

Fetal endocranial anomalies: ultrasound vs magnetic resonance imaging

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Objectives

To compare ultrasound (US) and magnetic resonance imaging (MRI) findings in fetuses with US suspicion of endocranial anomalies.

Methods

This retrospective study was conducted at the Clinic for Obstetrics and Gynecology, University Clinical Centre of Serbia, Belgrade. Obtained data were collected from electronic medical records from January 2017 to November 2025.

Results

Our study included 63 patients. Most common referring US diagnoses were ventriculomegaly, accounting for 32 cases (49.2%), followed by 4 (6.3%) cases of cysts of the cavum septum pellucidum, 3 (4.8%) cases of agenesis of corpus callosum, and 2 (3.2%) cases of agenesis of the vermis, microcephaly 3 (4.8%), meningocele 1 (1.6%).

Results

Referring indications were unspecified in 12 (19%) cases. Other indications for MRI included: sacrococcygeal teratoma 1 (1.6%), fetal AV block 1 (1.6%), IUGR 2 (3.2%), previous child with pachygyria 1 (1.6%) and oligohydramnion 1 (1.6%).

In 40 (63.5%) cases US diagnosis was confirmed by the MRI. In 4 (6.3%) of cases, the MRI diagnoses were different from those made by the US. In 19 (30.2%) cases, the US diagnoses were not confirmed, as the MRI findings were in morphological range. In 14 (22.2%) cases, MRI identified additional anomalies including microcephaly, endocranial tumors, meningocele, and cerebral blood vessel dilation. Two patients underwent repeated MRI examinations; in one patient, both MRIs confirmed the US diagnosis, while in the other, the second scan did not confirm the diagnosis after the first one.

