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Case Series

Conservative versus surgical management of placenta accreta spectrum following mid-trimester abortion: a case series

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ABSTRACT

Placenta accreta spectrum (PAS) is a rare but potentially life-threatening obstetric condition characterized by abnormal placental adherence or invasion into the myometrium. Although it is commonly associated with previous cesarean delivery, PAS may rarely occur following spontaneous mid-trimester abortion in women without a uterine scar. We present two cases of placenta increta diagnosed after spontaneous mid-trimester abortion with retained products of conception and persistent vaginal bleeding. Both patients underwent transvaginal ultrasonography with colour Doppler followed by pelvic magnetic resonance imaging (MRI), which confirmed focal myometrial invasion. The first patient, a 31-year-old multiparous woman who desired future fertility, was managed conservatively with systemic methotrexate, serial serum beta-human chorionic gonadotropin (β -hCG) monitoring, and close ultrasonographic follow-up, resulting in complete resolution of retained placental tissue. The second patient, a 43-year-old multiparous woman with completed family and severe anemia underwent total laparoscopic hysterectomy with bilateral salpingo-oophorectomy after preoperative optimization with blood transfusion and had an uneventful postoperative recovery. These cases highlight that PAS should be considered in women presenting with persistent bleeding after spontaneous abortion, particularly when highly vascular retained products are identified on imaging. Early diagnosis using ultrasonography and MRI facilitates timely individualized management. Conservative treatment may be successful in carefully selected women desiring fertility preservation, whereas hysterectomy remains the definitive treatment in women with completed family or significant risk of hemorrhage.

Keywords: Placenta accreta spectrum, Placenta increta, Mid-trimester abortion, Methotrexate, Hysterectomy, Retained products of conception

INTRODUCTION

Placenta accreta spectrum (PAS) comprises a group of disorders characterized by abnormal adherence or invasion of placental villi into the uterine wall due to partial or complete absence of the decidua basalis and defective Nitabuch's layer. Depending on the depth of trophoblastic invasion, PAS is classified as placenta accreta, placenta increta, and placenta percreta.

Placenta accreta accounts for approximately 60-70% of cases, followed by placenta increta and placenta percreta.¹

The incidence of PAS has increased considerably during the past two decades, primarily because of the rising global cesarean section rate.² Previous cesarean delivery remains the strongest risk factor; however, previous uterine curettage, placenta previa, multiparity, assisted reproductive techniques, and other uterine surgical procedures have also been implicated in its pathogenesis.² PAS is associated with significant maternal morbidity owing to severe obstetric hemorrhage, massive blood transfusion, disseminated intravascular coagulation, hysterectomy, adjacent organ injury, and maternal mortality if not diagnosed and managed promptly.¹

Prenatal diagnosis relies mainly on ultrasonography with colour Doppler evaluation, which demonstrates placental lacunae, loss of the retroplacental clear zone, marked subplacental vascularity, uterovesical hypervascularity, and bridging vessels extending beyond the uterine serosa.³ Pelvic MRI serves as an important complementary imaging modality in patients with equivocal ultrasonographic findings, posterior placentation, or suspected deep myometrial invasion. MRI findings suggestive of PAS include dark intraplacental T2 bands, heterogeneous placental signal intensity, focal interruption of the uteroplacental interface, abnormal uterine bulging, and disorganized intraplacental vascularity.⁴

Management depends on the patient's hemodynamic status, degree of placental invasion, extent of hemorrhage, reproductive wishes, and available institutional expertise. Planned cesarean hysterectomy remains the standard treatment for extensive PAS; however, conservative approaches such as expectant management or methotrexate therapy may be considered in carefully selected women wishing to preserve fertility, provided that close follow-up and emergency surgical facilities are available.⁵

PAS presenting after spontaneous mid-trimester abortion without a previous cesarean scar is uncommon and may mimic retained products of conception, resulting in delayed diagnosis. Persistent vaginal bleeding associated with highly vascular retained placental tissue should therefore raise clinical suspicion. We report two cases of placenta increta following spontaneous mid-trimester abortion that had similar clinical presentations but were managed using different therapeutic approaches according to the patients' age, reproductive wishes, and clinical status.

CASE SERIES

Case 1

A 31-year-old woman, gravida 4 para 2 living 2 abortion 1 (G4P2L2A1), presented with intermittent bleeding per vaginum for one month following a spontaneous abortion at 20 weeks of gestation, for which she had undergone dilatation and curettage at a peripheral healthcare facility. She had amenorrhea for five months, and the urine pregnancy test remained positive. She had conceived spontaneously after nine years of marriage and had no significant medical or surgical history. Her previous two deliveries were full-term vaginal births, with the last childbirth occurring six years earlier. There was no history of previous cesarean delivery or uterine surgery.

