

Placenta percreta with bladder invasion: The armamentarium available in its management

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Abstract

Placenta percreta is a rare life-threatening condition associated with high morbidity and mortality due to severe obstetric hemorrhage. It can be associated with bladder invasion which leads to hematuria. Treatment is decided on a case-to-case basis, and there have been no guidelines proposed so far. Strategies include obstetric hysterectomy, leaving the placenta *in situ* with postoperative methotrexate therapy and removal of the placenta with bladder reconstruction in a single stage. An unusual case of a patient with placenta percreta and bladder invasion who presented with delayed hematuria after the placenta was left *in situ* has been reported. The patient was managed conservatively for 10 days postdelivery after which a decision to do an obstetric hysterectomy with focal cystectomy was taken in view of persistent hematuria. An algorithm for managing cases of placenta percreta with bladder invasion has been proposed to manage these difficult situations.

Keywords: Bladder invasion, hematuria, placenta percreta

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INTRODUCTION

Adherent placenta disorders represent potentially fatal conditions for pregnant women.^[1] It results from the abnormal attachment of the placental villi to the myometrium instead of the intervening decidua. This includes placenta accreta (75%–78%) in which placental chorionic villi invade only superficial myometrium, placenta increta (17%–18%) where placental chorionic villi invade more than half of the myometrium, and, very rarely, placenta percreta (5%) where chorionic villi invade through the myometrium, serosa, and occasionally into adjacent organs such as the bladder.^[2] Bladder invasion presents with life-threatening hematuria at the time of delivery in

majority of the cases. We report the case of a patient with placenta percreta and bladder invasion who presented with delayed hematuria after the placenta was left *in situ*.

CASE REPORT

A 26-year-old, gravida three, para two, female with a history of one lower segment cesarean section and one normal delivery was incidentally detected to have placenta percreta on prenatal ultrasound imaging at 32 weeks of gestation. On further investigation, MRI abdomen and pelvis were suggestive of a complete placenta previa with percreta with invasion of dome of the bladder [Figures 1 and 2].

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The patient was managed conservatively till 36 weeks. On the day of planned elective cesarean section, prophylactic bilateral internal iliac balloon catheters were placed through the right femoral artery. The patient was then shifted for surgery. Intraoperatively, placenta was found to be densely adherent to the uterine wall, and decision was taken to leave it *in situ*. A healthy baby was delivered, weighing 2250 g, and the patient was shifted to the postnatal ward. On the 3rd day after cesarean section, 80 mg of intravenous methotrexate was administered to the patient and was planned to be given weekly, up to a maximum of four doses. Beta-hCG levels were monitored, with an initial figure of 560 mIU/ml. On postoperative day 7, the patient had an episode of gross hematuria with passage of clots. Cystoscopy revealed diffuse oozing on the posterior wall of the bladder. 200cc of clots were evacuated, and bleeding points were cauterized. Postoperatively, the patient was stable and urine was clear. She was given the second dose of intravenous methotrexate, and her beta-hCG levels were now 386 mIU/ml. Two days after the first episode, the patient developed another episode of gross hematuria with passage of clots. On repeat cystoscopy, the bladder clots were organized, and 300cc clots were removed by a suprapubic cystostomy. The patient was kept in the surgical intensive care unit and monitored postoperatively. Five days later, she had a third episode of gross hematuria. A repeat MRI abdomen with pelvis was done which was suggestive of 12 cm × 10 cm × 6 cm retained placenta, invading into the bladder, with clots in the bladder lumen [Figure 3].

The patient was shifted for exploration, wherein the bladder clots were evacuated through an anterior cystotomy, and bilateral internal iliac vessels were ligated. However, there was persistent hemorrhage. A subtotal hysterectomy was performed with partial cystectomy of the focal infiltration of placenta in bladder. The bladder was repaired primarily, and a wide bore perurethral catheter, a suprapubic catheter, and bilateral DJ stents were kept. The patient was extubated the next day. She required six blood transfusions, four bags of fresh frozen plasma, and one bag of platelets. The suprapubic catheter and DJ stents were removed after 4 weeks on confirming a normal cystogram, and the patient was discharged.

DISCUSSION

Although the exact cause of placenta percreta is unknown, it is associated with several clinical situations such as previous cesarean delivery, placenta previa, grand multiparity, previous uterine curettage, and previously treated Asherman syndrome.^[3]

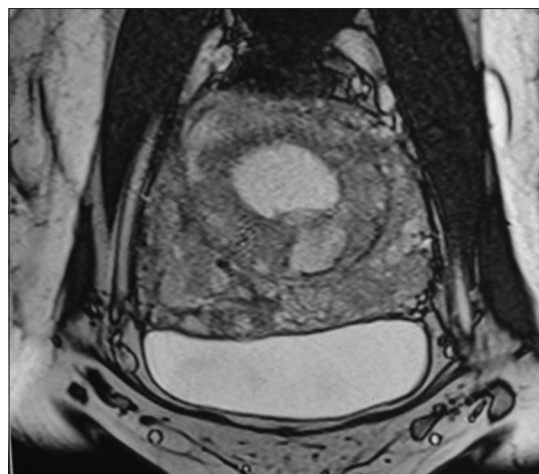


Figure 1: Coronal section T2-weighted: placenta percreta without interface between bladder and uterus (32 weeks gestation)

