CASE REPORT

Evolving Cesarean Scar Pregnancy into Morbidity Adherent Placenta—Evidence from Serial Ultrasound Examination

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KEYWORDS
morbid adherent placenta, placenta accreta, pregnancy, previous cesarean section

Abstract  Objective: To present the complete history of a case with placenta accreta and demonstrate the special clues of ultrasonography finding during whole trimesters from early pregnancy to delivery.

Case Report: A multiparous 28-year-old female with a history of multiple cesarean deliveries was found with suspected precesarean section scar pregnancy at 6 weeks of gestation. We performed a series of ultrasonography scans, which revealed placenta previa totalis and placenta accreta at 15 and 32 weeks of gestation, respectively. A well-planned cesarean section with hysterectomy was performed at the 35th week of gestation with massive blood transfusion support, and an alive female baby—with a birth body weight of 2485 g, and Apgar score of 9 at the 1st minute and 10 at the 5th minute—was born. The intraoperative blood loss was 7000 mL, and no postoperative hemorrhage or other complication occurred.

Conclusion: Ultrasonography remains the main tool for diagnosis of morbid adherent placenta with several typical clues, including abnormal vasculature, increased size and numbers of vascular sinus, absence of uterovesicle border or retroplacental hypoechoic zone, and invaded placenta insertion on myometrium. Proper planning prior to the operation and detailed counseling may be necessary, as well as hysterectomy; massive bleeding with transfusion remained the most seen complication.

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Introduction

Morbid adherent placenta, which includes placenta accreta, placenta increta, and placenta percreta, remains a major cause of immediate postpartum hemorrhage and often leads to many complications including hypovolemic shock, disseminated intravascular coagulopathy, postpartum hysterectomy, and even morbidity. Sufficient and detailed delivery planning is necessary if the diagnosis is confirmed, and several preoperative interventions should be considered to avoid massive bleeding, which include therapeutic angiography or prophylactic hysterectomy. The diagnostic tool of this placental insertion disease depends on antepartal ultrasonography, mostly with a sensitivity of $90.7\%$ [95% confidence interval (CI), 87.2–93.6], specificity $96.9\%$ (95% CI, 96.3–97.5), a positive likelihood ratio of 11 (95% CI, 6–20), and a negative likelihood ratio of 0.16 (95% CI, 0.11–0.23) from a meta-analysis in 2013 [1]. We present a patient who was diagnosed to have placenta accreta and was followed with ultrasonography during the three trimesters of her pregnancy.

Case Report

We report a 28-year-old (gravida 8 para 3) multiparous mother with three cesarean deliveries because of cephalopelvic disproportion and previous cesarean delivery. During her fourth parity, serial antepartum ultrasonography scans were checked due to her high risk of morbidly adherent placenta in view of the patient’s history of artificial abortion and multiple cesarean deliveries. At the first trimester, transvaginal ultrasonography was performed at 6 weeks of gestation, which revealed an intrauterine gestational sac (Figure 1). The implanting site of gestational sac stayed at the anterior lower corpus of the uterus and near the previous cesarean section scar, which was compatible with cesarean scar pregnancy. The lining between the myometrium and decidua remained smooth. Clinically, no vaginal spotting or massive bleeding was noted during the first trimester.

At the second trimester, transabdominal ultrasonography was performed at the 15th week of gestation, and placenta previa totalis was found with whole internal os covered by the placenta (Figure 2A). Loss of homogeneous appearance, protruding placental base into the myometrium, thinning of the retroplacental myometrium, and interrupted retroplacental anechoic band were noted with multiple lucent vascular lake intraplacentally, which were compatible with placenta accreta (Figures 2B–2E). Color Doppler also showed chaotic vascularity inside and beneath the placenta (Figure 2F). At 24 weeks of gestation, one episode of vaginal bleeding with lower abdominal pain occurred, and the patient was admitted for 4 days and received tocolysis. Otherwise, no fetal distress or gross hematuria was found then.

During the third trimester, transabdominal ultrasonography was checked again at the 32nd week of gestation. Persistent placenta previa totalis was confirmed, and increased heterogeneity with abnormal vasculature was seen in the placenta (Figure 3A). There was obvious progression in number and size of vascular sinus, and color Doppler indicated increased turbulent flow as well (Figure 3B). The uterovesicle border was not seen so clearly during the sonography examination (Figure 3A). Besides, retroplacental hypoechoic banding remained mimic.

The patient underwent cesarean delivery at 35 weeks of gestation after detailed planning and counseling, and the infant’s outcome was fine, with birth body weight of 2485 g.
and Apgar score of 9 at the 1st minute and 10 at the 5th minute. Because of abnormal placenta implantation and massive bleeding with intraoperative blood loss (7000 mL), cesarean hysterectomy was performed for hemostasis. Bladder rupture also occurred and was repaired by primary closure. Blood transfusion with whole blood (22 units), packed red blood cells (pRBC; 2 units), platelets (24 units), and fresh frozen plasma (14 units) was given during the operation, and the patient’s postoperative hemoglobin level was maintained at 11.2 g/dL. No disseminated intravascular coagulopathy, acute lung distress syndrome, or hypovolemic shock occurred perioperatively, and the patient was transferred to a regular ward at postoperative Day 2 and discharged without further incident 9 days after the delivery. The pathological report confirmed the placental implantation into the endocervical stroma.

Discussion

Although several imaging techniques have been established and used, ultrasonography remains the main tool.
used to diagnose abnormal placentation. Serial ultrasonography studies should be arranged if the patient is at high risk for morbidly adherent placenta, which includes placenta previa after a prior cesarean delivery, a history of uterine surgery (e.g., myomectomy entering the uterine cavity, hysteroscopic removal of intrauterine adhesions, cornual resection of ectopic pregnancy, dilatation and curettage, endometrial ablation), cesarean scar pregnancy, maternal age older than 35 years, history of pelvic irradiation, and infertility and/or infertility procedures (e.g., in vitro fertilization) [2]. The three-dimensional mode and color Doppler scan can also help clinicians evaluate the morphology and abnormal vascularity. Magnetic resonance imaging is likewise a useful tool for diagnosis, but its high cost and lower diagnostic value remain the main concerns.

Figure 3  Transabdominal sonography at 32 weeks of gestation. (A) Enlarged placental size and multiple vascular lakes are seen, which are called "lacunar sign." Uterovesicle border is not seen clearly in this picture (red arrows). (B) Doppler scan shows tortured and irregular vessels in placenta, which formed some vascular sinuses with turbulent flow.
Once the diagnosis is confirmed, detailed operative plan and the technique of hemostasis should be set prior to the delivery. Although generally used in clinics, no statistically significant benefit in the mean number of packed RBC transfusion or peripartum complication was indicated with preoperative prophylactic balloon catheter [3]. The guideline from the French College of Gynaecologists and Obstetricians and the French Society of Anesthesiology and Intensive Care in 2016 suggests cesarean hysterectomy and adequate human and technical resources including a gynecologic surgeon, anesthesiologist, availability of a urological and or gastrointestinal surgeon, a blood bank, and an intensive care unit. Conservative treatment for maintaining fertility could be a concern if the patient insists and is well counseled about her options [4].

This case presentation demonstrates the evolution of placenta accreta during the entire pregnancy and shows some typical pictures of the placental implantation disease. Good operative planning, multidisciplinary cooperation, sufficient blood product replacement, and intensive care unit are necessary to avoid morbidity or even mortality from immediate postpartum hemorrhage.

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