

## An interesting case of placenta percreta

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### ABSTRACT

Placenta percreta is a condition where chorionic villi penetrate the entire myometrium, extending beyond uterine serosa. Here, we present an interesting case of placenta percreta in a 32-year-old lady with a previous history of the lower segment cesarean section. Initial ultrasonography had revealed oligohydramnios and an anterior low lying placenta with myometrial invasion, suggestive of placenta increta. Subsequently, a pre-operative magnetic resonance imaging demonstrated further invasion of the uterine serosa and bladder dome involvement which confirmed placenta percreta.

**Key words:** Bladder invasion, MRI, Placenta, Placenta percreta, Ultrasound

**P**lacenta accreta (PA) is the abnormal invasion of chorionic villi into the myometrium through defects in the intervening decidua basalis. There are three types of PA vera where the placenta attaches directly to the myometrium but does not invade the muscle; placenta increta where placental chorionic villi invade the myometrium, and the most severe form is placenta percreta where the villi penetrate the entire myometrium extending beyond uterine serosa to invade adjacent organs [1]. The overall incidence of placenta percreta is low with an incidence of 1 in 21,000 and the majority of cases are seen in patients with a history of the previous lower segment cesarean section (LSCS) and placenta previa. Placenta percreta may lead to massive obstetric hemorrhage, hemodynamic instability, damage to the uterus, bladder, ureters, bowel, and ultimately death [2,3]. Ultrasonography (USG) represents the primary tool in screening females at risk of invasive placentation. Magnetic resonance imaging (MRI) is indicated in subsequent diagnostic workup to plan appropriate surgical treatment.

Hence, we decided to report this case which emphasizes the role of imaging in the management of these patients. Here, invasion of the bladder dome by placental tissue was demonstrated on pre-operative imaging, and this impacted surgical planning.


### CASE REPORT

A 32-year-old G4P1L1A2 lady with a gestational age of 33 weeks 3 days was admitted to our hospital for management. The

patient had no history of per vaginal bleeding or leaking. She was hypothyroid, hypertensive, and had gestational diabetes, all of which were controlled by medication and dietary modulation. There was a history of the previous one LSCS 6 years back; two abortions, followed by dilatation and curettage in 2015 and 2016, respectively.

Examination revealed a conscious, well-oriented lady with mild pallor. There was no icterus, cyanosis, clubbing, or edema. Her vitals at the time of examination were as follows: Blood pressure 110/80 mm of mercury and pulse rate 86/min, regular. No respiratory, cardiac, or neurological abnormalities were evident. On per abdomen examination, there was a single live fetus in cephalic presentation. The uterus was relaxed with fundal height corresponding to 32–34 weeks. A regular fetal heart rate was noted. Scar tenderness was absent. Per vaginal and per speculum examination was not done.

The previous routine antenatal USG with Doppler was done at an outside facility at 28 weeks which revealed anterior low lying placenta extending to os but not covering it and multiple hyperechoic areas within the placenta with intermittent loss of retro-placental clear space. Few venous lacunae were seen in the lower third of the placenta at the site of the previous cesarean scar (Fig. 1). These findings were suggestive of placenta increta with marginal placenta previa. Other findings were oligohydramnios and intrauterine growth restriction of the fetus. The patient came to our institute for further management. She was advised an MRI to determine the extent and depth of placental invasion and plan for surgery.

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MRI was performed on a 1.5 T system (Magnetom Essenza, Siemens, Erlangen, Germany). She was scanned in a supine position using a body coil. MRI revealed an intra-uterine fetus in cephalic presentation and oligohydramnios. The placenta was seen along the anterior and left posterolateral walls extending inferiorly up to the internal os, but not covering it. The placenta was heterogeneous with a lumpy contour and rounded edges. Few intra-placental hypointense bands were seen in T2-weighted images. There were focal interruptions with thinning of the myometrial wall (Fig. 2a). There was a loss of fat plane between the placenta and adjacent urinary bladder with few small vessels invading the dome of the urinary bladder (Fig. 2b). Findings were suggestive of marginal placenta previa with percreta.

Based on these findings, the obstetrician planned a classical cesarean section with hysterectomy. Intraoperatively, placenta was found invading the serosa in the lower uterine segment and few blood vessels were seen traversing the bladder wall (Fig. 3). These blood vessels were cauterized and adhesions were removed. A healthy female baby with an APGAR score is 7,8 and 8. Her birth weight was 1.8 kg, which was appropriate for gestational age. She cried immediately after birth.

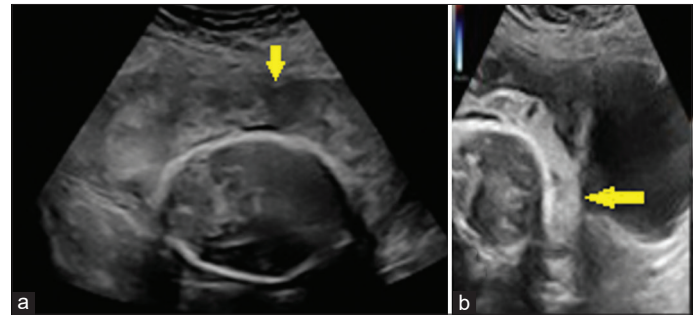
The post-natal period was uneventful. The post-operative recovery of the patient was uneventful. The histopathological findings were suggestive of placenta percreta and showed the presence of trophoblastic tissue in the myometrium and serosa with the absence of an intervening decidual plate.

