

A case of placenta previa and placenta increta undergoing uterine sparing surgery

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Cite as: Esmer EB, Topal Aköz AK, Kaynar Varlık E, Ekici MA. A case of placenta previa and placenta increta undergoing uterine sparing surgery. Northwestern Med J. 2025;5(4):268-273.

ABSTRACT

Obstetric risks are increased in pregnancies following previous cesarean section deliveries. Placenta increta and placenta previa pregnancies are two important clinical manifestations of abnormal placentation entities. Placenta accreta occurs in 5-10% of pregnancies complicated by placenta previa. The most important risk factor for placenta accreta is a history of uterine surgery. A thin, defectively formed or absent decidua basalis layer cannot show resistance to deep penetration of trophoblasts and placenta invades this pathological region of uterus that has previously been traumatised by uterine surgery. Placenta accreta is diagnosed with characteristic signs during prenatal ultrasound examination. The first clinical sign of placenta accreta is excessive and life-threatening bleeding that occurs during manual placental separation. Prenatal diagnosis is important to avoid this complication, which may lead to maternal mortality. In this case, in which an invasion anomaly was detected in preoperative ultrasonography, the treatment of the patient accompanied by placenta increta and placenta praevia with uterus-preserving surgery was discussed.

Keywords: placenta increta, placenta previa, uterine sparing surgery, clinical approach

INTRODUCTION

Placenta previa refers to the presence of placental tissue extending above the internal cervical os.

Several clinical features increase the risk of placenta previa. Most importantly, women with one or more previous cesarean deliveries are at greater risk for subsequent placental disorders such as placenta previa, detachment, or placental invasion (1).

When placenta previa is diagnosed, the possibility of placenta accreta spectrum (PAS) should be considered. This is particularly important if the placenta is located above the previous hysterotomy site and is therefore most common with anterior placenta previa.

Two primary mechanisms are proposed to explain the development of placental invasion anomalies. The first involves damage to the decidua basalis, which may occur after uterine procedures such as curettage,

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Received: 07.10.2024 **Accepted:** 03.10.2025 **Published:** 26.10.2025

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cesarean delivery, or myomectomy. When this layer loses its protective barrier function, trophoblastic cells may directly invade the myometrium. The second mechanism has been associated with several molecular and genetic alterations, including increased CD44 receptor expression, dysregulation of angiogenic, and trophoblastic growth factors, changes in adrenomedullin gene expression at the cytokine level, and mitochondrial DNA mutations (2).

Placental invasion anomalies accompanying placenta previa are generally categorized into three subtypes based on the depth of trophoblastic penetration: accreta, increta, and percreta. In the accreta type, chorionic villi attach to the myometrium without invading it; in increta, they extend into the myometrial layer; and in percreta, villi penetrate through the myometrium and may reach the uterine serosa or adjacent organs, such as the bladder. Collectively, these entities are described under the term placenta accreta spectrum (PAS) or morbidly adherent placenta (3,4).

Reported risk factors for both placenta previa and PAS include advanced maternal age, multiparity, low socioeconomic background, previous infertility treatment, prior cesarean delivery, history of myomectomy or curettage, and maternal smoking (4,5). These anomalies are known to increase maternal morbidity through complications such as severe antepartum or intrapartum hemorrhage, need for cesarean hysterectomy, massive transfusion, or intensive care admission, and they may also contribute to preterm birth. In recent decades, while uterine atony used to be the leading indication for peripartum hysterectomy, PAS has now become the most frequent cause (3,4,6).

In placental invasion anomalies, the mode of delivery is a planned cesarean section in the early week, and the need for peripartum bleeding and hysterectomy increases due to increased myometrial invasion due to advanced gestational age. This prevents fertility-sparing surgery. In this case report, uterus-preserving

treatment of placenta previa and placenta increta in a 38-week pregnant patient with a history of four previous cesarean sections, was presented in the light of the literature, in whom bleeding control was achieved via bipolar energy device.

CASE REPORT

A 30-year-old 38/0 weeks pregnant patient presented to our clinic with suspicion of amniotic band referred from an external center. In her detailed history, it was learned that the pregnancy information was gravida 6, parity 4, abortion 1. All of her deliveries were performed by cesarean section. The patient reported that her last cesarean section had been complicated, and her physician had informed her that a T-incision was required for uterine entry.

