

## CASE REPORT

# PELVIC PACKING - LIFE SAVING IN A CASE OF PLACENTA PERCRETA WITH BLADDER INVASION

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### SUMMARY

Abnormal adherent placenta is a rare complication of pregnancy, associated with high maternal obstetrical complications. Placenta percreta occurs when the villi penetrate the full thickness of the myometrium and may invade different organs such as the bladder or the rectum. It may cause massive haemorrhage thereby requiring emergency hysterectomy. Although commonly discovered at the time of delivery, antenatal diagnosis of placenta percreta may be achieved with ultrasound, magnetic resonance imaging, cystoscopy and colonoscopy. Manual removal of adherent placenta is forbidden because forceful separation may result in severe bleeding. Conservative management (left in situ placenta with or without administration of Methotrexat, uterotonics drugs and even bilateral ligation of the uterine or internal iliac arteries) is not effective and can not be practiced in an emergency situation such as placenta percreta with massive hemorrhage. Depending on the severity of the hemorrhage and the depth of invasion of the placenta into the bladder, excision and/or reconstruction of the bladder may be necessary. Usually it takes a multidisciplinary approach in a tertiary center with intensive care. The case can be extremely complicated even in a well equipped center when the diagnosis of placenta percreta is an intraoperative surprise especially by the severity of hemorrhage and when there is no possibility of rapid blood transfusion, plasma and clotting factors. We present a case report, followed by a discussion on the alternatives for diagnosis and management of placenta percreta with bladder invasion. Hysterectomy, the restoration of bladder and massive blood transfusion were stages

### RÉSUMÉ

*Le capitonnage pelvien - sauveur de la vie dans un cas de placenta percreta avec l'envahissement de la vessie*

L'adhérence placentaire anormale est une complication rare de la grossesse associée aux complications obstétricales maternelles élevées. Le placenta percreta se produit lorsque les villosités pénètrent l'épaisseur du myomètre dans sa totalité et peuvent envahir différents organes tels que la vessie ou le rectum. Il peut provoquer l'hémorragie massive, s'imposant ainsi l'hystérectomie d'urgence. Bien que découvert usuellement au moment de l'accouchement, le diagnostic prénatal de placenta percreta peut être atteint par les ultrasons, la résonance magnétique, la cytoscopie et la colonoscopie. L'extraction manuelle du placenta adhérent est interdite parce que la séparation forcée peut conduire à une hémorragie sévère. L'approche conservatrice (placenta laissé en place, avec ou sans l'administration de méthotrexate, de médicaments utérotoniques et même la ligature bilatérale de l'artère utérine ou des artères iliaques internes) n'est pas efficace et ne peut pas être pratiquée dans une situation d'urgence comme le placenta percreta avec hémorragie massive. Selon la gravité de l'hémorragie et la profondeur de l'envahissement du placenta dans la vessie, l'excision et/ou la reconstruction de la vessie peut être nécessaire. D'habitude, il s'impose une approche multidisciplinaire dans un centre tertiaire avec un service de soins intensifs. Le cas peut être extrêmement compliqué même dans un centre bien équipé où le diagnostic de placenta percreta est une surprise opératoire et par la sévérité surtout de l'hémorragie et quand il n'y

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of treatment but in terms of development CID and diffuse uncontrollable bleeding, pelvic packing with cotton gauzes saved the life of the patient.

**Key words:** placenta percreta, placenta accreta, pelvic packing, bladder invasion, emergency hysterectomy

a aucune possibilité de transfusion sanguine, plasma et facteurs de coagulation. Nous présentons un rapport de cas suivi d'une discussion sur les alternatives de diagnostic et d'approche du placenta percreta avec l'invasion de la vessie. L'hystérectomie, la restauration de la vessie et de la transfusion sanguine massive étaient des stades de traitement, mais en termes de développement de la coagulation intravasculaire disséminée (CID) et des saignements diffus incontrôlables, un capitonnage pelvien hémostatique avec des champs abdominaux laissés en place a sauvé la vie de la patiente.

**Mots-clés:** placenta percreta, placenta accreta, capitonnage pelvien, l'invasion de la vessie, l'hystérectomie d'urgence

## INTRODUCTION

Placenta accreta / percreta represents an abnormality fixation of placenta in the uterus, villi penetrating it until the myometrium or deeper. It can be a danger during childbirth or after birth because it can not separate of the uterus, sometimes causing massive bleeding.

