

Penetrating Injury Into The Orbit By A Needle Fish: An Unusual Case of Ocular Trauma

Rajender Singh Chauhan, Apoorva Goel, Chetan Chhikara, Ashok Rathi

Department of Ophthalmology, Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, (PGIMS) Rohtak, Haryana, India.

Abstract

Ocular trauma is the most common cause of monocular blindness worldwide. Some cases of ocular trauma can be challenging to diagnose and manage due to their unique presentation as in this case where a 12 years old boy presented to our hospital with symptoms mimicking orbital cellulitis. The patient had no obvious signs of injury at presentation and was not improving on routine treatment. Later on, the patient was found to have an intra-orbital foreign body on radiological investigations and was managed accordingly. The foreign body was correlated to be a broken needlefish beak which injured him while swimming in a pond.

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Introduction

Many species of fish are known to cause injuries in human beings, some of which may even be fatal. One such fish is the marine needlefish (garfish), a member of the family Belontiidae (Figure 1 and 2). They can be found leapfrogging over objects on surface of water. During this leapfrogging movement in water, they may traumatize humans or other living beings by plunging their sharp beaks into anyone in their flight path.¹ Swimming and diving into the local water bodies like lakes and pond is a common practice in rural areas. Hence, penetrating injury with organic foreign body can occur in such people. When a patient presents with a history of motility disturbance, a chronic congestion, irritated eye unresponsive to treatment, decreased vision, a fistula in the area of previous foreign body injury, localized pain or pain on eye movement then penetrating orbital injury with organic foreign body must be suspected.² Many case reports have been documented earlier describing penetrating injuries with wooden foreign bodies and metallic objects

while swimming. However, injury with aquatic organism like needlefish is rare and only few cases of Orbital injury have been reported so far.^{3,4} Needlefish injuries reported, consisted of puncture wounds to the orbit, chest, abdomen, spine, arms, legs and neck. Here, we report our experience with penetrating injury into the orbit by a needlefish.

Case Report

A 12 years old male presented to our emergency at Sohar hospital, Sultanate of Oman following one week of treatment in primary health center for orbital cellulitis with systemic antibiotics. Patient did not get any relief from the treatment and was having persistent edema, redness and pain in left orbit. On careful history, patient revealed that he developed symptoms of lid edema, pain and drooping of eyelid two days after swimming in sea of Saham area of North Batinah region of 'Sultanate of Oman'. While swimming he felt that something had hit his left eye, which was probably a flying fish following which he had momentary pain. On examination in emergency, the visual acuity was 6/12 in the affected eye. There was lid edema, proptosis (4 mm), mechanical ptosis, conjunctival congestion, chemosis and restriction of ocular movements in adduction and abduction were present and a provisional diagnosis of orbital cellulitis was made (Figure 3). A trivial mark of injury was seen on medial canthal region. Plain X-ray of head and orbit did not reveal anything suspicious. On CT scan, the globe was intact



Figure 1: Upper and lower jaws of needlefish are elongated with long beak that have small sharp teeth



Figure 2: The needle fish is elongate, silver in color, with a dark blue stripe.



Figure 3: Patient's left eye showing features suggestive of orbital cellulitis

but a linear radio-opaque foreign body was seen in medial compartment of orbit adjacent to medial rectus. (Figure 4,5,6). Systemic investigations favored an infective etiology. A non-metallic organic foreign body was suspected and on taking further history, patient's parents brought a fish later on showing that probably this fish had hit the eye of their child as such injuries were common in that area. However, ocular injuries were uncommon. A trans-conjunctival medial orbitotomy was done and bone like structure of approximately 3 mm length was removed. Patient was continued on intravenous antibiotics and topical broad-spectrum antibiotics. At postoperative 1 week follow up, the lid edema and proptosis subsided. At 1-month follow-up, the infection had completely resolved, and visual acuity in the left eye improved to 6/6. Hence, it was concluded that this injury had occurred while swimming in the sea by the flying fish, the beak of which was seen as a remnant in the orbit.



Figure 4: Coronal section of CT scan showing radiopaque hyperdense foreign body lodged in medial compartment of left orbit.

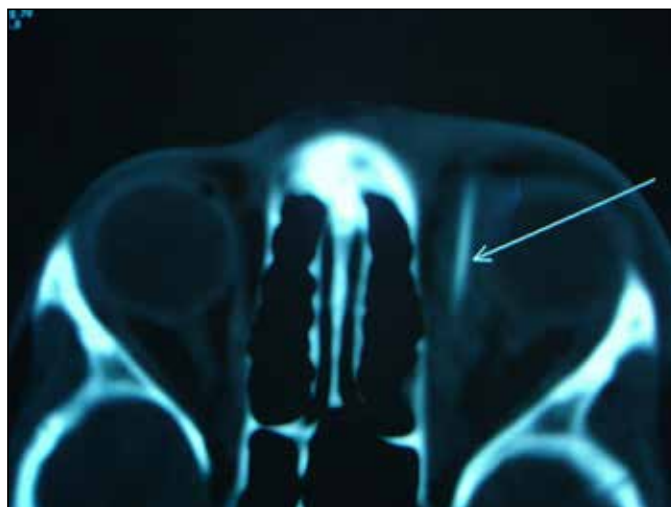


Figure 5: Transverse section of CT scan showing radiopaque hyperdense foreign body lodged in medial compartment of left orbit.



Figure 6: Plain X-ray skull PNS view not showing any radiopaque foreign body.

Discussion

Diagnosis and management of penetrating orbital injuries with organic foreign body may present as a diagnostic dilemma and therapeutic challenge as it may follow a relatively minor trauma and may not be identified clinically or on preliminary radiological investigations or might mimic some other readily diagnosed clinical disease. Radiological investigations help in exact localization of the foreign body, estimation of its consistency and size, confirming integrity of the globe and evaluation of the response of surrounding orbital tissue. NCCT scan has been recommended as the imaging modality of choice in all cases of head and ocular trauma. Magnetic resonance imaging (MRI) can be done after ruling out ferromagnetic foreign body.⁵

Penetrating orbital injury due to needlefish is a rare occurrence. The needlefish is elongate, silver in color, with

a dark blue stripe. The upper and lower jaws are elongated with long beaks that have small sharp teeth. Needlefish do not produce venom. Therefore, treatment of the injury is similar to penetrating injury, and it is determined primarily by the site of damage.⁶

In our patient, the foreign body was trapped in the medial compartment of the left orbit after traumatizing the medial canthus and crossing the medial rectus muscle. The wound was small and obscured but resulted in eye movement disorder due to the retained organic foreign body in the orbit. CT scan was beneficial for discovery of the orbital foreign body whose Hounsfield (HF) unit value was more than that of bone (700) but less than that of metal (> 3000) which was consistent with the long elongated beak of the Needlefish.

Conclusion

Our case report highlights the fact that a retained foreign body should be kept in mind as a differential diagnosis in cases of ocular trauma masquerading cellulitis after a

high velocity mechanism of injury, such as swimming or diving in waterbodies. These foreign bodies can be both organic like wood, plant or aquatic organism or inorganic like metal or glass. These injuries represent a true threat to vision. Hence, emphasis should be laid on thorough history taking to explore the mechanism of injury and meticulous ophthalmological examination.

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Address for correspondence

Rajender Singh Chauhan ms

Department of Ophthalmology, Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, (PGIMS) Rohtak, Haryana, India.

Email: rajendersingh@uhsr.ac.in



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