

## EMERGENCY HISTERECTOMY IN A PATIENT WITH PLACENTA PREVIA AND PERCRETA

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### CASE REPORT

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### Abstract

Placental disorders, especially Placenta Accreta Spectrum Disorder (PAS) and placenta previa are major risk factors for massive bleeding in obstetrics, being a common cause of maternal morbidity and mortality. When the two of them co-exist, the risk rises exponentially. We present a challenging case of a complete placenta previa and placenta percreta, diagnosed intraoperatively. The patient had a total abdominal hysterectomy and bilateral salpingectomy.

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### Introduction

Placenta accreta is the general name describing any abnormal adherence of the placenta to the uterine wall. Abnormal trophoblast invasion of a part, or the entire placenta into the myometrium is responsible for the pathogenesis. Placentation is a complex process mediated by sex hormones, immunological factors, prostaglandins, and cytokines [1]. This process happens in the first few days after fertilization of the oocyte, which reaches the uterine cavity about four days after fertilization. The zygote undergoes several divisions and becomes a blastocyst that comprises two layers: the outer one comprises the trophoblastic cells, which form the placenta and fetal membranes, and the inner one, which will develop the embryo. Invasion of the endometrium by the trophoblast refers to the basal decidua [2].

Depending on the level of invasion, placental abnormalities divide into three

categories: placenta accreta - uterine decidua is absent and chorionic villi attach directly to the myometrium but do not penetrate it; placenta increta - partially invades the myometrium; placenta percreta - completely invades the myometrium and serosa, occasionally with invasion into surrounding organs such as the bladder [3],[4]. The incidence of placental abnormalities has risen due to the increasing number of cesarean sections [5].

In addition to defective invasion of the chorionic villi, placental abnormalities include low inserted placenta located close to the cervix but >2cm from the cervical os, marginal placenta previa-reaches to the edge of the cervix, partial placenta previa-covers a portion of the cervix, total placenta previa-the cervical os is entirely covered [2].

Placenta accreta has high morbidity and mortality due to life-threatening hemorrhage, mainly associated with placenta previa and not diagnosed preoperatively [6].

Herein, we present how our surgical team managed a case of intraoperative diagnosis of placenta percreta with bladder invasion. Our case ascertains the importance of proper diagnosis and surgical planning.

### Case report

We present the case of a 29-years-old Caucasian woman, G4 P2, who was admitted to our clinic at 34.2 weeks of gestation for uterine contractions and minimal vaginal bleeding. The patient had a history of cesarean section for the living child. Vital signs and blood tests were typical.

Fetal heart rate was 135 beats per minute, and ultrasound revealed a single live fetus in breech presentation and a total placenta previa. Considering the Placenta accreta spectrum disorders (PAS) suspicion, a multidisciplinary team of gynecologists and surgeons decided to perform an emergency cesarean section with general anesthesia. The patient signed the informed consent form for primary hysterectomy immediately after the infant delivery, and blood transfusion. Tranexamic acid was administered before the surgery. The cesarean section was performed through a Maylard incision. Intraoperatively, the vesicovaginal peritoneum and the bladder were intimately adherent to the lower uterine segment, with evident placental invasion exceeding the myometrium and serosa. However, the parameters did not present placental invasion. Intense vascularization was noticed on the anterior surface of the uterus.

Mediocranial hysterotomy was performed in the upper uterine segment, above the superior margin of the placenta. A live female fetus of 2400g (APGAR 7) was extracted. The uterine wall was sutured after the umbilical cord clamping, and the placenta was left in place. The surgical team performed a total hysterectomy with bilateral salpingectomy and partial bladder resection. The ureters and the ureter meatuses were not involved, so ureter reimplantation was not

necessary. Subsequently, cystorrhaphy was performed. Two blood bags were administered intraoperatively, as blood loss was approximately 2L.



**Figure 1 - Uterine specimen with placenta tissue in situ completely invading the whole myometrium and uterine serosa**



**Figure 2 - Placenta percreta; illustration of placental invasion into the myometrium and serosa**

The patient was discharged on the fifth postoperative day, and the one-week follow-up showed an excellent course. The

histopathology exam showed placental tissue within the uterine wall (Figure 1) and the bladder, confirming the placenta percreta vera diagnosis (Figure 2).

### Discussion

Placenta accreta occurs due to a partial or total lack of basal decidua. The failure to restore the basal decidua layer frequently occurs after cesarean section [7], [8]. A systematic review showed that the incidence of placenta accreta spectrum rose from 0,3% in women with a history of one cesarean delivery to 6,74% in women with more than five cesarean surgeries [9]. Briefly, placenta percreta is encountered in 5% of accreta cases [10]. In addition to cesarean section, there are other predisposing factors for placental defects, such as curettage, endometritis, maternal age >35 years, multiparity, submucosal fibroids, and embryo positioning close to the cervix during embryo transfer [11].

In our case, the patient presented a previous uterine scar and two curettages, so two risk factors for placental disorders. Unexplained elevation of placental biomarkers, such as maternal serum alpha-fetoprotein, pregnancy-associated plasma protein A, troponin, human placental lactogen (cell-free mRNA), pro-B-type natriuretic peptide, free b-hCG, may be associated with an increased risk of PAS [12], [13]. PAS pregnancies maternal and fetal morbidity remains high due to underdiagnosing before delivery [14].