Placenta accreta occurs most frequently in cases of placenta praevia with previous uterine surgery including cesarean sections. In women with a cesarean section and current placenta praevia, the risk of placenta accreta is 25%. For women with two or more previous cesarean sections and placenta praevia this risk increases to 40% (1). Abnormal adherent placenta is classified according to its degree of invasion into the myometrium in: placenta accreta vera, placenta increta and placenta percreta. Placenta accreta vera is a term used to denote a placenta with villi that adhere to the superficial myometrium. Placenta increta occurs when the villi adhere to the body of the myometrium, but not through its full thickness. Placenta percreta occurs when the villi penetrate the full thickness of the myometrium and may invade neighboring organs such as the bladder or the rectum. About 80% of cases are placenta accreta vera, 15% increta, and 5% percreta (2). Although the exact cause of placenta accreta is unknown, it is associated with several clinical situations such as: previous cesarean delivery, placenta praevia, grand multiparity, previous uterine curettage, and previously treated Asherman's syndrome. The most common manifestation of placenta praevia is bleeding during a normal pregnancy without it being accompanied by pain or contractions. Initial bleeding occurs most frequently in the second quarter and this can be repeated until the end of pregnancy. Ultrasound imaging is the method most commonly used for early diagnosis of placenta accreta. Ultrasound can be done from 15 weeks of pregnancy but is more accurate at 20 weeks gestation or more. The most common characteristic that would suggest placenta accreta is the appearance of „Swiss cheese” of placenta with multiple lacunae and loss of clear space between myometrium and placenta (loss of the decidual layer of the placenta) and turbulent blood flow extending from the placenta to surrounding tissues on Doppler examination mode. MRI can be also used to diagnose placenta percreta. However, when

the placenta is located posterior to the uterus, the ultrasound is indicated. Up to 45% of women with placenta accreta have elevated levels of AFP.

## CASE REPORT

A 33 years old woman, IVG IIIIP, 31 weeks pregnant, diagnosed with central placenta praevia is admitted, as emergency, in our clinic on 8 October 2016 for moderate vaginal bleeding - in order to establish therapeutic management. In the patient's personal history we noted that she has two birth by Cesarean section in 2008 and 2009 with normal children and one miscarriage. She is smoker, without other significant diseases and without a coherent monitoring in the current pregnancy by obstetrician specialist. However in a previous ultrasound examination performed in another medical unit, seven days ago, the diagnosis of central placenta praevia was established but no evidence of placenta accreta or percreta was given in that report. On admission, the patient was conscious, cooperative with pale skin and mucous, blood pressure was 100/60 mmHg, pulse 88/minute with normal uterine tone, rare uterine contractions and moderate vaginal bleeding increased but decreased in the following 20 minutes. After completing the clinical and laboratory exams with blood tests within HB=8,72 g/dL, HT=28,2%, PLT = 298.000 and others in normal range, an urgent abdominal ultrasound examination was performed that showed a viable fetus with biometrics appropriate gestational age of 31 weeks and low amniotic fluid volume (AFI=7,2 cm), estimated fetal weight about 1500 g. We found a placenta praevia covering the entire internal cervical os with a pronounced vascularization and large caliber blood vessels visible in the anterior segment of the uterus, 3-4 mm thick uterine wall at the level of anterior segment and loss of clear space between myometrium and placenta, while vaginal Doppler ultrasonography images suggested the diagnosis of placenta praevia increta/ percreta. We tried delaying case to ensure collaboration with intensive care doctor and to be sure that we have sufficient blood and plasma for transfusions. After one hour has been found increase of vaginal bleeding, blood tests carried out urgently showed a decrease of HB with 1,4 g/dL. At a hemoglobin of 7,32g/dL and the continuation of bleeding, we decided surgical intervention under general anesthesia with orotracheal intubation after setting up a

complex team made up of three gynecologists, one general surgery physician, one intensive care specialist and one neonatologist. The anesthesiologist placed a central catheter and two in peripheral veins. Intraoperatively we found an impressive appearance (fig. 1): placenta lower situated at the level of anterior segment of uterus, covering the entire internal cervical os and uterine scar with multiple large caliber blood vessels which penetrate the full thickness of the myometrium until the peritoneum and bladder wall (fig. 2).

