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Prenatal Ultrasound Diagnosis of Placenta Membranacea: A Case Report

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Abstract

Placenta membranacea is a rare type of placental abnormality, which can lead to vaginal bleeding, placenta previa, fetal demise and other complications endangering the lives of mothers and fetus. In the article, we describe a case of placenta membranacea, the symptoms and signs of the patient are different from those reported previously, and the diagnosis of placenta membranacea was confirmed with the help of ultrasound monitoring. The case report demonstrates that placenta membranacea may not show typical vaginal bleeding due to the different placental location, as well as highlights the crucial role that high resolution ultrasound plays in the diagnosis of placenta membranacea. For obstetricians, we should be alert to the possibility of placenta membranacea if the placenta is large and diffusely thickened.

Keywords: Anemia, Oligohydramnios, Placenta membranacea, Ultrasound, Vaginal bleeding

Introduction

The human placenta is primarily formed by trophoblasts around the early embryo. These trophoblasts invade the uterine wall and then develop into villi [1]. With the progress of pregnancy, only the villi at the implantation site develop into the placenta, the villi of other parts successively atrophy. If the villi do not atrophy, a layer of functional villi surrounds the gestational sac, thus forming a large placenta, commonly known as placenta membranacea (PM) [2]. PM is a rare type of placental abnormality, only a small number of case reports describing it. The incidence rate of PM is expected to be 1:20000 to 40000 [3]. The precise pathogenesis of PM is still unclear, it has been postulated that this disorder may result from endometritis, decidual vascular dysplasia, deep implantation of ovum, and atrophy or dysplasia of endometrium [4]. PM can be divided into partial and complete PM on basis of chorionic villi coverage, the incidence rate of partial PM was higher than that of the complete PM, and however, this condition may be underestimated due to unfamiliarity of pathologists and sonographers with this disease [2]. Given the extremely low morbidity and the lack of doctors' awareness of the condition, PM is often detected in the pathological examination of postpartum placenta, and prenatal findings are very rare. Herein, we present a case of placenta membranacea, through continuous ultrasonic monitoring, PM diagnosis was successfully confirmed prenatal.

Case Report

A 32-year-old woman, G4P0, had experienced three abortions followed by curettage each time. The woman had regular prenatal examination. At 19 weeks of gestation, the blood test showed: hemoglobin (HGB) 112g/L. At 23+3 weeks of gestation, the HGB fell to 87g/L, which was rectified by oral drugs, and ultrasound images indicated that the placenta was thicker than normal. At 25+5 weeks of gestation, ultrasound showed that the placenta covering the anterior wall of the uterus and diffuse thickening, with dense tiny bright spots in the placenta, the placental thickness was 87mm, the amniotic fluid index (AFI) was normal. Retroplacental hematoma, uterine tension and vaginal bleeding were not found, and no special treatment was given to the patient in the outpatient department, and regular ultrasound examinations were continued.

At 29+4 weeks of gestation, the woman was admitted due to oligohydramnios. Blood test indicated: HGB 78g/L, ultrasound image revealed the AFI was 57mm, the thickness of the placenta increased from 87mm to 100mm, the fetal biometry consistent with gestational age. Obstetric examination on admission: the height of the uterus: 29cm, abdominal circumference: 101cm, there were no uterine tension and vaginal bleeding. The woman was given magnesium sulfate to protect fetal brain nerve, dexamethasone to promote fetal lung maturation, chalybeate to correct anemia. At 30+1 weeks of gestation, ultrasound showed that: the thickness of the placenta was 121mm, AFI was 80mm. The result of blood test: HGB 75g/L.

