# AN UNUSUAL CASE OF A COMPOUND DEPRESSED SKULL FRACTURE

## SURYAPRATAP SINGH

ABSTRACT

Compound depressed skull fractures are common and their management and diagnosis have been described, but its occurrence following a bulls attack by horn is unusual. The case of a 55year-old farmer with this injury as a complication of single bulls hit on the head at left high occipitoparietal region is described here with the emergency treatment. He was managed surgically and discharged without any intracranial complication. In follow-up, patient is doing well.

*Key words* Elevated skull fracture, Linear fracture.

### **INTRODUCTION:**

Skull fractures are common after road traffic accident, trauma, assault and other injuries.<sup>1,2</sup> Skull fractures are classified into linear, depressed and comminuted type. A depressed fracture is the one whereas the fractured fragment in driven inwards. On the other hand, in elevated fracture, the fractured portion is elevated above the level of the intact skull. Compound depressed fractures are caused by tangential injuries which break a portion of the scalp, skull and the underlying dura and brain.<sup>2,3</sup> They are usually due to road traffic accidents.

#### **CASE REPORT:**

A 55 year old farmer, after being hit by a bull on the head was brought to us about 2 hours following the alleged trauma. He had immediate loss of consciousness for 10 minutes followed by the development of semiconsciousness. There was history of vomiting and nausea. His GCS was 14/15. Pupils were equal and reacting. He had an open wound over left high occipito-parietal region of size 11cm into 2cm (fig I & II), which was dressed in a local hospital. The CT scan of the brain showed left comminuted depressed fracture of the left occipito-parietal bone. A bone fragment was found in the CT scan which injured the left parietal lobe of brain (fig.III).

He was scheduled for an emergency surgery. After removal of the bandage a lacerated wound measuring

Correspondence: Dr. Suryapratap Singh Tomar Deparment of Surgery, Datta Meghe Institute of Medical Science & Research Sawangi Wardha Maharastr India. E mail: drspst10@gmail.com



Fig I and II: Pre-operative open wound over left high occipito-parietal region and intraoperative view.

about 11cm into 2cm over the left occipito-parietal area 4cm lateral to the midline, was found. The same wound was used as one of the margin of a horse shoe skin incision and scalp flap retracted. On raising the flap, two large bone fragments were found depressed into the brain matter and some brain matter had herniated out and the dura found lacerated. These fragments were gently removed (fig.III). This led to significant bleeding which was controlled with gel foam and pressure. The dural defect covered with gel foam. The wound was irrigated with hydrogen peroxide. As the brain was not full or tense it was decided to replace the bone fragments. The post operative recovery was good. He was dis charged 7th day after the surgery without any evidence of intracranial infection or CSF leak. Patient is doing well in follow-up.



Fig III: CT scan of the brain showed left comminuted depressed fracture of the left occipito-parietal bone

# DISCUSSION:

Compound depressed fracture is not a rare type of skull fracture but presentation of compound depressed fracture with a bulls attack by horn is very rare and unusual. Compound depressed skull fracture can occur in a variety of settings. To our knowledge, there has not been any previous report of a bull horn causing such an injury in routine life. Skull fractures are influenced by various factors, which include the thickness of the vault, site of impact, the force and angle of impact. In this case, a large amount of kinetic energy made contact with the skull and the force probably acted for a short time. The degree of local deformation in this case was enough to cause penetration and fracture of the skull.<sup>4-7</sup>

Early diagnosis and appropriate treatment of compound

depressed fractures of the skull can minimize the risk of complications.<sup>8,9</sup> In our case, patient was drowsy at the time of admission and operated within 35minutes. This may be one factor in good outcome. Skull x ray and CT brain with skull is most important tool for diagnosis of skull fracture but the depression is often not appreciated in skull x-ray. Careful digital exploration of the scalp wound with a gloved finger can reveal a bone edge, a depression, or a mobile bone fragment.<sup>9,10</sup>

The management of choice in preventing infection from open depressed skull fractures is operative debridement and thorough irrigation. The prevalence of infective complications (abscess, empyema, meningitis) after compound depressed skull fractures is low.<sup>11</sup> This case highlights the need for clearly determining the mechanism of injury and undertaking appropriate investigations and treatment under emergency. A high index of suspicion should be maintained if a pointed object is implicated in trauma involving the skull.

## **REFERENCES:**

- 1. Kalayanaraman S. Scalp and Skull Injuries. Textbook of Neurosurgery Churchill Livingstone New Delhi 1995;289.
- Geisler F. Skull fractures In Wilkins R, Rengachary S (eds). Neurosurgery Vol II. New York McGraw Hill. 1996;2741-54.
- Ralston B. Compound elevated fractures of the skull Report of two cases. J Neurosurg 1976;44:77-8.
- 4. Verdure J, White R. Compound elevated skull fractures. J Neurosurg 1975;45:245.
- Adeolu A, Shokunbi M, Malomo A, Komolafe E, Olateju S, Amusa Y. Compound elevated skull fracture: a forgotten type of skull fracture. Surg Neuro 2006;65:503-5.
- 6. Nitin G, Indira B, Maste P. Elevated Skull Fracture. Indian Journal of Neurotrauma 1996;4:133.
- 7. Jennet B. Epidemiology of head injury. J Neurol Neurosurg Psychiatry 1996;60:362-9.
- 8. Geisler F ,Wilkins R, Regachary S. Neurosurgery 1996:2741-55.
- 9. Bullock P. The skull and brain: The new Aird's companion in surgical studies. Edinburgh: Churchill Livingstone. 1998:428.

- Jennet B, Miller J. Infection after depressed fracture to the skull: Implications for management of non-missile injuries. J Neurosurg 1972;36:333-9.
- 11. Vanderheever C, Vandermerwee D. Management of depressed skull fractures: Selective conservative management of nonmissile injuries. J Neurosurg 1989;71:186-90.