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Case Report *Volume 5 Issue 1*

Spontaneous Rupture of Arachnoid Cyst in Adult Masquerading as Subdural Haematoma

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Abstract

Arachnoid cysts (ACs) are cerebrospinal fluid (CSF) pockets, generally in the middle cranial fossa (MCF), which are diagnosed incidentally and make about 1% of cranial lesions. With the ubiquitous availability of magnetic resonance imaging (MRI) and computed tomography (CT), the recorded incidence has increased in the past two decades. Spontaneous rupture remains a sporadic event. Nearly 6% may present with rupture after unnoticed trauma or following incidental diagnosis. Upon perusal of the available literature, we found that six cases were reported by 2000 and a total of 21 cases by 2004. Spontaneously ruptured ACs are still limited to case reports. Balestrino et al. recorded 57 reported cases and an additional 17 surgically managed cases in children in 2020. Massimi et al. in 2022, mentioned 106 cases of spontaneous rupture in a retrospective report. The author has previously reported a case of spontaneously ruptured AC in a child that was successfully operated.

Keywords: Rupture; Arachnoid Cysts; Trauma; Dural Arteriovenous Fistula; Valsalva Maneouvre; Cystoperitoneal Shunt

Abbreviations

ACs: Arachnoid Cysts; CSF: Cerebrospinal Fluid; MCF: Middle Cranial Fossa; MRI: Magnetic Resonance Imaging; CT: Computed Tomography; DSA: Digital Subtraction Angiography.

Case Report

A 34-year-old male, presented with a history of heaviness off head for 1 year and increase in severity of headache since 2 days, without any history of trauma. The headache was dull aching for nearly a year, intermittent but acutely progressed to moderate headache on the left side for 2 days before presentation. For the last two days, it had not been relieved on oral analgesics as earlier. For the last two days, it was also associated with vomiting. The neurological examination was unremarkable. A non-contrast CT showed a left sided subdural haematoma. The lack of a history of trauma and a long standing history of headache prompted evaluation by a digital subtraction angiography (DSA) in view of a possible dural arteriovenous fistula. DSA was normal and hence, surgery for evacuation of haematoma was planned on the lines of treatment of a subdural haematoma. During surgery, evacuation of the left subdural haematoma revealed splaying of the sylvian fissure and stained arachnoid lining residual of a ruptured lesion at the temporal tip thus suggesting a ruptured arachnoid cyst (Figure 1). Evacuation of haematoma and duraplasty with dural substitute was done and bone flap replaced with miniplates and screws. Post-operative CT showed resolution of the cystic lesion and subdural collection and no mass effect. The patient recovered uneventfully [1-7].

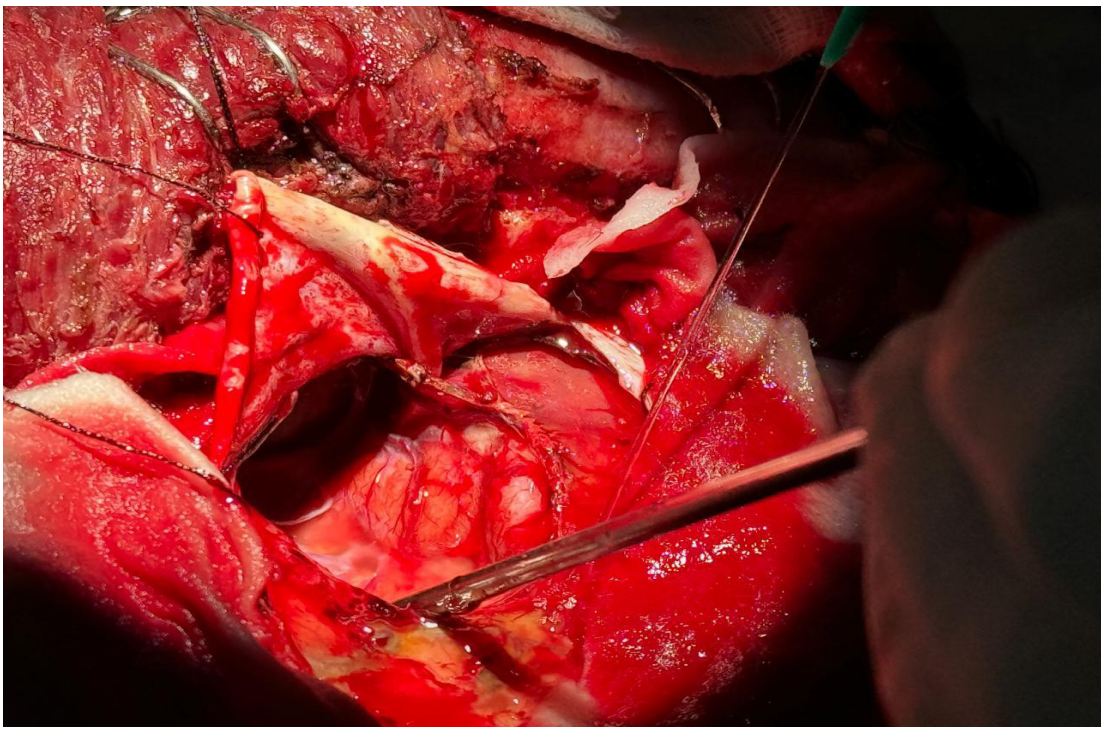

Figure 1: Intraoperative image showing a splayed Sylvian fissure with arachnoid lining suggestive of a ruptured arachnoid cyst.