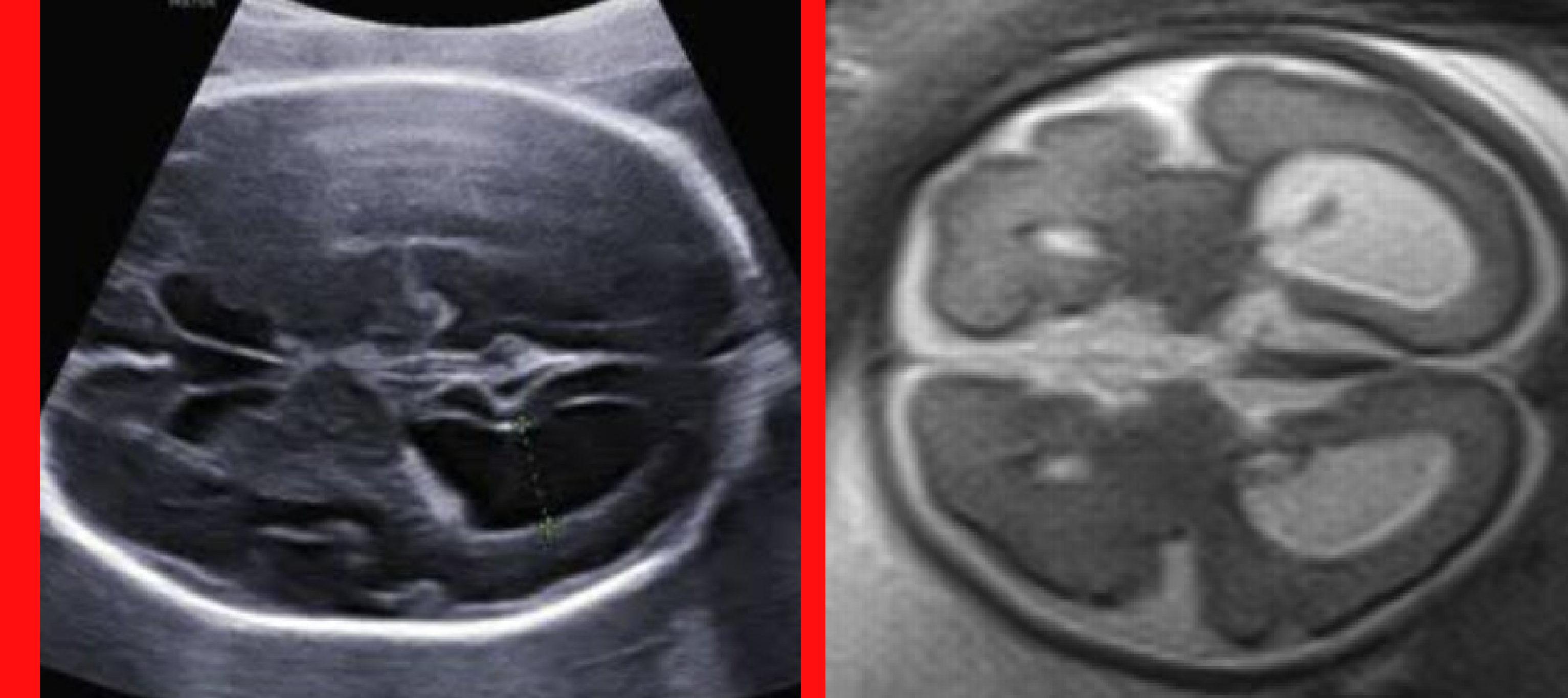


Figure 1. Fetal ventriculomegaly – US and MRI

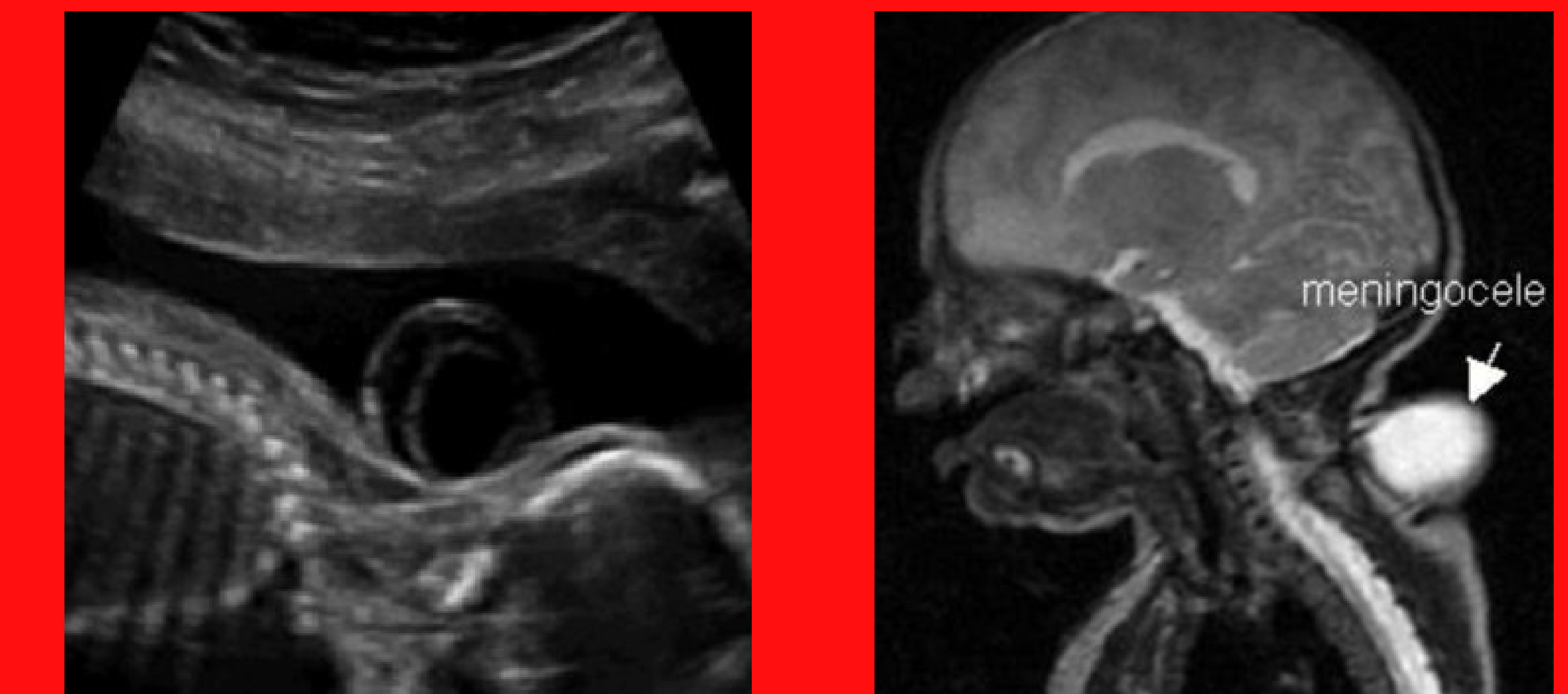


Figure 2. Fetal meningocele – US and MRI

Conclusions

MRI confirmed diagnoses in almost 2/3 of cases of US suspected fetal endocranial anomalies. Normal findings were found in 1/3 of MRI scans. Only 6,3% of cases of MRI diagnoses were different from those made by the US. Thus MRI, being a more sensitive diagnostic tool, gives additional diagnostic value to the US diagnosis, so every suspicious US finding of fetal endocranium should be reevaluated by MRI.