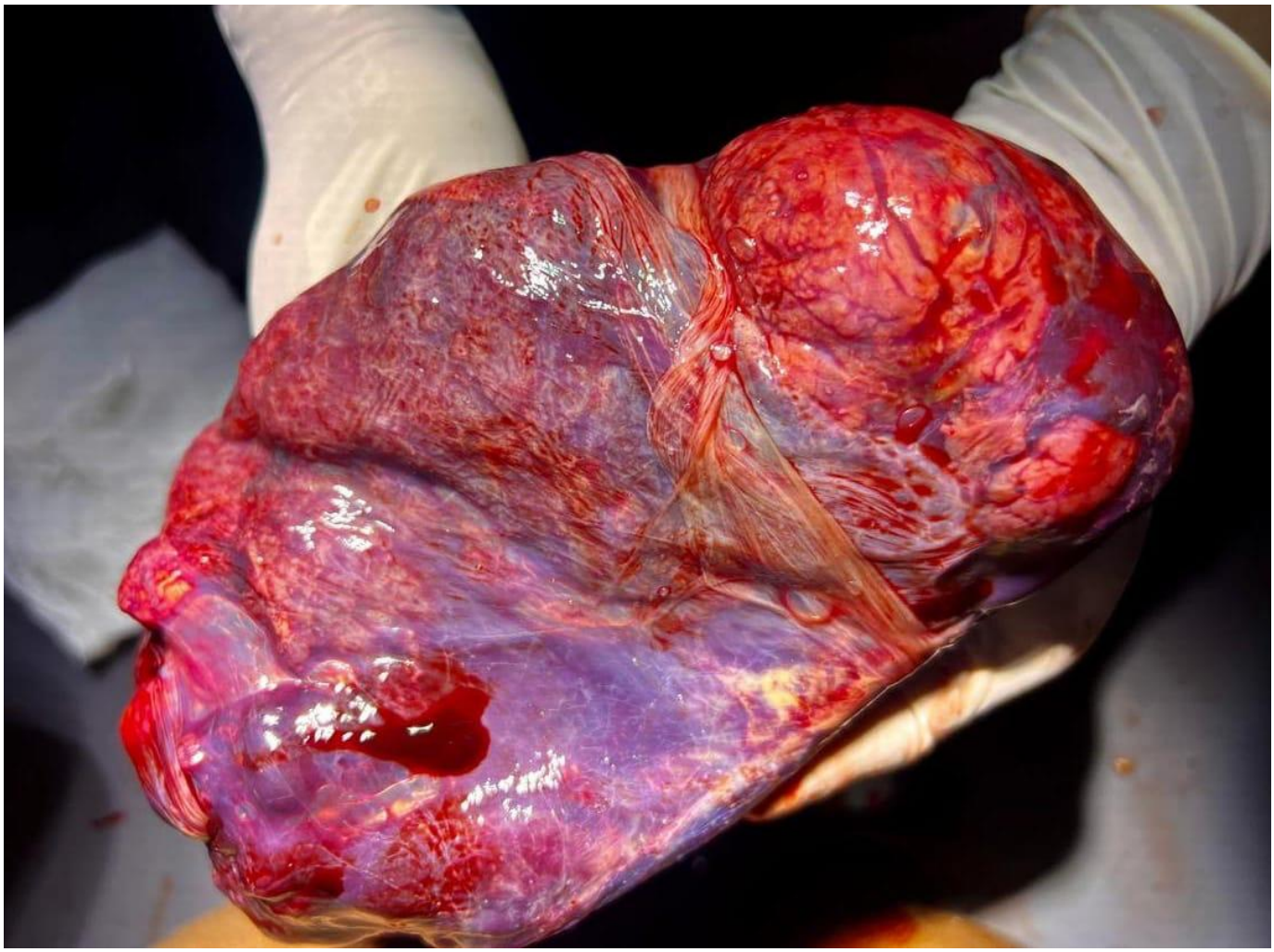

Figure 1: Gross examination of the placenta revealed a well-defined, greyish-brown lesion measuring approximately 7.5 × 5.5 × 4.5 cm, with a soft to firm consistency suggestive of placental chorioangioma.

