



Case Report

Recurrent severe placenta increta at 8 weeks of gestation in a twin pregnancy following uterus-conserving surgery for prior placenta accreta spectrum disorder

Min-Min Chou^{*}, Jia-Chun Yuan, Yaw-An Lu, Sheng-Wei Chuang

Center for High Risk Pregnancy and Maternal-Fetal Medicine, Department of Obstetrics and Gynecology, China Medical University Hospital, Taichung, Taiwan

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ABSTRACT

Objective: We describe herein our experience of employing a hysterectomy and prophylactic internal iliac artery balloon occlusion (IIABO) strategy for the management of recurrent severe placenta increta at 8 weeks in a twin pregnancy following uterus-conserving surgery for prior placenta accreta spectrum (PAS) disorder.

Case report: A 40-year-old woman with a history of uterus-conserving surgery for PAS disorder underwent transvaginal ultrasound evaluation at 8 weeks of pregnancy, which showed a dichorionic/diamniotic pregnancy with viable embryos of a crown-rump length of 1.65 cm and 2.03 cm, respectively. Many irregularly-shaped grade 3+ lacunae were observed, and color Doppler imaging revealed diffuse intraplacental and perihypervascularity. A total abdominal hysterectomy was performed at 10 weeks, with an estimated blood loss of 1275 mL. Placenta increta was confirmed by histopathologic examination.

Conclusion: The high rate of recurrence of PAS disorder in a subsequent pregnancy should be discussed following an antenatal diagnosis of PAS disorder with patients who may be considering uterine conservation in order to retain the option of a future pregnancy.

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Introduction

The optimal management strategy for placenta accreta spectrum (PAS) disorder remains extremely challenging, because it is a heterogeneous condition in terms of severity and carries high rates of maternal morbidity and mortality. A primary elective cesarean hysterectomy remains the definitive surgical treatment for PAS disorder, especially in cases of a severely-invasive form involving invasion into the uterine cervix and/or parametrium [1,2]. However, in appropriately-selected cases in which there is no cervical and/or parametrial invasion, uterus-conserving surgery appears to be reasonably successful, and may reduce blood loss and maternal morbidity as compared with hysterectomy [1,3,4]. Several case series and case reports have described successful pregnancies after

uterus-conserving surgery for PAS disorder [1,4–6]; however, not surprisingly, pregnancies following uterus-conserving surgery for PAS disorder are at increased risk of adverse maternal outcomes, including recurrent PAS disorder, uterine rupture, postpartum hemorrhage, and peripartum hysterectomy [1,4–8]. Thus, the patient and her family should be informed of the high probability of recurrence in future pregnancies. We describe herein our experience of employing a hysterectomy and prophylactic IIABO strategy for the management of recurrent severe placenta increta at 8 weeks in a twin pregnancy following uterus-conserving surgery for prior PAS disorder.

Case report

A 40-year-old woman, gravida 2 para 1, with a previous history of endometriosis and uterus-conserving cesarean delivery for PAS disorder 3 years prior to this admission. During the patient's first pregnancy, transabdominal power Doppler ultrasound (US) revealed extensive subplacental and myometrial hypervascularity at 33 weeks (Fig. 1A and B). A healthy baby weighing 2200 g was

^{*} Corresponding author. Center for High Risk Pregnancy and Maternal-Fetal Medicine, Department of Obstetrics and Gynecology, China Medical University Hospital, 2 Yude Road, Taichung, 40447, Taiwan. Fax: +886 4 22086970.

E-mail addresses: mmchou1109@gmail.com, d95224@mail.cmuh.org.tw (M.-M. Chou).

