International Journal of Surgery Case Reports 126 (2025) 110252

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.elsevier.com/locate/ijscr

Case report

Giant placental chorioangioma: A rare case report

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ARTICLE INFO

Keywords:
Chorioangioma
Placenta
Fetus

ABSTRACT

Introduction and importance: Chorioangioma is benign, non-trophoblastic vascular neoplasms of the placenta with an estimated incidence of 1 %. It originates from placental blood vessels. Giant chorioangiomas, larger than 4 cm in diameter, are rare with an incidence ranging between 1/3500 and 1/9000 pregnancies. Giant chorioangiomas easily detected by prenatal ultrasound and are associated with a series of pregnancy and fetal complications.

Case presentation: A 34-year-old multigravida woman, with twin pregnancy presented with notation of reduced fetal movement. On sonographic examination, first fetus was Intrauterine Growth Restriction (IUGR), stage 1 and the second fetus was small-for gestational age and a well-defined, hypoechoic lesion with increased vascularity measuring 5.8 × 4.7 × 2.5 cm on the fetal surface of the placenta was seen. However, at 35 + 3 weeks, the patient presented with pain in the lower abdomen. Maternal vital signs were within normal ranges. On Physician team discussion, cesarean section was performed. Two female neonates weighing 2260 g and 2400 g were delivered, with normal APGAR scores and physical examinations. And physical examination. The placenta was sent to pathology laboratory. In histopathology numerous proliferative blood vessels was found that confirm with immunohistochemical analysis. Finally, the patient was diagnosed with placental chorioangioma.

Discussion: Placental chorioangioma is a rare anomaly in villous capillary development, with uncertain pathogenesis. It is often linked to twin pregnancies, gestational diabetes, maternal hypertension, and female fetal sex. Prenatal sonographic scans are valuable for its identification, revealing a hypoechoic, highly vascular mass confirmed via Doppler ultrasound. In contrast, chorangiocarcinoma, a malignant placental tumor, comprises chorioangioma and proliferating trophoblast cells with distinct histological features. Close monitoring and sonographic evaluations are vital during pregnancy when managing chorioangioma, especially giant ones, known to cause various fetal and pregnancy complications. The decision-making process for delivery in cases of giant chorioangioma should consider fetal complications and gestational age. While some interventions like laser ablation are available, the challenging nature of the patient's response may warrant conservative management in certain instances.

Conclusion: We report a rare case of giant placental chorioangioma in a 34-year-old twin pregnant patient. Chorioangioma benign vascular neoplasms of the placenta may cause pregnancy and fetal complications.

1. Background

Chorioangioma, a benign and non-trophoblastic vascular neoplasm found in the placenta, has an estimated incidence of 1 %. These benign placental tumors are well demarcated masses composed of numerous small dense capillaries and loose fibrous connective tissue and surrounding trophoblast arising in a stem villus, and it may be related to an overexpression of vascular endothelial growth factor induced by hypoxia [1]. The incidence of chorioangioma is higher in women over the age of 30, those with maternal hypertension and diabetes, as well as in primipara and twin pregnancies [2].

Placental chorioangiomas are typically single, small, and asymptomatic. Giant chorioangiomas, which are larger than 4 cm in diameter, are rare and have an incidence ranging between 1/3500 and 1/9000 pregnancies. This giant chorioangioma can be easily detected using prenatal ultrasound [3], and are associated with various complications during pregnancy and for the fetus, including polyhydramnios, preeclampsia, premature rupture of the membranes, placental abruption, preterm labor, fetal growth restriction, fetal nonimmune hydrops, fetal anemia, and fetal death [1].

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https://doi.org/10.1016/j.ijscr.2024.110252
Received 17 June 2024; Received in revised form 31 August 2024; Accepted 5 September 2024
Available online 7 September 2024

Color Doppler imaging is a useful tool for diagnosing chorioangioma, as it can help determine the vascularity of the neoplasm and aid in the follow-up of placental chorioangioma [4].

In this report, we present the case of a 34-year-old pregnant patient carrying twins who was diagnosed with a placental mass lesion.

2. Case presentation

A 34-year-old woman who has been pregnant, with twin pregnancies presented with a history of decreased fetal movement. Upon sonographic examination at 29 weeks of gestation, it was observed that she had a twin pregnancy with two living fetuses, di-chorionic di-amniotic. The fetal heart activity of both fetuses was regular. The first fetus showed signs of intrauterine growth restriction (IUGR), stage 1, while the second fetus was small for gestational age. A placental mass measuring 5.8 × 4.7 × 2.5 cm was also detected. A detailed ultrasound evaluation revealed a well-defined, hypoechoic lesion with increased vascularity on the fetal surface of the placenta, which raised suspicion of a giant placental chorioangioma. Color Doppler sonography of both fetuses showed normal findings, with arterial and venous flow in the placental vascular mass confirming the diagnosis.

