An unusual case of orbitocranial wooden foreign body with amazing outcome: A case report

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Penetrating orbitocranial injuries can present with foreign body/bodies (FBs) lodged in eye, orbit, and/or brain. But limited literatures are available about FBs lodged partly in orbit and partly intracranially. Here, we present a rare case of orbitocranial wooden FB impacted in right palpebral aperture extending intracranially following accidental fall from height. Unexpectedly, the patient himself removed the FB in fully conscious and oriented state while waiting for neurosurgical intervention, later completely recovered under observation and antibiotic prophylaxis. Therefore, it is important to have high suspicion of intracranial extension in impacted orbital FBs and a team approach for managing such cases.

Key words: Accidental, intracranially, orbit, penetrating orbitocranial injuries, orbitocranial wooden [bamboo] foreign body

Penetrating orbitocranial injuries are uncommon nowadays.[1] These injuries most commonly occur following accidents,[2] followed by assaults, terror attacks, war, etc. and can be caused by several unusual objects.[3] These injuries account for 24% of all penetrating head injuries in adults and approximately 45% in children.[4] Foreign body/bodies (FBs) due to such injuries can lodge in eye, orbit, and/or brain. However, FB lying partly in orbit and partly intracranially is rarely noted.[5] There is very limited literature available on this topic. Here, we report a rare case of orbitocranial FB managed by us and supported by valuable imaging.

Case Report

A 55-year-old male patient had reported to our hospital with history of injury to right eye following fall from a height with complains of pain and a FB has entered into his right eye. As stated, the patient had climbed a tree to collect woods and while he was chopping a branch of the tree, he suddenly fell from the tree over a wooden [bamboo] fence below and a twig had got broken and entered into his right eye. There was no

Figure 1: Image showing a wooden [bamboo] FB projecting from the right palpebral aperture in an upward direction toward the upper part of the orbit

Figure 2: Image showing CT scan of brain and orbit images show a linear FB piercing the superior aspect of right orbit through superior muscle complex, right frontal sinus, and into right frontal lobe of the brain by fracturing the roof of the right orbit with laceration in right frontal lobe. The globe integrity was preserved except mild indentation by the FB

Figure 3: Follow-up image of the patient showing complete recovery without any sequel of the injury

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history of unconsciousness following the injury. No history of any other illness or injury was present except he was diabetic and hypertensive. He had come to our hospital about 13 h after the injury had occurred. On examination, the patient was fully conscious and well oriented. A wooden [bamboo] FB was seen projecting from right palpebral aperture and firmly impacted in an upward direction towards the upper part of the orbit [Fig. 1]. Sight was conserved in right eye. There was no apparent distortion or injury in right globe with clear cornea, well-formed anterior chamber, normal iris details, and pupillary reaction. Left eye was within normal limit. Upon movement, dribbling of clear fluid from the projected end of the FB had raised suspicion of intracranial extension. The patient was admitted, given prophylactic Tetanus Toxoid injection, and started on prophylactic broad spectrum intravenous antibiotic Cefotaxime and intramuscular nonsteroidal anti-inflammatory medication Diclofenac. An urgent computed tomography (CT) scan of brain and orbit was advised, which revealed a linear FB piercing the superior aspect of right orbit through superior muscle complex and right frontal sinus and into right frontal lobe of brain by fracturing roof of right orbit. There was laceration in right frontal lobe without any intracranial hemorrhage (ICH) or pneumocephalus. The globe integrity was preserved except mild indentation by the FB [Fig. 2]. An urgent neurosurgical intervention was sought and he was shifted to neurosurgery department. But due to uncontrolled hypertension, he could not be taken up for immediate surgery. As observed by the attendant, while he was kept admitted in the intensive care unit, he himself had pulled out the FB in his agony due to pain. Soon after, he was relieved from pain to some extent. He was examined immediately and found to be stable with fully conscious and oriented. The wound was examined meticulously for any remnant of FB. The FB track was clean with no remnant of FB with no cerebrospinal fluid (CSF) leak was found. Hemostasis was achieved using absorbable gelatin sponge and the wound was closed by suturing in layers. He was kept admitted under close monitoring with bed rest and strict maintenance of precautions to reduce or eliminate increases in intracranial pressure with prophylactic medications for 72 h. Postoperative recovery was uneventful, no signs of CSF leak were found. Postoperative magnetic resonance imaging (MRI) scan was performed after 24 h, which revealed no residual foreign body, no evidence of CSF leak inside the wound, no ICH or pneumocephalus, with the globe was normal in position and integrity. Later, he was discharged from the hospital with normal sensorium. He was on regular follow-up for 5 years since then and was found to be leading his daily life happily without any sequel of the injury [Fig. 3].

Discussion

In rural part of India, wooden FBs in orbit are seen in farmers and agriculture workers due to nature of their work. But, the ability of an object to penetrate bony orbit and enter intracranial cavities is based on a number of factors: energy, features of the object [tip, shape, velocity], and angle of approach.[2] In cases of nonmetallic [wooden as obvious in our case] FB, MRI scan is the investigation of choice to determine the course of FB and any associated intracranial damage. But keeping in mind the economic factors, time-consuming MRI procedure requiring patient cooperation and readily available CT scan units, a CT scan of brain and orbit was ordered. Though in postoperative period, MRI scan was performed to ensure complete removal of FB and to exclude any other sequel of the injury. The risk factors for an intracranial arterial injury are an entry wound over the frontobasal-temporal regions, a bihemispheric wound trajectory, a wound trajectory in proximity to the circle of Willis, a subarachnoid hemorrhage (SAH), or an intraventricular hemorrhage.[6] In frontal lobe lesions, patients are likely to show more aggression or violence, which may not correlate with the total size of the lesion or whether the patient had seizures.[7] In our case, unexpected aggression because of frontal lobe injury could be a possible factor behind the self-removal of the FB. Infectious complications are more frequent with CSF leaks, air sinus wounds, transventricular injuries, or with crossing the midline occur[8] and causes higher morbidity and mortality. Most of the CSF leaks following trauma generally resolve with conservative management.[9] Surgical removal of FB should be performed within 12 h from the trauma to minimize the risk of infectious complications, most commonly meningitis.[9] Cephalosporins are the most preferred antibiotics for prophylaxis.[8] In our case, the FB did not involve the middle line or major vascular trunks and not causing a SAH. Though he was from remote location and reported beyond 12 h from the injury, we have not encountered any infectious complication. As per the recommendation, we have put the patient on cephalosporin [Cefotaxime] antibiotic prophylaxis and sought urgent neurosurgery intervention. The CSF leak was also resolved spontaneously following removal of the FB.

Conclusion

This case underscores the importance of having a high suspicion for the presence of an intracranial injury in the setting of impacted orbital FB. Here, we have obtained an excellent outcome without any neurosurgical intervention after self-removal of the FB and complete recovery without any sequels under observation and broad spectrum antibiotic prophylaxis. But, it is recommended to have a team approach comprising of ophthalmologist, radiologist, anesthesiologist, and neurosurgeon for managing such cases scientifically and efficiently with aggressive and timely workup as well as prompt surgical management.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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