

Morbidly adherent placenta: evaluation of ultrasound diagnostic criteria and differentiation of placenta accreta from percreta

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ABSTRACT

Objectives

To evaluate the diagnostic accuracy of two-dimensional (2D) gray-scale and color Doppler and three-dimensional (3D) power Doppler sonographic criteria for morbidly adherent placenta (MAP), and to identify criteria to help distinguish placenta accreta from placenta percreta.

Methods

We enrolled 187 patients with placenta previa and history of uterine surgery and performed transabdominal and transvaginal ultrasound examination for early detection of MAP. With 2D gray-scale transabdominal and transvaginal ultrasonography, we investigated loss/irregularity of the echolucent area between the uterus and the placenta ('clear space'), thinning or interruption of the hyperechoic interface between the uterine serosa and the bladder wall and the presence of turbulent placental lacunae with high-velocity flow (>15 cm/s). Using transabdominal 3D power Doppler, we evaluated the hypervascularity of the uterine serosa–bladder wall interface and irregular intraplacental vascularization. Ultrasound findings were reviewed against the final diagnosis made during Cesarean section (CS).

Results

MAP was detected on CS in 41 patients. All of them had an anterior placenta previa (34 major and seven minor) and had undergone at least one previous CS. The evaluated sonographic criteria showed good diagnostic performance; in MAP patients at least two out of five criteria were detected, with at most one of the criteria present in patients without MAP. Loss/irregularity of clear space used as a single criterion was responsible for the most false positives, demonstrating a low positive predictive value. Irregular intraplacental vascularization with tortuous confluent vessels affecting the entire width of the placenta, and hypervascularity of the entire uterine serosa–bladder wall interface, were only detected, on 3D power Doppler, in cases of placenta percreta.

Conclusions

The reviewed ultrasound criteria may be useful for the prenatal diagnosis of MAP and to differentiate between placenta accreta and placenta percreta; 3D power Doppler techniques were an important aid in the diagnosis. Copyright © 2013 ISUOG. Published by John Wiley & Sons, Ltd.