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Case Report

# Placenta percreta in first trimester – A rarity and diagnostic dilemma

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ABSTRACT

The diagnosis of placenta accreta spectrum (PAS) in pregnancy is associated with severe maternal complications and is potentially life threatening. Moreover, PAS is difficult to diagnose in the first trimester, and the accuracy is low. A prenatal diagnosis is pivotal for planning an optimal management in PAS. A first trimester US(Ultrasound) can detect PAS in good proportion of cases, although the sensitivity is lower than a second or third trimester US. An early first trimester US can further help predict severity of PAS and its surgical outcome. As the management and diagnosis remains a challenge as far as PAS in early pregnancy is concerned, a high clinical suspicion especially in cases of previous uterine scar and bleeding following a surgical evacuation cannot be overemphasised. We report a case of Placenta Percreta in First Trimester, its rarity and diagnostic dilemma.



## 1. Introduction

The diagnosis of placenta accreta spectrum (PAS) in pregnancy is associated with severe maternal complications and is potentially life threatening. The incidence of PAS is on rise, because of an escalating caesarean delivery rate.[1] The detection of PAS in early pregnancy is rare.[2] Moreover PA is difficult to diagnose in the first trimester, and the accuracy is low.[3]

Placenta accreta (PA) occurs when a defect of the deciduas basalis allows the invasion of chorionic villi into the myometrium. PA is classified on the basis of the depth of myometrial invasion. The recent guidelines now consider three categories for placenta accreta spectrum (PAS) disorders;1)placenta accreta vera, the mildest form of PA, villi attached to the myometrium but do not invade the muscle.; 2) placenta increta, villi partially invade the myometrium; 3) placenta percreta, in which villi penetrate through the entire myometrial thickness including serosa and occasionally adjacent pelvic organs.[4]

A prenatal diagnosis is pivotal in planning an optimal management in PAS. Ultrasonography (US) is the primary method of evaluation and diagnosis of suspected PA, because it is non invasive, has high sensitivity and is easily available. Magnetic resonance (MR) complements US and is reserved for cases where US is not diagnostic.[5]

The management of PAS in first trimester is not yet clearly defined, because of its rarity. A conservative management in form of Uterine Artery Embolization (UAE), laparoscopic hysterotomy with placental tissue removal can be tried as an initial measure. Many require hysterectomy as primary treatment, or in case of failure of conservative management.[2]

We report a case of a patient with a 9-week missed abortion with one prior caesarean delivery and failed medical management. She subsequently had an attempted dilation and evacuation that was complicated by a significant haemorrhage, and was later diagnosed as PAS at

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our institute, ultimately requiring a hysterectomy.

## 2. Case Report

A 24-year-old woman G2P1L1 with one prior caesarean delivery, was admitted in emergency with complaints of vaginal bleeding and pain lower abdomen for one day, following a failed attempt at surgical abortion. After confirming her pregnancy at home she took medical method of pregnancy termination, which failed. She then underwent dilatation and evacuation after US report of 9 weeks missed abortion, but the procedure was abandoned in view of significant haemorrhage and patient was referred to our institute with suspicion of scar dehiscence. On admission, patient was Afebrile, had a Pulse rate of 124 bpm, a BP of 120/80 mmHg. On per abdomen examination; uterus was 16 weeks size and tenderness was present. On per speculum examination; bleeding present through the os. On per vaginal examination; cervix was posterior with closed os, uterus was anteverted, 14-16 weeks size (distended more in the lower body), mobile, and no palpable adnexal mass. On evaluation, haemoglobin was 10gm% and other Investigations were within normal limits. The βhCG levels was 104.3 mIU/ml. Hence, molar pregnancy was ruled out.

Ultrasound was suggestive of retained products of conception of (likely adherent) with endometrial hematoma and suspicious uterine scar site rent of 2.1 mm (Figure 1). MRI revealed a heterogenous intra-cavitory mass of size 6.9*6.5*7.6 cm in lower uterine cavity causing marked distension, with ill- defined adjacent junctional zone more so anteriorly with myometrial thinning and minimal enhancement, suggesting retained products of conception.


