Placenta Percreta: Case Report

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ABSTRACT

We present two cases of a rare type of placenta accreta spectrum, placenta percreta in two patients with previous history of lower segment caesarean section. Both cases were diagnosed prenatally, using the ultrasonography methods as well as MRI. They electively had deliveries by caesarean hysterectomy.

Keywords: Placenta accreta spectrum, Placenta percreta, Caesarean hysterectomy, Hematuria

INTRODUCTION

Placenta percreta, the most advanced form of placenta accreta spectrum, occurs when the placenta grows through the uterine wall and extends into nearby organs, creating a significant risk of severe hemorrhage[1]. Major risk factors include placenta previa, previous cesarean deliveries, and prior uterine procedures[4]. Diagnosis depends on ultrasound and MRI, with early identification essential for proper management[2]. The preferred treatment is a planned cesarean hysterectomy at 34–35 weeks to minimize hemorrhage and organ injury[3]. Conservative methods are risky[3], making specialized multidisciplinary care critical for better outcomes, while reducing unnecessary cesareans helps lower its incidence[4].

CASE 1

A 41-year-old female, with no prior significant medical history, presented to the emergency department as a G4P3L2 at 33 weeks + 6 days of gestational age, reporting lower abdominal pain. She has a history of two previous lower-segment cesarean sections and had been receiving prenatal care in another country, where she was diagnosed with placenta accreta extending to the bladder, along with possibility of velamentous insertion of the umbilical cord.

Upon examination, the patient was in stable general condition with vital signs within normal limits, showed no signs of pallor, jaundice, cyanosis, clubbing, or edema. The abdominal examination revealed a soft, lax abdomen with normal muscle tone, and the Pfannenstiel incision exhibited no tenderness, abnormal pigmentation, or varicosities. Fundal height was consistent with approximately 34 weeks of gestation. A bedside ultrasound confirmed a single viable fetus in breech presentation, with the placenta located anteriorly and reaching the internal cervical os. Notably, a thin remnant of myometrium was observed between the placenta and the bladder, more than 2 lacunae with more than 2 cm, suggestive of placenta accreta.

The patient was promptly admitted to the labor ward for close monitoring. During her stay, cardiotocography indicated mild uterine irritability. A multidisciplinary meeting involving obstetricians, neonatologists, vascular surgeons, and urologists concluded with a decision to arrange for an elective lower segment cesarean section at 34 weeks and 4 days, following the procurement of blood and blood products. Before the surgical procedure, the patient was informed about her condition and the management plan. The need for elective cystoscopy and bilateral ureteric stenting was clearly explained. Informed consent was obtained from both the patient and her husband, during which all potential risks, including those associated with mortality, were thoroughly explained. Additionally, an intensive care unit bed was reserved for the patient to ensure appropriate post-operative care, and the blood bank was notified to prepare all necessary blood products in advance.

The patient subsequently underwent elective cystoscopy, bilateral ureteric stenting, and midline laparotomy. Intraoperative findings showed omental adhesion to anterior abdominal wall. The lower segment was seen with prominent vessels and placenta percreta along with extensive vascularity extending to parametrium. The urinary bladder pulled up and densely adherent to previous scar with prominent vessels on the serosa. Significant hemorrhage and bladder injury occurred, necessitating a hysterectomy with bilateral salpingectomy and repair of the bladder injury (Figure 1). The vascular team ligated the bilateral internal iliac arteries to manage the bleeding. In total, the patient received approximately ten liters of blood products, which included 8 units of packed red blood cells, 8 units of fresh frozen plasma, 8 units of platelets, and 4 units of cryoprecipitated Antihemophilic Factor. Following the operation, the patient was transferred to the intensive care unit for close monitoring for 2 days, after which she was stabilized and shifted out. She was discharged on the 7th postoperative day, with a follow-up cystogram revealing no leakage from the urinary bladder.

The histopathological diagnosis revealed features consistent with placenta percreta. The placental parenchyma, fetal membranes, and perivascular cord displayed no significant histopathological abnormalities; however, the decidualized endometrium exhibited areas of stromal reaction. The right-sided fallopian tube showed no significant histopathological findings, while the endocervix presented evidence of placental invasion, with no ectocervical tissue observed.

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Figure 1. Specimen of total hysterectomy showing incision site and placenta percreta.

