

CASE REPORT / CAS CLINIQUE

EPILEPSY RESULTING FROM A BRAIN INTRAPARENCHYMAL NEUROGLIAL CYST: A CASE REPORT

ÉPILEPSIE RÉVELATRICE D'UN KYSTE NEUROGLIAL INTRAPARENCHYMATEUX CEREBRAL : UN CAS CLINIQUE

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RESUME

Introduction

Brain neuroglial cyst also called gliependymal cyst is a rare benign intraparenchymal lesion without an epithelial lining.

Objective

To report on a case of neuroglial cyst and discuss the diagnosis and management.

Method

A patient is studied with respect to history, physical findings, ancillary tests and management outcome.

Results

A 22 year old female with a 14 year history of worsening drug-resistant epilepsy was found on a head CT scan and brain MRI to have a homogenous cystic frontal paraventricular mass. Following complete surgical excision, (with histopathology confirming a neuroglial cyst) she has been seizure free for five years while off anti-epileptic drugs.

Conclusion

The surgical excision of the neuroglial cyst resulted in the cessation of the patient's seizures.

INTRODUCTION

Brain neuroglial cyst also called gliependymal cyst is a rare benign intraparenchymal lesion without an epithelial lining and represents less than 1% of intracranial cysts [4].

CASE REPORT

A 22 year old female with 14 years history of drug-resistant epilepsy was admitted in our department for headache, vomiting and irritability. For the last ten months, her seizures had increased from 3-4 times a month to 3-4 times daily even though a third anticonvulsant had been added to her drug treatment regimen.

Neurological examination revealed movement disorders like tics predominating to the upper limbs and the face but more accentuated to the right side and occurred more than 3 times a day. We found no change in her sensorium and there was no deficit and no papilloedema on ophthalmological testing. The rest of her physical examination was normal.

A head CT scan showed a homogenous paraventricular cystic lesion in the left frontal area measuring about 5 cm in its largest diameter, with no contrast enhancement and no mass effect. The density of the contained fluid was similar to that of CSF on CT scan (Fig.1a). These same findings were present on a brain MRI. (Fig.1b). Electroencephalograms (EEG) confirmed the responsibility of this cyst in her epilepsy.

She underwent a left frontal craniotomy with a transcortical approach. A total resection of the lesion was achieved. About 20 ml of clear, colorless fluid (with the appearance of the CSF) was evacuated from the cyst.

The wall of this cyst was very thin, transparent and fragile. Cytological examination of this fluid showed no tumor cells. No tumor or other abnormality could be detected when the cyst wall was inspected through the operative microscope (Fig.2a). Histopathologic analysis of a biopsy of the cyst wall showed only neuroglial tissue, with no arachnoidal layer, no epithelial lining or evidence of neoplasm (Fig.2b.). A postoperative head CT scan showed complete excision of the cyst. In the five years since surgery, the patient has been seizure free and off antiepileptic drugs.

DISCUSSION

Many types of non-neoplastic intracranial cysts have been described in the literature. They include arachnoid and epithelial cysts (from subarachnoid space) [2,7,8]; colloid, choroidal and neuroepithelial cysts (from ventricular system) [3,9], colloid cyst from the septum pellucidum, cysts occurring after destruction of brain area by infarction, hemorrhage, infection, trauma or surgery (called porencephaly) that will be filled with CSF. Indeed, multicystic encephalomalacia, hydatidosis and cysticercosis are a variety of other intracranial benign cysts [9]. There is another type of cyst, certainly rare and which originates in brain parenchyma and is without an epithelial lining [10]; it may be either congenital or acquired [4]. This has been named intracranial neuroglial cyst or gliependymal cyst. It was first reported in the literature in 1986 by Nakasu et al. [5,10]. They may occur in myriad locations, but the frontal lobe is the most frequent and typical location [6]. The clinical signs and symptoms depend on the location of these lesions [4].

Nakasu and al. reported in 1986 two cases of brain parenchymal cysts revealed by paroxysmal headaches and vomiting for the first and slowly progressive right hemiparesis and hemisensory disturbance for the second. The biopsy of the cyst wall in both cases showed that it was only composed of normal brain tissue. There was no epithelial lining, gliosis or evidence of previous hemorrhage. Postoperatively, regression of the cyst was demonstrated with an immediate and marked improvement of the patient [5]. Two years later, Robert H Wilkins and al. reported three others cases with complaints of left progressive weakness, dysarthria and ataxia of the right limbs, and headaches. The characteristics on Head CT and Brain MRI were similar for all the three cases; interparenchymal cysts were present. They underwent surgical excision. Anatomopathological examination found only normal glial tissue without epithelial lining. There was marked clinical improvement in all three cases following surgical intervention. [10].