**Figure 1:** Ultrasound showing multiple retained products of conception of 43*28 mm (likely adherent) with endometrial hematoma of 40*21mm likely communicating with peri-uterine hematoma through a suspicious uterine scar site rent of 2.1 mm

The radiological findings were equivocal, but there was a high clinical suspicion of PAS in view of previous caesarean, clinical presentation, location and size of the mass. As patients vitals were stable, dehiscence ruled out and pain subsided, option of conservative management was given to patient, but she refused. The patient was then taken up for diagnostic laparoscopy and proceed. On laparoscopy findings were suggestive of PAS; lower uterine segment was bulged out, distended, thinned out with few areas showing placental tissue covered with just serosa, and markedly dilated blood vessels seen all over the lower uterine segment (Figure 2). A sub-total hysterectomy was performed, on application of left uterine clamps the cavity gaped (2-3 cm) and placental tissue could be seen invading uterine wall.

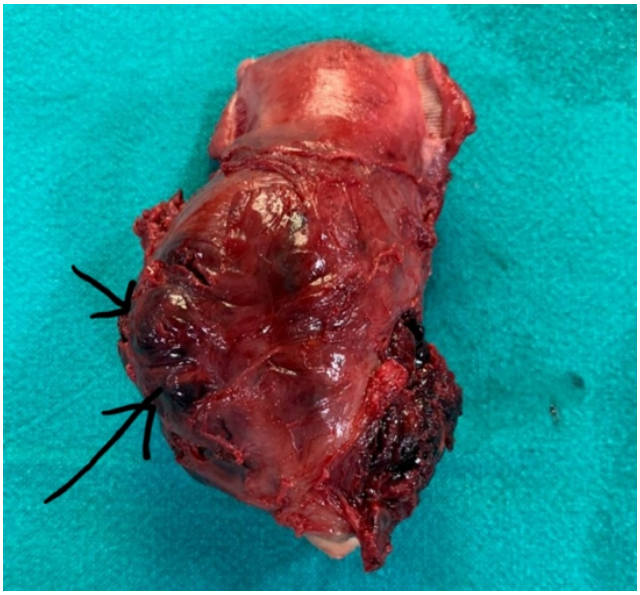

**Figure 2:** Gross specimen of uterus with placenta encroaching the serosa (Arrows)

Intra operative blood loss was 500 ml, 1 unit PRBC was transfused. Intraoperative and immediate post-operative period vitals were stable and patient was discharged on post-operative day 7.

Histopathological report, (Figure 3) Sections demonstrated marked myocytolysis with areas of haemorrhage, showing presence of chorionic villi seen extending to the serosa, confirming placenta percreta.

## 3. Discussion

The prevalence of PAS is increasing over decades from 1 per 2562 in 70′s to as high as 3.7 per 1000 deliveries over 1998-2011.[6,7] Most of the cases of PAS are diagnosed in second or third trimester, its prevalence in first trimester is rare. A systematic review of 2018 reported, 23 cases of PAS in first trimester, a similar number was reported in an another mini review published in 2014.[2,8] In fact there was an overlap of 15 cases in both the reviews, highlighting its rarity.

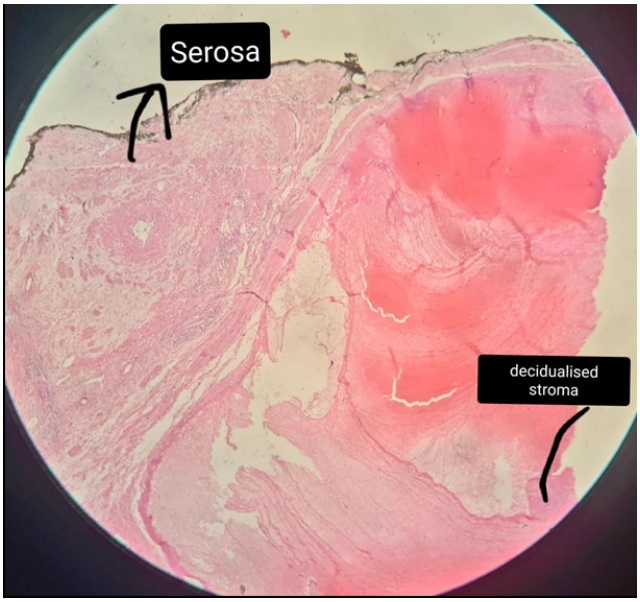


**Figure 3:** Histopathological report showing placenta percreta: villi invading serosal tissue

Previous caesarean delivery and placenta previa are established independent risk factors for placenta accreta .In a large multicentric prospective cohort study of 30132 caesarean deliveries, placenta accreta was seen in 0.24% at first caesarean, 0.31% at second, 0.57% at third, 2.13% at fourth, 2.33% at fifth, reaching values of 6.74% in the sixth caesarean section. In cases with placenta previa, the percentage of placenta accreta was 3.3%, 11%, 40%, 61%, and 67% for the first, second, third, fourth, and fifth previous caesareans, respectively.[9] The present case had, both a previous caesarean and placenta implanted in the lower segment.