CASE 2

A 41-year-old female with a known case of atrial septal defect, which was operated on in her childhood. She was referred to the antenatal clinic as G4P3L3 at 23 weeks + 2 days of gestational age with a history of three lower segment caesarean sections (LSCS), two laparotomies for ovarian cystectomy, and one laparotomy to control massive hematuria during this pregnancy.

Initially the patient presented to another hospital during this pregnancy at 17 weeks of gestational age with a history of massive hematuria, where she underwent diagnostic cystoscopy, which got converted to laparotomy to control the bleeding.

On examination, her general condition was fair, and her vitals were normal. There was no pallor, icterus, cyanosis, clubbing, or oedema. Per abdominal examination was soft, lax with normal muscle tone, previous Pfannenstiel incision noted with no scar tenderness, no abnormal pigmentation, or dilated veins. Fundal height was approximately 24 weeks of gestation. Bedside ultrasound showed a single live cephalic fetus with placenta previa, more than 2 lacunae with size more than 2 cm were noted. Doppler showed bridging vessels that suggests placenta accreta. Magnetic resonance imaging showed a posteriorly located placenta that appears to completely cover the internal OS, indicating placenta previa with changes suggestive of placenta accreta and the possibility of placenta percreta (Figure 2 and Figure 3).

The initial decision was made to arrange for elective caesarean hysterectomy at 34 weeks of gestational age. The patient presented later at 27+4 days of gestational age with minor antepartum hemorrhage. A multidisciplinary meeting involving obstetricians, neonatologists, vascular surgeons, and urologists decided to prepone the elective caesarean hysterectomy to 28 weeks of gestation after receiving a full dose of dexamethasone as well as magnesium sulfate for neuroprotection and arranging blood and blood products.

Intraoperative findings showed a gravid uterus. There were bowel and omental adhesions with the anterior, posterior, and lateral wall. Lower uterine segment was distorted with areas of defect with invasion of placental tissue to bladder. Congested varicose veins covered the whole lower segment, bladder and vagina.

The patient underwent elective cystoscopy, bilateral ureteric stenting, and midline laparotomy with cesarean hysterectomy, bilateral salpingectomy, and left oophorectomy, which was complicated by massive bleeding and bladder injury (Figure 4). The internal iliac artery was ligated by the vascular team to control the bleeding. There was oozing from the vaginal stump, stitches were used to try to control it, at this point the patient lost around ten liters of blood and received 9 packs of RBCs. The multidisciplinary team agreed to activate the damage control protocol, perform abdominal packing, and shift her to the intensive care unit. The patient received a massive blood transfusion with a total of 12 units of packed red blood cells, 6 units of fresh frozen plasma, 3 units of platelets, and 4 units of cryoprecipitated antihemophilic factor. One day later, she underwent exploration of the abdomen, removal of packs, no active bleeding was noted, and closure of the abdominal wall was done. She was later shifted back to the intensive care unit for postoperative care and then shifted out after five days in stable condition. The patient developed a surgical wound infection, which required antibiotic coverage, debridement, and resuturing of the wound. The patient stayed in the hospital for a total of 22 days postoperative for rehabilitation. A follow-up cystogram showed no leakage from the urinary bladder.

The histopathological diagnosis showed a denuded endometrial surface with hemorrhage and fibrin that might represent area of placenta implantation site. Focal superficial decidua is noted on the surface of the myometrium, however no chorionic villi infiltrating into myometrium or uterine wall were seen. Section from left fallopian tube is unremarkable. Left ovary shows corpora albicans and corpus luteal cyst.