Vol. 25, No. 1. (2025)
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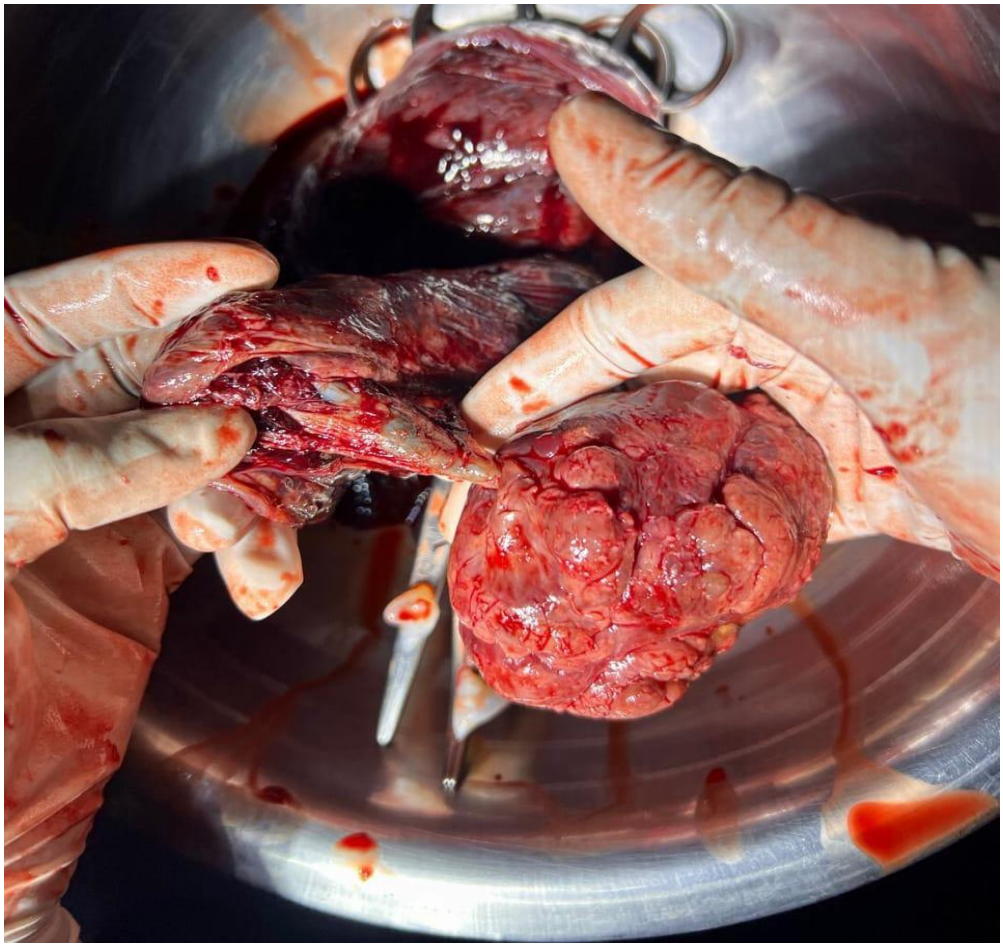

Figure 2: The mass located at the placental margin and was attached by a vascular pedicle.

On gross examination, the placenta, the maternal surface showed reddish-brown coloration with scattered hemorrhagic foci, while the fetal surface was smooth, shiny, and translucent. A 7.5 × 5.5 × 4.5 cm, well-circumscribed, greyish-brown lesion with soft to firm consistency was observed at the placental margin. Multiple sections from both the lesion and adjacent placental tissue were submitted for histological analysis.

Microscopic evaluation of the mass showed a well-circumscribed vascular lesion composed of numerous proliferating capillaries, surrounded by a delicate stroma and covered by a scant trophoblastic lining. Associated histological features included infarction, fibrosis, and focal calcification within the lesion. No evidence of cellular atypia or malignancy was seen (Figure-3).

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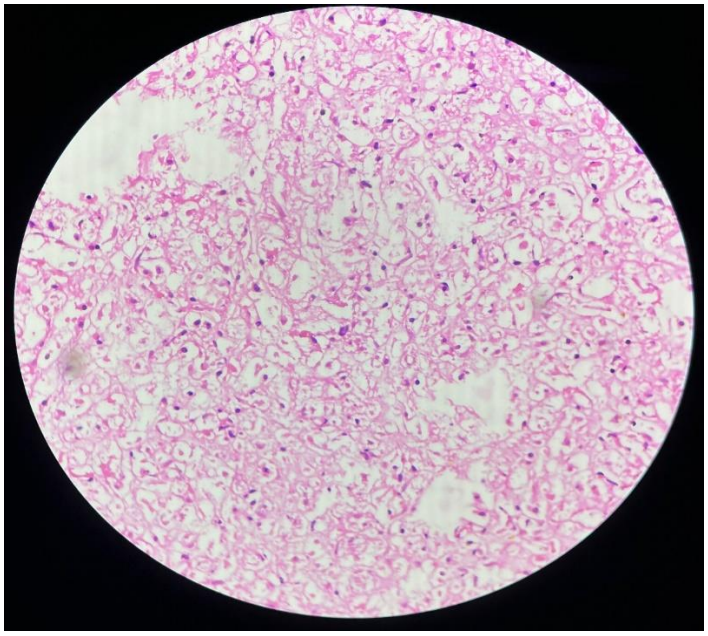