At 30+2 weeks of gestation, the patient was referred to our hospital. According to the patient's symptoms, we initially mistook it as placental abruption. However, the patient had no uterine tension and vaginal bleeding, and the placenta was diffusely thickened. In order to make the diagnosis clear, three consecutive ultrasound examinations were performed soon afterwards and the ultrasound results were as follows: The placenta was huge and diffuse thickening, the thickness of the

placenta increased from 121mm to 150mm (Figures 1a and 1b). The huge placenta occupies most of the uterine cavity and pushes the fetus to one corner of the uterine cavity (Figure 2a). The placenta lack of the echo of placental parenchyma, and AFI dropped from 80mm to 18mm (Figure 2b). Recheck blood test showed: HGB was 71g/L. Obstetric examinations: the uterine fundus measured 37cm and the abdominal circumference measured 107cm. These findings on ultrasound led to the diagnosis of PM.

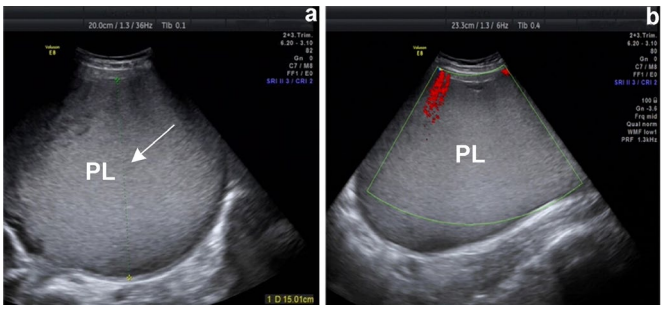

Figure 1: Ultrasonographic images at 30+2 weeks of gestation: a Image showing the placenta is diffuse thickening, with dense tiny bright spots in the placenta. The thickness of the placenta is 150mm (arrow); b Image representing the huge placenta occupies almost the entire uterine cavity. PL: placenta.

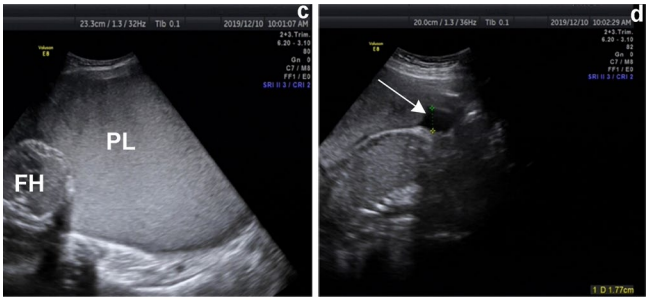

Figure 2: Ultrasonographic images at 30+2 weeks of gestation: a Image showing the large placenta pushes the fetus to a corner of the uterine cavity; b Image representing the amniotic fluid index is 18mm (arrow). FH: fetal heart, PL: placenta.

At 30+3 weeks of gestation, due to oligohydramnios, emergency cesarean section was performed on the patient, who delivered a live-born baby, weighing 1370g with Apgar scores of 9 and 10. The placenta was large and thick, covering the anterior, fundus and posterior wall of uterus. The placenta was dissected successfully, and it is just like a big blood bag, in which a large amount of non-coagulable and rufous blood was wrapped, with a volume of about 3000ml. There were sparse, irregularly and disorganized placental cotyledons on the fetal membrane (Figure 3). The patient was transfused with 9.5 units of blood and 1000ml plasma, with an unremarkable postoperative recovery and was discharged on postoperative day 6, the HGB level after operation was 104g/L.

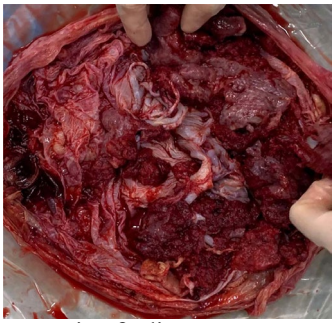

Figure 3: Intraoperative findings: Gross appearance of placenta during operation.

The placental pathology revealed that the placenta was measured 18x14cm, had irregularly thickened parenchyma. Under the microscope, the placental terminal villi dysplasia, three umbilical vessels and the umbilical cord eccentrically inserted were found. Follow up on newborn: After 38 days of treatment in neonatal ward, the weight of the baby increased to 1975g, and all indexes were normal.