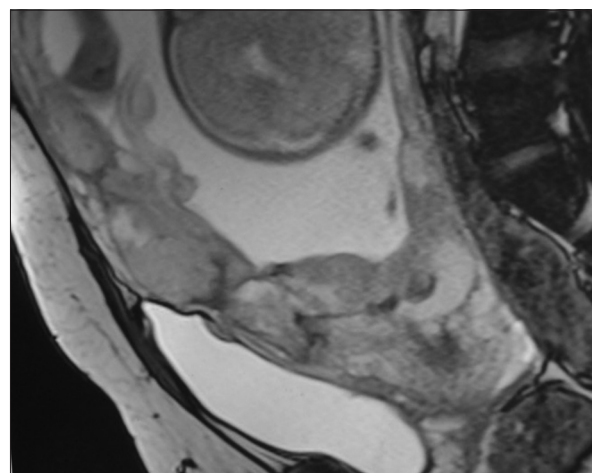


Figure 2: Sagittal T2-weighted placenta percreta without interface between bladder and uterus (32 weeks gestation)

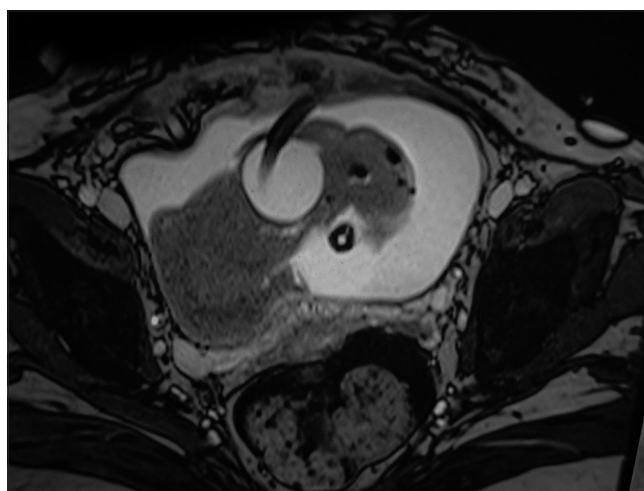


Figure 3: Coronal T2 weighted: retained placenta invading into the uterus with bladder clots

The management of placenta percreta can be challenging as the average blood loss during delivery is 3 liter or more

in 90% patients.^[4] Forty percent of the patients need >10 transfusions^[5] and it has a 7% maternal mortality rate. Refractory hematuria is present in 25% patients due to bladder invasion by placenta percreta.^[6]

Management involves a multidisciplinary approach, involving a team of obstetricians, urologists, interventional radiologists, hematologists, intensivists, and neonatologists. It should be managed at a tertiary care center where there is a high-volume blood bank with adequate blood products, a well-equipped neonatal intensive care unit (NICU), and a facility for interventional radiology.^[7] Delivery may be considered at 34–35 weeks' gestation because the incidence of antepartum hemorrhage appears to increase markedly at 36 weeks.^[8]

The options available for the management of placenta percreta with bladder invasion include:

1. Cesarean hysterectomy: this option is currently recommended by the American College of Obstetrics and Gynaecology and is considered the gold standard treatment.^[8] It consists of performing a hysterectomy after the birth of the child without attempting removal of the placenta. Occasionally, a subtotal hysterectomy can be safely performed, but persistent bleeding from the cervix may preclude this approach and make total hysterectomy necessary.^[9] Adjunctive measures include preoperative prophylactic balloon catheterization, ureteral stenting, and postoperative uterine artery angioembolisation^[8]
2. Conservative management: when no plane of cleavage is found between the uterus and the placenta, the placenta is left adherent to the uterus. This avoids a hysterectomy in about 75%–80% of cases but is associated with a risk of transfusion, infection, and long-term monitoring.^[8] Some authors have proposed the use of methotrexate to hasten the placental resolution. Injection methotrexate is a folate antagonist and is used for placental involution, whenever left *in situ* but studies show mixed results, and it has a very weak level of evidence of efficacy^[10]
3. One-step conservative surgery: it consists of resecting the invaded area together with the placenta and performing the reconstruction as a one-step procedure. The steps include creation of a plane between placenta and bladder followed by resection of the placenta and reconstruction of the myometrium with partial cystectomy.^[11] Resection of the bladder base with the distal ureters carries the risk of coagulopathy, transfusion reaction, sepsis, multiorgan failure, and vesicovaginal fistula due to aggressive blood transfusion and extensive surgery.^[4]

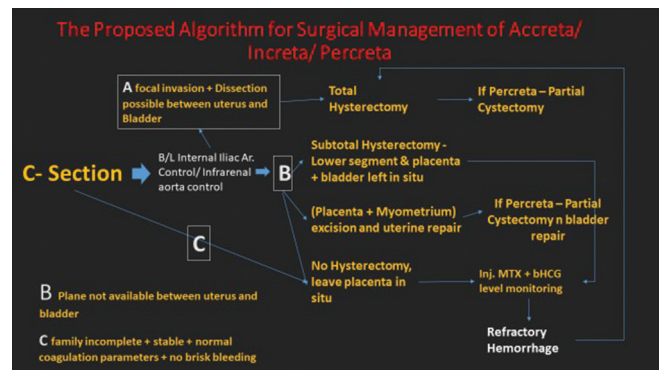


Figure 4: Algorithm for the management of placenta percreta with bladder invasion

Regardless of the decision whether to remove the bladder, an anterior bladder wall cystotomy is particularly helpful for defining dissection planes and determining whether posterior bladder wall resection is required.^[4]

We have proposed an algorithm for surgical management of placenta percreta as follows in Figure 4.

CONCLUSIONS

Placenta percreta with bladder invasion should be managed in a tertiary care center with a multidisciplinary approach, with early involvement of the urologist in decision-making. Each option for the management of such cases should be weighed, discussed with the patient and family, and planned in detail preoperatively, keeping exit strategies ready. Mismanagement of such difficult situations can have potentially devastating consequences. Conservative measures should be adopted only with intensive monitoring, keeping delayed hematuria as a potential complication in mind before deciding to do so. In such cases, a low threshold for hysterectomy with partial cystectomy should be kept.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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