CASE REPORT

Chronic subdural haematoma after snowboard head injury

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Two cases of chronic subdural haematoma following a snowboard head injury are reported. Although such cases are rare in sport, the risk in snowboarders is higher than expected. Evaluation of a snowboarder with a history of head injury, albeit mild, who complains of headaches should include computed tomography or magnetic resonance imaging to allow rapid identification of any intracranial pathology.

It is well known that chronic subdural haematomas can occur after mild injuries. These injuries are most likely to occur and be minimally symptomatic in the elderly, presumably because of the related atrophy that occurs and therefore increased space available. Snowboarding has become one of the most popular winter sports. This rapid growth in the snowboarding population has inevitably been accompanied by an increase in snowboard related injuries.[1–3] Snowboarding injuries, including head injuries, have different features from those caused by alpine skiing. Their incidence has been reported to be 6.5–38.6 per 100 000 visits, which is significantly higher than for alpine skiers.[4 5] Snowboarders tend to be younger than skiers and therefore those injured tend to be young, and more than half suffer closed head injuries, but most are mild.[1 3 6 7] Although data on major head injuries requiring tertiary referral have been reported, there are no reports on the sequelae to mild head injury. We report two cases of chronic subdural haematoma as a sequela to a snowboard related mild head injury.

CASE REPORTS

Case 1

A 27 year old man presented with persistent headache. Six weeks previously, he had fallen backwards on a steep slope while snowboarding and hit his occiput on the ground. He had no retrograde or post-traumatic amnesia and did not lose consciousness. Although he had a headache without other symptoms, he continued snowboarding until late in the day. Fortunately he sustained no more impacts to the head. During the following week, he complained only of having a heavy head feeling and took no medicine. The day before the consultation, he began vomiting which was associated with a constant throbbing headache; this prompted him to visit our neurosurgical service. No objective neurological deficits were found. A computed tomography (CT) scan showed an isodense subdural haematoma on the left with a considerable midline shift (fig 1). Routine laboratory examination found no abnormalities. Burr hole surgery performed on the day of admission found typical signs of a chronic subdural haematoma. Immediately after the operation, his headache disappeared. Postoperative magnetic resonance imaging (MRI) showed no abnormalities except for a slight accumulation of subdural fluid.

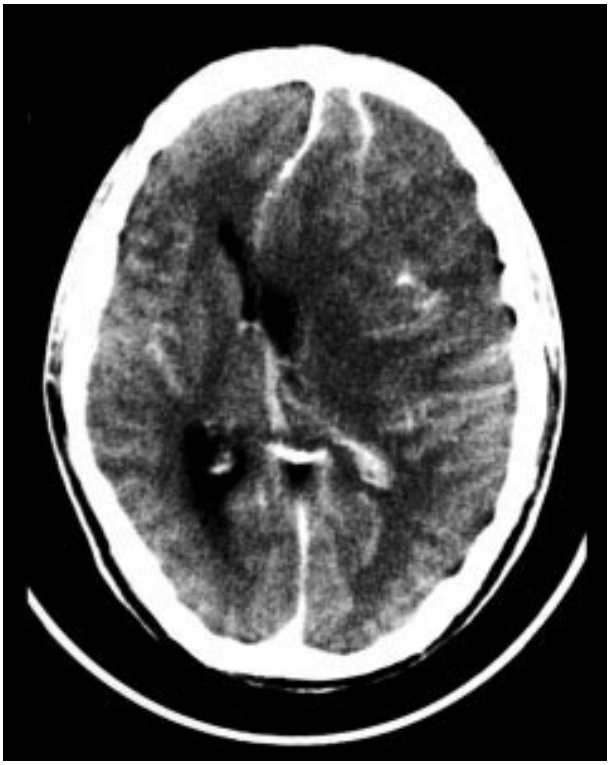

Figure 1 A cranial computed tomogram after contrast showing the left isodense subdural haematoma with a 15 mm midline shift.

