

Comparative analysis of ultrasound and MRI in the diagnosis of invasive placentation

Katorza E, Brandt B, , Achiron R, Gilboa Y, Raviv-Zilka, Barzilay E
Chaim Sheba Medical Center, Tel-Hashomer, Ramat-Gan, Israel

Objective

Invasive placentation is one of the most complicated challenges in modern obstetrics. Due to the surgical difficulties, these cases require adequate pre-operative planning and, therefore, accurate prenatal diagnosis. Given the conflicting data regarding the added value of MRI in the diagnosis of invasive placentation, we aim to assess individual and combined ability of multiple sonographic and MRI signs to diagnose invasive placentation in suspected cases.

Methods

We assessed 28 cases of suspected invasive placentation in the third trimester. All cases underwent ultrasound assessment as well as MRI scan. Invasive placentation was confirmed during surgery. The value of sonographic and MRI signs in the detection of invasive placentation was assessed.

Results

A total of 23 cases were diagnosed with invasive placentation during cesarean delivery. Overall, ultrasound was found to be more sensitive and specific compared to MRI (sensitivity of 0.96 and specificity of 0.6 in ultrasound vs. sensitivity of 0.83 and specificity of 0.4 in MRI). However, the use of a post-hoc constructed model improved MRI performance to a similar level of ultrasound (sensitivity of 0.96 and specificity of 0.6).

Conclusion

Ultrasound is superior to MRI in detection of invasive placentation. However, MRI performance can be greatly improved by the use of a constructed scoring system.