

INTRODUCTION

- Placenta accreta spectrum (PAS) disorders are increasingly common conditions (1 in 500 pregnancies) of abnormal placental implantation.¹⁻³
 - Placenta accreta – villi adhere to the myometrium
 - Placenta increta – villi invade into the myometrium
 - Placenta percreta – villi invade the full thickness of myometrium, through uterine serosa and/or adjacent structures
- These conditions are associated with severe obstetric complications, most notably peripartum hemorrhage, and pose significant morbidity and mortality risks to pregnant women.
- The leading hypothesis suggests that the abnormal placentation arises at the site of an endometrial scar, typically attributed to a prior surgical procedure.^{1,4}
- Epidemiological studies have correlated the increasing incidence of PAS disorders with the worldwide rise in caesarean section deliveries.^{1,5}
- Other risk factors include:^{1,5-7}
 - Placenta previa
 - Asherman syndrome
 - Surgical procedures/manipulations that damage the uterine wall
 - Advanced maternal age (<35 years)
- Most women with a PAS disorder are asymptomatic. However, women with known risk factors may be antenatally diagnosed with targeted ultrasound examination.^{1,8}
- The majority of PAS cases are managed surgically with a peripartum hysterectomy to reduce the extent of hemorrhage and associated maternal complications.⁴

CASE STUDY: CLINICAL HISTORY

- 37-year-old, gravida nine, para two patient with a history of two prior caesarean sections, multiple therapeutic abortions, and some intrauterine synechiae (Asherman's syndrome).
- The patient presented at 35-weeks gestation with a large abruption and abdominal pain then again at 36-weeks gestation with decreased fetal movement, decreased beat-to-beat, and possible late deceleration on tracing.
- A lower segment caesarean section was preformed and the infant was delivered without difficulty.
- A large blood clot (10.0 x 7.0 cm) was removed and revealed possible placental tissue deeply embedded in the posterior and upper fundal aspects of the uterus.
- Attempts at manual removal were made. However, bleeding persisted and the placental tissue appeared to have eroded to the serosa.
- Placenta percreta was suspected.
- A hysterectomy (sparing ovaries, fallopian tubes, and a portion of the cervix) was performed to prevent further hemorrhage.
- Total blood loss during the procedure was approximately two litres.

CASE STUDY: Gross Examination

- Some edema and hemorrhage were observed on the anterior distal portion of the uterine serosa. This correlated with a sutured incision (7.0 cm) on the anterior half of the lower uterine segment (Fig. 1A).
- An adherent blood clot (9.0 x 10.0 x 3.0 cm) was observed on the posterior endometrium of the uterus.
- Removal of the blood clot revealed an area (6.0 x 4.0 cm) that grossly resembled placenta tissue (Fig. 1B).
- Sectioning revealed the placental tissue to be adhered to the underlying myometrium. Grossly, no invasion of the placental tissue into the myometrium was observed (Fig. 2).
- The posterior myometrium averaged 2.5 cm in thickness with a thinned area near the fundus (1.0 cm in thickness) (Fig. 2).
- No adherent placental tissue or thinned myometrium was observed on the anterior half of the uterus.

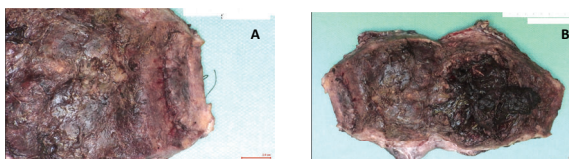


Figure 1: Opened view of the hysterectomy specimen demonstrating the sutured incision on anterior half of the lower uterine segment (A) and adhered placental tissue on the posterior half of the uterus (B).

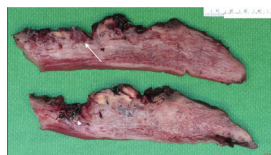


Figure 2: Serial sections of the posterior aspect of the uterus demonstrating placental tissue adhered to the myometrium (white arrow) and thinned myometrium near the fundus (white arrowhead).

CASE STUDY: Histological Analysis

- Microscopic analysis supported the gross observation of the placental tissue adhering to, but not invading into the myometrium (Fig. 3).
- A diagnosis of placenta accreta was confirmed

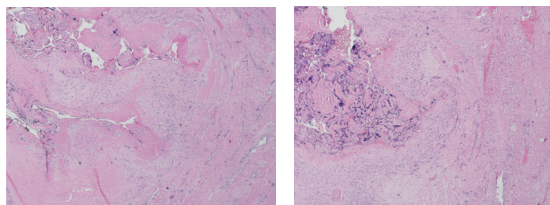


Figure 2: Photomicrographs of the posterior half of the uterus demonstrating placental tissue adhered to the myometrium (upper left side of images) with a lack of invasion into it (H&E, 4x magnification).

DISCUSSION

- PAS disorders are considered iatrogenic, the consequences of modern obstetric practices.⁷
- This is supported by the paralleled increase in both PAS disorders and caesarean sections worldwide.¹
- The patient of this case study was of advanced maternal age (37 years), had a history of two prior caesarean sections, multiple surgical abortions, and intrauterine synechiae; all of which are factors attributed to an increased risk of developing a PAS disorder.^{1,5,7} However, the patient was not diagnosed antenatally and the abnormal placentation was discovered during her third caesarean section.
- Antenatal diagnosis may have been possible if the patient had undergone a targeted obstetric ultrasonography examination.^{1,8}
- Studies have shown that maternal outcomes are improved when patients are diagnosed antenatally and treated at health centres with a multidisciplinary team experienced in the management of these conditions compared to those managed by standard obstetric practices without specific PAS protocols.^{2,7}
- A current issue faced by those seeking to develop specific PAS protocols is the lack of studies that include data on the clinical presentation, macroscopic, and microscopic analysis of these cases.⁴
- This is surprising as the standard management strategy for these disorders is to leave the placenta in situ and perform a peripartum hysterectomy.^{4,7} Thus, these specimens are available to be analyzed by the pathology department.
- Without histological confirmation, it is virtually impossible to differentiate between the adherent and invasive forms, especially as they may coexist within the same specimen.^{4,6}
- This was illustrated by the present case where placenta percreta was suspected during surgery but histologic analysis proved it to be placenta accreta instead.

CONCLUSION

- As research continues into the pathogenesis of PAS disorders, pathologists' assistants will play a vital role in describing and compiling detailed gross reports of these specimens.
- By comparing the gross presentation to the histologic findings and preoperative indications, the collective understanding of PAS disorders will continue to improve.
- This will guide the development of standardized treatment protocols which will ultimately improve the obstetric experience of these patients

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