

Diagnostic accuracy of prenatal ultrasound vs fetal magnetic resonance imaging in posterior fossa defects

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Objectives

To compare the diagnostic accuracy of prenatal ultrasound vs. the use of Fetal Magnetic Resonance Imaging, in the details of description of fetal anatomical defects.

Methods

In a collaboration between two prenatal care centers located in San Francisco (84/138) and Santo Domingo (54/138) in the Dominican Republic, 138 fetal MRIs were performed between 2019 to 2025. All referred cases were assessed by the maternal-fetal medicine team through both abdominal and transvaginal ultrasound.

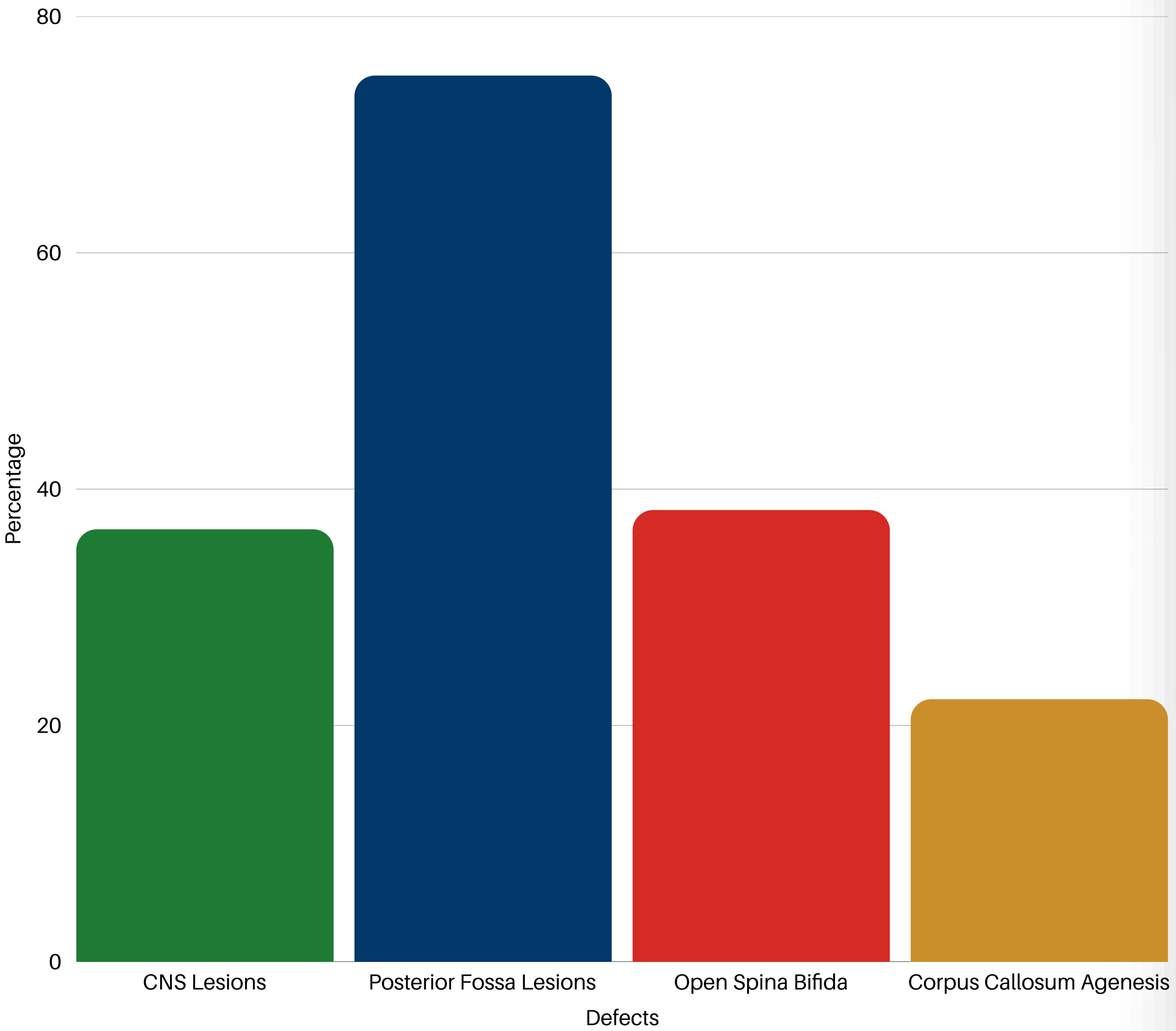
Results

45 (32.60%) of the cases evaluated had a lesion involving the central nervous system. 34/45 (75%) had posterior fossa malformations either at cerebellum, lateral ventricle or cisterna magna level. 13 (38.23 %) of these cases included spina bifida lesions where the measurement of cerebellar descent was 90% more accurate by fetal MRI compared to prenatal ultrasound.

