Intralenticular Foreign Body: A Case Report And Review of the Literature

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Abstract:
Intraocular foreign body constitutes the 18-41% of penetrating eye injuries. Ten percent of these are localized intralenticularly. Depending on the severity of the trauma and the degree of the disruption of the structural integrity of the lens capsule, crystalline lens can lose its transparency and cataract surgery is needed. Metallic foreign bodies are observed most frequently. In case of inert materials like glass or plastic intralenticular foreign bodies can be managed conservatively. In this article, in first case we presented a patient with intralenticular foreign body and traumatic cataract occurred from penetrating ocular trauma and a second patient operated for intralenticular foreign body and traumatic cataract after primary suturation of penetrating ocular trauma.

Keywords:
Cataract; Ocular Foreign Bodies; Penetrating Eye Injuries

1. INTRODUCTION

Intraocular foreign bodies constitute the 18-41% of penetrating eye injuries [1]. Ten percent of these are localized intralenticularly [2]. Metallic foreign bodies are observed most frequently. Glass, eyelash, steel, coal, and other foreign bodies have also been identified. Patients are generally young adults [3]. If intralenticular foreign body (IFB) contains metal fragments, extraction is advised. Because siderosis bulbi may cause sight-threatening complications in future. However glass, plastic, and other inert materials can be approached conservatively. In the present study, two cases of penetrating eye injuries resulting from IFB are presented.

2. CASE REPORT

2.1 CASE 1:

A 20-year-old male patient presented at our clinic with vision loss in his left eye following a struck of a small piece of stone while he was hammering stone two days ago. The visual acuity was 10/10 in the right eye whereas 1/10 in the left eye. The right eye was normal on examination. The anterior segment examination of the left eye revealed normal lids and conjunctiva but a 2 mm closed penetration in the nasal paracentral area of the cornea and a
2×1 mm foreign body just beneath the anterior lens capsule (Figure 1). Forced and spontaneous Seidel tests were negative. The patients had no cellular reaction in the anterior chamber. A detailed fundoscopic examination and ocular ultrasonography (USG) was also revealed no abnormality. Cataract surgery was advised as the patient had no pathologies other than traumatic cataract. However, the patient refused the surgery and he was given an appointment for electroretinography (ERG) test in the control examination.

2.2 CASE 2:

A 59-year-old male patient presented to our clinic with decreased visual acuity in the left eye and left ocular pain. While history taking the patient stated that a stone was hit his left eye four days ago. Visual acuity in the right eye was 7/10 whereas he was able to count fingers at a distance of 10 cm in the left eye. Biomicroscopy and fundoscopy revealed normal anterior and posterior segment examination in the right eye. In the left eye, a penetration area and a foreign body was observed in the central cornea. Seidel test was positive in the penetration area. Furthermore, anterior chamber was shallow, anterior lens capsule was perforated and the left fundus did not light up. Left corneal foreign body extraction, primary repair of the left cornea and anterior chamber lavage operation were carried out. Traumatic cataract surgery was postponed until the recovery following the primary surgery. Following primer surgery, ocular USG and computerize tomography (CT) identified the IFB just beneath the anterior capsule of the opaque lens (Figure 2). The IFB was extracted with phacoemulsification probe in irrigation and aspiration mode. Intraocular lens implantation was performed following the complete removal of the lens materials like a standard phacoemulsification cataract surgery. At the last examination, the patients visual acuity was about 3/10.

3. DISCUSSION

IFB generally appear due to work accidents in young adults who were not wearing protective glasses. Patients can consult with open globe injury or a closed penetrating injury with accompanying permanent pain in the eye, decreased
visual acuity, chronic and/or intensive uveitis, and endophthalmitis. Medical history and physical examination are very important steps in the diagnosis. In cases where the entrance points are small, diagnosis is more difficult. A closed entrance point can mask the extent of the injury. Corneal and capsular defects smaller than 2 mm may be closed by epithelial migration and this may also inhibit cataract formation by blocking ion input and output [4]. In such cases, localized iris atrophy or localized opacity in the lens should suggest the possibility of the presence of a subtle intraocular foreign body like IFB. Direct X-ray, CT, USG, and magnetic resonance imaging (MRI) may be helpful in case of media opacity or foreign body could not be found despite routine ophthalmological examination. However, for MRI, it is necessary to know whether the foreign is made of metal or not.

The management of IFB may be different according to the clinical situation. When a physician decide to manage a traumatized lens, patients characteristics, visual acuity, the properties of the foreign body, the localization and the extent of the lens trauma, and accompanying injuries should be considered. Eliminating the accommodation of the IFB can have dramatic results in a young patient. If there is no intraocular inflammation, cataract, or siderosis accompany to the IFB, conservative treatment would be an acceptable approach [5]. Siderosis bulbi is a complication which may threaten the vision, and this may occur 18 days to 8 years following the primary ocular injury [6]. Clinical symptoms include iris heterochromia, pupillary mydriasis, cataract, and retinal pigment degeneration. In cases that were managed conservatively, ERG test should be arranged with a period of 23 months, and in the presence of the signs of siderosis, foreign body extraction should strongly be advised [7].
Metallic foreign bodies that have stayed in the lens for 40 or 60 years have been reported very rarely in the literature [8]. In addition, the spontaneous resolution of traumatic cataract was also reported in a case of IFB [9]. In the first case of the current study, a foreign body was observed clearly on the lens surface and the entrance point on the cornea was closed. A localized and peripheral traumatic cataract had occurred in this patient. Additional radiological examination was not required, as the patient had a clear media to visualize his fundus as normal. In our second case, we diagnosed the suspicious foreign body inside of the lens using both CT and ocular USG. We extracted the foreign body through cataract surgery.

When there is a suspicion to determine whether an IFB is present, direct X-ray is advised initially as a simple and inexpensive method, whereas it is not the gold standard. Evenhough, CT is presented as the gold standard in the imaging of IFB, it can give incorrect results concerning foreign bodies near the sclera. In addition, it may involve exposure to a heavy dose of X-ray irradiation. USG is a safe and an easier method, and may be superior to CT in experienced hands [10]. However, USG is contraindicated in open globe injuries.

In our first case, there is no inflammation in anterior or posterior segment, posterior capsule was intact and the foreign body was located under the anterior capsule so under these circumstances we recommended cataract surgery to the patient. In our second case IFB was associated with corneal penetrating trauma. After primary corneal reparation and cataract and extraction of IFB with intraocular lens implantation was performed in a second session. No complication was observed and the patient’s final vision was increased to 3/10.

Consequently, IFB is a type of penetrating ocular trauma which may be seen rarely. The diagnosis should be determined by a detailed medical history, ophthalmological examination, and if needed radiological examination particularly in suspicious cases. Treatment involves removal of the foreign body through an elective surgery. Unlike conventional phacoemulsification someone should be more careful during phacoemulsification in a patient with IFB. Particularly, the integrity of the posterior capsule and localization of the foreign body are important. As the foreign bodies located close to the posterior capsule during surgery may fall into the vitreous. Conservative treatment may be preferred according to the patients choice; particularly in closed penetration injuries without additional severe complications other than peripheral and localized lens opacity and an acceptable visual acuity.

References