Hattrick anomaly: placenta accreta spectrum in a bicornuate uterus presenting as retained placenta following mid-trimester termination of pregnancy with an anomalous fetus

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SUMMARY

Placenta accreta spectrum (PAS) is an increasingly recognised cause of obstetric morbidity, typically associated with prior uterine surgery. Its occurrence in an unscarred, congenitally anomalous uterus is distinctly rare and poses significant diagnostic and therapeutic challenges. We report the case of a 28-year-old Gravida 2 Para 1 at 22+2 weeks of gestation who underwent medical termination of pregnancy for fetal hypoplastic left heart syndrome with an incidentally diagnosed bicornuate uterus. The procedure was complicated by retained placenta and severe haemorrhage. Imaging raised suspicion of PAS - nitabuch layer absent and placenta margins could not be be identified . The patient underwent emergency hysterotomy,. Bilateral internal iliac artery ligation was performed to control haemorrhage, allowing uterine preservation and safe removal of placenta. This case highlights the rare but important association between congenital uterine anomalies and PAS, the limitations of conventional management strategies in this context, and the value of timely multidisciplinary intervention to optimise maternal outcomes while preserving fertility.

Keywords: Placenta accreta spectrum, bicornuate uterus, retained placenta, mid-trimester termination, congenital uterine anomaly, hysterotomy.

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BACKGROUND

Placenta accreta spectrum (PAS) encompasses abnormal placental adherence to the myometrium, ranging from accreta to increta and percreta, and is a major contributor to obstetric haemorrhage and maternal morbidity worldwide. Its incidence has risen in parallel with increasing caesarean delivery rates, and prior uterine surgery remains the most significant risk factor. However, PAS can also occur in unscarred uterus, particularly in association with abnormal placentation and structural uterine anomalies, although such presentations are uncommon [1].Congenital uterine anomalies, including bicornuate uterus, are known to alter endometrial–myometrial interface development and local decidualization, potentially predisposing to abnormal placental invasion [2]. The coexistence of PAS and a bicornuate uterus is rare but has been increasingly reported, underscoring the need for heightened clinical vigilance in atypical presentations [3]. Mid-trimester termination of pregnancy in the presence of PAS is associated with significant hemorrhagic risk, frequently complicated by retained placenta and failure of conservative measures [4]. Timely diagnosis is often limited by nonspecific imaging findings and low preprocedural suspicion in patients without classical risk factors [5]. Management strategies for PAS continue to evolve, with increasing emphasis on conservative and uterus-preserving approaches where feasible, particularly in young women desiring future fertility [6]. This case illustrates a rare but clinically significant triad of bicornuate uterus, PAS, and mid-trimester termination, emphasising the importance of early recognition and multidisciplinary care.

CASE PRESENTATION

A 28-year-old woman, Gravida 2 Para 1 Living 1, presented at 22 weeks and 2 days of gestation for medical termination of pregnancy following prenatal diagnosis of fetal hypoplastic left heart syndrome in her anomaly scan Her previous pregnancy had been a term vaginal delivery without complications. She had no history of caesarean section, uterine surgery, dilatation and curettage, or endometrial instrumentation. There was no prior history suggestive of abnormal placentation or postpartum haemorrhage. Given the severe fetal cardiac anomaly and after detailed counselling, a decision was made to proceed with medical termination of pregnancy.

Termination was initiated using standard institutional protocol with mifepristone followed by misoprostol. Expulsion of the fetus occurred uneventfully. However, this was followed by failure of placental expulsion despite adequate uterine contractions. The patient subsequently developed increasing vaginal bleeding. Initial uterotonic agents were administered, but the placenta remained adherent, and attempts at controlled cord traction were unsuccessful. Given the retained placenta and escalating haemorrhage, The clinical picture raised suspicion of placenta accreta spectrum. Antenatal ultrasonography had incidentally revealed a bicornuate uterus,. The placenta was present in the right horn in the findal region. There were no sonographic features suggestive of placenta previa. The patient remained haemodynamically stable but continued to have active bleeding, prompting urgent further evaluation and surgical intervention.