An initial displacement of the bladder was not performed and a transverse uterine incision was made much above previous uterine scar. We extracted a viable fetus in breech presentation, female, 1570 g, APGAR score 8, which is taken by neonatologist and then had favorable evolution in the next days. We did not extract the placenta, we found heavy bleeding and we decided hemostasis hysterectomy. In order to minimize uterine bleeding, atraumatic clamps were initially positioned at the uterine tranche and then we made a fast hysterorrhaphy. Basically placental vessels, invading the bladder and peritoneum slowed much hysterectomy. This has not been achieved without sacrificing two small areas of the posterior wall of bladder. In absence of the urology service in our hospital, general surgeon was consulted. Intraoperatively, a 5 cm cystotomy was made at the bladder dome. The posterior bladder had a significant amount of placental blood vessels invading the muscularis. The bladder mucosa was noted as normal throughout. After that, we succeeded in separating it from the uterus, hysterectomy was successfully completed. The bladder was then closed in 2 layers with separate absorbable sutures and a 22-Fr Foley catheter was placed. The total blood loss was 4000 mL, intraoperative evaluation of CBC revealed a hematocrit 12,1% and hemoglobin 3,92 g/dL. Blood pressure had values of 40-50 mmHg with risk of cardiac arrest at any time during surgical intervention. With great difficulty was offset massive hemorrhagic shock by repeated administration of Adrenaline and by administration within three hours (intraoperatively and immediately postoperatively) of 5 units of allogeneic red blood cells, 3 units free-frozen plasma, 5 units of thrombocytes, 2500 mL physiologic serum solution and 2000 mL Ringer solution. Intermediate blood tests and intraoperative appearance at the end of surgery looks a process of CID: very low fibrinogen - 120 mg/dL, Ddimers raised - 4,24 microgram /mL, INR = 1,83, PT = 20,9 sec, PT% = 43, HB = 6,62 g/dl, HT = 19,8%, PLT = 142.000. After solving major sources of active bleeding a diffuse capillary bleeding is found out from the entire pelvis. After attempting to stop the bleeding with hemostatic sponge we decided to do a pelvic packing with two bulky cotton mesh and then we sutured the abdominal wall using a regular technique. The patient was then admitted to the intensive care unit for 48 hour where complex therapy was started with: 3 units red blood cells, 2 units free frozen plasma, 2 units thrombocytes, 3 units cryoprecipitate, 2 Novoseven, albumin, Gelofuzin, Na, K, broad-spectrum antibiotics and anti-inflammatory drugs. After stabilizing the patient, solving coagulation disorders and rebalancing electrolyte, at a hemoglobin of 7.62 g/dL, we decided a reintervention surgery at 48 hours when we practiced extraction of pelvic cotton



Figure 1 - Anterior segment of uterus with placenta and large caliber blood vessels



Figure 2 – Blood vessels which penetrate the bladder wall

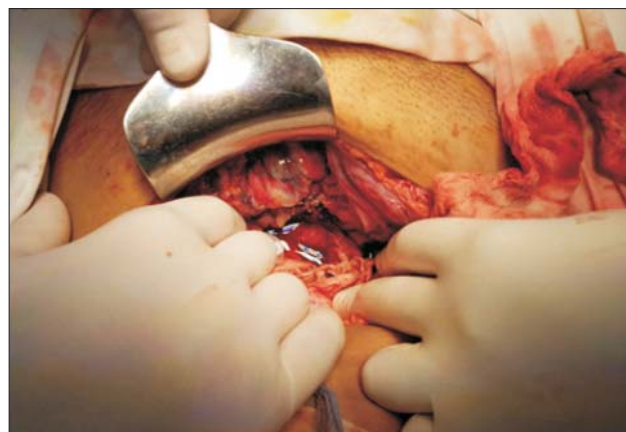


Figure 3 - Pelvic packing at 48 hours

mesh (fig. 3), controlling hemostasis (without diffuse pelvic bleeding), bladder control with retrograde injection of methylene blue, lavage, drainage.

Evolution was favorable. At day 18 postoperatively a control cystography was performed with normal appearance. Foley catheter was suppressed in day 22. On day 24 the

patient was discharged in good general condition, afebrile, with normal bowel movements and normal urination.

