SPONTANEOUS RUPTURE OF TEMPORAL ARACHNOID CYST FORMING SUBDURAL HYGROMA: A RARE PRESENTATION

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ABSTRACT

Arachnoid cysts are benign, congenital, and intra arachnoidal lesions. Most of the clinically active cysts present seizures due to chronic compression. Presentation as spontaneous cyst subdural hygroma is a rare clinical entity. We present a case of arachnoid cyst subdural hygroma. In a case, a 25 years male without any prior history of neurological deficit is presented to emergency with a complaint of headache for two weeks. Examination showed consciousness fully with positive Cushing’s reflex. MR imaging of the brain showed the left temporal extra-axial cystic lesion, suggestive of the arachnoid cyst with the subdural fluid collection, extending along the frontotemporal-parietal lobes and the left Sylvian fissure. Partially the cyst was drained through left temporal craniectomy, and subdural hygromas were drained. The left subdural peritoneal shunt was placed to prevent future subdural fluid collections. The patient was recovered uneventfully and discharged on the eighth day postoperative.

KEYWORDS

Arachnoid cyst, Subdural hygroma, Headache

Introduction

Arachnoid cysts are not indolent unless complicated by seizures, increasing head circumference, behavioural disturbances, ocular, motor, speech disorders, and sudden haemorrhage into the cyst or subdural hematoma [1]. Arachnoid cysts are seen frequently in the middle cranial fossa at 50-65\% [2]. The arachnoid cyst rupture may occur after trauma, or following a spontaneous increase of intracranial pressure, during the Valsalva manoeuvre with tearing of the cyst wall, resulting in accumulation of CSF with the formation of hygroma with resultant mass effects. There are very few case reports of ruptured arachnoid cysts causing subdural hygroma.

Case report

A 25-year-old non-diabetic, normotensive male presented with complaints of severe headache. Clinical examination revealed no neurological deficit. MRI brain was done for the patient, showing a crescent-shaped left extra-axial CSF signal lesion in left temporal convexity suggestive of the arachnoid cyst with the subdural fluid collection, extending along the frontotemporal-parietal lobes and the left Sylvian fissure, thereby causing widening of the fissure (Fig. 1 and Fig. 2). It was 5 mm at its thickest portion with minimal mass effect. After 2 hours, the patient underwent left temporal and parietal craniotomy for drainage of the arachnoid cyst. In addition, left subdural peritoneal shunt was placed to prevent future subdural fluid collections. The patient was discharged on 8th post-operative day and was uneventful during a hospital stay.

Discussion

Arachnoid cysts are fluid collections that develop within the arachnoid membrane due to sliding or duplication. They consist of 1\% of all intracranial mass lesions. They are thought to develop due to meningeal developmental abnormalities or lesions acquired after the trauma/infection [3]. Rupture of an arachnoid
Cyst is a very rare complication. Most cases were reported in children and young adults, and almost all were related to arachnoid cysts in the middle cranial fossa with hygroma formation on the ipsilateral side, much less common bilaterally never isolated in occurrence, on the contralateral side [4,5]. The mechanism is still not clear. If there is any cranial trauma, there is a flow of CSF from the subarachnoid space into the cyst due to the flap valve mechanism, increasing the pressure and size of the cyst resulting in its rupture into the subarachnoid space. The sudden transitory increase of intracranial pressure result in the break in the cystic wall in subdural space during the Valsalva manoeuvre [6]. The aetiology of the cyst rupture can be secondary to minor head trauma, prolonged Valsalva manoeuvre, or it can emerge spontaneously. The most common clinical presentation of subarachnoid cyst rupture was progressive headaches, bilateral papilloedema, and hemiparesis [5].

The middle cranial fossa arachnoid cyst is classified by Galassi classification based on CT or MR imaging into Galassi type 1, which is typically asymptomatic; Galassi type 2 cysts which extend superiorly along the Sylvian fissure, occasionally displacing the temporal lobe, and Galassi type 3 cysts which are very large displacing not just the temporal lobe but also disrupting the parietal and frontal lobes. In MR imaging, the findings are mainly that of CSF signal extra-axial collection noted in all sequences with the variable signal intensity seen in the presence of subdural hematoma due to variation of the biochemical structure of haemoglobin during various stages. In stable patients, treatment with acetazolamide gives a good response with regression of hygroma, but most cases should be treated surgically. The recommended surgical technique is cyst fenestration, and an alternative method is cyst-peritoneal shunting, which is preferred to diminish the risk of sudden decompression.

**Conclusion**

Spontaneous rupture with subdural hygroma is clinically rare, and it’s management is controversial. Surgical intervention is required in almost all cases because of raised intracranial pressure and progressive neurological deterioration. Microsurgical fenestration craniotomy is a safe method for managing the subdural hygroma arachnoid cysts.

**Funding**

This work did not receive a grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Conflict of interest**

There are no conflicts of interest to declare by any of the authors of this study.

**References**


5. Ammor H, Boujarnija H, Lamrani Y. Temporal arachnoid cyst ruptured into subdural space.; Neuroradiology:EURORAD/Case 11788/12.05.2014.