Subsequent sonographic scans showed a normal biophysical profile (BPP) and amniotic fluid volume.

A repeat sonographic scan at 31 weeks of gestation revealed an increase in the size of the placental mass to 6.8 × 5.7 × 3 cm.

However, at 35 + 3 weeks, the patient complained of lower abdominal pain. The maternal vital signs were within normal ranges, and laboratory and sonographic examinations were requested. The laboratory findings are presented in Table 1. The sonographic scan showed a fetal BPP of 8/8 for both fetuses, the placental site of both fetus is posterior, the presentation of first fetus is RT cephalic and second fetus is LT cephalic, amniotic fluid deepest pocket of first fetus is 2.8 cm and the second fetus is 2.4 cm without any sign of hydrops fetalis, and fetal movements of both fetus were present but the size of the placental mass had increased to 8 × 7 × 3.6 cm. NST(Non Stress Test) of both fetus were reactive. After careful discussion among the physician team, a decision was made to perform a cesarean section without any medical intervention. Two female neonates weighing 2260 g and 2400 g were delivered, with normal appearance, pulse, grimace, activity, and respiration (APGAR) scores at 1 and 5 min. Physical examination of both neonates did not reveal any abnormalities like skin lesion, tachycardia, poor feeding, icterus or sign of hydrops fetalis. Hemoglobin levels of both fetuses were in normal range.

Table 1
Laboratory findings of the patient.

Test	Result	Reference range
WBC (10^9 /L)	8.800	4.0–11.0
RBC (10^6/μL)	3.10	
HB (g/dL)	9	13–16
HCT	27.3	
MCV	88.39	
MCH	29.3	
MCHC	32.85	
PLT)10^3/μL)	226	150–450
BUN (mg/dL)	10	6–20
Cr (mg/Dl)	0.9	0.6–1.3
AST (U/L)	20	<37
ALT (U/L)	22	<41
ALP(U/L)	238	100–360
FBS	68	<140 normal 140 to 199 prediabetes ≥200 diabetes
TSH	1.3	0.3–5.1
GTT	72	70–99
GTT1	150	<180
GTT2	140	<153
Phosphor	2.8	
Urinalysis	NEG	
Urine culture	No growth after 48 h	
Anti-HCV Ab	NEG	
HBsAg	NEG	
Blood group and RH	A+	

The mother and infants were discharged three days after delivery. Two Placenta were sent to pathology.

Gross examination revealed that there were two separate placentas with separate membranes (dichorionic-diamniotic), measuring 15 × 14 × 2.5 cm and 15 × 15 × 3 cm. The placenta weighed 350 g and 480 g. Both umbilical cords had three vessels. On the fetal surface of the first placenta, a well-circumscribed mass measuring 8 × 7 × 3.6 cm with a red color and fleshy with soft consistency was observed. The cutting of the mass, a non-homogeneous red-brown color was observed without any necrosis (Fig. 1).

The microscopic examination showed well demarcated placental mass composed of numerous small dense capillaries, stromal cells, and surrounding trophoblast arising in a stem villus (Fig. 2).

Immunohistochemically analysis revealed that the tumor cells stained positive for CD31, confirming their vascular origin (Fig. 3).

This work has been reported in line with the SCARE criteria [5].

On follow-up, the mother and both children are good without any medical problems or require medications.

3. Discussion

Placental chorioangioma is an uncommon abnormality in the development of the villous capillary, and its underlying pathogenesis remains unclear [6]. Chorioangioma is often associated with twin pregnancies, gestational diabetes, maternal hypertension, and female fetal sex. In the case of our patient, she is experiencing a twin pregnancy with two female fetuses [4]. The use of prenatal sonographic scans can aid in the identification of chorioangioma, which typically presents as a hypoechoic, highly vascular mass that can be further confirmed through Doppler ultrasound [2].

