

Case Series: Fishhook Penetrating Eye Injuries

Saleh R¹ and Wajih WAS²

¹Ophthalmology Unit, Surgery Department, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor, Malaysia

²Head of Ophthalmology Discipline, Faculty of Medicine, Cyberjaya University College of Medical Sciences, Persiaran Bestari, Cyberjaya, Selangor, Malaysia

*Corresponding author: Saleh R, MD UKM Mal, M.Surg. Ophthal UKM Mal, Ophthalmology Unit, Surgery Department, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia, Fax: +603-89455217, Tel: +603-89472456 or 2667, E-mail: rafidahsaleh@yahoo.com

Citation: Saleh R, Wajih WAS (2020) Case Series: Fishhook Penetrating Eye Injuries. J Case Rep Stud 8(3): 305

Received Date: November 03, 2020 Accepted Date: December 19, 2020 Published Date: December 22, 2020

Abstract

Introduction: Fishing is considered a favorite pastime and source of living for many, but rare incidences can happen and end up in serious ocular injuries. Here we are presenting 3 cases of fish hook penetrating eye injuries for a year in Hospital Serdang, Malaysia. 2 of them were fishing while the third was a bystander. Their age varies from 4 years to 23 years. All three patients presented with corneal penetrating injury and 2 of them regain some functional vision post-surgical intervention while the third one loses his vision due to endophthalmitis because it was associated with fecal contamination.

Conclusion: Risk factors such as type of hook, bait used, and location of the water source needs to be considered when managing such cases. Proper imaging, proper removal technique must be performed, and patient needs to be informed the risk of endophthalmitis and loss of vision in all cases.

Keywords: Eye injuries; Penetrating; Foreign bodies; Lacerations; Endophthalmitis

Case Series

Case 1



Figure 1: Case 1: Rusty barbed fish hook (2x1cm)

A 21-year-old Malay gentleman presented with right eye severe pain and blurring of vision due to fish-hook penetrating injury. He went fishing at night at a lake. He felt the line was tugged so he pulled the fishing rod and suddenly the hook swung up and caught into his right eye. According to him, he used diced strawberries dipped and glued to dried chicken feces as the fish bait. On examination of the right eye showed; a metal fish hook measuring 2cm x 1cm, half of the body of the hook seen dangling at the cornea, at 5 o'clock position about 1mm away from the limbus. There was no relative afferent pupillary defect (RAPD), his vision was 6/36, the cornea was clear, and the anterior chamber had hyphema. A skull x-ray was done to look for the shape of the foreign body. Intravenous (IV) ciprofloxacin 400mg 12 hourly was started. He was warned about the grave prognosis of endophthalmitis since he used fecal material as the fish bait. In the operating room, the hook pierced the sclera and embedded into the cornea.

Limited conjunctival periotomy was done near the entry wound. The scleral extension was identified and explored. Minimal vitreous prolapsed with uveal tissue seen. The barb was released from the sclera, then the corneal wound extended to loosen the hook. It was removed in reverse direction following its curve (Figure 1).

The wound was closed, and intravitreal ceftazidime and vancomycin were injected. Subconjunctival gentamycin was given superotemporally. Six hours of post-operative review, his vision dropped to a perception of light (PL) and RAPD was present. On the anterior segment examination, the cornea was mildly hazy with a lot of fibrinous anterior chamber reaction with a streak of hypopyon. A diagnosis of right eye traumatic exogenous endophthalmitis secondary to contaminated fish hook was made. He was immediately started on guttae moxifloxacin hourly, guttae amphotericin B 0.3% hourly, oral fluconazole 200mg 12 hourly and guttae dexamethasone 4 hourly. That day itself he was referred to the vitreoretinal team and vitrectomy was done that night with anterior chamber washout, lensectomy, peripheral iridectomy with silicone oil infusion. His vision remained at no light perception (NPL) despite the intervention.

Case 2

A 23-year-old Malay man presented with right eye penetrating eye injury secondary to fish hook. He was fishing at night in a lake, trying to pull up a tugged line and the hook pierced his right eye. He claimed he uses bread as bait. He complained of blurry vision and pain. He was immediately brought to the hospital. On examination, the vision was 6/60 (pin-hole 6/36). There was no RAPD. The metal fish hook penetrated the inferotemporal cornea (2mm inferior to the pupillary margin) and almost piercing the sclera from the inside around 8 o'clock position, 3mm away from the limbus (Figure 2).