Case 2

A 24 year old man fell while trying to jump during snowboarding practice. He hit his right shoulder as well as the right temporal area. He had no retrograde or post-traumatic amnesia and did not lose consciousness. He stopped snowboarding because of pain in his right shoulder but had no headache. Two days after the injury, he visited our orthopaedic clinic and was found to have a fracture of the right clavicle. This was treated conservatively. He did not complain of headache at that time. Over the next five weeks, he gradually developed a headache on the left without any other symptoms and took no medicine. Six weeks later, he started vomiting in association with a constant throbbing headache; he therefore visited our neurosurgical service. Neurological examination found no abnormality. A CT scan showed a high density subdural fluid collection on the left frontal convexity (fig 2). Laboratory examinations including blood coagulation were

Abbreviations: CT, computed tomography; MRI, magnetic resonance imaging

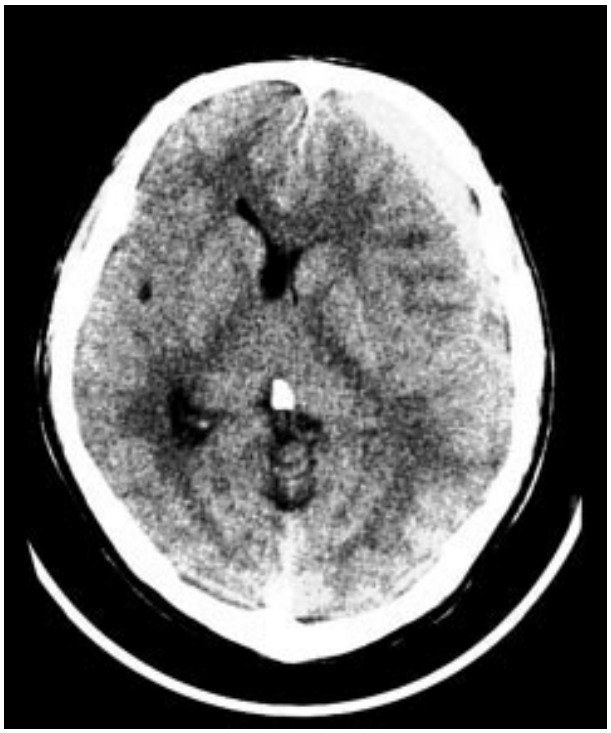

Figure 2 A plain computed tomogram showing the left high density subdural haematoma.

normal. Burr hole surgery was carried out, and an ordinary chronic subdural haematoma was found. Postoperative MRI found no parenchymal lesions or arachnoid cysts.

DISCUSSION

Although subdural haematomas are classically known as chronic when the initial haemorrhage produces no clinical signs or symptoms for three weeks or longer, chronic subdural haematomas cannot be defined merely by the time after head injury. From a pathological point of view, it is generally accepted that chronic subdural haematomas are encapsulated and gradually increase in size leading to clinical symptoms. The causes of this type of haematoma are not fully understood, but haemorrhage into the subdural space caused by a head injury may play an important part in producing chronically enlarging haematomas.[8] No matter what the cause, this clinical entity may occur even after mild head injuries, particularly in the elderly. The natural history of chronic subdural haematomas is not known. However, their occurrence in the young is rare unless there are predisposing factors such as arachnoid cysts in the middle fossa or placement of a cerebrospinal fluid diversionary shunt.[9] Surgical drainage should be performed once symptoms appear. Our patients were both young, and no predisposing factors were found. It should be noted that both had mild head injuries while snowboarding. Chronic subdural haematomas after sports related head injuries are quite rare. Our review of the literature found only two cases.[4 5]

The true incidence of snowboarding injuries is not known. Prall *et al*[2] reported an incidence of snowboarding injuries sufficiently severe to require tertiary referral of 0.03/1000 snowboarder days for the 1992–1993 ski season at a Colorado resort. In this series, more than half the patients suffered closed head injuries, and most were diagnosed with concussion. Nakaguchi *et al*[1] reported 11 major head injury cases with positive findings on cranial CT scan out of 143 cases of snowboard induced head injury. They concluded that snowboarders, particularly beginners, are at higher risk of head injury, often involving occipital impact, which could lead to more major head injuries.

As participation in this sport is rapidly increasing, a considerable number of snowboarders may suffer mild head injuries. However, there are no reports on sequelae in snowboarders who suffer mild head injuries. This is due to a paucity of follow up data, presumably because most head injured patients who visit local hospitals close to ski areas return home before any symptoms appear. Moreover many snowboarders with minor head injuries do not visit a hospital at all, even if they have a headache. Some may have suffered intracranial pathologies that may evolve into chronic subdural haematomas. In fact, the two patients described here did not visit a hospital at the time of the head injury. Considering the high rates of head injuries in snowboarding, a large number of chronic subdural haematoma following snowboard related head injury may remain unreported.

Evaluation of a snowboarder with a history of head injury, albeit mild, who complains of headaches should include CT and/or MRI if available to allow quick identification of acute or delayed intracranial pathology.[10] If any abnormality consistent with intracranial pathology is found, the patient should be advised to give up snowboarding.[10 11] We propose the use of helmets for protection.[1 6 7]

Take home message

The presence of a chronic subdural haematoma following a snowboard related head injury should be considered.

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