Welcome to Neuroradiology

CASE # 6148502397

Titulo: Choroidal fissure cyst
Case: 6148502397
Sections: Brain
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Patient: F, 22 year(s)

CLINICAL HISTORY

22-year-old female patient G2P0 at 38 weeks of gestation. Prenatal ultrasound shows fetus with a right perithalamic cystic brain lesion. Further evaluation includes fetal MRI with single shot fast spin echo T2 sequences, post-natal transfontanelle ultrasound and sequential post-natal MRIs at newborn, 3 months and 6 months of age.

IMAGING FINDINGS

Fetal MRI (Fig. 1) demonstrates a left-sided choroidal fissure homogeneous T2 hyperintense cystic lesion, which causes no entrapment of the temporal horn or ventricular enlargement, nor significant mass effect or midline shift of fetal brain parenchyma.Â
Transfontanelle neuro ultrasound (Fig. 2) shows a simple cystic cavity lesion projecting within the medial right temporal lobe, with no asymmetry or internal septations. The ventricles were normal in size and configuration. No intracranial haemorrhage was identified.
The postnatal MRI (Fig. 3) further characterizes it as an extra-axial CSF-like lesion consistent with an arachnoid cyst arising from the margin of the right choroidal fissure and expanding the right perimesencephalic cistern, producing deformity of the medial temporal lobe. The right hippocampal formation and parahippocampal structures are significantly compressed and displaced.
**DISCUSSION**

The generalized use of prenatal and post-natal high quality of ultrasound has increased the number and variety of incidentally detected intracranial fetal and perinatal diagnostic entities. Fetal and perinatal MRI comes in as a frequent diagnostic problem solver, facilitated by the use of advanced fast scanning single breath hold sequences, which provide additional soft tissue discrimination and superior resolution, frequently without the need for patient sedation. Arachnoid cysts (ACs) are benign congenital loculations often found as incidental imaging findings, or occasionally associated to conditions such as Down syndrome, Neurofibromatosis, mucopolysaccharidosis and schizencephaly. [1] ACs represents 1% of all intracranial masses [2, 3], with the choroidal fissure cyst (CFC) representing approximately 7.4% of the total [4]. The CFC can be from neuroepithelial or arachnoid origin, differentiated only by pathology. Since surgery is often not required, the final pathologic origin is not available in a large number of cases. It is postulated that the primary ACs are originated by aberrant splitting and duplication in the arachnoid membrane, after 15 weeks of gestation [1]. Secondary ACs may result from head injury, haemorrhage or infection. The CFC has been associated with seizures, attention deficit hyperactivity disorder (ADHD), migraines and narcolepsy. [1]

The choroidal fissure is a C-shaped anatomic cleft that allows projection of embryonal choroid plexus into the ventricle between the thalamus and fornix. The choroid plexus is a villous structure that produces ventricular cerebrospinal fluid (CSF), attached to the thalamus by the tela chooroidea and to the fornix by the tela fornicis or the tela fimbria at the level of the temporal horn. [5, 6] The fimbria and the choroid plexus form a barrier between the choroidal fissure and the temporal horn. This is an important landmark to determine its origin from the choroidal fissure or the temporal horn. You will see the choroid plexus laterally displaced in the case of arachnoid origin from choroidal fissure or medially displaced in the case of neuroepithelial ventricular origin. The cysts typically are unilocular, smoothly marginated and are molded by the surrounding structures. [2] (Figure 4)

US echogenicity, CT density and MR signal of the ACs and CFC are similar to CSF. Contrast enhancement, oedema or gliosis are absent. [2]

CFC are found incidentally, and the treatment is conservative with interval follow-up if necessary. The surgical treatment could be cyst fenestration or cystoperitoneal shunting in large lesions.

**FINAL DIAGNOSIS**

Choroidal fissure cyst

**DIFFERENTIAL DIAGNOSIS LIST**

Cystic neoplasm, Parasitic cyst, Enlarged perivascular space, Dermoid cyst, Temporal lobe atrophy

**REFERENCES**

anatomical consideration, and review of the literature. World Neurosurg. May-Jun;75(5-6):704-8

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