On examination, the patient was hemodynamically stable, with a blood pressure of 116/72 mmHg and pulse rate of 80 beats/minute. General and systemic examinations were unremarkable. Laboratory investigations revealed a hemoglobin level of 8.8 g/dL, platelet count of

$1.92 \times 10^5/\text{mm}^3$, and normal renal and liver function tests. Her blood group was O positive.

Transvaginal ultrasonography demonstrated an endometrial collection measuring approximately 25 CC containing blood clot. A heterogeneous echogenic lesion measuring $3.0 \times 1.9 \times 2.2$ cm with marked internal vascularity was seen infiltrating the left posterolateral myometrium, raising suspicion of placenta increta (Figure 1). Pelvic MRI revealed a heterogeneous enhancing soft tissue lesion within the endometrial cavity extending into the left posterolateral myometrium at the fundal region, reaching up to 2.9 mm from the serosal surface, consistent with retained products of conception with focal placenta increta (Figure 2).

Per abdominal examination was normal. On speculum examination, minimal spotting was observed through a healthy cervix. Vaginal examination revealed a bulky uterus with the cervical os admitting one finger, while both fornices were free and non-tender.

Considering the patient's desire for future fertility, conservative management was planned after detailed counselling regarding the potential risks of severe hemorrhage, failure of medical management, and the possible need for emergency hysterectomy. She received one unit of packed red blood cells for correction of anemia. Her baseline serum β -human chorionic gonadotropin (β -hCG) level was 13.34 IU/L, following which intramuscular methotrexate (50 mg) was administered. One week later, the β -hCG level had declined to 6.86 IU/L, and a second dose of intramuscular methotrexate (50 mg) was administered.

The patient remained clinically stable throughout hospitalization without significant vaginal bleeding or signs of infection. Follow-up ultrasonography demonstrated complete resolution of the retained placental tissue with disappearance of abnormal vascularity. She was discharged in satisfactory condition and advised oral contraceptive pills for contraception with regular outpatient follow-up.

Case 2

A 43-year-old woman, gravida 5 para 4 living 4 abortion 1 (G5P4L4A1), presented with persistent bleeding per vaginum for ten days following spontaneous abortion at approximately 16 weeks of gestation, for which she had undergone dilatation and curettage. She reported amenorrhea for three months, with the last menstrual period on 02 November 2024. A urine pregnancy test remained positive. She had conceived spontaneously and had no history of previous cesarean section, uterine surgery, or significant medical illness. Her previous four pregnancies had resulted in uncomplicated full-term vaginal deliveries, with the last childbirth occurring 17 years earlier.

On admission, she was hemodynamically stable, with a blood pressure of 110/72 mmHg and pulse rate of 88 beats/minute. General examination revealed pallor. Laboratory investigations showed severe anemia with a hemoglobin level of 6.8 g/dL, while platelet count, liver function tests, and renal function tests were within normal limits. Her blood group was B positive.

Transvaginal ultrasonography demonstrated a 13 CC endometrial collection containing blood clot along with a highly vascular heterogeneous lesion extending into the left posterolateral myometrium, suggestive of placenta increta. Pelvic MRI confirmed retained products of conception with focal myometrial invasion involving the left posterolateral uterine wall. Bilateral corpus luteal cysts were also noted (Figure 2).

Per abdominal examination was unremarkable. Speculum examination demonstrated active bleeding through the cervical os. Vaginal examination revealed a bulky uterus with the cervical os admitting one finger, while both fornices were free.

Considering the patient's completed family, severe anemia, and increased risk of life-threatening hemorrhage, definitive surgical management was planned. Following detailed counselling and transfusion of three units of packed red blood cells, she underwent total laparoscopic hysterectomy with bilateral salpingo-oophorectomy. Preoperative serum β -hCG was 13.54 IU/L. The procedure was completed without intraoperative complications. Gross examination of the hysterectomy specimen confirmed focal placental invasion into the myometrium, consistent with placenta increta (Figure 3). The postoperative period was uneventful, and the patient was discharged on the second postoperative day in stable condition.

