

KARNATAKA RADIOLOGY EDUCATION PROGRAM

Incidentally detected traumatic arachnoid cyst rupture presenting as subdural collection

Compiled by Dr. Rame Gowda (Resident) Guide: Dr Sanath Kumar & Dr Pallavi (senior residents) Subbaiah medical college, Shimoga.

CLINICAL HISTORY

- A 49-year-old man presented with a history of self-fall while crossing the road and was rushed to ER with complaints of headache and nausea.
- His neurological examination revealed no altered sensorium or focal neurologic deficits.
- A soft tissue laceration was noted in left frontal scalp region.
- ► The patient was advised CT Brain for further evaluation.

IMAGING FINDINGS

- CT scan of head showed, crecenteric hypodensity of CSF attenuation along left fronto-parieto-temporal lobe convexity with maximum thickness of 2.2cm at anterior temporal lobe convexity.
- Mass effect in the form of <u>effacement of adjacent sulci</u>, <u>compression of ipsilateral</u> <u>lateral ventricle</u>, <u>mildline shift to right side</u> (6.8mm) and <u>left subfalcine and uncal</u> <u>herniation</u> was seen.
- Relative thinning of left greater wing of sphenoid, anterior aspect of squamous part of left temporal, frontal and parietal bones were also seen (Bony remodelling).







DISCUSSION

- Spontaneous rupture of a middle cranial fossa arachnoid cyst is a rare complication with approximately 74 cases reported in the literature, mostly in children and adolescents.
- Rupture of an arachnoid cyst may occur following head trauma, or it might happen spontaneously following a transient increase of the intracranial pressure like during the Valsalva manoeuvre.
- Cysts larger than 5cm in maximum dimension have higher propensity to rupture.
- The opinion is split regarding the mechanism of the rupture of an arachnoid cyst where one of the theory attributes the contact between the cyst wall and the sharp ragged edges of the inner table of the bony calvaria (like the sphenoid wing and the tentorial incisures) as the causal factor.
- Another opinion states that trauma may lead to the passage of CSF from the subarachnoid space into the cyst, thus increasing intra-cystic pressure. This leads to tear in the cyst wall.
- However, our patient showed no significant acute deterioration. If the tear in the arachnoid is large, the amount of cerebrospinal fluid entering into the subdural space will be large.

DISCUSSION

- Subdural haemorrhage is another complication of ruptured arachnoid cyst due to laceration of weak leptomeningeal and bridging veins.
- MR findings are variable depending on the different stages of blood. Headache is the most common presenting feature in these patients followed by nausea and vomiting. Papilledema is frequent on fundoscopy examination.
- In clinically stable patients, conservative treatment with follow up alone or with acetazolamide can be helpful. The most recommended technique is cyst fenestration creating a connection between the cyst and the normal CSF-circulation. Surgical option includes cyst-peritoneal shunting, which reduces the risk of sudden decompression, but has higher risks of obstruction and infection.
- Rupture of arachnoid cyst either spontaneously or after trauma is a relatively rare entity leading to a number of neurological symptoms and complications. Asymptomatic patients with arachnoid cysts should be informed about the very rare possibility of cyst rupture along with the predisposing factors and clinical presentations. This can warrant prompt management in case of future complications.