Chorangiocarcinoma, on the other hand, is an infrequent and malignant placental tumor that consists of both chorioangioma and proliferating trophoblast cells. It exhibits a high proliferation index

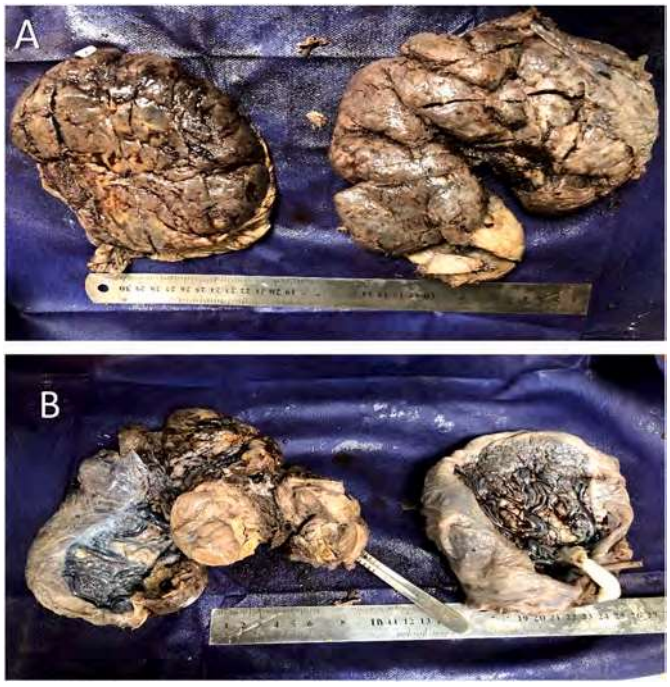

Fig. 1. A. Two separated placentas with separated membranes. B. Macroscopic view of well-defined sub-chorionic mass.

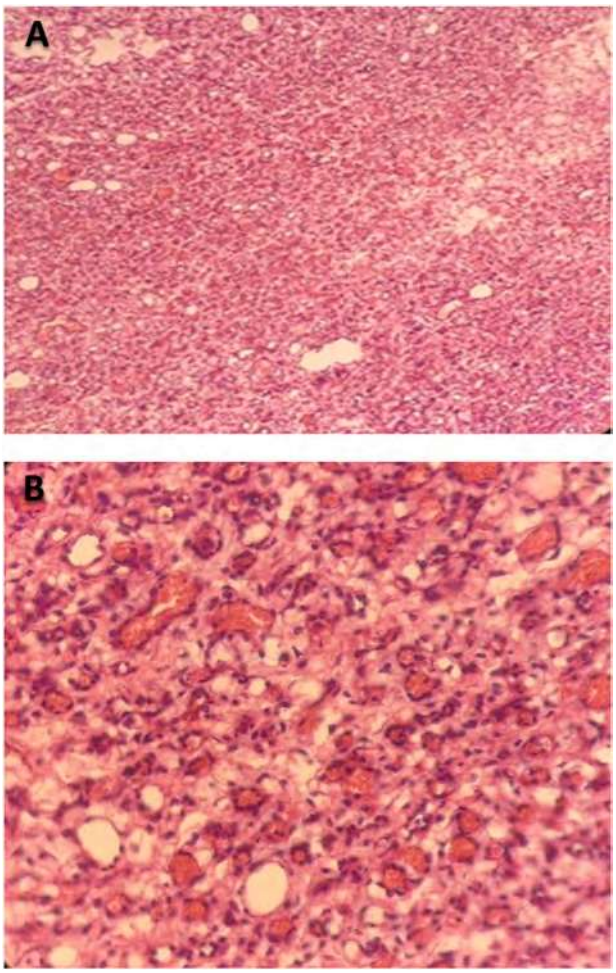

Fig. 2. A & B microscopic view of chorangioma with numerous capillaries, and stromal cells without atypia. Stained by hematoxylin and eosin (10× and 40×).

(>90 %), nuclear atypia, necrosis, and mitotic figures [7,8]. In cases of chorioangioma, it is crucial to assess the maturation of the fetus as well as the health of both the mother and the fetus [3]. Consequently, the patient underwent close monitoring with regular sonographic evaluations throughout her pregnancy. While most placental chorioangiomas are small and asymptomatic, the presence of a giant chorioangioma can lead to various pregnancy and fetal complications. These complications may include polyhydramnios, which is associated with high perinatal morbidity and mortality, premature delivery, placental abruption, placenta Previa, fetal tachycardia, cardiomegaly, congestive fetal heart failure, nonimmune hydrops, intrauterine growth retardation, and anemia [9]. In our specific case, the first fetus exhibited intrauterine growth retardation. However, despite the large size of the tumor, our patient did not experience any complications and was managed conservatively.