INVESTIGATIONS

Emergency transabdominal ultrasonography demonstrated a heterogeneous placental mass within the right horn of the bicornuate uterus with loss of the normal hypoechoic retroplacental zone. There was focal thinning of the myometrium at the placental implantation site, and increased vascularity was noted on colour Doppler imaging. These findings were suggestive of placenta accreta spectrum.Baseline laboratory investigations revealed a haemoglobin level of 10.2 g/dL prior to termination, which dropped to 8.6 g/dL following the onset of haemorrhage. Coagulation parameters were within normal limits. In view of the acute clinical situation and ongoing bleeding, further advanced imaging such as magnetic resonance imaging was not pursued, and a decision was made for immediate surgical exploration

DISCUSSION

In the setting of retained placenta following mid-trimester termination, the initial diagnostic consideration was uterine atony, which remains the most common cause of postpartum haemorrhage. However, the uterus was found to be well contracted, and uterotonic agents failed to facilitate placental expulsion, making atony an unlikely primary cause. Placental entrapment within the anomalous uterine cavity was also considered, particularly given the presence of a bicornuate uterus. Anomalous uterine anatomy can interfere with effective placental separation and expulsion. However, during manual removal, the absence of a definable cleavage plane and the firm adherence of placental tissue to the uterine wall argued against simple mechanical entrapment. Placenta accreta spectrum was strongly suspected due to the dense adherence of the placenta, failure of manual removal, and ultrasonographic features demonstrating loss of the retroplacental clear zone and myometrial thinning. Although the patient lacked classical risk factors such as prior caesarean section or uterine surgery, the presence of a congenital uterine anomaly was recognized as a potential predisposing factor for abnormal placentation.

Collectively, the clinical findings, imaging features, and intraoperative assessment supported the diagnosis of placenta accreta spectrum in a bicornuate uterus.

Mid-trimester termination of pregnancy in the presence of PAS carries a high risk of retained placenta and hemorrhage [6]. Conservative measures, including uterotonics and manual removal, are frequently ineffective because of the absence of a physiological plane of separation [7]. In the present case, failure of placental expulsion and dense adherence encountered during manual removal were key clinical clues pointing towards PAS, subsequently supported by ultrasonographic findings. The management of PAS has evolved from routine peripartum hysterectomy towards more individualized, fertility-preserving strategies in selected patients [8]. Conservative approaches, including uterine-sparing surgery and vascular control techniques, are particularly relevant in young women desiring future fertility. Bilateral internal iliac artery ligation remains a valuable adjunct in controlling intractable pelvic haemorrhage and has been shown to significantly reduce intraoperative blood loss in PAS-related surgery [9].

Several recent case reports have described PAS in unscarred bicornuate uteri, often presenting as retained placenta or refractory postpartum haemorrhage [4,10]. These cases underscore the importance of maintaining a high index of suspicion for PAS in women with congenital uterine anomalies, even in the absence of traditional risk factors.This case highlights a rare but clinically significant triad of bicornuate uterus, mid-trimester termination, and PAS. It reinforces the need for early diagnostic consideration, multidisciplinary involvement, and timely surgical intervention to optimise maternal outcomes while preserving reproductive potential.

TREATMENT

Given the failure of conservative measures and the ongoing haemorrhage, the patient was taken for emergency laparotomy. Intraoperatively, a bicornuate uterus was confirmed, with the placenta densely adherent to the fundal region of the right uterine horn. There was no evidence of uterine rupture or extrauterine placental invasion. A hysterotomy was performed over the right uterine horn to facilitate placental removal. The placenta was found to be firmly adherent to the myometrium, consistent with placenta accreta spectrum. Bilateral internal iliac artery ligation was done following which the placenta was removed. This resulted in a marked reduction in pelvic bleeding. The uterine incision was closed in layers, and haemostasis was confirmed.. The uterus was preserved, in keeping with the patient's desire for future fertility.

OUTCOME AND FOLLOW-UP

Postoperatively, the patient remained haemodynamically stable. Vaginal bleeding reduced significantly following bilateral internal iliac artery ligation, and there was no further requirement for surgical re-exploration. Her postoperative hemoglobin stabilized at 9.4 g/dL following transfusion. Broad-spectrum intravenous antibiotics were administered prophylactically for 48 hours.. There were no postoperative complications such as infection, febrile morbidity, or thromboembolic events. Sutures were removed on day 7. She was discharged on postoperative day 8 in a stable condition.

Histopathological examination of the placenta demonstrated placental villi appropriate for gestational age with focal absence of decidua basalis and direct attachment of chorionic villi to the myometrium, consistent with placenta accreta spectrum. The membranes were free of inflammation, and there was no evidence of placental infarction or chorioamnionitis.

Conclusion

Placenta accreta spectrum (PAS) represents a continuum of abnormal placental adherence that poses a substantial risk of haemorrhage and maternal morbidity. Its incidence has increased globally, largely attributed to rising caesarean delivery rates, and it is now recognised as a leading indication for peripartum hysterectomy [1]. While prior uterine surgery remains the most established risk factor, PAS can also occur in unscarred uteri, particularly in the context of abnormal placentation and congenital uterine anomalies [2].Congenital uterine anomalies, such as bicornuate uterus, are associated with defective decidualisation and altered myometrial architecture, potentially predisposing to abnormal trophoblastic invasion [3]. The coexistence of PAS and a bicornuate uterus is rare but has been increasingly reported, highlighting a non-classical pathway for PAS development [4]. In such cases, diagnosis is often delayed due to low clinical suspicion, especially in the absence of placenta previa or a prior caesarean scar [5].

