Case Reports

Subdural hematoma complicating middle fossa arachnoid cyst

Ammar F. Mubaidin, *MRCP,* ***Amer A. Shurbaji,*** *MD.*

ABSTRACT

We report a case of a middle aged patient with middle fossa arachnoid cyst that was complicated by subdural hematoma. This was demonstrated by magnetic resonance imaging that remain the most useful diagnostic tool, and providing excellent tissue specificity. Patient was treated by irrigating the hematoma through burrholes. Magnetic resonance imaging in the postoperative period showed a reduction in size of the arachnoid cyst.

Keywords: Subdural hematoma, subarachnoid cyst, magnetic resonance.

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Subdural hematomas are infrequently encountered complications of arachnoid cysts of the middle cranial fossa. Treatment relies on surgery to empty the subdural hematoma and remove compression. Therapeutic recommendations often include fenestration or extirpation of the cyst wall, in addition to evacuation of the space-occupying lesion. An excellent or good therapeutic result was achieved with evacuation of the subdural fluid by drainage or craniotomy[1], and it is not necessary to perform cyst diversion or fenestration at the time of drainage of a hematoma in previously asymptomatic arachnoid cysts.[1] Some recommend irrigation of the subdural hematoma as the initial procedure of choice for patients with subdural hematoma associated with middle cranial fossa arachnoid cyst.[2] Although, there has been no real consensus on treatment modalities, cysto-peritoneal shunt is still recommended as the surgical treatment after evacuation of the hematoma.[3]

Case report. A 55 year old male, with no previous medical illness of note, presented with cough syncope, for which a brain magnetic resonance imaging (MRI) was carried out which showed accidental large left anterior temporo-frontal arachnoid cyst, producing minimal mass effect, and producing mild compression of the left lateral ventricle. The cyst was producing pressure atrophy of the underlying brain (Fig 1). Conservative management was advised for the mentioned cyst according to the contemporary saying "if it's not broken don't fix it". Two months later, he started to complain of dizzy spells, with no loss of consciousness, this was accompanied by headache resembling tension type headache. Neurological examination revealed brisk trapezius reflexes on both sides, and decreased vibration sense in distal both feet. Otherwise no other deficits. One month later, he was seen again for unsteady gait after he sustained a minor head trauma. Neurological examination showed evidence of multidirectional jerky nystagmus, and unsteady gait. A repeat brain MRI showed evidence of large subacute subdural hematoma on top of the previously seen left fronto-temporal arachnoid cyst, producing significant mass effect, and shift of midline structures to the right of the midline. There was also evidence of right sided subacute subdural hematoma (Fig 2). A left frontal and parietal, and right posterior parietal burrholes was carried out, and his post-operative period was uncomplicated, and he was symptom free since then.

Discussion. Most arachnoid cysts are developmental and their etiology is unknown. There

From the Department of Neurology (Mubaidin), Department of Neurosurgery (Shurbaji), King Hussein Medical Centre, Amman, Jordan.

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Address correspondence and reprint request to: Dr Ammar F, Mubaidin, Consultant Neurologist, King Hussein Medical Centre, PO Box 926442, Amman, 11110, Jordan. Tel. 585 6856. E-mail. Anoud@hotmail.com

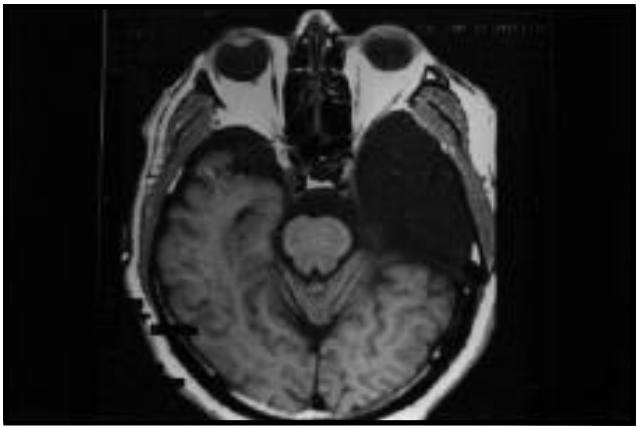

Figure 1 - Axial T1 weighted image through the middle cranial fossa, showing a large cystic lesion of CSF intensity mostly representing an accidental finding of arachnoid cyst, without mass effect.

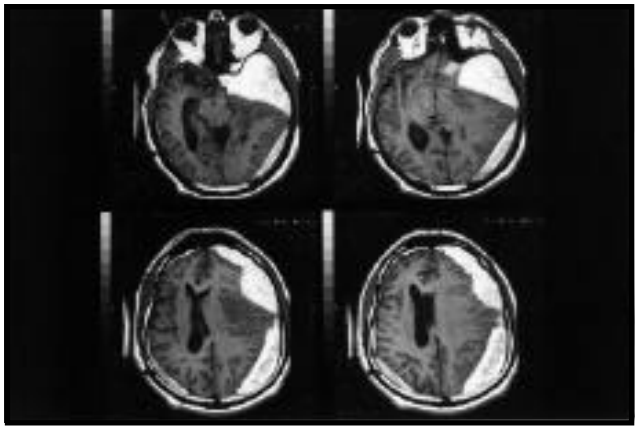

Figure 2 - Axial T1 weighted image showing a large subdural hyperintense lesion representing subacute blood compressing the underlying brain tissue and the left lateral ventricle, and causing mild subfalci herniation. There is also minimal amount of right subdural hematoma in the right parietal lobe.

is debate whether arachnoid cysts are a primary malformation of the arachnoid or secondary to hypoplasia or agenesis of underlying brain.[4] Intracranial arachnoid cysts occur most frequently in the middle cranial fossa[5], and they are usually unilateral.[6,7] Arachnoid cysts are increasingly found as incidental findings on computerized tomography or MRI. The clinical manifestations are non-specific and depend on the age at presentation and the location of the cyst. Adults most commonly present with epilepsy. Subtle cognitive deficits may be identified in patients with left temporal arachnoid cysts.[8] Psychosis is another common association. Approximately 18% of middle cranial fossa cysts present with progressive symptoms, while 44% present with non progressive symptoms, and 37% present with symptoms not associated with the arachnoid cyst.[9] Middle cranial fossa cysts have been categorized based on cyst size.[10] Type I cysts, which are limited to the anterior part of the temporal fossa and do not cause appreciable mass effect, account for 20% of middle fossa arachnoid cysts. Approximately 50% of middle fossa arachnoid cysts are Type II cysts, where the cyst occupies the anterior and middle temporal fossa and there may be moderate mass effect. The remaining 30% are Type III cysts, where the cyst occupies the temporal fossa almost completely, the temporal pole is severely atrophic, and there is compression of the frontal and parietal lobes with striking mass effect. A number of cases of chronic subdural hematoma associated with middle fossa arachnoid cyst has been reported in literature. Some studies showed that patients with chronic subdural hematoma associated with arachnoid cyst are obviously younger than patients with usual chronic subdural hematoma.[11] The presence of middle fossa arachnoid cyst must increase the compressibility of the intracranial content, especially of the ipsilateral cerebral hemisphere and it predisposes for development of chronic subdural hematoma.[11] Rupture of bridging veins or vessels in the wall of the cyst can result in subdural hematoma or bleeding into the cyst.[3] It has been also estimated that arachnoid cysts are present in 2.43% of patients with chronic subdural hematomas.[1]

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