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CASE REPORT

TEMPORAL BONE FRACTURE FOLLOWING HEAD MASSAGE AFTER HAIRCUT: A CASE REPORT

[1]Harish ChanderGoel and *Swayamsidha H. Andhale

[1]Professor and Head, Department of ENT and Head and Neck Surgery, Goa Medical College, Bambolim, India
*Senior Consultant ENT, Subdistrict Hospital, Ponda, Goa, 302, Govardhan, V.V. Dempo Marg, Dempo Bhatt, Tonca- Caranzalem, Goa 403002, India

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ABSTRACT

Blunt trauma to the temporal region can cause fracture of the skull base, loss of hearing, vestibular symptoms and otorrhoea. The most common cause of blunt trauma to the ear and surrounding area are motor vehicle accidents, violent encounters and sports related accidents. We present an obscure case of a man who was given a vigorous head massage after haircut resulting in temporal bone fracture, conductive deafness and pneumocephalus.

Key Words: Head massage, Temporal bone fracture.

INTRODUCTION

The temporal bone is the most complex bone in the human body. It houses many vital structures, including the cochlear and vestibular end organs, the facial nerves, the carotid artery and the jugular vein. A temporal bone fracture can involve none or all of these structures. The spectrum of temporal bone trauma is extremely varied, ranging from minor concussion without functional deficits to severe blunt or penetrating trauma with multi-functional deficits that involve the auditory and vestibular nerves, the facial nerve and the intra-cranial contents. Young adults, most commonly males are involved (Cannon, 1983; Ghorayeb and Yeakley, 1992; Brodie, 1997). Here we present a case of temporal bone fracture due to vigorous head massage after a haircut.

CASE REPORT

A 35 year old male patient gave history of waking up at midnight around 2am with severe throbbing left sided headache. Patient had a painkiller tablet and went to sleep. The next morning, patient noticed blood over pillow which was trickling from left ear for which patient visited the ENT OPD in the morning. There was no history of tinnitus, giddiness, altered sensorium, seizures, or bleeding from elsewhere in the body. There was no history of fall or any type of trauma to head. On examination, patient was apparently well except left ear which showed fresh blood and blood clots in the external auditory canal. There was no tenderness. Tympanic membrane was bluish and was bulging. On cleaning, small breach in postero superior quadrant of parstensa was noticed with fresh blood oozing through it. A provisional diagnosis of glomustumour was made and patient was admitted.

Corresponding author: Swayamsidha H. Andhale
Senior Consultant ENT, Subdistrict Hospital, Ponda, Goa, 302, Govardhan, V.V. Dempo Marg, Dempo Bhatt, Tonca- Caranzalem, Goa 403002, India

A contrast angio-computed tomogram of temporal bone was requested which revealed an obliquely oriented fracture through the left temporal bone. Fracture was undisplaced and involved outer and inner tables (Figure 1). Presence of haemorrhage was noted in the middle ear cavity and some mastoid air cells. No enhancing mass/ aneurysm were seen in middle ear cavity on left side. Presence of few pockets of air was noted in the left posterior cranial fossa, just adjacent to the fracture (Figure 2). Few pockets of air also noted in left parapharyngeal space. Ossicular chain, facial nerve and inner ear structures were normal. Brain/neck was reported normal. Patient and family were persistently enquired about history of fall or any trauma in recent past. No history of trauma was obtained. However patient informed that last evening he had got his hair cut and after that he was given vigorous head massage with intermittent tapping of head by closed fist by the barber. Patient could recall the brief strange feeling he felt in his head during one of the sharp tap over his head.

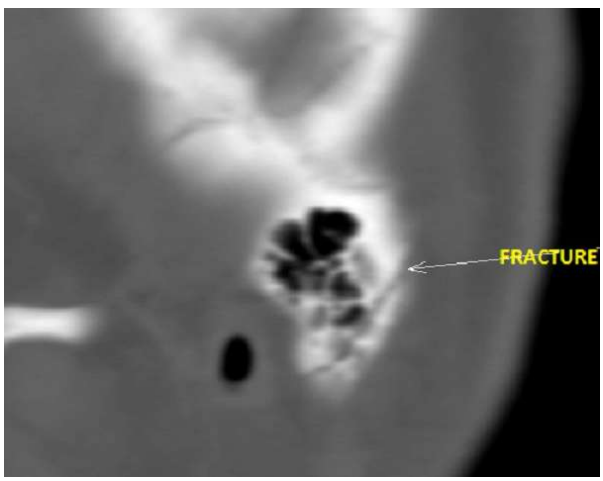

Figure 1. Reconstructed 3D parasagittal view of computed tomogram of temporal bone showing oblique fracture

Therefore it was concluded that patient had fracture of left temporal bone due to head massage he had after haircut. Patient was treated with injection ceftriaxone 2gm, intravenously twice a day for seven days. Patient was fine except mild conductive hearing loss at the time of discharge. Follow up after three months revealed no abnormality except getting angered on small matters.

