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Metallic Intraocular Foreign Body with Unusual Macular Localization

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Abstract

Perforating eye trauma is an important cause of visual loss in young people. The presence of an intraocular foreign body poses two problems: its location and its extraction.

We present the clinical case of a 29 year old young man presenting for a painful red eye with reduced visual acuity following an eye trauma by welding metal projection. On examination, there was a healed and watertight central transfixing corneal wound of 1 mm, with a ruptured post-traumatic cataract, hampering the rest of the examination. The initial radiological examination was without particularities. A cataract surgery with phaco-aspiration with implantation in the sulcus was carried out at first. The operative suites were simple, with rapid functional recovery. Examination of the dilated fundus showed a blackish punctiform foreign body encrusted at the level of the fovea, without detachment of the retina or vitreous reaction; confirmed with macular OCT. Given the particular location of the intraocular foreign body, the absence of infectious clinical signs or siderosis, a therapeutic abstention was decided with close monitoring in order to watch for the occurrence of possible complications.

There are many cases described in the literature of foreign body based on iron or copper which have remained intraocular for many years, without the occurrence of siderosis or chalcosis. The signs of intoxication can be completely reversible. For these cases regular rigorous monitoring is necessary. Accidents at work still retain their predominance, for lack of legislation making the means of individual protection compulsory. Only increased prevention can reduce their incidence.

Keywords : Intraocular foreign body; Metallic; Macular localization

Objective

Perforating eye trauma is an important cause of visual loss in young people. The presence of an intraocular foreign body poses two problems: its localization and its extraction. Lightning infection, vitreoretinal organization with risk of retinal detachment and toxic damage to the retina by heavy mineral salts are the main complications to be feared, therefore prevention, as a public health measure remains stake.

We present here the clinical case of a young man presenting for an ophthalmological consultation for a painful red eye chart with a decrease in post-traumatic visual acuity with an ophthalmological examination for the presence of intraocular foreign body embedded in the fovea.

Case Description

Mr. X, 29 years old, consultant following an eye trauma by projection of welding metal, for a painful red eye with reduced visual acuity (right eye). Visual acuity was counted at three feet from the affected eye level. On examination, we found a central transfixing wound of 1mm healed and sealed, normal eye tone, anterior chamber: normal depth, with a ruptured post-traumatic cataract, hampering the rest of the examination. The initial radiological examination was without particularities. A cataract surgery with phaco-aspiration with implantation in the sulcus was carried out at first; the operative suites were simple, with rapid functional recovery and visual acuity of 6/10 to a month. Examination of the dilated fundus showed a blackish punctiform foreign body encrusted at the level of the fovea, without detachment of the retina or vitreous reaction; confirmed with macular OCT (Figure 1). Given the particular location of the intraocular foreign body, the absence of infectious clinical signs or siderosis, a therapeutic abstention was decided with close monitoring in order to watch for the occurrence of possible complications.

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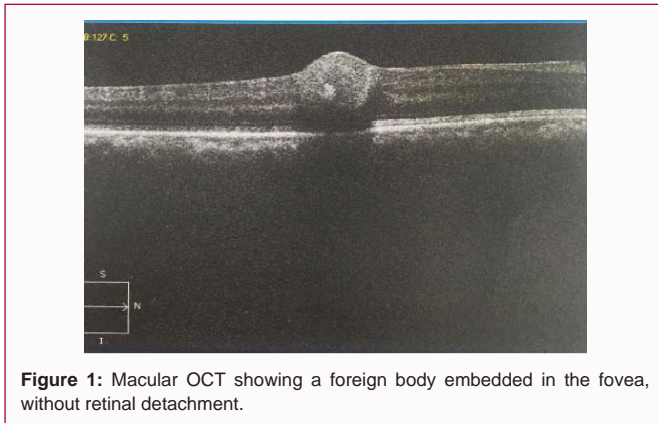


Figure 1: Macular OCT showing a foreign body embedded in the fovea, without retinal detachment.

Discussion

Perforating eye trauma is an important cause of visual loss in young subjects [1].

To be able to create a perforation of the ocular shell, 2 elements must be considered: the shape and the kinetic energy of the foreign body. The kinetic energy of a given foreign body is represented by the formula $E=1/2 mv^2$ where m represents the mass and v the speed of the foreign body. More than mass, the determining factor for penetration is therefore the speed of the foreign body. When the foreign body is in rotation, to the kinetic energy, a rotary energy $E=mr^2/2$ is added with m =mass and r =section radius of the foreign body. The kinetic energy necessary for its penetration into the eye is less for a sharp foreign body than for a round foreign body [2].

The consequences of the penetration of a foreign body in the posterior segment of the eye are immediate (wound, cataract, intra vitreous hemorrhage, retinal detachment by dehiscence caused by the intraocular foreign body at the point of entry or at the point of retinal impact, endophthalmitis etc.) and delayed (siderosis, chalcosis, sympathetic ophthalmia, retinal detachment by organization of the vitreous with appearance of a retractile fibroglial grid, chronic inflammation etc.). Endophthalmitis complicating trauma with an intraocular foreign body maintains a reserved prognosis despite advances in vitreoretinal surgery and the advent of new families of antibiotics [2,3].

The extraction of intraocular foreign body is essential in a systematic way. However, there are particular cases where we will

discuss a possible therapeutic abstention, by balancing the expected benefits and the risks incurred as a result of the intervention: EC inert without any associated lesion, parapapillary foreign body or paramacular, old foreign body well tolerated. This conservative attitude is based on the fact that the occurrence of metallosis is far from constant [4].

There are many cases described in the literature of intraocular foreign body based on iron or copper which have remained intraocular for many years, without the occurrence of siderosis or chalcosis (the fibrous gangue which forms around the intraocular foreign body prevents the diffusion of metal ions). The signs of intoxication can be completely reversible. For these cases regular rigorous monitoring is necessary [5].

Conclusion

Accidents at work still retain their predominance, for lack of legislation making the means of individual protection compulsory. Only increased prevention can reduce their incidence: Wearing protective glasses, seat belts, prohibition of the free sale of certain weapons, etc. [6].

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