CASE REPORTS

An unusual case of subdural haematoma presenting to the accident and emergency department

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Abstract

A case of subdural haematoma associated with an intracranial arachnoid cyst is reported. The pathogenesis, clinical presentation and treatment options of intracranial arachnoid cysts is discussed.

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Patients who re-attend after minor head injury have been shown to represent a high risk group with approximately 14% of CT scans yielding a positive result.¹ In fact CT scans in such patients may unmask previously asymptomatic neurological diseases such as aneurysms, abscesses or tumours,^{2,3} or may even reveal unexpected pathology such as chronic subdural haematoma following a bang to the head with a basketball.⁴

We report a case of a previously healthy young man who after a minor head injury developed bilateral chronic subdural haematoma associated with an underlying intracranial arachnoid cyst.

Case report

A 21 year old student presented to the accident and emergency (A&E) department after an injury to his head the preceding day. He had

been playing football and had "headed" the ball several times in a row. After this he noted that he had developed a headache, but this did not affect him too much and he was able to complete the football match. The following day, however, he still had a headache and this caused him to visit the A&E department. There had been no loss of consciousness at the time of injury, and there were no other neurological symptoms.

On examination, he was alert and orientated, pupil reactions were normal and there was no focal neurology in the limbs. The patient was given general advice about concussion and discharged.

Two weeks later, the patient re-attended the department complaining of persistent headache. Again no focal neurology was found on examination and the patient was given further advice concerning rest and analgesia and discharged.

Three weeks after the initial injury, the patient re-attended the department complaining of persistent headache. In addition he had also vomited once a day for the previous week and had experienced transient episodes of blurring of his vision.

In view of the persistent symptoms, despite the apparent triviality of the original injury, a

Figure 1 Computed tomography showing the arachnoid cyst and the subdural haemorrhages.

Figure 2 Magnetic resonance image (T1 weighted) showing coronal section through brain illustrating the arachnoid cyst (single arrow) and bilateral subdurals (double arrows).

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CT scan was performed that showed the following:

- Bilateral chronic subdural haematomata
- Mild frontal oedema
- Left middle cranial fossa arachnoid cyst

In view of the abnormalities on the CT scan (fig 1) the case was discussed with the regional neurosurgery centre, who requested that a magnetic resonance scan be performed. This showed the presence of the arachnoid cyst and bilateral chronic subdural haematomata (fig 2). The patient was reviewed in the neurosurgery outpatients shortly after the magnetic resonance scan, at which point it was decided that surgery was appropriate to drain the cyst. The patient underwent this procedure and has made an uneventful recovery.

Discussion

Intracranial arachnoid cysts account for about 1% of all intracranial space occupying lesions.⁵ They are non-tumorous congenital sacs lined with an arachnoid-like membrane and filled with CSF like fluid.

Aetiology is debated but one theory is that they are developmental anomalies arising from the splitting or duplication of primitive arachnoid membrane during early embryonal life leading to the formation of blind pouches filled with fluid.⁶

Pathologically, the cysts may increase in size, remain the same or completely resolve.

Suggested explanations for their growth are:

- Unidirectional flow through a ball-valve type opening in the wall with resultant trapping of CSF within the cyst.
- Active secretion of fluid by cells lining the cyst wall.⁷

Arachnoid cysts can occur at all ages but are most frequently seen in children. Incidence in males is three times more frequent than in females.

The most frequent site for intracranial arachnoid cysts is the middle cranial fossa.⁷

Symptoms and signs occur mainly as a result of compression of surrounding neural tissues by the cyst. Most common symptoms and signs are those of raised intracranial pressure, craniomegaly, and developmental delay: children usually present with craniomegaly, seizures or psychomotor retardation while adults commonly present with headaches, fits and focal neurological deficits.⁷

Complications include acute cyst enlargement, subdural effusions after rupture of the cyst, and subdural or intra cystic bleeding.

Diagnosis is usually confirmed by CT or MRI.⁷ These usually show an area that has sharply defined borders and intracystic fluid similar to CSF. Diffusion weighted MRI may help distinguish arachnoid cysts from epidermoid cysts. Tumour cysts can also be differentiated from arachnoid cysts using MRI techniques. Skull radiographs are usually not useful diagnostically but may show bulging of the temporal bone in patients with temporal fossa cysts.

Treatment depends upon the symptoms and the location of the cyst.⁸

Options include observation (with serial CT and MRI), cystoperitoneal shunts, cystoventricular shunts, ventriculoperitoneal shunting, endoscopic fenestration (still being explored), and craniotomy with resection of the cyst or fenestration of the cyst wall.

Prognostically, untreated arachnoid cysts may cause permanent neurological damage resulting from progressive expansion of the cyst or haemorrhage, but with treatment most individuals with arachnoid cysts do well.

The case that has been reported once again highlights the need to consider imaging techniques, such as CT, early, in patients who re-attend with persistent symptoms after minor head injury as underlying pathology may be revealed and treated, avoiding permanent long term damage.

Contributions

Shekhar Chillala searched the literature and wrote the discussion. Colin Read reviewed and wrote the case report. Mr P A Evans reviewed and advised on the paper, and is the guarantor for the paper.

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