The delimitation of the presence or absence of the corpus callosum and description of its regions and diameters in a total of 10 cases were more accurate in 80% of the cases evaluated by ultrasound, where limitation of the evaluation was reported on 3 occasions by volume of amniotic fluid, fetal position, or it had been falsely reported as absent due to severe ventriculomegaly.

Conclusions

The use of fetal MRI improves the description of details involving the CNS posterior fossa pathologies, where fetal statics, amniotic fluid volume and the degree of ventriculomegaly represent a limiting factor in ultrasound.



Defect	MRIs (138)
CNS Lesions	45/138 (38.60%)
Posterior Fossa Lesions	34/45 (75%)
Open Spina Bifida	13/45 (38.23%)
Corpus Callosum Agenesis	10/45 (22.22%)

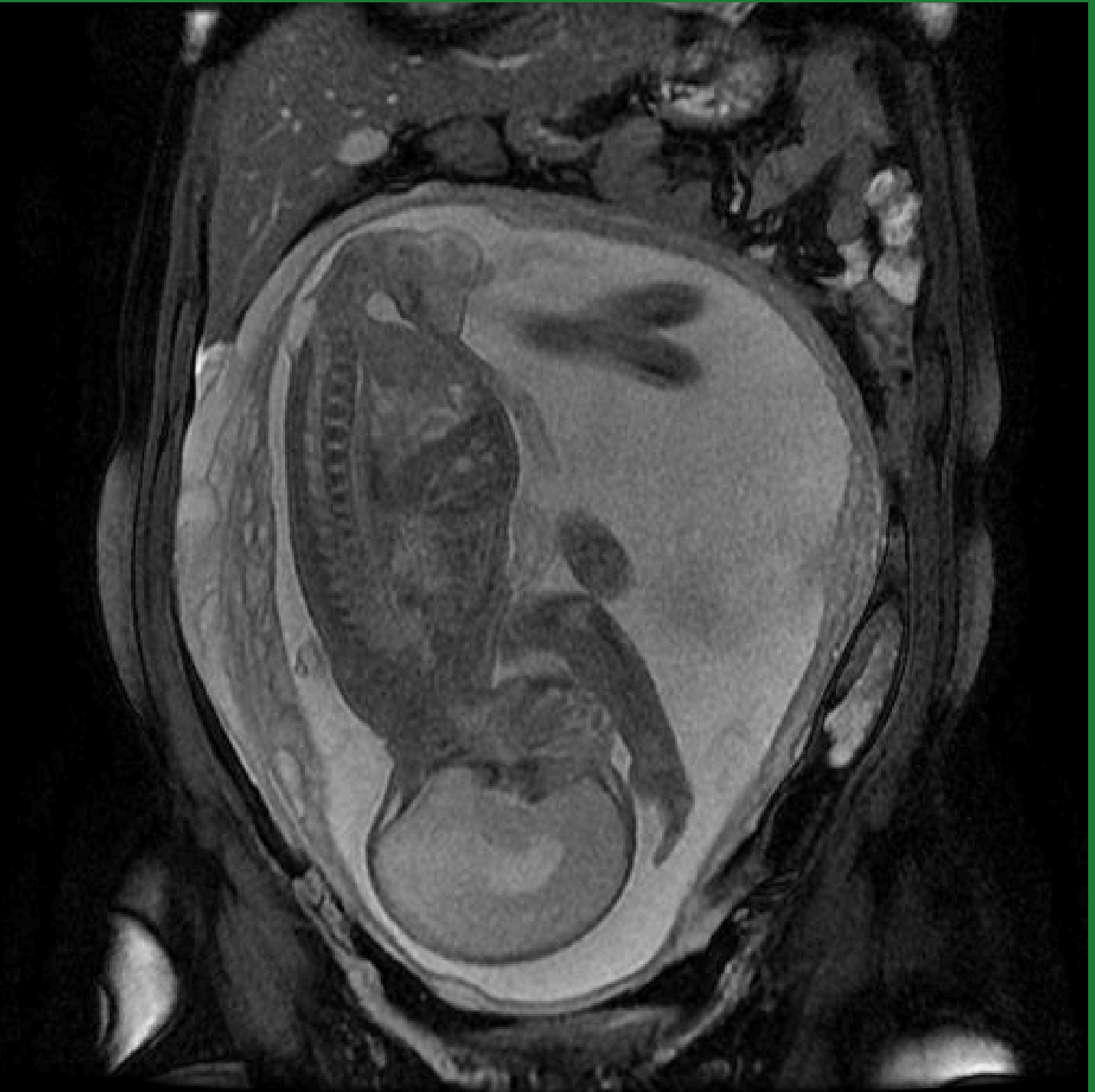


Figure 1. Fetus with open spina bifida

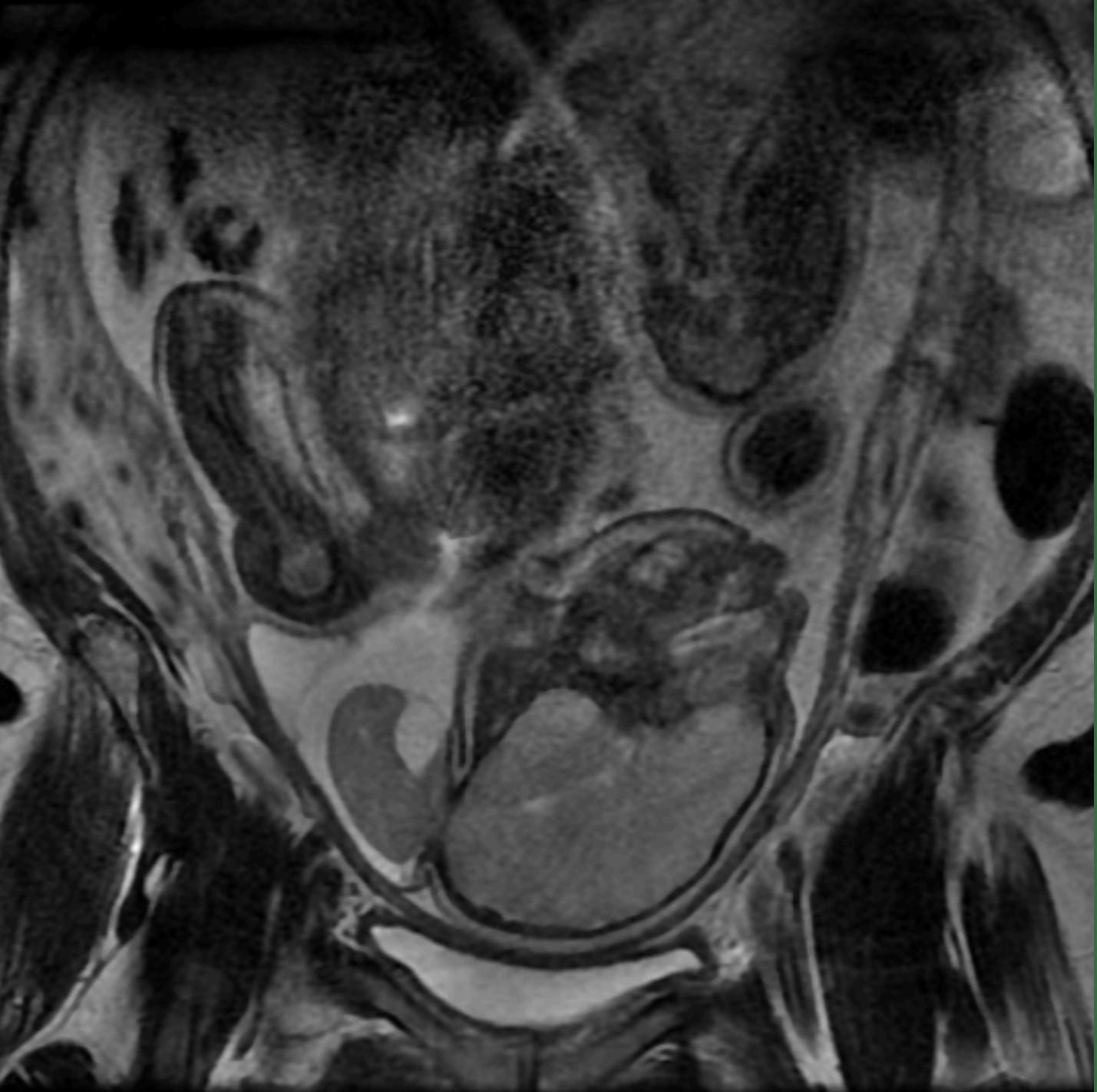


Figure 2. Fetus with occipital cephalocele



Figure 3. Fetus with agenesis of the corpus callosum