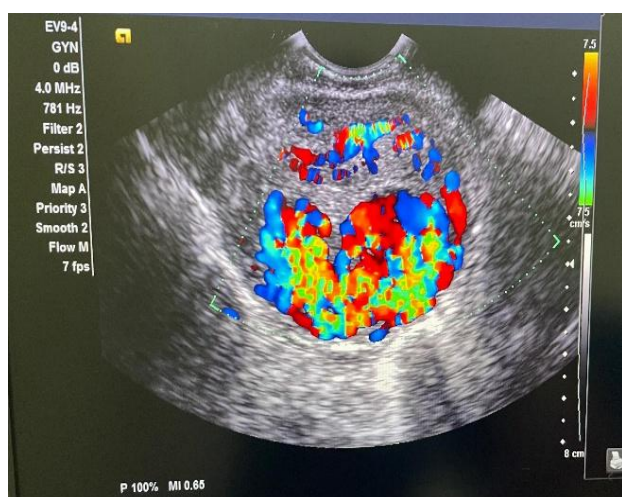


Figure 1: Transvaginal colour Doppler ultrasonography demonstrating a highly vascular retained placental mass infiltrating the left posterolateral myometrium, suggestive of placenta increta.

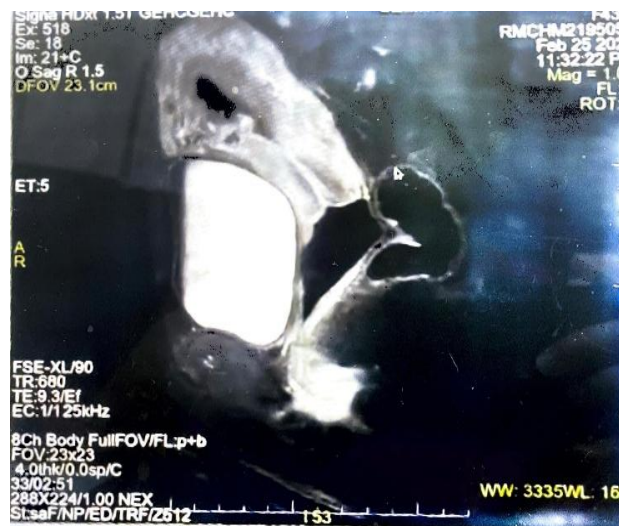


Figure 2: Sagittal T2-weighted pelvic MRI demonstrating retained products of conception with focal myometrial invasion consistent with placenta increta.



Figure 3: Gross hysterectomy specimen demonstrating focal placental invasion into the myometrium following total laparoscopic hysterectomy.

DISCUSSION

PAS is one of the most challenging obstetric conditions because of its association with severe maternal morbidity and mortality resulting from massive obstetric hemorrhage, disseminated intravascular coagulation, need for massive blood transfusion, adjacent organ injury, and peripartum hysterectomy.¹ Although the majority of cases are diagnosed antenatally in women with placenta previa and previous cesarean delivery, PAS may rarely present after spontaneous or induced abortion and can easily be mistaken for retained products of conception, thereby delaying appropriate diagnosis and treatment.²

The two cases presented in this series are unusual because neither patient had a history of previous cesarean section, the most well-established risk factor for PAS. Instead, both women had undergone dilatation and curettage following spontaneous mid-trimester abortion. Previous uterine instrumentation is recognized as an independent risk factor because repeated endometrial trauma may lead to defective decidualization, allowing abnormal trophoblastic invasion into the myometrium during subsequent pregnancies.² These cases therefore highlight that clinicians should maintain a high index of suspicion for PAS even in women without a uterine scar when persistent vaginal bleeding follows abortion.

Persistent or recurrent bleeding after evacuation of the uterus is commonly attributed to retained products of conception, infection, or gestational trophoblastic disease. However, persistent low-level β -hCG values associated with a highly vascular intrauterine lesion should prompt consideration of PAS. In both of our patients, prolonged vaginal bleeding, persistent positive pregnancy test, and highly vascular retained tissue on ultrasonography suggested an alternative diagnosis rather than simple retained products of conception. Early recognition prevented repeated uterine instrumentation, which could have precipitated catastrophic hemorrhage.

Ultrasonography with colour Doppler remains the first-line imaging modality for diagnosing PAS because of its wide availability, safety, and high diagnostic accuracy. Characteristic findings include placental lacunae, increased subplacental vascularity, uterovesical hypervascularity, thinning or absence of the retroplacental clear zone, and bridging vessels extending beyond the uterine serosa.³ In our first patient, colour Doppler demonstrated marked vascularity extending into the left posterolateral myometrium, raising suspicion of placenta increta. Similar ultrasonographic findings were observed in the second patient, facilitating early diagnosis and timely management.

