

EP15.28

A comparative analysis of Ultrasonography and Magnetic Resonance Imaging in the diagnostic accurancy of placenta percreta

Sana Ghades^{1 2}, Hadhami Aidj^{1 2}, Najla Dhouibi^{1 2},Oumaima Kadri^{1 2}, Salma ben Youssef^{1 2}, Ghada Abdelmoula^{1 2}, Ghaya Bouazzi^{1 2}, Onsi Nasri^{1 2}, Housseem Haddedi^{1 2}

1. Faculty of medicine Ibn El Jazzar, Sousse, Tunisia.

2. Department of Gynecology and Obstetrics, Division of Obstetrics and Feto-maternal Medicine, Hospital's IbnEl Jazzar, Kairouan, Tunisia.

Introduction

Placenta percreta, the most severe form of the placenta accreta spectrum (PAS) disorders, is associated with life-threatening maternal morbidity and mortality due to massive hemorrhage and surgical complications. Accurate prenatal diagnosis is crucial for optimizing maternal and neonatal outcomes, yet remains challenging because imaging modalities yield variable results. Ultrasonography (US) is widely used as a first-line tool, while magnetic resonance imaging (MRI) is often reserved for problem-solving in complex cases. However, the comparative diagnostic accuracy of these modalities in detecting placenta percreta has not been firmly established, warranting further investigation.

Objective

Accurate prenatal diagnosis of placenta percreta remains a challenge, and the reported diagnostic value of ultrasonography (US) and magnetic resonance imaging (MRI) varies widely. This study aims to evaluate the diagnostic accuracy of US as compared with MRI in the detection of placenta percreta within the identical patient population.

Methods

We retrospectively reviewed ultrasonography (US) and MRI findings in eight cases of placenta percreta, from January 1, 2016, to December 31, 2021, to determine features which assist in identifying the presence and extent of placental implantation abnormality. Pathologic correlation was available in all cases.

Results

- Among the eight patients who underwent placental MRI due to suspected PAS, a discrepancy between the MRI results and the ultrasound findings was observed in two cases.
- In one patient, the MRI suggested placenta percreta or increta, whereas the ultrasound concluded a diagnosis of non-percreta placenta accreta.
- MRI tended to underestimate the risk of placenta percreta.
- The pooled sensitivity (p = 0.808) and specificity (p = 0.413) between US and MRI are not significantly different.
- The difference in the two AUC (Area Under the Curve) values favored MRI over ultrasound but no statistical difference (p = 0.57).

Conclusion

- Placental MRI demonstrated superior performance in the prenatal diagnosis of placenta percreta.
- Routine employment of MRI with relatively high expense in the prenatal identification of placenta percreta should be recommended.



Figure 1. Sagittal ultrasound image showing placenta percreta with loss of the retroplacental clear zone, thinning of the myometrium, and poorly defined uterine–bladder interface, consistent with extra-uterine invasion.



Figure 2. Color Doppler ultrasound demonstrating multiple vascular lacunae with turbulent flow and prominent bridging vessels crossing the uterine–bladder interface, consistent with placenta percreta.

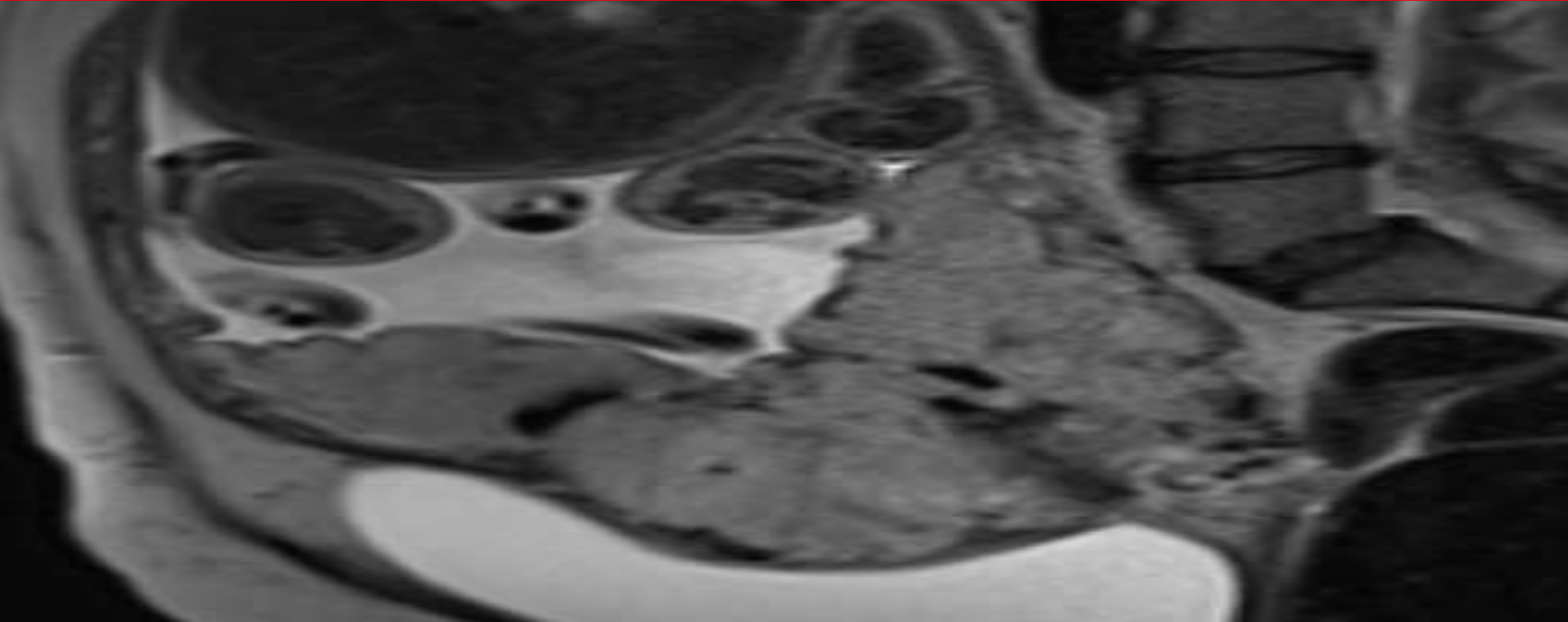


Figure 3. Sagittal T2-weighted MRI showing heterogeneous placental signal with dark intraplacental bands, loss of the myometrial–placental interface, and disruption of the uterine–bladder junction, consistent with placenta percreta.



Figure 4. Gross surgical specimen demonstrating placenta percreta with placental tissue penetrating through the myometrium and breaching the uterine serosa.