

Placenta Increta in the Absence of Caesarean History: A Case Report and Literature Review

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Abstract: ***Background:** Placenta increta is an abnormal adherence of the placenta with invasion of chorionic villi into the myometrium. It is classically associated with previous uterine surgery such as caesarean sections. However, rare cases occur in the absence of cesarean history, where other risk factors such as prior curettage, advanced maternal age, or uterine anomalies may play a role. **Case Presentation:** We report a case of a 34-year-old primigravida with no prior caesarean delivery who presented with persistent vaginal bleeding in the first trimester. Transvaginal ultrasound (TVUS) and magnetic resonance imaging (MRI) suggested abnormal placental implantation in the lower uterine segment. The patient underwent definitive surgical management with total abdominal hysterectomy for life-threatening hemorrhage. Histopathologic examination confirmed placenta increta with invasion of the chorionic villi into a thickened myometrium in the absence of decidual interposition. **Discussion:** This report is accompanied by a literature review summarizing the epidemiology, imaging features, histopathology, and management options of placenta increta. Although most cases are linked to prior caesarean sections, cases without such history emphasize the importance of considering additional risk factors and maintaining a high index of suspicion in patients with abnormal placentation. **Conclusion:** Placenta increta may present even in the absence of cesarean history. Early and accurate diagnosis—using ultrasound and/or MRI—is critical to optimize management and reduce maternal morbidity. Multidisciplinary planning is essential for complex cases, and further studies are needed to refine screening protocols for patients at risk for placenta increta without conventional uterine surgery history.*

Keywords: Placenta increta, abnormal placentation, first trimester hemorrhage, uterine invasion, literature review

1. Introduction

Placenta increta represents one component of the placenta accreta spectrum (PAS) disorders, which include placenta accreta (adherence without deep invasion), increta (invasion into the myometrium), and percreta (penetration through the myometrium with possible involvement of adjacent organs). Traditionally, PAS is most frequently associated with previous cesarean sections or uterine surgery due to scarring and defective decidualization. However, although rare, placenta increta can occur in patients without a cesarean history. Alternative risk factors may include prior dilation and curettage (D&C), endometrial damage, advanced maternal age, or congenital uterine anomalies. This case report describes a patient with no prior cesarean section whose clinical course, imaging, surgical findings, and histopathology were consistent with placenta increta. We also review the literature regarding the pathophysiology, diagnostic workup, and management strategies for such cases.

2. Case Report

Patient Presentation: A 34-year-old primigravida with a history of one prior D&C for early pregnancy loss (and no history of caesarean section or uterine surgery) presented at 13 weeks' gestation (by last menstrual period) with persistent vaginal bleeding and lower abdominal cramping. Her medical history was otherwise unremarkable.

Imaging Evaluation: Initial transvaginal ultrasound (TVUS) revealed an irregular gestational sac implanted in the lower uterine segment. Notably, the normal hypoechoic "clear zone" between the placenta and myometrium was absent, and multiple placental lacunae with increased vascularity at the uterine-bladder interface were noted. Given these

findings, a supplemental magnetic resonance imaging (MRI) study was performed. The T2-weighted images demonstrated thinning of the myometrium in the lower uterine segment with focal areas of placental tissue seemingly invading into the muscular layer (Figures 1 and 2).

Management and Surgical Findings: The patient initially underwent conservative management; however, due to progressive bleeding leading to hemodynamic instability (tachycardia and hypotension) and a falling hemoglobin level, she was taken emergently to the operating room. In the operating theater, following dilation and curettage (DC&E), heavy hemorrhage was encountered. After failed attempts at tamponade with a Foley and Bakri balloon, the decision was made to proceed with an exploratory laparotomy and definitive management with a total abdominal hysterectomy.

Intraoperative findings revealed a lower uterine segment with an irregular, ill-defined area of placental adherence, without any signs of previous surgical scarring or cesarean section incisions. The bladder was mildly adherent but was safely dissected off the lower uterine segment. The uterus was removed and a gross examination revealed a focal region where the placenta appeared to invade deeply into the myometrium (Figure 3).

Histopathologic Evaluation: Microscopic examination of representative sections from the affected region demonstrated chorionic villi penetrating into the myometrium with an absence of intervening decidual tissue. These findings confirmed a diagnosis of placenta increta (Figure 4).

Postoperative Course: The patient tolerated the procedure well and was monitored in the intensive care unit. Her

recovery was uneventful, and she was discharged on postoperative day five without any complications.

3. Discussion

Placenta increta is most commonly encountered in patients with uterine scars resulting from previous caesarean sections; however, its occurrence in patients without such history is increasingly recognized. In our case, a history of prior D&C and possibly subtle endometrial injury combined with advanced maternal age may have contributed to defective decidualization and placental invasion.

Imaging Findings: Ultrasonography remains the first-line diagnostic tool for PAS. Key sonographic signs include:

- Loss of the normal hypoechoic retroplacental clear space
- Presence of vascular lacunae in the placental bed
- Thinning or focal disruption of the myometrium
- Increased color Doppler flow at the uterine–bladder interface. MRI is useful in cases where ultrasound findings are equivocal. In this patient, MRI helped confirm the abnormal placental interface (see Figures 1 and 2).