## DISCUSSION

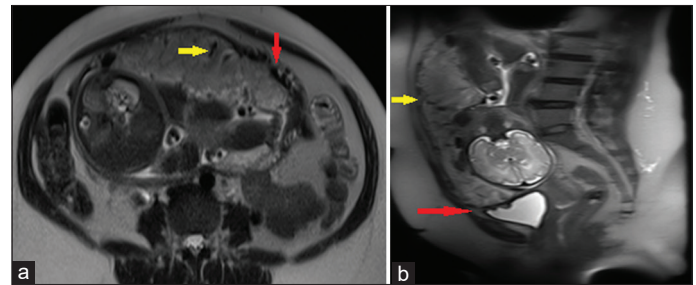
Predelivery identification of the placental invasion is important for obstetricians because it is the most common indication for emergency hysterectomy and may be associated with fatal intra or postpartum hemorrhage. The risk of PA is 24% in women with placenta previa and one prior cesarean delivery and 67% in women with placenta previa and three or more prior cesarean deliveries [4]. Increased frequency of cesarean delivery is the main cause of PA, mainly in the region of the previous uterine scar. Endometrial re-epithelialization does not occur at scar site which leads to the invasion of the trophoblast and villous tissue deep within the myometrium, including its circulation, and also invades the surrounding pelvic organs [5]. Other risk factors include advanced maternal age, uterine anomalies, the previous uterine surgery, dilation and curettage, and myomectomy [6].

Placenta percreta with bladder involvement has a low incidence of, approximately 1/10,000 deliveries [7]. It has a reported maternal mortality of 20% and perinatal mortality of 30% [8]. The patients who have had a previous cesarean section often develop increased vascularity in the space between the myometrium and the bladder, probably because the bladder flap is retracted before the incision is made into the uterus [9]. Improper pre-operative workup of the bladder invasion can lead to complications such as bladder laceration (20%), urinary fistula (13%), ureteral transection (6%), and a resulting small bladder capacity (4%) [10].

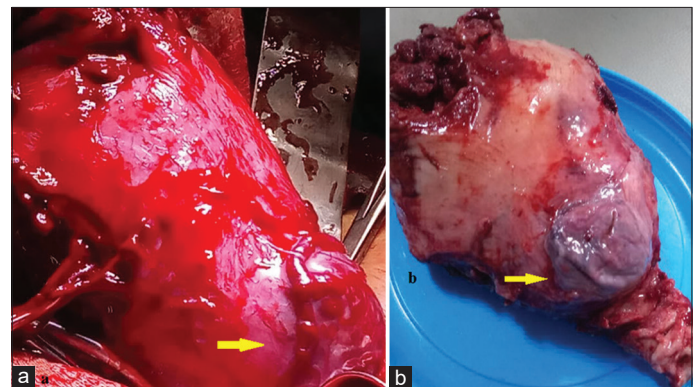
The primary screening of high-risk patients should be done with real-time USG combined with Doppler at 18–20 weeks



**Figure 1:** (a) Transverse image of ultrasonography (USG) shows anterior heterogeneous placenta with myometrial invasion (yellow arrow). Also noted is oligohydramnios; (b) sagittal USG image showing intra-uterine fetus in cephalic presentation and an anterior placenta reaching up to the internal os but not covering it (marginal placenta previa) (yellow arrow)



**Figure 2:** (a) Axial T2W (T2-weighted) MR image shows an anterior heterogeneous placenta with T2 hypointense bands (yellow arrow) and thinning of myometrium with focal interruptions (red arrow); (b) sagittal T2W (T2-weighted) MR image shows an intra-uterine fetus in cephalic presentation, anterior heterogeneous placenta with lumpy contour (yellow arrow) and few small vessels invading dome of urinary bladder (red arrow)



**Figure 3:** Pre-operative image (a) and image of the uterus specimen (b) confirming placental invasion of the serosa suggestive of placenta percreta (yellow arrows)

gestational age. Sonography has a sensitivity of 77% and specificity of 96% in the detection of placental invasion [3]. If a low lying placenta is seen, then a follow-up examination after 32 weeks is done for definite evaluation [11]. At present, MRI is used as a complementary modality to USG in selected patients with equivocal USG findings. Abnormal placental vascularity and intraplacental T2 dark bands are the most sensitive MR criteria for the diagnosis of invasive placentation [12]. MRI is particularly useful in delineating lateral or posterior placental extension to periuterine or parametrial tissues or invasion of other organs to

plan appropriate management for surgery. MRI has sensitivity and specificity ranging from 75% to 100% and from 65% to 100% in detecting placental invasion [7,13]. Proper evaluation and diagnostic workup of these patients can help in appropriate management thereby reducing mortality and morbidity.

In our case, the diagnosis of placenta increta was suggested in USG and MRI was advised for detailed evaluation before surgery. MRI has the advantage of high soft-tissue resolution and was able to visualize the extension of vessels across the serosa invading the dome of the urinary bladder. Hence, the diagnosis was changed from the placenta increta to percreta. This played an important role in planning the surgical management.

## CONCLUSION

Placenta percreta is a potentially life-threatening condition both for the mother and baby. This case highlights the importance of a detailed evaluation of the placenta in high-risk patients to plan multidisciplinary approach for favorable outcomes. MRI plays a crucial role in the diagnosis of placental invasion where USG findings are equivocal and are highly accurate in identifying extra-uterine spread. It accurately classifies placental invasion based on depth which, in turn, helps in deciding the treatment, thus reducing both maternal and fetal mortality.

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