Inspite of its rarity, PAS is to be kept in mind in high risk cases with bleeding after a surgical evacuation. Wang YL et al. in their systematic review with 23 cases observed, that vaginal bleeding following surgical abortion was the most common clinical presentation, as was the case in present report. Majority (15 cases) had massive haemorrhage immediately following abortion, while in 8 cases bleeding was delayed by 1-2 weeks. Most cases (20) had a history of prior caesarean section, 12 had one, 6 had two, and 2 had three previous cesarean section. One case had a history of surgical evacuation of retained placenta, and 10 cases had a history of uterine curettage.[2]

The diagnosis and management of PAS in first trimester is challenging as the diagnostic criteria as well as management is not clearly defined, because our knowledge is limited by experience of few cases in the literature. An early diagnosis of PAS can help plan an optimal management and improve maternal outcome. The US findings in our case were not diagnostic, same goes for MRI, and we had to resort to a diagnostic laproscopy.

Many sonographic markers for PAS in first trimester have been studied. Kaelin Agten A et al. reported a significant association of location of caesarean scar pregnancy in the niche and myometrial thickness <2 mm in the first-trimester scan, with morbidly adherent placenta at delivery.[10] F. D'ANTONIO et al in their systematic review found that the most common ultrasound feature in the first trimester of pregnancy was a low implantation of the gestational sac close to a previous uterine scar, which was observed in 82.4% of cases, while placental lacunae were observed in 46.0% of cases.[11]

Three sonographic markers were studied by Calí G et al(2020) for first-trimester assessment of Cesarean scar (CS) pregnancy; 1) crossover sign(COS), which is relationship of gestation sac of scar pregnancy, anterior uterine wall and caesarean scar, (Calí Get al, 2017) implantation of the gestational sac on the scar vs in the niche of the CS, 3) position of the center of the gestational sac below vs above the midline of the uterus . They observed that, 79.6% of women classified as COS-1(implantation of the gestational sac within the Cesarean scar, and at least two-thirds of the Superio–Inferior diameter of the sac above the endometrial line, towards the anterior uterine wall), 94.4% of those with gestational-sac implantation in the niche of the prior CS and 100% of those with gestational sac located below the uterine midline, on first-trimester ultrasound, were affected by the severest form of PAS disorder on third-trimester ultrasound.[10,12,13]

Wang YL et al. in 2019 in their review, found an echogenic complex mass in uterine wall in ten cases on sonography (eight of which were in lower anterior wall), two cases underwent diagnostic laproscopy (one had anterior wall defect, other had a bulging mass in lower uterine segment-Wang YL, 2011), and two cases were diagnosed on hysteroscopy. MRI was required in eight out of ten cases who underwent sonography.[2,14] The ultrasound sensitivity and specificity for detecting PA in the first trimester as reported by Rahimi Sharbaf et al. was 41% and 88% respectively. They concluded that US screening for placenta accreta in the first trimester of pregnancy can detect PAS, but could not achieve the high sensitivity as second and third trimester of pregnancy.[3]

A conservative management can be tried, UAE was done and was successful in 7 out of 8 cases in review by Wang YL et al, while 17 cases underwent hysterectomy either emergency or following failure of conservative management. Trans catheter chemoembolization (TACE) with dactinomycin was successful in one case, other conservative method employed was laproscopic hysterotomy with placental tissue removal.[2,14,15]

## 4. Conclusion

Even though PAS is rare in first trimester, it is associated with significant maternal morbidity and mortality. In high risk cases for PAS, an early first trimester diagnosis of this condition can help plan management, decide place of delivery and counsel the patient. A first trimester USG can detect PAS in good proportion of cases, although the sensitivity is lower than a second or third trimester USG. An early first trimester USG can further help predict severity of PAS and its surgical outcome. As the management and diagnosis remains a challenge as far as PAS in early pregnancy is concerned, a high clinical suspicion especially in cases of previous uterine scar and bleeding following a surgical evacuation cannot be overemphasised.

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## 6. Conflict of Interest

None.

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