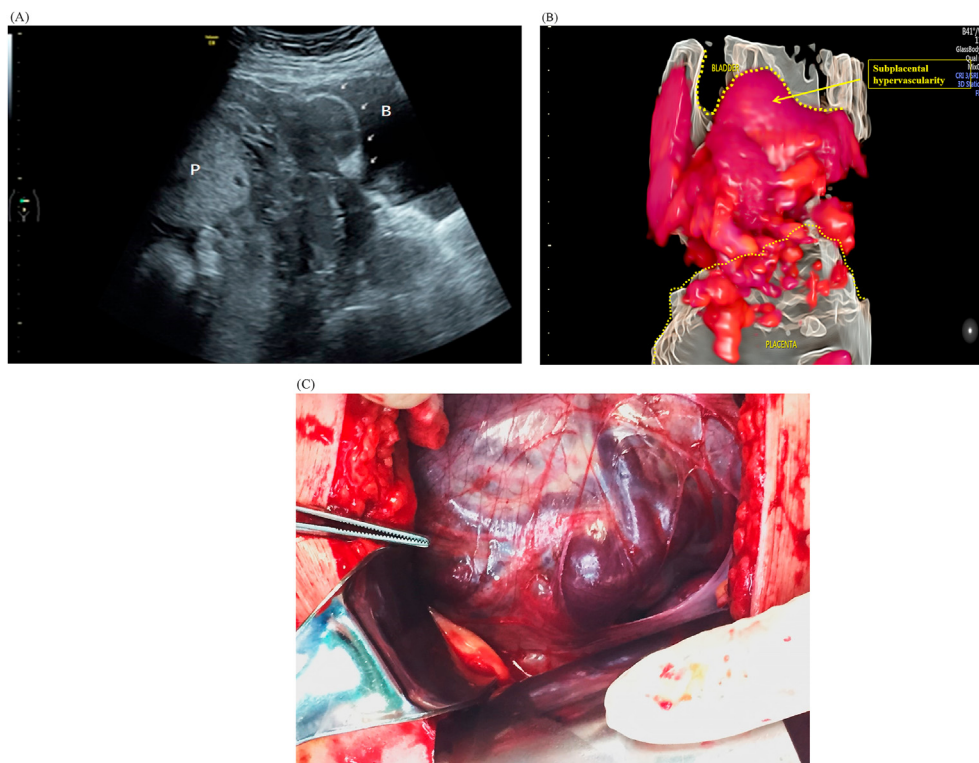


Fig. 1. Ultrasound and surgical findings related to the patient's prior placenta accreta spectrum (PAS) disorder (placenta previa accreta). (A) Transabdominal grayscale ultrasound showing extensive subplacental hypervascularity at 33 weeks. (B) Subplacental hypervascularity with an engorged vascular plexus between the bladder and placenta observed using new three-dimensional power Doppler imaging with the HDlive silhouette mode. (C) Surgical photograph demonstrating an extremely distended uterine venous plexus, visualized over the anterior surface of the lower uterine segment.

delivered via fundal hysterotomy due to an extensively-distended vascular plexus over the lower uterine segment caused by complete placenta previa with focal accreta (Fig. 1C). PAS disorder was visibly limited to a small portion of the uterine wall, and uterus-conserving surgery was performed by careful removal of the “non-accreta” portion and a small portion of the “accreta” portion of the placenta previa. Obstetric hemorrhage was controlled by oversewing of the placental bed, application of an intrauterine tamponade with rolled gauze, and prophylactic uterine artery embolization.

Grayscale transvaginal US evaluation at 8 weeks of gestation in the patient's current pregnancy demonstrated a dichorionic/diamniotic pregnancy with viable embryos of a crown-rump length of 1.65 cm and 2.03 cm, respectively. The inhomogeneous placenta encircled the fetuses and completely covered the internal os of the cervix (Fig. 2A). Many bizarre and irregularly-shaped grade 3+ lacunae were observed at 10 weeks (Fig. 2B). Transabdominal color Doppler imaging revealed diffuse intraplacental and periplacental hypervascularity (Fig. 2C), and transvaginal US demonstrated deep myometrial and cervico-isthmic stromal invasion with abnormal vascularity (Fig. 2D and E). The β -human chorionic gonadotropin (β -hCG) level was $>270,000$ mIU/mL.

Owing to a higher risk of development of more serious complications should the current pregnancy continue, the couple chose to terminate the pregnancy following counseling. A prophylactic IIABO procedure was performed to minimize blood loss, and a total abdominal hysterectomy was performed uneventfully, with an estimated blood loss of 1275 mL. A gross photograph of the hysterectomy bisected specimen demonstrated two embryos of 4.0 and 4.6 cm in length, in addition to a morbidly adherent placenta (Fig. 2F). Histopathologic examination demonstrated

chorionic villi invasion into the myometrium, consistent with placenta increta.