Neuroglial cysts generally appear to be congenital but the true etiology and the pathogenesis of these cysts are not clear [5,6,10]. Four of the five patients (in the two cases series aforementioned) became symptomatic in adult life and none had physical or radiographic evidence of any other embryological maldevelopment. None of the patients had evidence (by history, CT scanning or biopsy) of cerebral hemorrhage, infarction, infection, infestation, neoplasm or trauma. Perhaps, these five patients had cysts with a discontinuous epithelial lining [4,10]. Such cysts might have been formed originally by budding from the ventricular system, with subsequent loss of ependymal cells by stretching or pressure effects as the cyst distended with fluid [10]. In our case, the symptoms (seizures) begun at the age of eight; they stopped completely after surgery without the need for any anti epileptic medication.

CONCLUSION

Brain intraparenchymal cyst without an epithelial lining described here as a neuroglial cyst is a rare benign intraparenchymal lesion, with an excellent prognosis after surgical excision in symptomatic patients. The type of surgical approach depends of the location of the cyst and the experience of the surgeon. Nowadays, the use of flexible endoscope to treat this kind of cysts or to aspirate it under stereotactic guidance can be a beneficial option [1].

CONFLICTS OF INTERESTS : The authors declare that they have no conflicts of interest concerning this article.

AUTHORS' CONTRIBUTION: All the authors had contributed to this manuscript.

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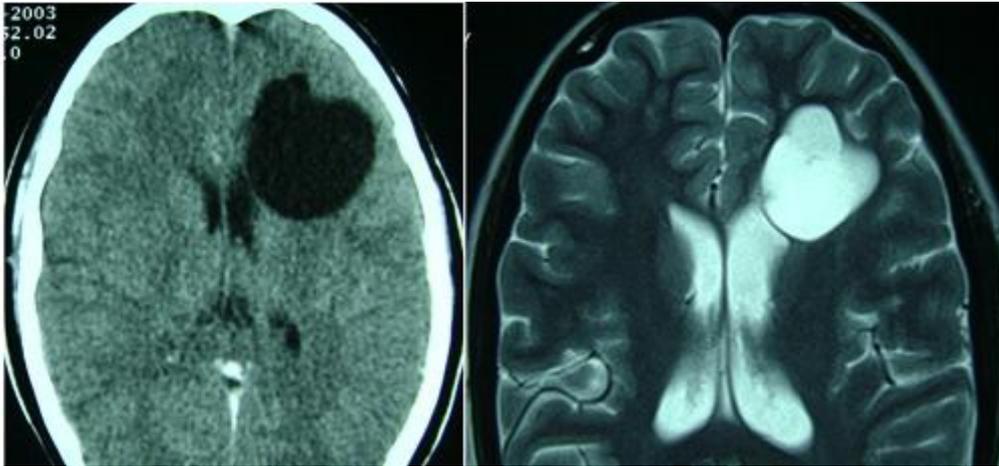


Figure 1

- a) Postcontrast CT scan, axial view shows a large well defined hypodense frontal cystic lesion in the left side.
b) MRI T2 axial view shows also a left frontal lesion hyperintense and comparable with that of CSF

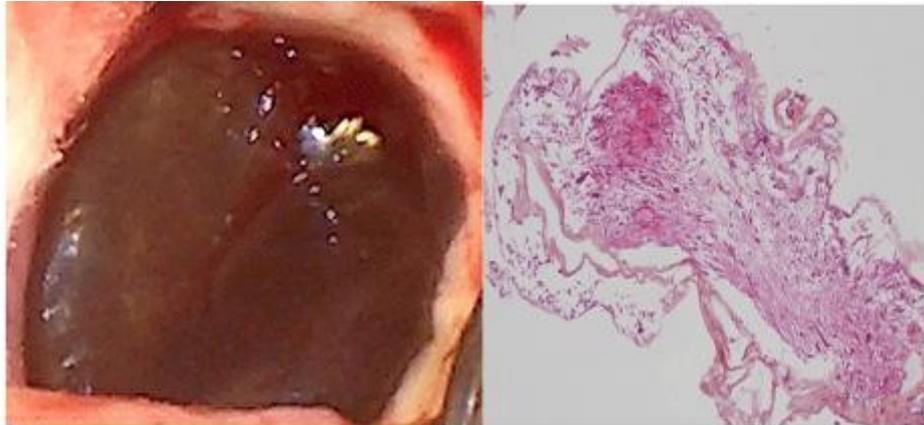


Figure 2

- a) Operative view of the cyst.
b) Photomicrograph of the specimen demonstrating mature neuroglial tissue with many eosinophilic Rosenthal fibers.

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