SHORT REPORT

An unusual presentation of a minor head injury sustained during a game of rugby

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In the UK, about 2% of the population attend the accident and emergency (A&E) department every year after a head injury. A majority of the patients have minor head injury and are discharged. Studies reveal that patients who reattend the A&E after a minor head injury represent a high-risk group.

Concussion injuries are common and not all require treatment at the time of presentation. However, some may worsen after initial presentation and develop signs of serious head injury. A case of minor head injury as a result of head butt during a game of rugby, not associated with alteration in conscious state or focal neurological signs, and subsequent development of frontal lobe abscess a month later is reported. It is important that patients fit to be discharged at the time of consultation are discharged in the care of a responsible adult with clear head injury instruction sheets and are advised to return should their symptoms change. A high index of suspicion should be maintained and an early imaging technique, such as CT scan should be considered in patients reattending the A&E with persistent symptoms even after minor head injury.

A 21-year-old fit and well man presented to the accident and emergency (A&E) department with intermittent frontal headache for the previous 2 days. He admitted being “head-butted” once during a game of rugby, but did not take notice of it and was able to complete the match. He denied any loss of consciousness, visual disturbances or neurological deficit. However, his headache did not settle and he decided to attend the A&E department 2 days later.

On examination, he appeared well, with a Glasgow Coma Scale of 15/15. Pupils were equal and reactive and there was no evidence of papilloedema or focal neurological deficit. Mild tenderness was noted on the right side of his forehead, with no bruising or laceration. The patient was discharged with analgesia and head injury instructions.

He returned a month later with a week history of worsening frontal headaches, nausea and generally feeling unwell. Clinical examination was unremarkable. In view of his symptoms, despite the apparent triviality of the original injury, a CT scan was organised.

CT revealed a 3.3 cm ill-defined rim-enhancing lesion on the right frontal lobe suggestive of an abscess with an element of vasogenic oedema, and a mid-line shift at the level of the falx cerebri. There was an opacification of the frontal sinus with a possible posterior wall fracture (fig 1).

He was transferred to the regional neurosurgical unit for further assessment. After an MRI scan, evacuation of the abscess and cranialisation of the posterior wall of the frontal sinus was done. *Streptococcus milleri* was isolated, and the patient was commenced on appropriate antibiotics, on the advice of the microbiologist.

Follow-up CT showed resolution of the abscess, and the patient was well with no neurological deficit 3 months later.

DISCUSSION

Trauma is the leading cause of death in the first four decades of life, with head injury being implicated in at least half the number of cases.¹ In the UK, about 2% of the population attend the A&E each year after a head injury.^{2–3} Of these, 80–90% are not admitted.²

Concussion injuries are common in football and rugby. Symptoms include headache, dizziness, blurred vision and nausea with or without deterioration in conscious state.^{4–5}

There is published evidence that the postconcussion recovery rates vary between individuals.⁵

Studies reveal that patients who reattend the A&E after minor head injury represent a high-risk group, with approximately 14% of CT yielding a positive result.⁶ In addition, CT may unmask unexpected pathology such as aneurysms, abscesses, tumours or chronic subdural haematoma.^{7–8}

The presentation of brain abscess varies according to its location.⁹ Extradural abscess may manifest as severe localised headache associated with sinusitis or mastoiditis. Patients with subdural empyema frequently appear toxic, with headache, depressed level of consciousness and neurological signs. There is usually an accompanying frontal sinusitis with tenderness of the forehead, inflammation of the eyelids, mastoiditis or scalp infection.⁹

There have been reported cases of brain abscess after haematogenous seeding of intracerebral haematoma,¹⁰ sinus and orbital infection,¹¹ compound fractures¹² and penetrating injury.¹³ There have also been cases of chronic subdural haematoma,⁸ periorbital haematoma and ponto-medullary tear¹⁴ after minor head injury.

To the best of our knowledge, there are no reported cases of brain abscess associated with a trivial head injury without any focal neurological deficit as in this case.

Frontal sinus fractures represent 5–15% of maxillofacial traumas.¹⁵ Isolated fractures of the posterior wall are rare.¹² Fractures most commonly occur as a result of high-velocity motor vehicle accident with sufficient force to cause significant associated injury.^{12–15}

A total of 75% of patients have associated craniofacial trauma, including fractures of the naso-orbito-ethmoid complex and mid-face. Reports indicate that up to 42% of patients with frontal sinus fractures are unconscious at the time of presentation. Laceration of the forehead with or without bony fragment protrusion is the most common clinical finding. Depression of the forehead, ecchymosis over the glabella and altered sensation over the scalp or forehead are other associated presentations.^{12–15}

Inadequate treatment of frontal sinus fractures may lead to life-threatening complications such as meningitis, encephalitis, brain abscess and persistent cerebrospinal leakage. Orbital involvement may result in ophthalmoplegia, orbital abscess, diplopia, and partial or complete loss of vision.¹⁵

Abbreviation: A&E, accident and emergency

Figure 1 CT showing an ill-defined rim-enhancing lesion on the right frontal lobe with an element of vasogenic oedema and a midline shift at the level of the falx cerebri.

Triage of patients with head injury is based on clear guidelines.¹⁶ Patients are differentiated by Glasgow Coma Score at admission into the following categories: those who require immediate resuscitation, CT and neurosurgical referral; those who require admission with neurological observations; and those who can be discharged with appropriate advice.^{16 17}

In our department (A&E department, James Paget University Hospital, Norfolk, UK), as in many others, patients sent home after a head injury are always given an advice sheet instructing them to return should they develop symptoms suggestive of intracranial problems.¹⁷

Therefore, a high index of suspicion should be maintained and an early imaging technique such as CT scan considered in patients reattending the A&E with persistent symptoms even after minor head injury. Furthermore, patients should be given advice on head injury and clear instructions to return should their symptoms change.

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Informed consent has been obtained from the patient for publication of his details in this paper.

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