Discussion

The characteristic clinical symptoms associated with PM are antenatal recurrent vaginal bleeding, which is mainly due to the giant placenta covering the lower uterine segment or cervical internal os. Clinical symptoms of partial PM and complete PM are very similar. Retrospective review of the reported cases of PM, 33 out of 40 patients presented with prenatal bleeding [4]. Due to repeated vaginal bleeding, leading to premature, fetal death, placental adhesion and chorioamnionitis [5,6], however, full-term vaginal delivery with partial PM was also reported [7]. Owing to the placenta was located in the uterine body and fundus, our case did not show typical vaginal bleeding, which also suggests that the clinical symptoms of PM are various due to the placental location.

The diagnosis of PM remains a challenge for obstetricians. Because of the lack of awareness of the disease and the absence of specific diagnostic tests, most of the cases were diagnosed during postpartum pathological examination of placenta, only a very small number of cases were diagnosed prenatal. At present, high-resolution color Doppler ultrasound is the most effective and non-invasive method, which plays a key role in the monitoring and management of high-risk pregnancy, and ultrasound can be the first-line method for the diagnosis of PM [8]. The characteristics of PM in ultrasound are as follows:

1. The placenta is huge, covering most of the uterine cavity;
2. The placenta is abnormally irregular in thickness. The echo of placental parenchyma is reduced, forming a large whirlpool flowing liquid dark area, which is very similar to a blood bag formed by a large amount of flowing blood wrapped by a thin film;
3. Often coupled with fetal growth restriction and oligohydramnios, mainly due to the presence of a deficiency in fetoplacental circulation.

In order to exclude placenta adhesion and accrete, magnetic resonance imaging (MRI) is recommended, so that obstetricians can make appropriate arrangements for delivery and prevent life-threatening postpartum hemorrhage [3,8].

In the present case, the patient had three repetitive abortions, the repeated endometrial trauma from uterine curettage may be the high-risk factor for the occurrence of PM. Our case highlights the ability of ultrasound to identify PM and to influence the diagnostic strategy. Antenatal diagnosis of PM was difficult previously, however, with the wide application of high-resolution ultrasound, the early diagnosis of PM is becoming possible. Due to our knowledge of PM is far more complete, another key factor in PM diagnosis depends on clinicians' awareness of the disease, so large-scale prospective data collection for PM is urgently needed. For patients with recurrent vaginal bleeding or with huge, thickened placenta, we need to have a strong suspicion of PM and strengthen the ultrasonic monitoring of patients.

Disclosure: The authors have no conflicts of interest to declare.
Consent for publication: Written informed consent was obtained from the patient for publication of this case report and accompanying images.

References

1. Hafez S (2017) Com parative Placental Anatomy: Divergent Structures Serving a Common Purpose[J].Prog Mol Biol Transl Sci 145: 1-28.
2. Ahmed A, Gilbert-Barness E (2003) Placenta membranacea: A developmental anomaly with diverse clinical presentation. Pediatr Dev Pathol 6: 201-202.
3. Pereira N, Yao R, Guilfoil DS, Richard SD, Plante LA (2013) Placenta membranacea with placenta accreta: radiologic diagnosis and clinical implications.Prenat Diagn 33: 1293-1296.
4. Ravangard SF, Henderson K, Fuller K (2013) Placenta membranacea. Arch Gynecol Obstet 288: 709-712.
5. Wilkins BS, Batcup G, Vinall PS (1991) Partial placenta-membranacea. Br J Obstet Gynaecol 98: 675-679.
6. Greenberg JA, Sorem KA, Shifren JL, Riley LE (1991) Placenta membranacea with placenta increta: a case report and literature review. Obstet Gynecol 178: 512-514.
7. Davis CL, Fogarty C, Hyne S, Seeho SKM (2020) Placenta membranacea associated with a normal pregnancy and term vaginal delivery. Pathology 52: 281-283.
8. Tang L, Xu L, Hu Y, Zhang L, Wei Q, Wu L (2019) Placenta membranacea: an anormaly of the placenta Three case reports.Medicine (Baltimore) 98: e16166.

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