ACs are formed by a cover of arachnoid mater, commonly in the MCF, followed by the posterior cranial fossa/retrocerebellar cistern and suprasellar cistern [8]. Mostly, AC's are found in the Sylvian fissure, more commonly on the left and in males [5]. The Galassi classification [6] of MCF AC's, as described in 1982, classifies these cysts as: (I) Small, spindle shaped, and limited to the anterior portion of MCF, freely communicating with subarachnoid space (SAS); (II) superior extent along the Sylvian fissure, displacing temporal lobe, communicating with SAS; and (III) large cyst filling the MCF displacing frontal temporal and parietal lobes, often excluded from CSF communication with SAS. Ruptured cysts commonly present as subdural hygromas, with or without neurological deficit or chronic or uncommonly as intracystic hematoma [1,7]. This is due to tearing of the membrane due to trivial trauma, manipulation or Valsalva maneouvre [1]. Cysts larger than 5 cm and Galassi type 2 AC's are more prone to rupture [5].

Patients generally present with headache, or contralateral weakness in some cases. Spontaneous bleeding within the cyst is a rare finding [9]. Antecedent trauma may be elicited on thorough history taking [10]. Sequelae of neurological disorders, for example, previous infarcts may cause similar imaging findings and may lead to errors of diagnosis. The medicolegal aspects may result in medical malpractice or delay in treatment [11]. Due to a dearth of organized literature, the appropriate line of treatment remains uncertain. Conservative treatment includes watchful waiting and management with acetazolamide [1,5]. Craniotomy or burr holes may be performed to drain subdural fluid or fenestration of the cyst into the basal cisterns may be done to establish clearance of CSF along physiological pathways, or shunting of CSF may be done by insertion of a cystoperitoneal shunt [1,5,7]. Microsurgical fenestration eliminates both acute compression and the risk of recurrent rupture [5].

Ruptured AC, though mostly an incidental imaging finding, is an important lesion with a high probability of misdiagnosis or delayed diagnosis [11]. It may rarely present with signs of raised ICP and warrant urgent drainage or shunting [1]. Available recommendations include weak evidence and scattered case reports. Hence, further studies and targeted approaches are required for management [5]. Available literature has a limited repertoire of cases of spontaneous rupture of AC's and most have been reported in children, as also previously reported by the author. Such rupture masquerading as spontaneous Subdural haematoma in an adult prompting vascular imaging might make an interesting addition to the available literature and guide our differential diagnosis.

References

1. Singh G, Zuback A, Gattu R, Kilimnik G, Vaysberg A (2020) Subdural hygroma after spontaneous rupture of an arachnoid cyst in a pediatric patient: A case report. Radiol Case Rep 16(2): 309-311.
2. Gonzalez MG, Villa JF, Prieto JC, Allut AG, Rumbo RM (2002) Arachnoid cyst rupture with subdural hygroma: Report of three cases and literature review. Childs Nerv Syst 18(11): 609-613.
3. Cress M, Kestle JR, Holubkov R, Cambrin JR (2013) Risk factors for pediatric arachnoid cyst rupture/hemorrhage: A case-control study. Neurosurgery 72(5): 716-722.
4. Cayli SR (2000) Arachnoid cyst with spontaneous rupture into the subdural space. Br J Neurosurg 14(6): 568-570.
5. Balestrino A, Piatelli G, Consales A, Cama A, Rossi A, et al. (2020) Spontaneous rupture of middle fossa arachnoid cysts: Surgical series from a single center pediatric hospital and literature review. Childs Nerv Syst 36(11): 2789-2799.
6. Massimi L, Bianchi F, Benato A, Frassanito P, Tamburrini G (2023) Ruptured Sylvian arachnoid cysts: An update on a real problem. Childs Nerv Syst 39: 93-119.
7. Mamik HK, Kuldeep M, Sinha VD (2024) Spontaneous rupture of arachnoid cyst. J Neurosci Rural Pract. 15(2): 404-406.
8. Sabooniha F, Baghershahi G (2023) An arachnoid cyst rupture complicated with subdural hygroma in a middle-aged woman: A case report and review of the literature. Egypt J Neurosurg 38: 42.
9. Bryden A, Majors N, Puri V, Moriarty T (2021) A rare case of spontaneous arachnoid cyst rupture presenting as right hemiplegia and expressive aphasia in a pediatric patient. Children 8(2): 78.
10. Albuquerque FC, Giannotta SL (1997) Arachnoid cyst rupture producing subdural hygroma and intracranial hypertension: Case reports. Neurosurgery 41(4): 951-956.
11. Turgut M (2023) Medicolegal aspects of arachnoid cysts. In: Turgut M, et al. (Eds.), Arachnoid cysts.