4. Pathophysiology and Literature Review

The precise mechanisms underlying abnormal placentation in the absence of caesarean section remain incompletely defined. It is hypothesized that inadequate formation of the decidua may permit trophoblastic invasion into the myometrium. Similar molecular pathways to those seen in tumor invasion have been postulated, including increased angiogenesis, persistent epithelial-to-mesenchymal transition, and decreased apoptosis of trophoblastic cells. Recent studies have also investigated the role of serum biomarkers (e.g., elevated pregnancy-associated plasma protein-A [PAPP-A] and altered free β -hCG levels) in early detection of PAS disorders. Although most literature focuses on PAS in the context of previous uterine surgery, our review suggests that patients with other predisposing conditions (e.g., prior curettage, uterine anomalies) may also be at risk for placental invasion.

Management: Conservative management (e.g., uterine artery embolization) is sometimes considered in patients desiring fertility preservation and in less severe cases. However, in cases complicated by hemorrhage and instability—such as ours—definitive surgical management with hysterectomy remains the treatment of choice. Our case underscores the need for a multidisciplinary approach and preparedness for massive hemorrhage, especially when the diagnosis is not anticipated.

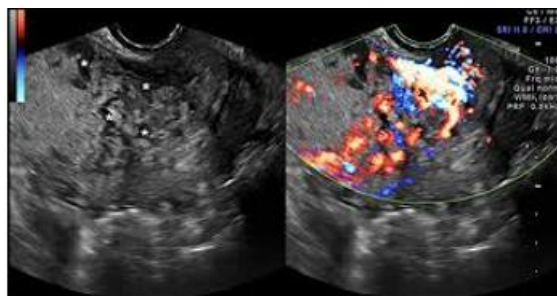


Figure 1: Transvaginal ultrasound image showing loss of the retroplacental clear zone with placental lacunae and increased Doppler flow (adapted from typical findings in placenta increta).

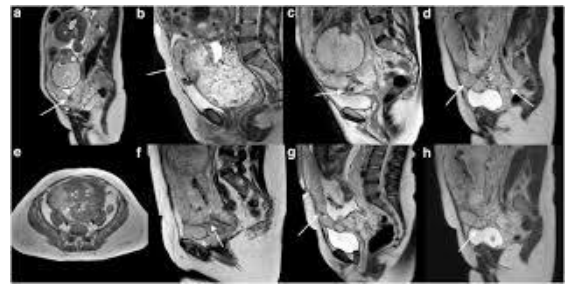


Figure 2: MRI T2-weighted sagittal image of the lower uterine segment depicting thinning of the myometrium and focal placental invasion

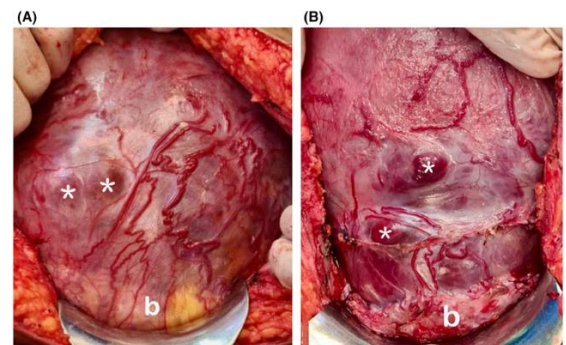


Figure 3: Intraoperative photograph of the uterine specimen illustrating a focal area of placental adherence in the lower uterine segment

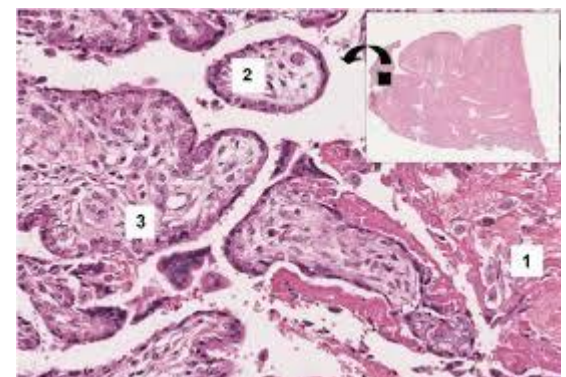


Figure 4: Microscopic (H&E stain) image displaying chorionic villi invading the myometrium with absence of intervening decidua (adapted from findings similar to those shown on Radiopaedia or pathology outlines).

Comparison with Reported Cases

Our literature search (using multiple medical image repositories and journal databases) indicates that while most reported cases of placenta increta occur in patients with a history of uterine surgery, isolated cases without cesarean history have been documented, often linked to other forms of endometrial injury. A careful review of the imaging and clinical data is essential for early diagnosis.

5. Conclusion

Although placenta increta is most frequently associated with previous caesarean sections, it can occur in patients without

such history. In our case, prior curettage and other risk factors may have contributed to abnormal placental invasion. Early recognition by ultrasound and MRI is crucial and can guide timely management. Definitive surgical treatment (hysterectomy) remains lifesaving in the setting of severe hemorrhage. Future research should focus on improving non invasive diagnostic markers and refining management protocols for patients with PAS in the absence of conventional risk factors.

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