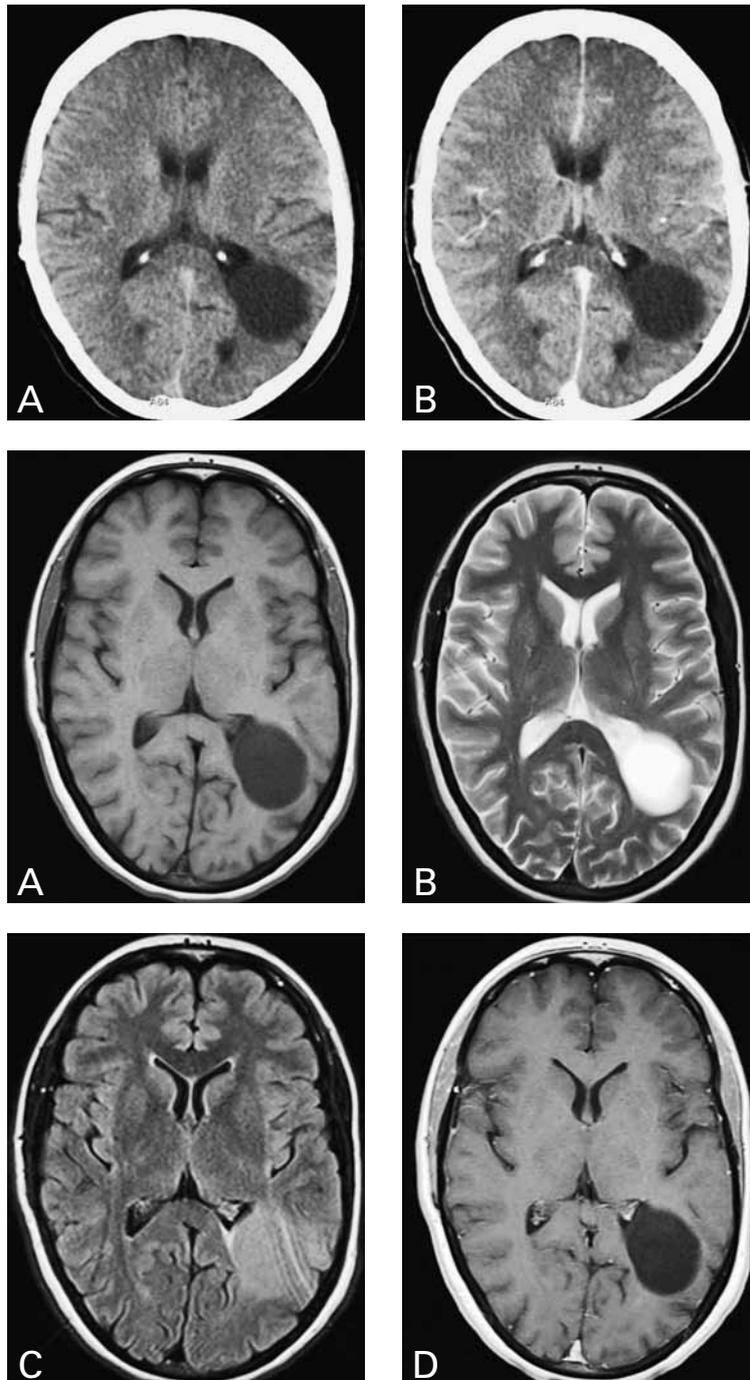


EPILEPTIC SEIZURE DUE TO NEUROGLIAL CYST

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Key-word: Brain, cysts

Background: A 41-year-old woman without a relevant history was admitted to the emergency department after an epileptic seizure.



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	1A	1B
Fig.	2A	2B
	2C	2D

Work-up

CT of the brain (Fig. 1) shows on non-enhanced view (A) a large well-delineated low density lesion adjacent to the occipital horn of the left lateral ventricle. On contrast-enhanced scan (B), there is no enhancement of the lesion.

MRI of the brain (Fig. 2) shows on axial T1-weighted image (A) a hypointense lesion, similar to cerebrospinal fluid (CSF). Axial T2-weighted image (B) demonstrates a CSF-like fluid content. On axial FLAIR image (C), the signal is partially suppressed. Communication with the lateral ventricles is absent. There are no surrounding signal changes within the perilesional white matter. On Gadolinium-enhanced axial T1-weighted image (D), there is no enhancement of the lesion.

Radiological diagnosis

Based on the clinical and imaging findings, the diagnosis of a neuroglial cyst was suggested. Follow-up MRI showed slight increase of the lesion's size. Therefore, neurosurgical drainage with subsequent resection of the cyst wall was performed. At surgical inspection, a smooth unilocular cyst, containing CSF-like fluid was seen. Histologically, the cellular lining of the cyst wall resembled ependymal epithelium, consistent with the diagnosis of a *neuroglial cyst*.

Discussion

Neuroglial cysts (NC) are rare benign epithelial lined cysts, accounting for less than 1% of all intracranial cysts. NC can be located anywhere along the neuraxis with predilection for the frontal lobes. These lesions can occur at any age but are most frequently observed in the adult population. Male and female are equally affected. NC are often incidental findings on imaging although symptoms such as headache and epileptic seizures may be present. Neurological deficits depend on location and size of the lesion. A lot of controversy exists about the precise etiology, as reflected in numerous synonyms across the international literature. Sequestration of the embryonic neural tube within the developing white matter or along the choroid fissure seems to represent the most appropriate hypothesis. CT demonstrates a well-delineated unilocular lesion with low density content and

absence of calcifications. There is no contrast enhancement. Connection with the ventricular system is typically lacking. On MRI the lesion's content resembles CSF on all pulse sequences. Sometimes, slight hyperintensity is seen on proton density-WI or partial signal suppression is seen on FLAIR sequences. Lesions do not show diffusion restriction and no contrast enhancement can be demonstrated after gadolinium contrast administration. There is no or only minimal perilesional gliosis on FLAIR sequences. Histological examination reveals a fluid containing cavity lined with epithelium ranging from columnar (resembling ependymal lining) to cuboidal cells (resembling plexus choroideus tissue). Immunohistochemical staining demonstrates variable expression of glial fibrillary acidic protein (GFAP) but absence of other markers of neuronal tissue. The differential diagnosis of a unilocular cystic brain lesion is extensive and includes porencephalic cyst and an enlarged Virchow Robin (VR) space. Also, an arachnoid cyst or infectious etiology are possible. A porencephalic cyst communicates with the ventricular system and surrounding signal abnormalities of the brain tissue can be demonstrated. Enlarged VR spaces occur more frequently in clusters than as an isolated unilocular cyst and show predilection for the midbrain. An arachnoid cyst is located extra-axial and lacks epithelial lining. Epidermoid cysts are usually located in the cerebellopontine angle and parasellar regions and exhibit high cholesterol content. On diffusion weighted imaging they clearly demonstrate diffusion restriction. Infectious cysts have a more prominent enhancement pattern and older lesions may calcify. When a neuroglial cyst is suspected on imaging, an initial wait-and-see policy is recommended. In case of progressive disease neurosurgical intervention should be considered with fenestration or drainage of the cyst.

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