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Some Unusual Foreign Bodies in the Anterior Segment of the Eye and the Orbit

Saul Sugar, MD*

A few unusual foreign body cases involving the anterior segment of both globe and orbit are presented to indicate their varied history, symptomatology and course. I wish to emphasize that, in addition to the usual instances of obvious trauma, there may be no history of trauma, only a history of a “minor scratch” or experience of serious gradual visual loss. The following cases exemplify these possibilities.

Case Reports

Case 1
No history of trauma
A 53-year-old man was referred in October 1965 because of a one-week history of dark material coming out of his left eye. The referring doctor described this as black tears (Fig 1A). The material was obviously rust-associated, and by palpation, a hard mass was felt just temporal to the external canthus. A large piece of steel was easily removed (Fig 1B), and I billed the patient’s employer. The company asked me to send them the steel for analysis to be certain that the accident had occurred in their plant. Soon afterward, they paid the bill. Apparently the steel was hot and had penetrated so quickly that the patient was unaware of its presence.

Case 2
No history of trauma
A 64-year-old man was seen in October 1972. Because of a right retinal detachment in 1933, he had no light perception in the right eye. In February 1969 an acute episode of redness and photophobia in the left eye was treated with topical eye medication and cleared entirely. In 1970 this flared again, cleared, then recurred once in 1971 and three times in 1972. Vision with correction was 20/20. A perforation scar of the left cornea was observed (Fig 2), and a nonradiopaque foreign body was present on the iris, temporal to the pupil (Fig 3). The eye cleared quickly with steroids and atropine. The patient preferred to endure recurring episodes of iritis to having the foreign body removed surgically.

Case 3
History of glaucoma without relating it to the foreign body as the cause
A 34-year-old man was referred for evaluation of increased intraocular pressure in the left eye (37 mm to 55 mm). The disorder had been treated for one year with topical 4% pilocarpine, 250 mg acetazolamide three times a day, and eserine ointment at night. After omitting all medication for one week, his corrected vision was 20/20 right and 20/200 left. The scar of a perforation of the cornea and an iris hole were present at two o’clock on the left (Fig 4A). Tension was 18 mm right, 40 mm left, and the left disc was deeply cupped (Fig 4B). Because radiographs failed to disclose a foreign body, a filtering operation was advised, and left iridencleisis was performed successfully. Subsequently, a filtering bleb was present, and left vision was reduced to light perception temporarily, probably as the result of the temporary surgical hypotony.

Case 4
History of a “minor” injury to the eye
A 49-year-old man was referred because of unilateral glaucoma. The patient reported that he had “scratched” the left eye at work 25 years before but that only a month ago had been found to have elevated intraocular pressure in the left eye. Corrected acuity was 20/20 each eye, but a scar of corneal perforation was present on the left (Fig 5) with a corresponding iris hole and opacity in the lens capsule (Fig 6). There was no evidence of persistent foreign body. A traumatic cataract was present in the lower half of the lens posteriorly while a few vacuoles were present under the anterior capsule (Fig 7). Tension was 12.32 mm. Four months later, using 0.5% topical timolol twice daily, the tension was 15/21 mm. Apparently the foreign body had dissolved. This case indicates that a minute foreign particle can produce a defect in the capsule which may be sealed by fibrin. In such cases the opacity is limited to the foreign body tract and the surrounding zone (Reference).

Case 5
History of serious perforating injury with visual loss due to cataract
A 35-year-old man seen in 1953 experienced marked visual decrease seven weeks after a penetrating injury to the right eye. A small foreign body was present in the right lens along with some cataract formation and slight siderosis (Figs 8,9). A scar of corneal perforation and a hole in the iris were present in the 8:30 o’clock position. The patient did not return again until five years later when he reported the occurrence of recurrent iritis during the interim. The lens had absorbed, and the foreign body had dissolved (Fig 10), but acute iritis was present. Vision was not obtained because of the acute iritis.

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Unusual Foreign Bodies

Fig 1. Case 1
Siderotic material in tears (A) resulting from penetration of steel foreign body (B) in tissue lateral to external canthus.

Fig 2. Case 2
Foreign body in iris lateral to pupil (arrow).
Fig 3. Case 2
Slit lamp photo of foreign body in iris.

Fig 4. Case 3
A. Hole in iris (arrow). B. Cupped disc.
Unusual Foreign Bodies

Fig 5. Case 4
Slit-lamp photo showing scar of corneal perforation.

Fig 6. Case 4
Hole in iris due to perforating metallic foreign body.
Fig 7. Case 4
Retroillumination photo showing vacuoles under anterior capsule.

Fig 8. Case 5
Foreign body in lens.
Unusual Foreign Bodies

Fig 9. Case 5
Foreign body in lens by retroillumination.

Fig 10. Case 5
Appearance five years later after absorption of lens and foreign body.
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Discussion

The last case indicates the two ways in which an iron foreign body may result in cataract: 1) sufficient rupture of the capsule to result in hydration and denaturation of lens proteins and 2) toxic lens changes due to the iron effect on the epithelium. These five cases illustrate that symptoms caused by penetrating foreign body in the anterior segment of the eye can range from none at all to profound visual loss due to glaucoma or cataract. Surgical lens extraction or filtering surgery is often necessary.

Reference