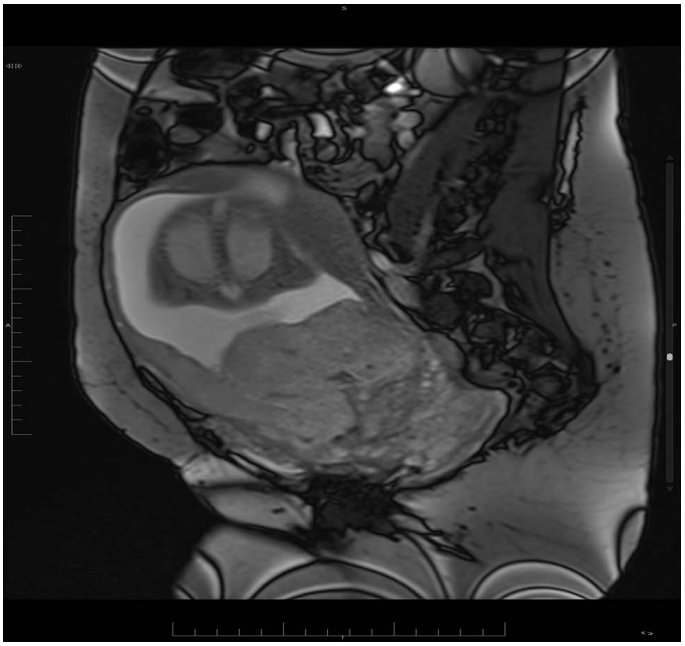

Figure 2. Saggital view abdominal MRI showing posteriorly located placenta that appears to completely cover the internal OS, indicating placenta previa with changes suggestive of placenta accreta and the possibility of placenta percreta.

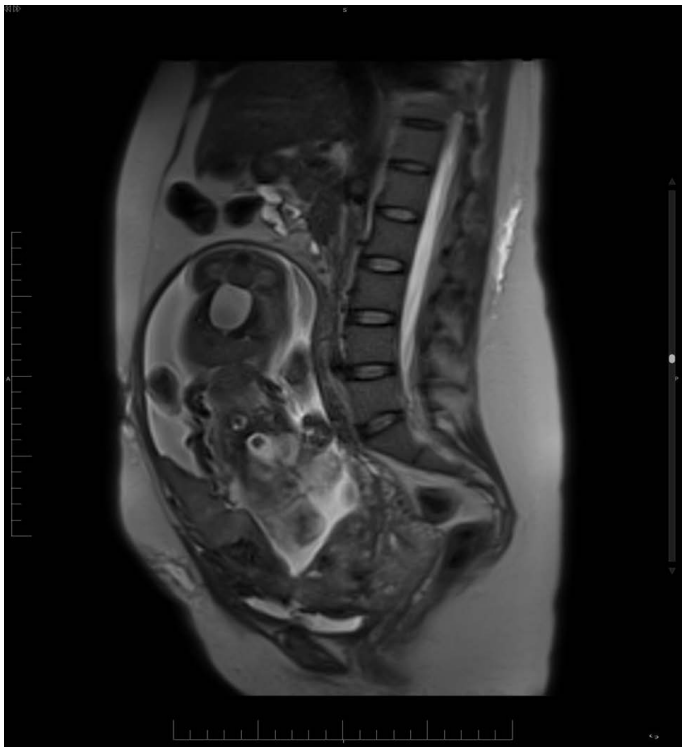

Figure 3. Saggital view abdominal MRI showing posteriorly located placenta that appears to completely cover the internal OS, indicating placenta previa with changes suggestive of placenta accreta and the possibility of placenta percreta.

