

Arachnoid Cyst Haemorrhage: A Serious Complication Of Minor Head Trauma

D GOYAL, S SHARMA, J THAKUR, R MAHAJAN, J NEGI, A NEGI

Ind J Radiol Imag 2006 16:2:167-168

Key words: Arachnoid cyst, Head injury, Haemorrhage

Arachnoid cysts are benign developmental cavities of the subarachnoid space, containing a fluid close in composition to that of CSF and lined by a membrane of true arachnoid cells [1]. Arachnoid cysts are relatively rare, comprising only 1 % of all intracranial mass lesions, with an estimated incidence of 0.5% to 1.6% [2]. Symptoms of arachnoid cyst are related to cyst size and location. Asymptomatic arachnoid cysts are quite rare. We present here an asymptomatic patient who became acutely symptomatic after minor head trauma due to intracystic haemorrhage.

Case report:

A 25 year old man presented in emergency with the minor head injury and recent onset of seizures and headache. CT head of the patient was done. On plain CT, there was a CSF density mass in the left temporo-parietal region adjoining the left sylvian fissure with mass effect on the adjoining brain. There was a hyperdense area within the cyst having a CT density of 50-55 HU. There was no surrounding edema (Fig.1). On contrast enhanced CT, no enhancement of the cystic mass was seen (Fig. 2). On bone window, minor scalloping of inner table of skull was seen (Fig. 3). Diagnosis of arachnoid cyst of the left Sylvian fissure with secondary haemorrhage was made.



Fig.1: Plain CT Head showing cystic mass in the left temporo-parietal region having a hyperdense area inside it.

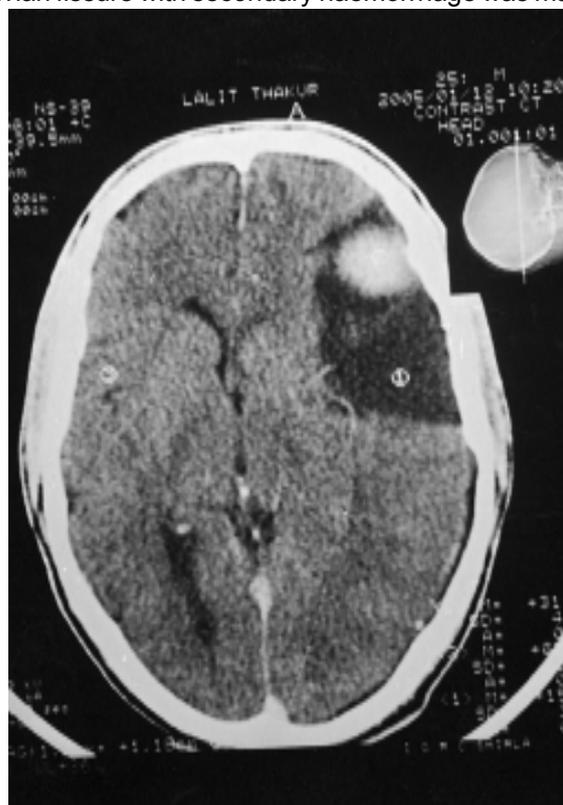


Fig. 2: Contrast CT Head showing no enhancement after i.v. contrast.

From the Radiodiagnosis Deptt. IG Medical College, Shimla. 171 001 (H.P.)

Request for Reprints: Dr Deepak Goyal, H. No. 1021, Sector-7, Panchkula - 134 109 Haryana.

Received 10 August 2005; Accepted 12 December 2005



Fig. 3: Bone window showing scalloping of the inner table of temporal bone.

Discussion:

Arachnoid cysts are benign, congenital, intra-arachnoidal space occupying lesions that are filled with clear CSF-like fluid [3]. The precise etiology of arachnoid cysts is poorly understood and remains controversial [4]. Mechanisms proposed for their origin and development have recently focused on meningeal maldevelopment. Arachnoid cysts are derived from the meninx primitiva which forms a perimedullary mesh around the developing CNS. With the accumulation of subarachnoid CSF, the meninx cavitates. During this process it is believed that the developing arachnoid membrane may split. With time, arachnoid cells secrete fluid into the resultant cleft and depending upon the degree of communication with the true subarachnoid space, the cleft enlarges to become a cavity and, ultimately, an arachnoid cyst [5].

Majority of the arachnoid cysts are symptomatic. However asymptomatic arachnoid cysts may become acutely symptomatic after minor head trauma. Consequent to trauma the cyst may rupture or bleeding may occur into the cyst cavity resulting in mass effect and onset of symptoms [6].

CT scan and MRI are diagnostic in majority of cases, alleviating the need for histopathological examination. On

CT, arachnoid cysts are isodense to CSF and have non-enhancing borders. The subjacent brain shows mass effect. On bone window, erosion of inner table of skull may be evident. Arachnoid cysts seldom calcify. On MRI, arachnoid cysts are non-enhancing intracranial masses that are isointense to CSF on all sequences. Diagnostic confusion occasionally may arise between arachnoid cyst and epidermoid tumours. FLAIR and diffusion weighted images (DWIs) make the differentiation between two masses easier. With these sequences, arachnoid cysts follow CSF signal and have very low signal on FLAIR imaging and have a high ADC, whereas epidermoids show high signal on FLAIR compared with CSF and have a decreased ADC [7].

Haemorrhage into a pre-existing arachnoid cyst may render an asymptomatic cyst symptomatic. Signs and symptoms are non-specific so, diagnosis is made only on CT or MRI. The treatment of arachnoid cyst with intracystic haematoma is surgical decompression and marsupialisation [6].

References:

- 1) Catala M, Poirier J, Les kystes arachnoidiens: mise au point histologique, embryologique et physiopathologique. *Rev Neurol* 1998; 154: 489-501.
- 2) Schievink W, Huston JI, Torres V et al, Intracranial cysts in autosomal dominant polycystic kidney disease. *J Neurosurg* 1995; 83: 1004-1007.
- 3) Van Burken, Sarioglu AC, O'Donnell HD, Supratentorial arachnoid cyst with intracystic and subdural hematoma. *Neurochir* 1992; 35: 199-203.
- 4) Garcia Santos JM, Martinez-Lage J, Ubeda AG et al, Arachnoid cysts of middle cranial fossa: a consideration of their origins based on imaging. *Neuroradiol* 1993; 39: 395-398.
- 5) Rengachary S, Watanabe I, Brackett C, Pathogenesis of intracranial arachnoid cysts. *Surg Neurol* 1978; 9: 139-144.
- 6) Nun R, Arachnoid cyst associated with post traumatic and spontaneous rupture into subdural space. *Comp med imag graph*. 1997; 21: 341-44.
- 7) Radolf L, Prabhakar P, Role of MR imaging in diagnosis of complicated arachnoid cyst. *Paedia. Radiol* 2000; 30: 329-31.