Discussion

Successful uterus-conserving surgery for PAS disorder does not appear to compromise subsequent fertility or the obstetric outcome, but existing data are limited. If conservative management is successful, the subsequent pregnancy rate has been reported to be between 86% and 89% [1,4–6]. Published studies have focused on women who received a multitude of additional conservative treatment modalities, including compression suture, administration of methotrexate, UAE, pelvic arterial ligation, hysteroscopic resection of retained placental tissues, and segmental excision and reconstruction of the uterus [1,4].

Overall, high rates of recurrence of PAS disorder, ranging from 13 to 29%, have been reported in the literature, though the rates vary widely by series and underlying diagnosis [1,4–8]; however, no study has examined the effect of the degree of PAS disorder (accreta/increta/percreta) suffered prior to conservative treatment nor the impact of the various additional adjuvant management strategies on the risk of PAS disorder recurrence [1]. Overall, any circumstances that tend to cause uterine damage, myometrial scarring, or deficient development of the decidua may predispose a patient to recurrent placental abnormalities. In women who become pregnant following a uterus-conserving procedure for prior PAS disorder, we speculate that the most important risk factor for recurrence is the site of lower uterine segment implantation of the future pregnancy. The recurrence rate may be higher in women with more widespread PAS lesions, because uterus-conserving