The diagnosis of this pathology is made ultrasonographical in conjunction with Doppler sonography. Most women are diagnosed in the second and third trimesters, but a first-trimester diagnosis is the most preferable and possible when performed by an expert [15], [16]. The European Working Group on Abnormally Invasive Placenta proposed in 2016 the standardized features of ultrasound signs used to diagnose PAS prenatally [17]. The essential markers include

loss of the clear zone, which represents an aberrant extension of the placental villi into the myometrium [17], [18], myometrial thinning under 1 mm, encountered when the myometrium can be replaced entirely by scar tissue [19], placental lacunae, or “placental lakes” which is the most described ultrasound sign antenatally and contain fetal circulation [18], [19], developed due to high-velocity maternal blood from an arcuate or radial artery, causing anatomy distortion of more than one cotyledons [20]. Other ultrasound signs may be the bladder wall interruption [21], the placental bulge, also laparoscopically described as the “snowman sign”, which shows the ballooning of the uterus with the placenta in a different plane than expected [22], exophytic mass, subplacental/uterovesical hypervascularity [18], placental lacunae feeder vessels [23], and bridging vessels, also known as “bladder varicosities” [18], [24]. It is essential to know that ultrasound markers for PAS correlate with their pathophysiology [25]. Despite the “typical” ultrasonographic markers for PAS, literature reports variable specificity and sensibility due to subjectivity and difficulty [26]. Lately, the cesarean scar pregnancy (CSP), defined as a gestational sac located at the previous cesarean scar, has been more histopathological correlated with PAS conditions [27]. In addition, the “cross-over” sign (COS) gained recognition as a valuable tool for ascertaining the connection between the anterior uterine wall, cesarean scar, and ectopic sac [28], [29].

If ultrasound is performed at 9-12 weeks and shows a low-lying placenta, reassessing at 19-22 weeks is recommended when the uterus grows, and the placenta may rise. If the placenta is still low, MRI is recommended, especially when the placenta is posterior or in obese women [30], [31]. On the other hand, some may consider that MRI after 30 weeks' gestation could be influenced by heterogeneous signal intensity, increase in myometrial thinning, and infarcts with

gestation [31], [32]. In this case, the patient refused the MRI exam but anticipating the situation, the medical team had time to prepare for surgery with blood products.

Regarding the optimal timing for delivery, the Royal College of Obstetricians and Gynecologist (RCOG) indicate that delivery should be planned between 35-36.6 weeks of gestation, whereas the American College of Obstetricians and Gynecologists (ACOG) recommend gestational age of 34-35.6 weeks for planned cesarean delivery with or without hysterectomy [33], because the risk of antepartum hemorrhage increases markedly after 36 weeks [10].

The multidisciplinary approach is mandatory in PAS. Complex teams of obstetricians, neonatologists, intensivists, expert pelvic surgeons, urologists, and hematologists should handle the PAS cases.

The gold standard treatment for placenta percreta with bladder invasion is the cesarean hysterectomy with no attempt to remove the placenta, as recommended by ACOG [10], [34]. Any intention of removing the placenta can result in profuse hemorrhage and is strongly discouraged [34]. The uterine incision is often rapidly closed after checking if the placenta will not deliver spontaneously [35]. The hysterotomy should avoid the placenta, so a nonconventional incision could be avoided [34], [36]. Total hysterectomy is more indicated as bleeding from the cervix may arise after supracervical hysterectomy [34], [37]. Another radical technique is the secondary or delayed hysterectomy performed 3 to 12 days after delivery of the infant, with hysterotomy incision closure [33]. Fertility preservation methods are indicated in selected cases of PAS. Expectant management with leaving the placenta in situ and repairing the uterine incision was adopted by only 14.9%-32.0% of the ACOG fellows, whereas the most performed total hysterectomy [38]. Other conservative methods imply partial resection of the uteroplacental defect (with the accreta area) after delivery, followed by repair of the

uterus [33]. Alternatively, a report of placental removal with insertion of Bakri balloon showed success in avoiding hysterectomy in 84% of cases (16/19) [39]. Additional measures to lower blood loss and facilitate placental reabsorption have been reported. Post-delivery methotrexate (MTX) administration, uterine artery embolization, balloon placement, or ligation are adjunct methods to conservative and expectant management [40]. All the guidelines advocate against MTX therapy because of the significant adverse effects, such as severe nephrological and hematological toxicity with subsequent potential septic shock [33], [34], [40], [41].

### Conclusion

Placental abnormalities are life-threatening conditions for both mother and baby, most commonly ending in premature birth and hysterectomy. This case highlights that ultrasound has a very important role in diagnosing placental disorders. Multidisciplinary teams are mandatory when facing complex cases of PAS. Placental abnormalities should be considered in the differential diagnosis in women with a history of uterine interventions and placenta previa.

This case highlights the importance of avoiding on-demand cesarean sections as much as possible.

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