

AN UNUSUAL ORBITOCRANIAL THROUGH AND THROUGH PENETRATING INJURY BY IN SITU TETA: CAN WE DO BETTER FOR THIS TYPE OF UNFORTUNATE PATIENT ?

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Abstract:

Through and through orbitocranial penetrating injury by in situ teta is extremely rare. We managed such a case in Dhaka Medical college hospital with many limitations. In spite of all possible supports that were available in our set up, patient did not survive. Presentation, investigations, surgical and other supportive management will be highlighted.

Key Words: .Orbitocranial. Penetrating. Injury. Teta.

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Introduction:

Penetrating orbitocranial injuries are rare. They may appear to be associated with intracranial injuries with or without secondary complications, may ultimately prove fatal.

We report a case of very unusual (probably the first reported case) orbitocranial through and through penetrating injury by teta which was in situ before operation.

Case Report:

A fifteen years old young boy presented with the H/O penetrating injury in his right eye by a long teta inflicted by robber during robbing on him at local market. Initially he was managed in local hospital. 10 hours later he presented to us. During this period he developed generalized convulsion for four times. On examination, we found teta penetrating his right eye with handle and small part of metallic portion remaining outside (figure-1). On occipital region or other parts of scalp, there was no exit wound but apex of teta could be palpated under the skin in right occipital region. There was no other external injury. His vital signs were stable, GCS was 08(E1M5V2). There was no obvious limb weakness on painful stimulus.



Fig.-1

On emergency basis, we advised for-
X-ray skull,

CT scan of head with bone window

Cerebral angiography

The patient party could not afford cerebral angiography on emergency basis. X-ray (figure-2) and CT scan showed that teta has passed under the right orbital plate through the eye ball, superior orbital fissure, right temporal, occipital lobe and occipital bone above and right to midline. There was no intracranial haematoma. Reverse thorn of teta was clearly visible. We also consulted with our ophthalmological colleagues and they participate in surgical team.

Patient underwent emergency operation under GA. Part of teta exterior to eye right eye was cut with metal cutter. A right sided pterional craniotomy done and middle cerebral and other related vessels were

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Fig.-2

found intact and away from the teta. Then through a right occipital craniotomy teta was removed carefully, followed by removal of dead brain and tissue with toileting as per as possible.

Postoperatively anesthesiologist suggested for ICU support but unfortunately ICU bed was filled up; patient was managed in post operative room. Postoperatively, convulsion was going on which was managed by i.v. fosphenytoin, GCS remained unchanged. On second POD patient developed fever and convulsion, respiratory distress, GCS deteriorated to E1M4V1 =o6. Later patient was shifted to ICU (fortunately ICU bed became available). Post operative CT scan of brain could not be done due to poor economic condition of the patient. In spite of all possible support in our set up patient expired on fourth POD.

Discussion:

In this case teta has passed through the superior orbital fissure which is one of the natural pathways for orbitocranial penetrating foreign body. For proper management of such a patient complete neurological examination with x-ray of skull is needed.² A CT scan is also needed to delineate the trajectory, position, relation with anatomical structures with the foreign body.⁴ It is also needed to see any haematoma or other pathology that may develop with the penetrating injury. Such type of injury may also be associated with cerebral arterial or venous sinus injury.^{3, 6, and 8}. So in our case cerebral angiography was advised but patient party could not afford it. So, during operation vascular injuries were excluded by pterional and occipital craniotomy before removal of teta.

The significant reasons for surgery in such a case are

- a) To remove intracranial haematoma,
- b) To remove necrotic brain to prevent infection, mass affect and ischaemia,^{5, 9}
- c) To control active bleeding,
- d) To remove foreign body to prevent infection and it's further complications.⁹

Approach to surgery varies in such a case; some are conservative while others are more aggressive.^{2, 7}

Before operation we discussed among ourselves regarding management options for the patient. There were two opinions among us. One opinion was for emergency operation and the other was for initial conservative management followed by surgery few weeks later. Points in favor of emergency removal of teta were-

1. In such a case, surgical principle is in favor of removal of foreign body followed by surgical toileting.
2. Conservative management in such a case will invite infection, septicemia, abscess formation etc.
3. It would be very odd looking and nuisance to keep teta in situ during conservative management period.
4. Pressure from patient party and other groups (news paper worker) for removal of teta.

The second opinion was in favour of initial conservative management with aggressive antibiotic, anticonvulsant and other supportive therapy, then removal of teta on a later date after formation of wall (gliosis & fibrosis) around it with adopted brain. Second group put their defense on the point of death from infection that patient might die from infection during conservative treatment period but one should not forget that emergency can kill the patient and has got more chance to iatrogenic neurological deterioration. They also argued that human body has wonderful adaptation capacity even with this type of teta in brain and chance of late infection is less.^{1, 8}

Though decision was taken in favor of emergency surgery but ultimately patient did not survive.

Conclusion:

This type of orbitocranial injury is probably extremely rare. There is no trail based management guideline for such a patient. Management given to this patient was probably inadequate for the survival of the young

guy. Is it possible to set up a better management guideline as well as improvement of our set up, for such an unfortunate patient?

References:

1. Chandramouli B, Chandrasekaran K, Changez K J, Palitha SD. Tranorbital intracranial penetrating injury-an anatomical classification. *Surgical neurol* 2009; 71: 238-240.
2. Devi B Indira, Bhatia Sanjay, Kak Vijay K: Penetrating orbitocranial injuries-Report of two cases. *Indian journal of Ophthalmology* 1993 ;41: 84-6.
3. De Villiers JC and Grant AR. Stab wound of the brain and skull. In: Viken PJ, Bruyn GW, eds. *Hand book of clinical neurology*, vol 23, Newyork, NY: Elsevier Science Publishing; 1975: 407-503.
4. De Villiers JC and Grant AR. Stab wound of craniocervical junction. *Neurosurgery* 1985; 71: 930-936
5. Federico C Vinas, Julie Pilitsis: Penetrating Head Trauma. *e-medicine* June 20, 2006.
6. Hadded FS, Hadded GF and Taha J. Traumatic intracranial aneurysm by missiles: Their presentation and management. *Neurosurgery* 1991; 28: 1-7.
7. Kaufman HH, Schwab K, Salazar AM: a national survey of neurosurgical care for penetrating injury. *Surg Neurol* 1991; 36(5): 370-7.
8. Kieck CF and De Villiers JC. Vascular lesion due to transcranial stab wounds 1984; 60: 42-46.
9. Maruya J, Yamamoto K, Kaniko U: Brain Abscess following transorbital penetrating injury due to bamboo fragments. Case report: *Neurol Med Chir* 2002; 42: 143-146.
10. Misra M, Rath S, Acharya B, Mohanty SC. An unusual case of orbitocranial gunshot wound. *Indian J Ophthalmol* 1985; 33: 105-7.