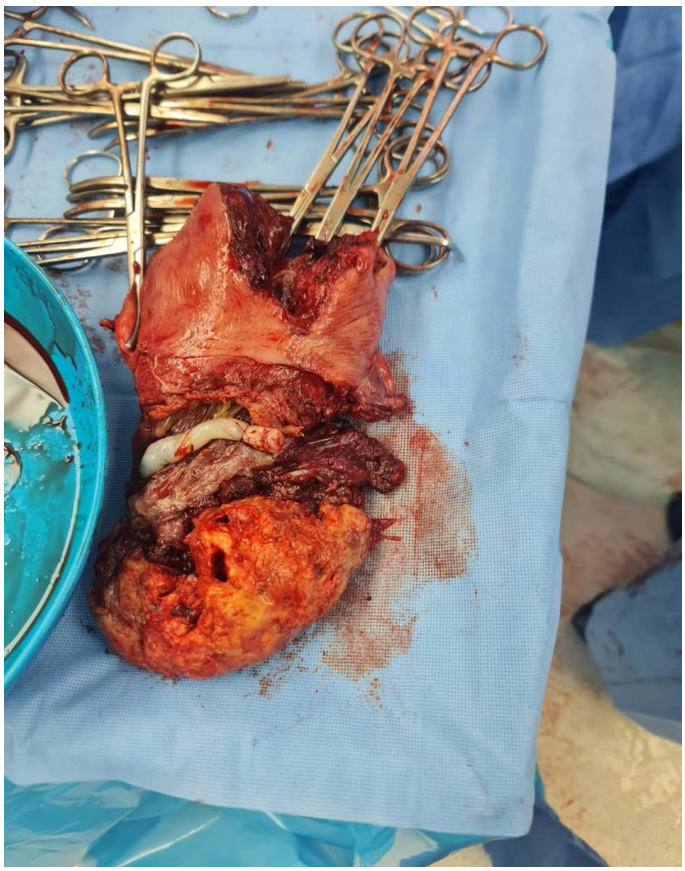

Figure 4. Specimen of total hysterectomy showing incision site and placenta percreta.

DISCUSSION

Placenta percreta, the most severe form of placenta accreta spectrum, occurs when placental villi invade the entire uterine wall and potentially adjacent organs[1]. Though rare (~5% of PAS cases), its incidence is rising due to increased cesarean deliveries[2]. Major risk factors include placenta previa overlying a uterine scar and prior uterine surgeries[3]. Diagnosis relies on ultrasound findings which include thinning of the myometrium, placental lakes, placenta previa, increased peripheral vascularity with color Doppler, and an irregular bladder wall[5]; definitive MRI diagnosis shows findings like the total loss of myometrial thickness, obliteration of the adipose plane between the placental tissue and adjacent organs, interruption of the hypointense bladder line, intestinal wall, or the muscles of the abdominal wall/ pelvic floor[6]. The standard treatment is planned cesarean hysterectomy at 34–35 weeks to minimize maternal and fetal risks[4]. Conservative approaches carry high morbidity[3].

Multidisciplinary management in specialized centers remains key to improving outcomes[1]. Placenta percreta results from defective decidualization, leading to abnormal trophoblastic invasion through the uterine wall[4]. It poses the highest maternal risk among PAS disorders, often causing severe hemorrhage, organ damage (e.g., bladder invasion), and high maternal morbidity and mortality[2]. Maternal risks include massive hemorrhage, DIC, organ failure, and potential death[3]. Fetal risks primarily stem from prematurity, necessitating planned early delivery[1]. Placenta percreta itself does not impair fetal growth, but hemorrhagic events can threaten uteroplacental perfusion[4]. Key risk factors include placenta previa, prior cesareans, uterine surgeries, and high parity[2]. Ultrasound with

Doppler and MRI aid diagnosis, with early detection allowing for controlled delivery[3].

Planned cesarean hysterectomy is the safest approach, avoiding placental removal to prevent hemorrhage[4]. Adjunct measures like arterial embolization may help, but conservative management carries high risks[1]. Multidisciplinary teams and specialized centers optimize outcomes[2].

Conservative and fertility sparing methods may be considered in carefully selected cases of placenta percreta. These include:

- Triple-P procedure - First mentioned by Lucas et al., this procedure involves pelvic devascularisation, placental non-separation with myometrial excision, followed by myometrial defect repair[7].
- Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) – This technique has been suggested to control bleeding during cesarean hysterectomy, especially when used prophylactically. However, REBOA can compromise all blood supply distal to the inflation site[7].
- Placental uterine artery embolization (P-UAE) followed by delayed hysterectomy – This two-step approach appears to be potentially safe and feasible for appropriately selected patients with placenta percreta by controlling the bleeding first, then performing the hysterectomy[8].
- Cesarean section in the angiography suite preceded by prophylactic balloon placement and followed by uterine artery embolization – This technique is feasible, safe, and effective in preventing massive blood loss, with a 56% uterine sparing rate[10].
- Knapsack-like uterine compression sutures – Introduced in 2016 by BMC Pregnancy and Childbirth, this novel surgical technique uses compression sutures to fully compress the uterus and prevent postpartum hemorrhage, while aiming to preserve fertility[9].

Despite these developments, the American College of Obstetricians and Gynecologists' (ACOG) guidelines regard caesarean hysterectomy as the standard of care for placenta percreta. The uterine sparing options are rare and should be considered on an individual basis[7].

CONCLUSION

Placenta percreta is a life-threatening condition requiring early diagnosis and expert management1. Reducing unnecessary cesareans can help prevent PAS cases4. Ongoing research and standardized protocols continue to improve maternal and fetal survival2.

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Competing Interest: None

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