CASE REPORT

Retained knife blade: an unusual cause for headache following massive alcohol intake

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Massive alcohol intake usually resolves in a banal headache. We report a case of a patient presenting with acute alcohol intoxication in which the ensuing "hangover" was due to a knife blade deeply retained in the brain parenchyma. This case underlines the unpredictability of retained foreign bodies without a high level of suspicion and a detailed description of the circumstances of admission.

Massive alcohol intake usually resolves in a banal headache.¹ We report a case of a patient presenting with acute alcohol intoxication in which the ensuing "hangover" was due to a knife blade deeply retained in the brain parenchyma.

A left handed, 22 year old man was brought to the hospital by friends at 0200 because of alcohol intoxication. Events preceding the admission and motivation for the patient to go to the hospital were unclear. The patient's relatives confessed to a binge drinking of rum and beer, and then being moved suddenly, probably to avoid police control. The patient was lethargic and unable to communicate. He had alcohol on his breath. Vigorous stimulations only induced growling and repelling movements of the arms and legs. Total Glasgow Coma Score was 9 points. Pupillary light reflex was present. Blood pressure was 130/80 mm Hg and heart rate 85 beats/min. Physical examination showed multiple coagulated scratches of the skull and trunk without noticeable blood on the patient's dark clothes. Alcohol level was 2.2 g/l. Initial management included intravenous hydration, multivitamins, and observation until sobriety.

The patient woke up 8 hours after admission, complaining of severe headache covering the whole head and gradually increasing in intensity. Neurological examination including evaluation of motor strength in the face and limbs, neck flexion, sensory functions, muscle stretch reflexes, plantar responses, pupil reactions, and visual fields was normal. The head pain was constant, insensitive to head motion and light, but was not throbbing. Intravenous acetamolol 1 g, intravenous ketoprofen 100 mg, and subcutaneous morphine 5 mg given consecutively were ineffective in relieving the headache. Surprisingly, brain computed tomography revealed a right temporal haematoma 34 mm in diameter, with a knife blade that had entered from the temporal fossa and was deeply retained in the right temporal lobe (fig 1). The foreign body was surgically withdrawn, and postoperative recovery was uneventful. After awakening from surgery, the patient could not remember involvement in an altercation, but witnesses retrospectively confirmed that he was attacked with a knife after drinking with his assailant.

Alcohol hangover is characterised by a set of common symptoms: headache, tremulousness, nausea, diarrhoea, anorexia, and fatigue.¹ The teaching point to be learnt from this case is the unpredictability of retained foreign bodies

without a detailed description of the circumstances of admission. Headache after intoxication can be due to unexpected causes and should prompt imaging studies in some patients.

Alcohol intoxication accounts for 2.5% of admissions to our emergency department. Despite normal findings on a brief neurological examination, our patient met at least two criteria for head computed tomography scan on admission: alcohol intoxication and physical evidence of trauma above the clavicles.² As the knife blade was not visible from the outside, lesions of the skull and trunk were mistakenly considered superficial. A higher index of suspicion would have prompted imaging study of the skull and neurosurgical care.

Acute alcohol intoxication is likely to complicate the management of a trauma patient.³ Alcohol alters the initial evaluation of brain injury severity in intoxicated patients by depressing the level of consciousness. Trauma related brain damage materialises as withdrawal occurs.³ Clear definition of neurological status is often achieved through a period of prolonged observation and serial neurological assessments. In addition, stab assaults, usually directed to the trunk and neck, are most likely to involve the head in alcohol enhanced quarrels.⁴

Stab injuries to the brain are uncommon. Over a 10 year period in a level 1 trauma centre in Washington DC, 151 victims with stab wounds to the head were assessed, and only six had intracranial injuries.⁵ Of 449 patients with stab injuries treated in our institution between 1996 and 2003, 36 (8%) had external wounds of the head. Our case report is the single stab assault to the head with intracranial penetration.

Large case studies with transcranial stab injuries have been reported from South Africa and predominantly involve young men in fight situations.^{6,7} In western countries, assault motives are frequently rape or private altercations between relatives.⁴ Craniocerebral stab injuries are often associated with multiple wounds to the neck and trunk. Psychiatric disorders and alcoholic influence play an exacerbating role for the motivation of the quarrel. As cerebral injury by stabbing is usually restricted to the wound tract, victims are frequently admitted alive to a hospital with a good prognosis of recovery unless the brainstem is damaged.⁴

Although stab wounds to the temporal fossa appear as a specific clinical entity,⁸ the diminished thickness of the bone in selected areas of the skull (orbita, temporal region) is not the sole determining factor for intracranial penetration. The available clinical and forensic studies show no significant location preference for skull perforation.^{4,7} The loads produced during experimental knife injuries on targets⁹ or cadaveric tissues¹⁰ are significantly higher than the force required for skull penetration, regardless of the site of stabbing. Under suitable conditions (sharp and rigid blade, high energy of stabbing, motionless target), a knife attack would perforate the full thickness areas of the skull.⁴

Figure 1 (A) Brain computed tomography (CT) revealed a right temporal haematoma (non-contrasted CT scan), and a knife blade lodged in the right temporal lobe: (B) bone window; (C, D) scout views.

In conclusion, evaluation of an acutely intoxicated trauma patient should be approached with a detailed review of the circumstances of intoxication, repetitive examinations, and a high index of suspicion. The temptation to let the patient sober up for a long period without regular reassessments must be avoided. Because of diagnostic difficulties, a more liberal attitude towards imaging studies seems justified in trauma patients with alcohol intoxication.

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REFERENCES

- 1 **Wiese GJ**, Schlipak MG, Browner WS. The alcohol hangover. *Ann Intern Med* 2000;**132**:897–902.
- 2 **Haydel MJ**, Preston CA, Mills TJ, *et al*. Indications for computed tomography in patients with minor head injury. *N Engl J Med* 2000;**343**:100–5.
- 3 **Kelly DF**. Alcohol and head injury: an issue revisited. *J Neurotrauma* 1995;**12**:883–90.
- 4 **Bauer M**, Patzelt D. Intracranial stab injuries: case report and case study. *Forensic Sci Int* 2002;**129**:122–7.
- 5 **Deb S**, Acosta J, Bridgeman A, *et al*. Stab wounds to the head with intracranial penetration. *J Trauma* 2000;**47**:1159–62.
- 6 **Taylor AG**, Peter JC. Patients with retained transcranial knife blades: a high-risk group. *J Neurosurg* 1997;**87**:512–15.
- 7 **du Trevou MD**, van Dellen JR. Penetrating stab wounds to the brain: the timing of angiography in patients presenting with the weapon already removed. *Neurosurgery* 1992;**31**:905–11.
- 8 **Haworth CS**, de Villiers JC. Stab wounds to the temporal fossa. *Neurosurgery* 1988;**23**:431–5.
- 9 **Horsfall I**, Prosser PD, Watson CH, *et al*. An assessment of human performance in stabbing. *Forensic Sci Int* 1999;**102**:79–89.
- 10 **O'Callaghan PT**, Jones MD, James DS, *et al*. Dynamics of stab wounds: force required for penetration of various cadaveric tissues. *Forensic Sci Int* 1999;**104**:173–8.