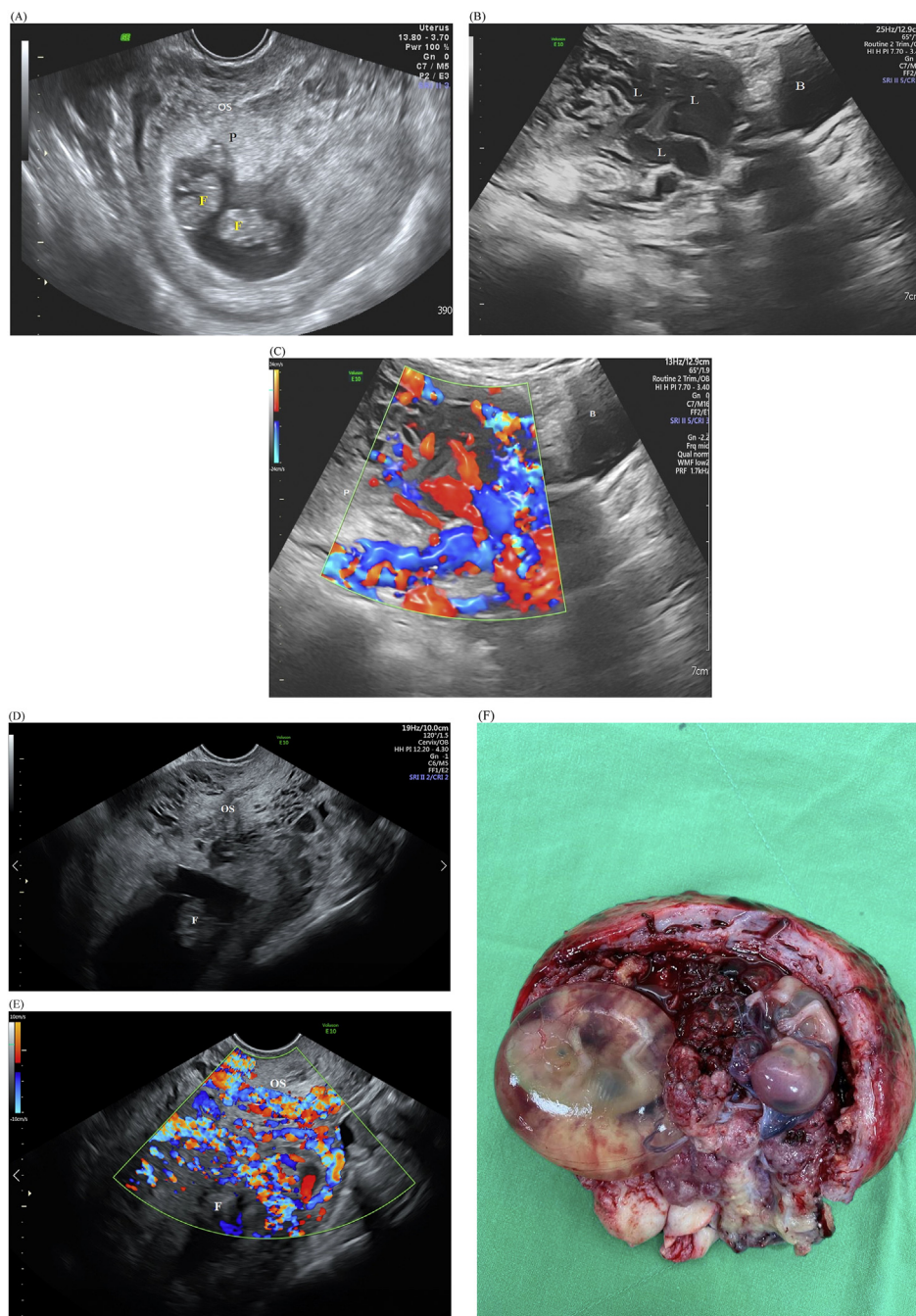


Fig. 2. (A) Transvaginal ultrasound showing a dichorionic/diamniotic pregnancy with CRLs of 1.65 cm and 2.03 cm, respectively. The inhomogeneous placenta encircled the fetuses and completely covered the internal os of the cervix and lower uterine segment at 8 weeks. (B) Transabdominal grayscale ultrasound showing the presence of multiple bizarre and irregularly-shaped grade 3+ lacunae in the lower uterine segment at 10 weeks. (C) Transabdominal color Doppler imaging showing markedly increased hypervascularity in the lower uterine segment. (D) Transvaginal ultrasound showing sonolucent areas throughout the lower uterine segment that varied in size and shape, resulting in a “moth-eaten” appearance consistent with deep myometrial and cervico-isthmus stromal invasion. (E) Transvaginal color Doppler mapping showing diffuse vascularity in the lower uterine segment and cervico-isthmus region. (F) Gross photograph of the hysterectomy bisected specimen demonstrating two embryos of 4.0 and 4.6 cm in length and a morbidly adherent placenta. B = bladder; CRL = crown-rump length; F = fetus; L = lacuna; OS = internal os of the cervix; P = placenta.

surgical procedures result in much more severe uterine damage as compared with conventional cesarean section.

Although many successful cases in which an expectant management strategy was employed with delivery of a near-term healthy baby have been reported, the severe form of recurrent PAS disorder poses a very challenging situation for obstetricians when the diagnosis is obtained as early as the first trimester, as there is no standard care protocol for the management of those cases. Most reports in the literature suggest the surgical strategy of

a hysterectomy as the definitive treatment for first-trimester PAS disorder, especially in severe cases with a high risk of maternal morbidity or mortality due to placental penetration of the maternal bladder, cervico-vaginal or uterine parametria should the pregnancy continue to near term [9,10]. Furthermore, the severe form of PAS disorder may pose a very challenging surgical situation, despite the diagnosis having been made in early pregnancy. Shih et al. [11], Chen et al. [12], and Carugno et al. [13] reported three cases of multipara with placenta increta/percreta, in which an emergency

hysterectomy was performed at 15–16 weeks of gestation, with massive blood losses during surgery of 12,000 mL, 5450 mL and 30,000 mL, respectively. These reports demonstrated that even though a diagnosis had been made and surgery performed in early gestation, the surgical procedure may still be problematic, with a massive blood loss. Therefore, it is clear that both grading of the severity of recurrent early PAS disorder and implementation of an appropriate management strategy are crucial in order to achieve a good treatment outcome.

In conclusion, high rates of recurrence of PAS disorder in subsequent pregnancies should be discussed with patients who have received an antenatal diagnosis of PAS disorder who may be considering uterine conservation in order to retain the option of a future pregnancy. Early diagnosis of the severe form of recurrent PAS disorder at 8 weeks in a twin pregnancy could result in a better obstetric outcome via earlier elective intervention using the surgical strategy of a hysterectomy and prophylactic IIABO.

Declaration of Competing Interest

The authors declare no financial disclosures or conflicts of interest relevant to this manuscript.

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