## DISCUSSION

In placenta percreta, the decidua basalis is partially or completely absent, and the chorionic villi invade the entire myometrium up to the serosa (3). The increasing incidence of placenta accreta may be associated with the increased rate of caesarean deliveries. About 75% of placenta percreta cases are associated with placenta praevia (4). The most important complication of invasive placentation is massive hemorrhage. This is often a result of attempted manual placental separation, which opens up large-caliber spiral vessels and sinuses (5). Placenta percreta may present in the antenatal period with intraperitoneal or intravesical bleeding. Intraperitoneal bleeding mimics placental abruption or uterine rupture (6). When a multiparous woman with a history of a previous cesarean delivery is found to have a placenta praevia, especially with coexistent microscopic or gross hematuria, the possibility of bladder invasion by an adherent placenta should be considered. The diagnosis of placenta with abnormal adherence is usually made by ultrasound. The 2D ultrasound criteria for the diagnosis of placenta accreta in at-risk patients are obliteration of the retroplacental echolucent zone, abnormal placental lacunae and thinning or disruption of the hyperechoic uterine serosa - bladder interface (7). Doppler ultrasonography will reveal turbulent blood flow extending from the placenta to surrounding tissues. MRI can also be used to diagnose placenta accreta or percreta and cystoscopy may often show posterior bladder wall abnormalities.

Conservative management may be an option in order to prevent peripartum hysterectomy and to preserve fertility. Conservative management of placenta percreta by leaving placenta in situ and adjuvant methotrexate have been described in the case of small pregnancies or in pregnancies with placenta that isn't down inserted and does not bleed. Other conservative options for placenta percreta included: uterotonic drugs, external compression with uterine sutures (B-Lynch, Hayman), internal uterine compression (Bakri balloon) and selective devascularization by ligation or embolization of the uterine artery or internal iliac arteries (8, 9). Conservative approach has always risk of complications, hence, patient selection and close observation are extremely important. Conservative management is not effective and can not be practiced in an emergency situation such as placenta percreta with massive hemorrhage. Caesarean hysterectomy is recommended in the case of life-threatening severe hemorrhage. In our case it was an emergency situation suddenly revealed in emergency room with bleeding and Hemoglobin 8,7 g/dL on admission, a situation that could end tragic without quick and efficient support intensive care. The decision is difficult: you are forced to go into the operating room due to bleeding and sometimes intraoperative bleeding worsens dramatically after extraction of the fetus and placenta interception. Although if we had no urologist in our hospital, we were able

to do hemostasis hysterectomy and bladder recovery with the help of surgeon but it was a massive loss of blood and the patient developed intraoperative consumptive coagulopathy. Pelvic packing with cotton gauzes and supportive care initiated immediately at induction of general anesthesia and then continued for 48 hours in the intensive care unit saved the patient's life and her subsequent evolution was, fortunately, without complications.

## CONCLUSIONS

Conservative management may be an option in order to prevent peripartum hysterectomy and to preserve fertility, as long as bleeding remains minimal. In the case of massive bleeding and hemorrhagic shock, rapid hemostasis hysterectomy is the only option. Supportive therapy must be efficient to prevent decompensation with hemorrhagic shock or installing CID. Resection of the bladder base with the distal ureters can be performed by urologist, but it carries the risk of coagulopathy, transfusion reaction, sepsis, adult respiratory distress syndrome, multiorgan failure and vesicovaginal fistula (10). Placenta praevia percreta is an emergency of zero degree when it is manifested towards bleeding which is life-threatening for mother and child.

Placenta percreta may be life-threatening because the hysterectomy can not be achieved in a short time, fast enough to control the amount of blood loss. Of course any gynecologist understands the gravity of the situation and knows the management of such a case. Problems arise when the patient comes to the emergency room suddenly without being investigated during pregnancy and sometimes without her or her relatives be aware of risks. In other cases the patient's condition does not allow obtaining an informed consent. Of course we can not stop to think here about ethical issues or malpractice. Let your patient die from bleeding on the operating table is the nightmare of every surgeon and one of the situations in which it is directly and legally responsible. In a secondary hospital (non-intensive care) without the ability to ensure in the fastest time blood, plasma, platelets, clotting factors, such case can be lost. So, in cases of placenta with abnormal adherence, antenatal diagnosis is required. Maternal counseling is recommended to plan birth and determine possible interventions or complications during pregnancy or childbirth. Admission in hospital must be made before the onset of labor, preoperative preparation and establishment of a complete medical team must be a therapeutic standard in these cases.

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