When managing a giant placental chorioangioma, it is important to consider the presence of fetal complications and the gestational age. If complications arise in the later stages of pregnancy, delivery should be considered. However, if complications occur earlier, particularly in premature fetuses, delivery is not recommended due to the increased risk of mortality and morbidity [4]. The decision regarding the mode of delivery should take into account the presence of serious maternal or fetal complications throughout the pregnancy. While a cesarean section may be indicated in such cases, patients with simple placental chorioangioma may still attempt a vaginal delivery, even in the presence of giant chorioangioma. The outcomes of vaginal and cesarean deliveries may be similar, as reported by Zou J. et al., who found that the majority

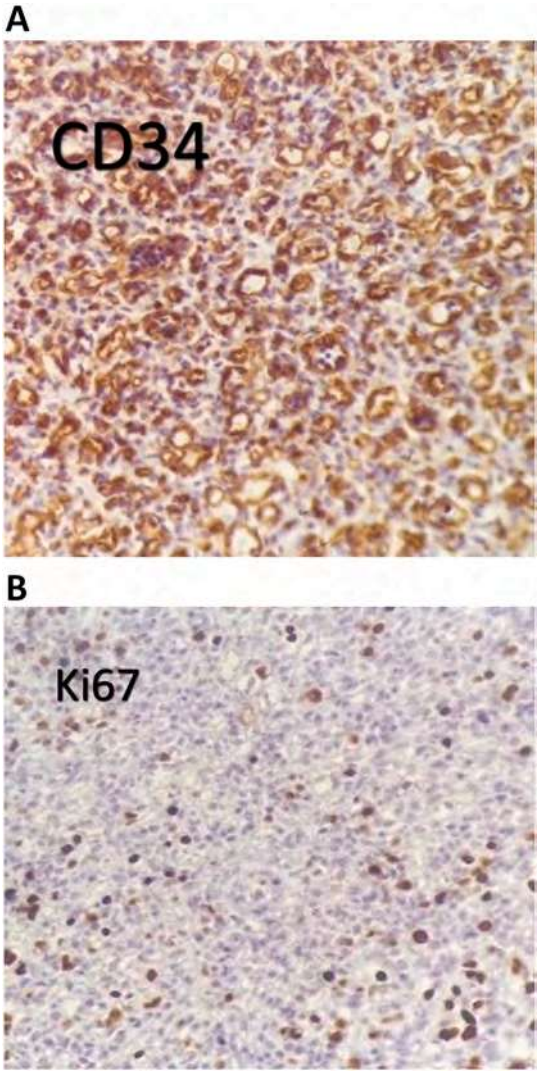

Fig. 3. Confirmatory immunohistochemical analysis of the chorangioma reveals the presence of positive staining for CD31 and Ki-67, confirming their vascular origin (40×).

of fetuses with placental chorioangioma were female (71.7 %) [1].

In addition to delivery considerations, medical interventions such as laser ablation, alcohol injection, microcoil embolization, and ligation of blood vessels can be used for the treatment of chorioangioma during pregnancy [4]. However, in this case, interventional treatment was not performed due to the potential for adverse outcomes and the challenging nature of the patient's response.

4. Conclusion

Chorioangioma is a rare and benign vascular neoplasm of the placenta that can give rise to pregnancy and fetal complications. Prenatal detection of chorioangioma and identification of fetal complications can be achieved using sonographic scans. Following delivery, the presence of chorioangioma can be confirmed through histological examination.

Ethical approval

Hormozgan University of Medical Sciences Ethical Committee approved the study under the ethical code IR.HUMS.REC.1402.238 and the study conforms with the Helsinki Declaration's statements.

Funding

The study did not receive any funding.

Author contribution

M. Karimi and H.S. Sajjadi participated in the conception and design of the study. M. Karimi wrote the manuscript and evaluated the patients. M. Karimi and H.S. Sajjadi did the microscopic examination of the endometrial specimens and wrote the pathology reports.

All authors reviewed the manuscript and approved the final manuscript.

Research registration number

1. Name of the registry: Heterotopic abdominal wall ossification: a case report
2. Unique identifying number or registration ID: researchregistry9814
3. Hyperlink to your specific registration (must be publicly accessible and will be checked):

Consent

Written informed consent was obtained from the patient for publication and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Conflict of interest statement

The authors declare no conflict of interest.

Acknowledgements

We are sincerely thankful to our counsellors in the Clinical Research Development Center of Shahid Mohammadi hospital in Bandar Abbas.

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