Choroid fissure cysts and seizures - Are they related?
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Section: Neuroradiology
Area of Interest: Neuroradiology brain
Procedure: Diagnostic procedure
Imaging Technique: MR
Special Focus: Seizure disorders Case Type: Clinical Cases
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Patient: 22 years, male

Clinical History:
A 22-year-old male patient presented with complaints of tonic clinical seizures for one day which was associated with loss of consciousness for 15 min. There was also frothing from the mouth, tongue biting and facial twitching. He reported a similar history 12 years before.

Imaging Findings:
A well-defined cystic lesion (CSF intensity), measuring 13 x 9 mm is noted in the right choroid fissure close to the hippocampus. The lesion is hypointense on T1 and T2- FLAIR and hyperintense on T2 weighted images. The lesion does not enhance post contrast. The lesion does not show peri-lesional oedema.

Discussion:
The CSF filled space between the fimbria of hippocampus and diencephalon is defined as Choroid fissure. From the antero-temporal lobe to the atrium of lateral ventricle it takes a posterior-superior curve. The choroid fissure joins with the choroid plexus in a C-shaped arc between the fornix and thalamus. [1, 2] Cyst formation is the result of a developmental error occurring at the time of formation of the primitive choroid plexus anywhere along the choroid fissure. [1-3]
The choroid fissure cysts are CSF filled and mostly considered neuroepithelial or arachnoid type [1-4]. Neuroepithelial cysts are lined by epithelium with or without basement membrane. Arachnoid cysts on the other hand are not lined by epithelium and are formed between layers of arachnoid or between dura. [1]
Choroid fissure cysts are rarely described in the literature because of their benign behaviour; other possible reasons include their small size and tendency to collapse during autopsy. [1, 3] In most patients they are asymptomatic, hardly requiring surgical treatment. In majority of the cases they are detected incidentally especially during CT/MRI evaluation of patients presenting with epilepsy/seizures. The relationship between choroid fissure cysts and seizures is very controversial. However, these cysts may become symptomatic if they enlarge as a result of CSF pulsation, ball valve effect or cyst loculation. [1, 2, 5] Tubbs and et al reported a case series of symptomatic enlargement of choroid fissure cysts that were surgically treated by fenestration. [5]
On CT/MRI, choroid fissure cysts are best observed on coronal images where their extra-axial location can be well appreciated. On axial images they may be confused with intra-parenchymal cysts. These cysts have a spindle shape on sagittal images. [1, 2] The MR criteria to label choroid fissure cysts as benign are - absence of wall or soft tissue mass, consistency of homogeneous nature, CSF signal intensity, absence of surrounding oedema and
absence of contrast enhancement. Among all the sequences, FLAIR is considered the best as it enables to
differentiate cysts with a free watery content from non-free watery contents, i.e. mal-developmental cysts from
neoplastic/inflammatory cysts. [2, 6]

To summarize, choroid cysts are benign and mostly asymptomatic, and require only follow up to assess the size.
Choroid cysts are best observed on coronal sections on neuroimaging and among the MRI sequences FLAIR is
considered to be superior. These cysts can become symptomatic and cause seizures if they increase in size by
compressing adjacent structures. In such cases surgical fenestration yields good results.

**Differential Diagnosis List:** Right choroid fissure cyst, Choroid plexus cyst, Intra-axial cystic tumours, Parasitic
cysts

**Final Diagnosis:** Right choroid fissure cyst

**References:**

Sherman JL, Camponovo E, Citrin CM. (1990) MR imaging of CSF-like choroidal fissure and parenchymal cysts of
the brain. AJR Am J Roentgenol 155(5):1069-75 (PMID: 2120937)

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21704940)


(PMID: 22900488)

(PMID: 10472983)
Figure 1

Description: MRI brain - T2 weighted image (coronal section): shows a CSF intensity lesion in the right choroid fissure. Origin: Father Muller Medical College, Kankanady, Mangalore, Karnataka, India.
Description: MRI brain, T2-FLAIR (Coronal section): shows a CSF intensity lesion in right choroid fissure. Origin: Father Muller Medical College, Kankanady, Mangalore, Karnataka, India.
Description: MRI brain, T1 (Fig.2A) and Post contrast T1 (Fig.2B) weighted axial images: show that the CSF intensity lesion in the right choroid fissure does not enhance post contrast. Origin: Father Muller Medical College, Kankanady, Mangalore, Karnataka, India.