LEARNING POINTS/TAKE HOME MESSAGES *3-5 bullet points*

- ✓ Placenta accreta spectrum can occur in unscarred uteri and should be considered in women with congenital uterine anomalies presenting with retained placenta and haemorrhage.
- ✓ Bicornuate uterus may predispose to abnormal placentation due to altered decidualisation and myometrial architecture.
- ✓ Mid-trimester termination in the presence of undiagnosed PAS carries a high risk of retained placenta and severe haemorrhage.
- ✓ Failure of manual placental removal and loss of the retroplacental clear zone on ultrasonography are key diagnostic clues for PAS.
- ✓ Bilateral internal iliac artery ligation is an effective fertility-preserving adjunct for haemorrhage control in PAS-related surgery.
- ✓ Multidisciplinary and timely surgical intervention is critical to optimise maternal outcomes and preserve reproductive potential.

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FIGURE/VIDEO CAPTIONS

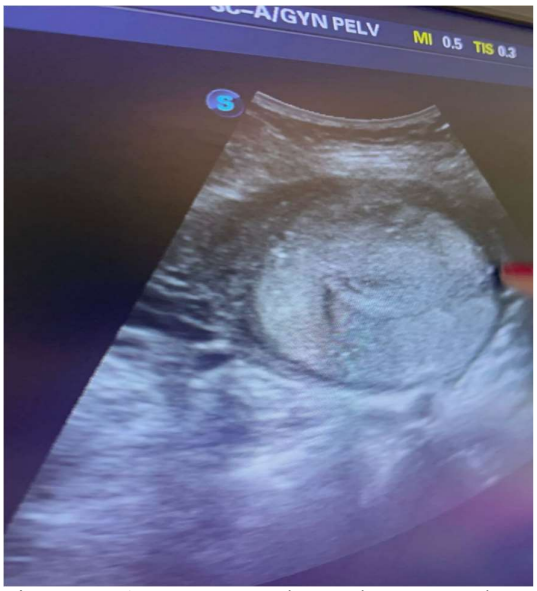

Figure 1. Antenatal ultrasonography demonstrating a bicornuate uterus with pregnancy located in the right uterine horn.

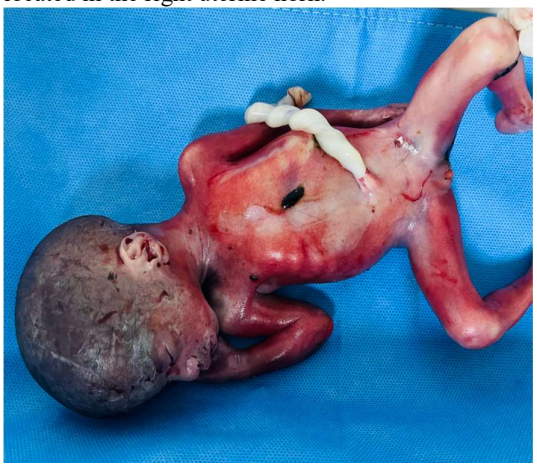

Figure 2. Expelled fetus following mid-trimester termination of pregnancy.

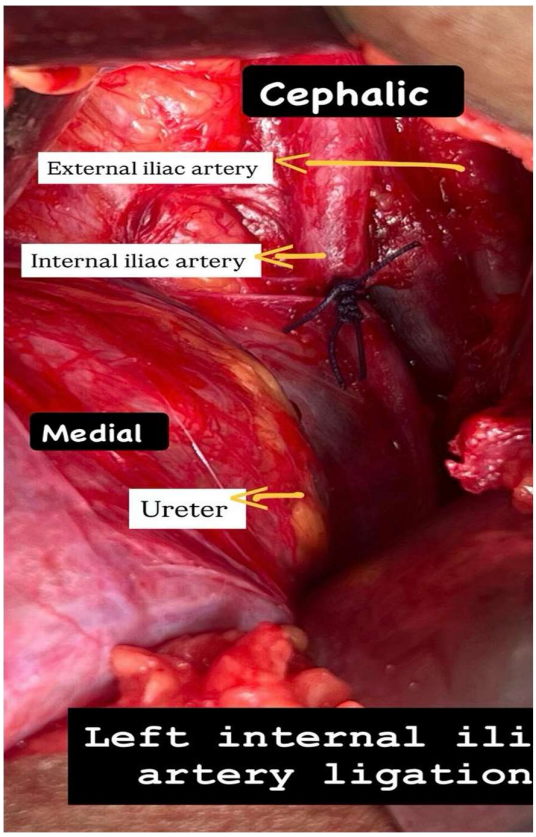

Figure 3. Postoperative uterine appearance following uterine preservation.