On examination, the placenta was on the anterior wall, the distinction between myometrium and placenta was not clear, and the placenta was observed on the old cesarean scar line. There were large lacunes in the placenta and turbulent blood flow was observed in the lacunes. Fetal biometry was compatible with 38-39 weeks. Transvaginal ultrasonography showed that the cervical os was completely covered by the placenta. It was the patient's first presentation to our hospital. She had not been diagnosed with placenta previa or placental invasion anomaly before. Since the diagnosis of placental invasion anomaly was definite, no further examination (MRI) was required. The patient was diagnosed with placenta previa and placental invasion anomaly. Consent for hysterectomy was obtained and the necessary blood products were prepared and the operation was planned.

During the cesarean section, the uterus was adherent to the anterior abdominal wall and the intestines to the uterine fundus. The adhesions were dissected. A breech female baby weighing 3890 grams was delivered through Kerr incision. Placenta was observed as placenta increta invading the myometrium and placenta previa was observed to close the cervical opening (Figure 1). With the assistance of a vessel-

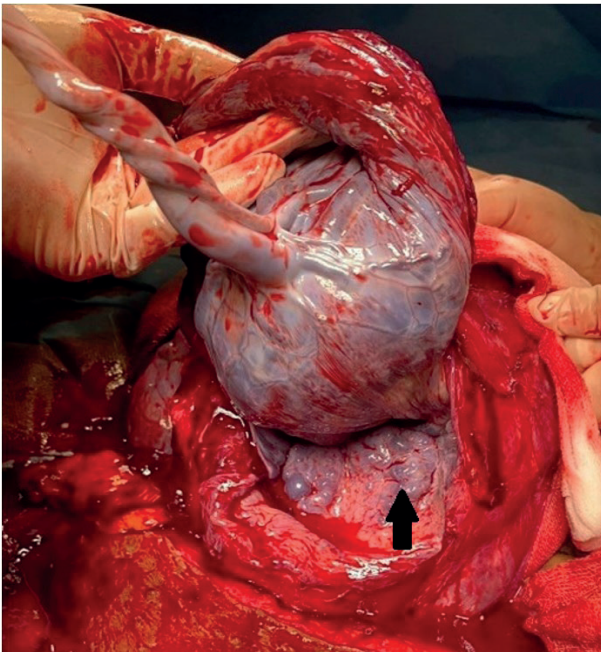


Figure 1. Intraoperative findings showing placenta previa completely covering the cervical os and placenta increta invading the myometrium (arrow sign).

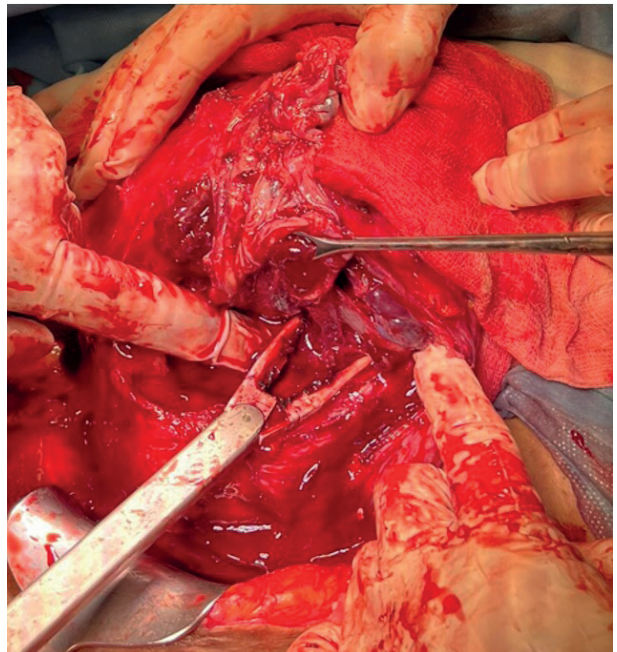


Figure 2. Separation of the placenta, which has invaded $\frac{1}{2}$ of the myometrium, from the uterus by controlling bleeding with the help of bipolar energy device.

