Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: www.saspublishers.com

OPEN ACCESS

Ophtalmology

An Unusual Intraocular Foreign Body: A Case Report

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DOI: 10.36347/sjams.2019.v07i12.042 | **Received:** 06.12.2019 | **Accepted:** 14.12.2019 | **Published:** 26.12.2019

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Abstract **Case Report**

***Introduction**:* intraocular foreign body injuries vary in presentation, outcome and prognosis. They can cause more or less serious complications, depending on various factors. ***Case presentation**:* We report a case of work-related accident involving an intraocular foreign body. The patient was 38 years old, victim of a projection of a foreign metallic body in the right eye. On examination, he was conscious and had a significant decrease in visual acuity with the presence of a foreign body under the superior bulbar conjunctiva compressing the globe with total hyphema. A CT scan objectified a steel square nut lodged in the upper bulbar space of the right eye. The patient had partially recovered after the surgery. ***Conclusion**:* Early surgical exploration and foreign body extraction greatly influenced the visual prognosis and final outcome.

Keywords: Intraocular foreign body, case report, CT scan imaging, surgery.

INTRODUCTION

Intraocular foreign bodies usually occur after a high velocity injury such as gunshot or industrial accidents; more rarely they occur following trivial trauma [1,2]. They can give rise to serious complications, the most devastating of which is loss of the eye.

Intraocular foreign bodies include two different entities: those affectting the anterior segment and those penetrating the posterior segment. Foreign bodies in the anterior segment are different from those in the posterior segment regarding two specific aspects: they are frequently visible so defining their exact position is easier and surgical extraction is thus facilitated and the prognosis is better. However, infectious risk remains an important concern, then foreign bodies must be considered in every anterior segment wound.

CASE OBSERVATION

We report the case of a 38-year-old man, victim of a work-related accident resulting in eye trauma by projection of a square steel nut into the right eye. On admission, the patient was conscious. The ophthalmologic examination showed a visual acuity reduced to hand motion, a chemosis with an obvious metallic foreign body lodged in the superior bulbar conjunctiva, a corneal superior abrasion and a total hyphema (photo 1-2).

An orbital radiography was carried out showing a metallic foreign body of the right orbit, with a square shape measuring approximately 1.5 mm x 1.5 mm. The CT scanner has confirmed the presence of the foreign body lodged in the superior bulbar space, of metallic tone, with respect for the eyeball sphericity.

The patient was operated on urgently: after an incision of the conjunctiva opposite the foreign body, this later was removed softly with the forceps (photo 3), then an exploration was carried out in order to eliminate an underlying scleral wound (photo 4). Closure of the conjunctiva was then performed. The postoperative consequences were a palpebral edema and a superior hemorrhagic chemosis, a total hyphema. Ocular ultrasound does not suggest any intra-vitreous haemorrhage or secondary retinal detachment. The patient received a anti-tetanus serotherapy, and was put on local and general antibiotic therapy, local and systemic corticosteroid therapy, strict rest, cycloplegic eye drop and abundant drinks.


Photo-1-2: A metallic foreign body lodged under the superior bulbar conjunctiva, corneal superior abrasion, and Total hyphema

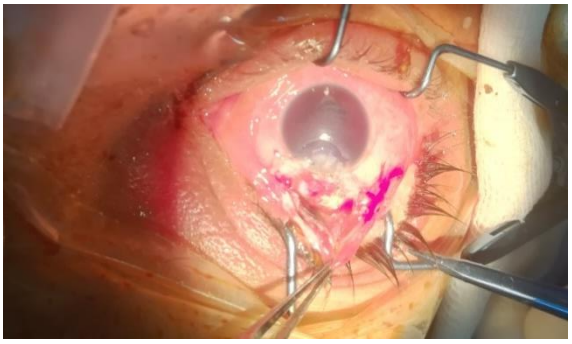

Photo-4: Surgical exploration in order to eliminate an underlying scleral wound

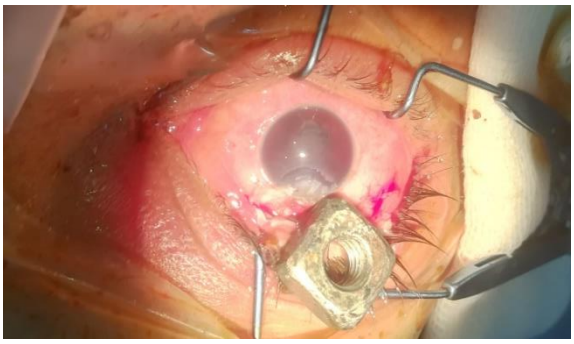

Photo-3: The foreign body « steel square nut » after removal

DISCUSSION

Intraocular foreign bodies mainly concern the male population (92%) with an average age of 34 years, still occurring in 46% of cases at work, despite prevention efforts by goggles, who's mandatory wearing is not always respected [3-5].

These foreign bodies can be classified according to their composition as metallic, such as steel; non-metallic, which may be inorganic, such as glass; or organic, such as wood or vegetable matter. In general, injuries caused by metal and glass are well-tolerated and, if they do not have any symptoms or signs, may be left in situ, whereas organic matter, such as wood and vegetable matter, is poorly tolerated, triggers an intense inflammatory reaction and needs to be removed urgently [6].

Injuries caused by metallic objects and glass are more frequent than organic foreign bodies, probably because, despite modern imaging methods, they are often difficult to identify and locate.

Non-contrast computerized tomography (CT) scanning has replaced conventional radiography as the diagnostic study of choice for all forms of ocular trauma. Computed tomography provides much more reliable information on size, shape, and localization of the foreign body, whether in the anterior or the posterior segment [7, 8].

Foreign bodies of the anterior segment may affect: the conjunctiva, the cornea, the anterior chamber, the iris, the iridocorneal angle, and the crystalline lens [9].

In the case of foreign bodies of the posterior segment, serious complications could arise. The foreign body may traverse the vitreous and damage the retina and choroid. Occasionally the foreign body may rest upon the optic disc or it buries itself into the Optic nerve [10].

Surgery is planned on the basis of the size and nature of the foreign body (organic objects are usually poorly tolerated), the location (anterior or posterior segment) and the presence of other injuries or foreign body-related complications (such as optic nerve compression, infections and extraocular muscle involvement) [11].

Anteriorly located foreign bodies can easily be removed, whereas foreign bodies located more posteriorly without any clinical features should be left where they are, as their removal may result in serious complications [12].

In our case, the patient's condition was unusual because of the type of accident and the proximity of the foreign body to one of the "noble" organs of our body (the eyeball). Also, the foreign body was unusual represented by a square nut with foamed edges. Finally, the subconjunctival localization of the foreign body allowed its easy surgical removal.

CONCLUSION

The most important element of ocular trauma is the determination of whether or not there is an intraocular foreign body. Suspicious interrogation, careful examination of the slit lamp and paraclinical examinations must allow us to affirm its presence and determine the surgical means to proceed with its removal. Indeed, the prognosis of foreign bodies of the anterior segment is generally good apart from multiple projectiles like during explosions. All manipulations must be thoughtful and soft, the purpose of surgery remains the restoration or maintenance of the best visual acuity in young and active patients.

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