A Case Report of Double Penetrating Ocular Injury

Marsida Krasniqi*

Department of Medicine, University Aleksander Moisiu, Durres, Albania

*Corresponding Author: Marsida Krasniqi, Department of Medicine, University Aleksander Moisiu, Durres, Albania.

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Abstract

Ocular trauma with open globe injury is the most common ophthalmic emergency. Patients with open globe injury and with an intraorbital foreign body, make the prognosis poor for visual acuity. This is a case report of a 38 years old male with a double penetrating ocular injury with a shotgun. The scleral wound was repaired in another clinic, 8 hours after the trauma. The patient came to our clinic, 7 days after the trauma. The skull roentgenograms demonstrated multiple metallic fragments in the subcutaneous tissue of the face and orbits. CT scan shows a 0.4 mm metallic foreign body on the nasal lower orbit. A double penetrating eye injury was impressed, and the patient was vitrectomized immediately. The exit wound was at the corresponding location of the entrance wound, compatible with the diagnosis of perforating globe injury. During vitrectomy, iatrogenic posterior vitreous detachment was induced from disc margin and the adherent cortical vitreous was carefully separated from the exit wound. Intraocular laser photocoagulation around the retinal hole at the exit wound and cryopexy over the entrance wound were applied. The patient's BCVA recovered to 2/10 three weeks postoperatively, and 3/10 at 10-month follow-up.

Keywords: Double-Penetrating Eye Injury; Open Globe; Foreign Bodies; Vitrectomy

Introduction

One of the most causes of blindness and visual loss is ocular trauma with open globe and intraocular foreign body [1,2]. According to the US Eye Injury Database and pellet guns account for nearly 6% of all ocular injuries and they still remain the most frequent gun injuries in the emergency setting [3]. Other articles have reported the severity of trauma in the visual outcome after the eye repair [2,4,5]. The poor prognosis depends on the time of foreign body removal and by the surgical techniques [6,7]. In our case report we report the visual outcome of a double penetrating eye injury with intraocular foreign body.

Case Report

Mr. Alban was first examined at International eye clinic on 11/03/2019 with chief complaint of loss of vision in the right eye following injury with a shotgun 7 days back. Emergent treatment and primary sclera wound repair were done elsewhere about 8 hours after trauma.

On examination here, his best-corrected visual acuity was perception of light with accurate projection of rays in the right eye and 10/10 in the left eye. Intraocular pressure with applanation tonometer was 07 mmHg in the right eye and 15 mmHg in the left eye. Examination of the anterior segment was done with slit lamp. In the slit lamp the right eye showed repaired sclera wound at 7o clock position about 2 mm posterior to the limbus. In the anterior chamber a 2 mm hyphemia and an early sunflower cataract was notice.
The posterior segment was examined with indirect ophthalmoscope, which revealed hazy media in the right eye due to vitreous hemorrhage. Fundus examination for the left eye revealed normal optic nerve head and normal macular region.

Skull roentgenograms demonstrated multiple metallic fragments in the subcutaneous tissue of the face and orbits (Figure 1).

Orbital computed tomography (CT) scan revealed high-density foreign body on the posterior nasal upper orbit (Figure 2). Skull X-ray confirmed one 0.4 mm metallic foreign body on the nasal lower orbit.

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B-scan sonography revealed several high-density signals (vitreous opacity) without acoustic shadow in the right eye.

Double penetrating ocular injury with retained intraorbital foreign body in the right eye was impressed and immediate vitrectomy was performed.

Intra-operatively, there was dense vitreous and pre-retinal hemorrhage (Figure 3).

The full-thickness scleral exit wound surrounded by avulsed retina hole margin superior and nasal to the optic disc was also noted. The exit wound was at the corresponding location of the entrance wound, compatible with the diagnosis of perforating globe injury. During vitrectomy, iatrogenic posterior vitreous detachment was induced from disc margin and the adherent cortical vitreous was carefully separated from the exit wound. Intraocular laser photocoagulation around the retinal hole at the exit wound (Figure 4) and cryopexy over the entrance wound were applied. Intravitreal injection of antibiotics (vancomycin 1 mg/0.1 mL and ceftazidime 2 mg/0.1 mL) was performed after collecting vitreous specimens for microorganism culture.

The patient’s BCVA recovered to 2/10 three weeks postoperatively, and 3/10 at 10- month follow-up.

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Discussion

We present a case of intraorbital foreign body in a double penetrating eye injury. The prognosis was poor due to time removal of the foreign body.

Vitrectomy in a case of intraorbital foreign body with double penetrating globe injury is complicated due to associated high risk of orbital inflammation and complication [8]. Metallic foreign body can be detected by orbital CT. Location, size, chemical structure, and the complications caused by foreign body influence the decision to remove it [9]. Different articles has shown the use of transcranial approach in removing an intraorbital foreign body [10] but this calls for neurosurgical competence and increases risk of intracranial complications. In our case, we performed a transconjunctival approach to removal the intraorbital foreign body. The conjunctiva was incised along limbus. The patient’s BCVA recovered to 2/10 three weeks postoperatively, and 3/10 at 10-month follow-up. The patient had a good cosmetic appearance, normal IOP.

Conclusion

As a conclusion we can say that the time of removal of foreign body and the surgical approach influence in visual acuity. In our case we use a transconjunctival approach to remove the intraorbital foreign body. The patient’s best correction visual acuity was 3/10 at 10-month follow-up.

Bibliography


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