Placenta Previa Percreta with Bladder Invasion: Ultrasound and MRI Findings

Mesane İnvazyonu İle Plasenta Previa Percreta: Ultrasonografi ve MRG Bulguları

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Abstract
Placenta previa percreta is an abnormal placental implantation due to decidual deficiency. Placenta previa percreta with invasion of the urinary bladder is an uncommon and serious condition if not recognized before delivery. We report color Doppler ultrasound (CDUS) and magnetic resonance imaging (MRI) findings in two cases of placenta previa percreta with bladder invasion. Both cases presented with sudden painless vaginal bleeding and had previous cesarean delivery. CDUS and MRI findings are helpful for the prenatal diagnosis of placenta previa percreta with invasion of the urinary bladder to prevent perinatal complications with this condition.

Keywords
Color Doppler Ultrasound; Bladder Invasion; Magnetic Resonance Imaging; Placenta Percreta

Özet

Anahtar Kelimeler
Renkli Doppler Ultrasonografi; Mesane İnvazyonu; Manyetik Rezonsans Görüntüleme; Placenta Percreta

DOI: 10.4328/AEMED.64  Received: 30.10.2015  Accepted: 01.11.2015  Published Online: 01.05.2016  J Ann Eu Med 2016;4(2): 43-5
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Introduction
Abnormal placental implantation to the myometrium can be an important cause of maternal perinatal morbidity, and may be mortal if unrecognized previously. This abnormal placentation may occur in the presence of a decidual deficiency and myometrial invasion by chorionic villi [1]. Implantation anomalies include placenta accreta, increta and percreta; however, the most serious type of abnormal implantation is placenta percreta. The significant feature of placenta percreta is the invasion of the myometrium, uterine serosa and neighboring organs, such as the urinary bladder [1]. This condition can be difficult to detect without imaging [2]. Therefore, in this report, we present the color Doppler ultrasound (CDUS) and magnetic resonance imaging (MRI) findings in two cases of placenta previa percreta, with urinary bladder invasion.

Case Report
Case 1
A 34-year-old pregnant woman at 32 weeks of gestation, who had a history of previous cesarean delivery, presented with sudden painless vaginal bleeding. Placenta previa totalis was identified upon obstetric ultrasound examination, which showed the absence of myometrial tissue between the placenta and uterine serosa. The CDUS showed abnormal placental-bladder wall interface hypervascularity, linking the placenta to the bladder wall (Fig. 1). The diagnoses of placenta previa totalis (Fig. 2A) and placenta percreta with bladder invasion were confirmed by MRI. T2-weighted HASTE (half-Fourier single shot turbo spin echo) and TSE (turbo spin echo) images showed inhomogeneous signal intensity of the placenta, and there was no visible myometrial tissue at the previous cesarean scar adjacent to the bladder and the abdominal wall (Figs. 2B-D). Other MRI findings included a thick placenta with anterior abnormal uterine bulging. An emergent cesarean delivery and hysterectomy were performed. The diagnosis was confirmed by the operative and pathological findings.

Case 2
A 33-year-old pregnant woman at 31 weeks of gestation, who had a previous cesarean delivery, with painless vaginal bleeding was referred to our radiology department for sonographic evaluation. The initial evaluation was performed by CDUS and showed a focal invasion of the placenta previa percreta to the bladder wall. The diagnosis of placenta previa totalis and placenta percreta with bladder invasion were performed and confirmed by MRI. T2-weighted HASTE MR images (Fig. 3) showed marked heterogeneity of the placenta with abnormal bulging of the lower uterine segment, and focal interruptions in the hypointense myometrial wall adjacent to the urinary bladder. A cesarean hysterectomy was performed. The diagnosis was confirmed by the operative and pathological findings.

Discussion
Here, we present the CDUS and MRI findings in two cases of placenta previa percreta with bladder invasion. Both of these patients had previous cesarean deliveries and were treated with cesarean hysterectomies. The diagnosis of placenta previa percreta is important to prevent perinatal morbidity and mortality. Our cases revealed that careful sonographic examination of the anterior uterine border and uterine-bladder interface are very helpful for the diagnosis of the placental invasion. Placenta previa percreta with invasion of the urinary bladder is a rare but potentially fatal condition [3]. An ultrasonographic assessment of the cesarean scar is feasible with grayscale ultrasonography, and CDUS and T2-weighted HASTE magnetic
resonance images can be useful for the prenatal diagnosis [4]. The presence of interface hypervascularity with abnormal blood vessels linking the placenta to the bladder on CDUS represents placenta previa percreta with urinary bladder invasion [5]. Moodley et al. [6] reported that CDUS has a 95% negative predictive value to identify abnormal placentation implantation. Abnormal implantation and placenta accrete can be seen in pregnancy after endometrial ablation [7]. The MRI has greater soft tissue contrast and a larger field of view according to ultrasonography, and it is beneficial if the placenta is not visualized on ultrasound because of the patient’s body habitus or a posterior location of the placenta [1]. Palacios et al. [8] observed a prominent correlation between the MRI and surgical findings in patients with a high risk of placenta accrete. In the presence of placenta previa, uterine bulging and heterogeneous placental signal intensity can be seen. In addition to these findings, focal interruptions in the hypointense myometrial border upon MRI examination can resemble placenta previa percreta with urinary bladder invasion.

In conclusion, careful gray scale and color Doppler ultrasound evaluations of the anterior uterine border, uterine-abdominal wall and bladder-uterine interfaces are very helpful for the diagnosis of placenta percreta and bladder invasion. This diagnosis should be confirmed by MRI.

Competing interests
The authors declare that they have no competing interests.

References

How to cite this article: