

Prenatal diagnosis of an arachnoid cyst of the posterior fossa.

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Objective

Arachnoid cysts are the result of an accumulation of cerebrospinal-like fluid between the cerebral meninges without communication with the ventricular system. They are approximately 1% of all intracranial space-occupying lesions. One-fourth of all arachnoid cysts occur in the posterior fossa. The objective of our paper is to describe the antenatal diagnosis by ultrasound and magnetic resonance imaging (MRI) of a posterior fossa arachnoid cyst, establishing the criteria that allow the differential diagnosis with other cystic images of the posterior fossa.

Methods

This is a case report.

Results

Thirty-six years old patient, pregnant of 21⁺² weeks (pregnancy achieved through assisted reproduction techniques), gravida II, para 0, sent to our unit by the finding of a cystic image in the posterior fossa. The ultrasound survey and combined screening performed in the first trimester had been normal. An anechoic image is visualized on the right side of the posterior fossa, which displaces and compresses the cerebellar hemisphere. It does not seem to communicate with the fourth ventricle. Amniocentesis is performed for karyotype and array-CGH, being the result of both normal. The possible diagnoses are arachnoid cyst, Blake's pouch cyst and Dandy-Walker malformation, although the laterality of the lesion and the displacement it produces in normal structures speak in favor of an arachnoid cyst. The patient decided to continue the pregnancy, performing serial ultrasound exams and MRI. In these controls the persistence and stability of the lesion is confirmed, identifying a cerebellar vermis of normal sagittal cranio-caudal diameter; the tentorium-torcular insertion is norm posited at the height of the insertion of the nuchal musculature (clearly identifiable in MRI), which allows discarding a Dandy Walker malformation. A borderline ventriculomegaly is identified without other pathological findings. The patient gave birth a male baby of 3,160 g through vaginal delivery, Apgar 8/10, with no macroscopic anomalies. The neurological outcome of the baby was favorable with normal development at six and nine months postpartum.

Conclusion

The various posterior fossa cysts may have similar appearances at imaging, particularly at ultrasound. In an attempt to differentiate these cysts, attention must be paid to evaluating its persistence, the size of the vermis and cerebellar hemispheres, the mass effect on the cerebellum, the elevation of the tentorium and the size and the communication with the fourth ventricle.

Blake's pouch cyst present normal anatomy and size of the vermis with mild/moderate anti-clockwise rotation and normal size of the cisterna magna; more than 50% of cases disappear around 24–26 weeks. Arachnoid cysts tend to be unilocular expansile lesions molded by the surrounding structures (to which they can compress), being characteristic its lateral location in the posterior fossa. In the case of upward displacement of the tentorium/torcular, the increased fluid-filled retro- or pericerebellar space is related to open fourth ventricle apparently communicating with the cisterna magna, and this is characteristic of Dandy-Walker malformation. The vermis is small and its upward rotation usually exceeds 45°.

The majority of the reported arachnoid cysts remain stable, the same as our case. The postnatal neurological and overall outcome is favorable in absence of other associated anomalies with normal karyotype.