Figure 3: Well-circumscribed mass with proliferation of capillaries, surrounded by stroma and scanty trophoblastic lining. Presence of infarction, fibrosis, and calcification noted.

Discussion

Placental chorioangioma is the most common benign non-trophoblastic tumor of the placenta, with an incidence ranging from 0.6% to 1% in all pregnancies; however, clinically significant or large chorioangiomas (usually >4–5 cm) are rare, occurring in about 1 in 10,000 to 1 in 50,000 pregnancies. These tumors arise from the chorionic mesenchyme and are characterized by proliferation of capillaries within a stroma, as confirmed in our case histopathologically.

In the present case, a 27-year-old second gravida with previous one abortion was diagnosed via obstetric anomaly scan at 20 weeks of gestation with a large placental chorioangioma measuring 65 × 54 × 63 mm, located at the lower placental margin and showing marked vascularity on color Doppler. This finding is critical because Doppler studies have been instrumental in the prenatal identification of such vascular placental tumors. As reported by Zanardini et al. (2010), Doppler ultrasound aids not only in diagnosis but also in assessing the tumor's hemodynamic impact on the fetus.[1]

The patient had a monochorionic diamniotic twin gestation, a high-risk obstetric condition by itself, further complicated by the presence of a vascular placental tumor. Fetus A and Fetus B demonstrated discordant growth, with estimated fetal weights of 371 g and 264 g respectively—an early indicator of potential fetal growth restriction (FGR), which has been frequently associated with large chorioangiomas, as per studies by Sepulveda et al. (2003)[2] and Guschmann et al. (2003).[3] Furthermore, fetus B's umbilical cord was noted to have a single umbilical artery (SUA), a finding that increases the risk of congenital anomalies and adverse outcomes.

The histopathological evaluation confirmed the diagnosis of chorioangioma, revealing a well-circumscribed proliferation of capillaries within scant stroma and trophoblastic tissue, along

with areas of infarction, fibrosis, and calcification. Notably, the presence of infarcted and fibrotic areas suggests a degenerative process within the tumor, which may be protective by reducing shunting effects. As emphasized by Shih and Kurman (2004), the absence of malignancy and lack of cytologic atypia differentiates these lesions from rare malignant vascular placental tumors like choriocarcinoma.[4]

Management of large or symptomatic placental chorioangiomas remains challenging. While small, asymptomatic lesions are often conservatively managed, larger tumors can result in severe maternal-fetal complications, including polyhydramnios, preterm labor, fetal anemia, hydrops fetalis, and intrauterine fetal demise (IUFD) due to arteriovenous shunting and high-output fetal cardiac failure. According to Bromley et al. (1997), the perinatal mortality in such cases can reach 30%–40%.[5]

Given the current absence of fetal hydrops, normal amniotic fluid volume, and stable Doppler findings, our case was managed with close interval follow-up and serial ultrasonography to monitor fetal growth and signs of deterioration, as per guidelines suggested in case reviews by Boyd and Redline (2000).[6] The role of intrauterine interventions such as fetoscopic laser coagulation, embolization, or amnioreduction has been explored in complicated cases (Cappuccini et al., 2006), but these were not deemed necessary at this point.[7]

This case underscores the importance of a multidisciplinary approach involving radiologists, obstetricians, and neonatologists in managing placental chorioangioma. Long-term outcomes depend on gestational age at delivery, tumor size and vascularity, and the development of complications.

Conclusion

This rare case of large placental chorioangioma in a monochorionic diamniotic twin pregnancy, identified on routine anomaly scan and confirmed on histopathology, highlights the importance of early detection and vigilant follow-up. With no current signs of fetal compromise, the patient is being managed conservatively with regular growth monitoring. The case emphasizes that even large chorioangiomas can remain clinically silent and may not necessitate intervention if complications are absent.

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