MRI serves as a valuable adjunct in cases where ultrasound findings are equivocal or when deeper myometrial invasion is suspected. D'Antonio et al reported pooled sensitivity ranging from 75% to 100% and specificity between 65% and 100% for MRI in diagnosing PAS.⁴ MRI in both of our patients clearly demonstrated focal myometrial invasion while preserving the uterine serosal surface, confirming the diagnosis of placenta increta and assisting in therapeutic planning. These findings emphasize the complementary role of MRI in accurately defining the extent of placental invasion before deciding on conservative or surgical management.

The management of PAS should be individualized according to the patient's hemodynamic condition, degree of placental invasion, severity of bleeding, reproductive wishes, and institutional expertise. Current FIGO recommendations advocate multidisciplinary management in specialized centres whenever feasible.⁵ While cesarean

hysterectomy remains the standard treatment for extensive PAS diagnosed during pregnancy, conservative management may be considered in carefully selected women who desire future fertility and remain hemodynamically stable.⁵

Our first patient fulfilled these criteria, being young, clinically stable, and desirous of preserving fertility. She was therefore managed conservatively using systemic methotrexate with serial β -hCG monitoring and close ultrasonographic surveillance. Although the role of methotrexate remains controversial because placental trophoblasts near term have limited mitotic activity, residual trophoblastic tissue following second-trimester pregnancy loss may retain proliferative potential.⁵ In our patient, gradual decline in β -hCG levels together with complete radiological resolution of retained placental tissue indicated successful conservative treatment without significant complications or the need for subsequent surgical intervention.

In contrast, the second patient had completed her family and presented with severe anemia secondary to persistent bleeding. Considering the substantial risk of life-threatening hemorrhage and the absence of future fertility wishes, definitive surgical management was considered the most appropriate treatment. Total laparoscopic hysterectomy was successfully performed following adequate preoperative optimization with blood transfusion. Eller et al demonstrated that planned definitive surgical management significantly reduces maternal morbidity when compared with emergency intervention undertaken after uncontrolled hemorrhage.⁶ The favourable postoperative outcome observed in our patient supports this management strategy.

An important learning point from both cases is that PAS should remain an important differential diagnosis in women presenting with persistent bleeding following spontaneous mid-trimester abortion, particularly when imaging demonstrates a highly vascular intrauterine lesion. Repeat curettage in such patients without excluding PAS may precipitate massive hemorrhage requiring emergency hysterectomy and extensive blood transfusion. Early diagnosis using colour Doppler ultrasonography followed by MRI, when indicated, allows individualized treatment planning and improves maternal outcomes.

Although our report includes only two patients, it illustrates two contrasting yet successful management strategies for the same pathological entity. Conservative treatment may be considered in selected women wishing to preserve reproductive potential, whereas hysterectomy remains the safest and most definitive treatment in women with completed family or significant hemorrhagic risk. A multidisciplinary approach involving obstetricians, radiologists, anesthesiologists, transfusion medicine specialists, and experienced laparoscopic surgeons is essential to optimize maternal outcomes.

Strengths and limitations

The major strength of this case series is the description of two uncommon presentations of placenta increta following spontaneous mid-trimester abortion in women without previous cesarean delivery. The use of complementary imaging modalities, including colour Doppler ultrasonography and pelvic MRI, facilitated accurate diagnosis and individualized management. Furthermore, the report highlights both fertility-preserving conservative treatment and definitive surgical management, thereby providing practical clinical insights.

The principal limitation is the small sample size inherent to a case series, which limits generalizability of the findings. In addition, long-term reproductive outcomes following conservative management could not be assessed.

Clinical significance

Persistent vaginal bleeding following spontaneous mid-trimester abortion should not always be attributed to retained products of conception. Placenta accreta spectrum should be considered when highly vascular retained placental tissue is identified on colour Doppler ultrasonography. Early diagnosis with appropriate imaging enables individualized management, reduces the risk of catastrophic hemorrhage, and facilitates fertility-preserving treatment in carefully selected patients.

CONCLUSION

Placenta accreta spectrum may rarely present after spontaneous mid-trimester abortion, even in women without previous cesarean delivery. Persistent vaginal bleeding associated with highly vascular retained products of conception should prompt suspicion of abnormal placental invasion. Colour Doppler ultrasonography remains the primary diagnostic modality, while pelvic MRI provides valuable additional information regarding the depth and extent of myometrial invasion. Management should be individualized according to the patient's clinical status, severity of hemorrhage, extent of placental invasion, and future fertility wishes. Conservative treatment with methotrexate may be successful in carefully selected hemodynamically stable women desiring uterine preservation, whereas hysterectomy remains the definitive

treatment for women with completed family or high risk of severe hemorrhage. Early diagnosis and multidisciplinary management are essential for reducing maternal morbidity and improving clinical outcomes.

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