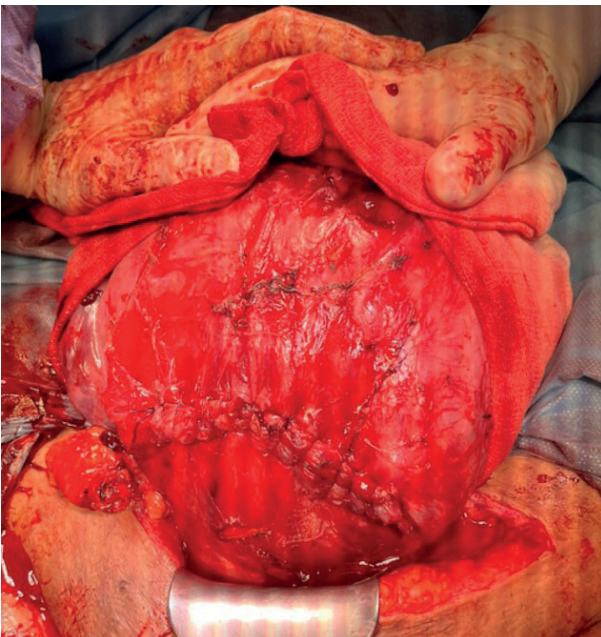


Figure 3. Intraoperative view of the Kerr incision line of the uterus, which is closed after bleeding control is achieved.

sealing device utilizing bipolar energy, the placenta was excised from the cavity via myometrial segment resection (Figure 2). The uterus was then repaired with continuous suturing (Figure 3). Salpingectomy was also performed. The abdominal folds were also closed according to the anatomy plan. The placenta was sent to pathology. Postpartum bleeding was controlled. No complications developed.

During the postoperative service follow-ups, the patient's vital signs were stable, the wound was dressed, there was no evidence for postpartum hemorrhage or need for blood product replacement. Intensive care unit admission was not required, and the postoperative course was uneventful. She was discharged with full recovery on the 3rd postoperative day. No additional problems were observed in the postoperative 10th day and postoperative 40th day controls. The patient started menstruating in the 5th month after birth. Her menstruation have remained regular. Prior to the inclusion of clinical details in this report, written informed consent was obtained from the patient.

DISCUSSION

Placental invasion anomalies, such as placenta increta, are rare but serious complications of pregnancy, with an incidence of one in 533 pregnancies (6). Preoperative management of placental invasion anomalies aims to minimize bleeding and reduce maternal morbidity and mortality through meticulous planning and patient counseling. Although it may be possible to stop bleeding with intraoperative medical and surgical treatments in cases of placenta accreta, cesarean hysterectomy may be inevitable, especially in cases of placenta increta and percreta, since the placenta is usually not detached (7-9). If the placenta is left in place, postpartum hemorrhage secondary to subinvolution may occur.

Cesarean delivery is preferred in cases with placenta accreta. Elective planning of the timing of delivery and being prepared for possible complications are very important in terms of maternal morbidity and mortality. It requires multidisciplinary teamwork including experienced obstetricians, anesthesiologists, urologists, and blood bank. Elective cesarean delivery is recommended at 34 to 35 weeks of gestation to reduce the likelihood of emergency cesarean delivery and other possible complications. In this case report, the patient underwent cesarean section at the 38th week because placental invasion anomaly was detected at the 38th week. This probably caused the invasion to progress from accreta to increta.

Various methods have been described for the management of placenta accreta (10,11). Treatment options range from cesarean hysterectomy, uterine preservation, and in some cases, adjuvant treatment with methotrexate, or more conservative treatment methods including leaving the placenta in situ or simply waiting for spontaneous resorption of the placenta. The conservative method was first described as follows: Arulkumaran et al. in 1986, systemic methotrexate was administered postnatally and the placental mass was expelled 11 days postnatally (12). Since then, a number of cases have been reported that were treated conservatively (13). Palacios Jaraquemada et al. described surgical methods of uterine preservation, which were successfully performed in 50 of 68 cases, and ten of the 42 successful cases followed up over a

three-year period subsequently became pregnant and had uneventful cesarean sections (14).