Figure 2: The metal fishhook penetrated the cornea at 5 o'clock position about 1 mm away from the limbus

There was a lot of anterior chamber reaction, hyphema was seen, a tear at the anterior capsule with an early cataractous lens. He was started on IV ciprofloxacin 400mg bid and pushed to the emergency operating room for foreign body removal and corneal scleral suturing. Limited conjunctival periotomy was done at the exit wound area. The distal end of the hook was identified, then we tried releasing the hook but failed because the barb was anchored to the inner sclera. So, we had to release it by extending the corneal wound towards the exit wound across the limbal scleral junction. The fish hook loosened then we removed it in reversed direction following its curve. His post-operative vision was 6/60 with no RAPD. Guttae moxifloxacin 2 hourly and guttae dexamethasone were started immediately. Subsequently, his vision improved to BCVA 6/24 and later planned for cataractous lens removal.

Case 3

A 4-year-old Malay boy alleged penetrating injury to his left eye secondary to fish-hook. He was watching his brother fishing at a nearby drain. Suddenly a hook flew and grazed his eye. Immediately there was a lot of pain, reduce vision and bleeding inside the eye. There was no adult at the scene, however, he was brought home and then sent to the hospital by the parents. On examination, the child refused to co-operate for vision reading. Clinically, no RAPD, the cornea was hazy, a shelving corneal laceration wound was noted across the inferior cornea, seidel's test was negative. There were blood clots in the anterior chamber. He was started on IV amoxicillin/clavulanic 30mg/kg 8 hourly and then sent to the operating room for corneal suturing. Post-operatively the child refused to read again. On examination, the sutures were intact, the inferior iris was torn, posterior synechiae and peripheral anterior synechiae were seen intermittently at the inferior pupillary margin. The lens was cataractous and looked tilted. He was later referred to the pediatric ophthalmologist for further management.

Discussion

Fishing has been a favorite pastime for many and been considered a safe activity. It can be done at the saltwater or freshwater. Regardless of where water can be a source of contamination that can lead to severe infection. Another important factor is the type of bait used. Most people used fishing-lure as bait, but in our case, they use bread, and another used fecal material. Also, the fish hook designs that have bend and barb making it stuck to the surrounding soft tissue. For these reasons the fish hook eye injuries even though it is a rare incident, can end up with anterior segment injuries like penetrating corneal injury, traumatic cataract and

even posterior segment injury like retinal detachment, and vitreous hemorrhage [1]. These devastating injuries can happen to both the fishers and the bystanders. Despite good surgical intervention removing the hook, the potential of vision loss is still high. In our cases here, the one who used fecal material ended up with blinding exogenous endophthalmitis.

The technique of hook removal is one of the most crucial steps to reduce the damage that caused by the fish-hook. So, we need to consider the different hook designs, radiological studies will determine the extent of the injury and whether there were any other pieces of foreign body in the surrounding tissue. There are many techniques described to remove the hook. Firstly, the surgeon needs to release the barb slowly after assessing the surrounding structure. It depends on where it is attached to if it is a shallow penetration and near the cornea maybe one can cut through the cornea and release the barb, then remove it through the entrance wound, which was described above in our cases and also in the literature [2-4]. If the penetration is deep in the anterior chamber, the other option is by advancing it forward by creating a new exit wound, then by snipping the barbed endpoint using a wire cutter then remove by reversing it backward following its curve. During cutting, one needs to stabilize the hook as sudden movement will lead to more damage to the surrounding structure. This is called advance-cut-method [5]. However, the decision of removal depends greatly on the design of the hook. Sometimes it is quite impossible to push it further as the bend is too acute and there are other structures attached firmly to it such as experienced by Ahmed et al, whereby he started with the advance-cut-method but end up enlarging the entry wound, guiding it with a slit-knife and then releasing the hook by slowly reversing it [6].

Conclusion

Fish-hook injury is rare but may lead to loss of vision. Risk factor such as type of hook, contaminations from bait and water source needs to be considered when managing such cases. Proper imaging, proper removal technique must be performed, and patient needs to be informed the risk of endophthalmitis in all cases.

Acknowledgments

Source of financial support: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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