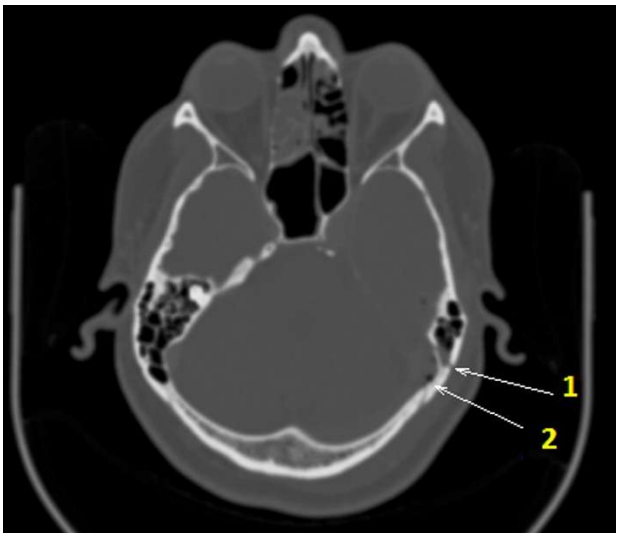

Figure 2. Axial view of computed tomogram of temporal bone showing fracture (1) and pneumocephalus (2)

DISCUSSION

Traditionally temporal bone fractures have been classified into longitudinal fractures (80%) and transverse (20%) based on several cadaveric studies in the 1940's (Brodie, 1997; Gurdjian and Lissner, 1946). Longitudinal fracture results from temporo-parietal impact and the most frequent structures involved are the tympanic membrane, the roof of middle ear and the anterior portion of the petrous apex. About 15-20% will have involvement of the facial nerve and the injury occurs near the geniculate ganglion or in the horizontal portion. Facial paralysis is often delayed in onset, attributed to edema rather than direct interruption of the nerve. Vestibular involvement and sensory neural deficits are relatively uncommon and are attributed to concussive effects rather than direct trauma on the vestibular labyrinth and cochlea. Transverse fracture results from fronto occipital impact and courses perpendicular to the long axis of the petrous pyramid from the foramen magnum through the posterior fossa, through the petrous pyramid, including the otic capsule, into the middle cranial fossa. The facial nerve is involved in 50% of the cases. Otic capsule and internal auditory canal are frequently involved as well. However, this dichotomous system was deemed by some to be insufficient. It was reported that upto 90% of blunt trauma induced fractures were more accurately described as mixed or oblique fractures (Ghorayeb and Yeakley, 1992). Other classifications are based on otic capsule sparing and otic capsule involvement. An otic capsule sparing fracture runs anterolateral to the otic capsule and is caused by a blow to the temporo-parietal region. An otic capsule involving fracture runs directly into the otic capsule damaging the cochlea and semi-circular canals and is caused by a blow to the occipital region. Motor vehicular accidents are the commonest cause of temporal bone fracture, accounting for 50% of the cases. Other causes, in descending order of frequency include physical assaults, falls, motorcycle accidents, pedestrian injuries, bicycle accidents and gunshot wounds (Cannon, 1983; Ghorayeb and Yeakley, 1992; Brodie, 1997; Gurdjian and Lissner, 1946; Nageris *et al.,* 1995). Goldenberg et al. reported a case of temporal bone fracture following blunt trauma caused by a flying fish (Goldenberg, 1998). Chujo et al. reported temporal bone fracture with ossicular dislocation caused by a blow to the opposite side of head (Chujo, 2008). Reichart and Sooss reported fracture of styloid process of temporal bone secondary to dental treatment (Reichart, 2008). Two cases of temporal bone fracture due to roller blade falls were reported by Weinberger and Selesnick (Weinberger and Selesnick, 1994).

In all these patients, the force required was intense though varied. In our case fracture of temporal bone occurred due to brief sharp tap given with closed fist during the head massage. Temporal bone was well pneumatised in our patient and it appears that vigorous head tap has resonated with the weak force line of temporal bone resulting in fracture. The fracture was undisplaced, otic capsule sparing, oblique fracture. These barbers offering head massage after haircut without charges are not trained for the technique of head massage. Many videos are available on Internet sites showing the enthusiasm of barbers giving head massage after haircut. One should remember that temporal bone fracture is a serious condition and can be associated with devastating complication if not identified and managed properly. In our case fracture resulted from a relatively minor force therefore was not associated with any significant complication except mild conductive hearing loss and behavioural changes as patient used to get short tempered on small and unnecessary matters after the fracture.

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