The uterus can be preserved if the bleeding that may occur due to partial adhesion of the placenta to the uterus causing bleeding after placenta removal in cesarean section is controlled through medical and/or surgical treatments. Medical treatment (uterotonics, topical hemostatic agents), interventional radiologic treatments, mechanical methods such as balloon tamponade, and surgical interventions to stop bleeding can be performed (15).

Conservative surgery can be performed in selected cases where fertility is desired to be preserved. In this case, the uterus is preserved and fertilization continues by removing the entire placenta and the invaded myometrium without hysterectomy (16). In women whose placenta was left in the uterus, placental resorption occurred at an average of 13.5 weeks (between 4-60 weeks) (17). Undetectable levels of hCG in the blood do not guarantee complete resorption of the placental tissue left in situ. In our case, since all of the placental tissue was removed, postoperative hCG monitoring was not performed and methotrexate was not necessary. The reasons for the complete excision of placental tissue were that myometrial invasion was $\frac{1}{2}$, the invasion was shallower in the area where the placenta covered the cervical os, and that intact myometrial tissue would remain after local excision.

A very common consequence of placental invasion is massive bleeding and the need for cesarean hysterectomy. Maternal morbidity and mortality also increase due to the risk of injury to the urinary tract and other abdominal organs.

To avoid postpartum hemorrhage and hysterectomy, bilateral hypogastric artery ligation, uterine artery ligation, and balloon tamponade placement are among the preferred methods (18). In our case, unlike the literature, bipolar energy device was used during the local excision procedure, thus providing bleeding control.

Hysterectomy may adversely influence women's overall well-being, affecting both physiological and psychological aspects of health (19,20). The uterus

represents a key component of feminine identity, contributing to perceptions of bodily integrity, self-worth, sexuality, and emotional stability. Consequently, surgical removal of the uterus can trigger significant emotional distress, manifesting as anxiety, stress, or depressive symptoms (19).

In the present case, although the 30-year-old patient did not desire future fertility, uterine preservation was prioritized to maintain her bodily integrity, sexual health, and psychological well-being. At the patient's request, salpingectomy was performed as part of the conservative surgical management (21).

The success of uterine sparing surgery and hysterectomy in placental invasion anomalies is summarized in the literature and classified in Table 1.

Uterine-sparing surgery and hysterectomy each offer distinct advantages and limitations in the management of placenta invasion anomalies. Uterine-sparing procedures provide the critical benefit of preserving both fertility and menstrual function, which is particularly valuable for women who wish to maintain their reproductive potential (10,22). These techniques also confer psychological benefits related to the retention of the uterus. However, they are not without risks, including the potential for infection, secondary postpartum hemorrhage, and the need for additional surgical interventions or extended follow-up (22,23). Conversely, hysterectomy represents a definitive treatment option, typically associated with a lower risk of recurrent bleeding and reduced likelihood of further surgical procedures (23,24). Nonetheless, it inevitably results in permanent infertility and may be accompanied by greater surgical morbidity, particularly in cases involving extensive placental invasion such as placenta percreta (23,24). As such, uterine-sparing strategies may be more appropriate for hemodynamically stable patients with focal placental invasion who desire future fertility, while hysterectomy is generally recommended for patients with severe invasion, uncontrolled bleeding, or completed childbearing (24). In conclusion, this case report demonstrates that uterine-sparing surgery can be a feasible option in carefully selected cases of placenta increta, emphasizing the importance of early

diagnosis, multidisciplinary planning, and meticulous surgical technique.

Ethical approval

Written informed consent was obtained from the patient for the publication of the attached images.

Author contribution

Surgical and Medical Practices: EBE, AKTA, EKV; Concept: EBE, AKTA, EKV, MAE; Data Collection or Processing: EBE, AKTA, EKV, MAE; Analysis or Interpretation: EBE, AKTA, EKV, MAE; Literature Search: EBE, AKTA, EKV, MAE; Writing: EBE, AKTA, EKV. All authors reviewed the results and approved the final version of the article.

Source of funding

The authors declare the study received no funding.

Conflict of interest

The authors declare that there is no conflict of interest.

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