CASE REPORT

Doctor, where is my iris?

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SUMMARY

Phacoemulsification cataract surgery with small clear corneal incision (CCI) is the standard of care for cataract treatment. Self-sealing, clear corneal wounds have been found to be stable and able to withstand high pressures. Nevertheless, there are a few cases published describing patients with previous cataract surgery and manually performed CCI who sustained blunt trauma with associated wound dehiscence, iris disinsertion and expulsion through the wound. The case described here demonstrates an eye that had traumatic aniridia post-blunt trauma, while the intraocular lens and the rest of the ocular structures remained intact.

BACKGROUND

The presentation of traumatic cases is unpredictable and one can never be totally prepared for what will be found in the examination.^{1–12} Therefore, the more exposure of traumatic cases and of possible variable presentations a doctor has, the better prepared he or she will be when such cases present in the emergency setting. The best way to expose doctors to such rare cases is by publishing these cases, and thus making them available for study.

CASE PRESENTATION

A 64-year-old woman presented at the eye emergency clinic, with loss of vision in the left eye since she fell off a ladder and hit the eye on the edge of a step 2 h before presentation. Her ocular history included uncomplicated phaco-cataract operation (with 3 mm bevelled clear corneal incision) in the left eye with implantation of an Akreos AO (B+L) posterior chamber intraocular lens (IOL) 3 years before presentation.

INVESTIGATIONS

On examination, the patient's uncorrected visual acuity was 6/6 in the right eye (RE) and perception of light in the left eye (LE). Slit-lamp examination was unremarkable for the RE, however, the LE showed 95% hyphaema in the anterior chamber. There was no Seidel sign. There was marked chemosis of the left upper and lower eyelids. Her intraocular pressure (IOP) was 16 mm Hg RE and 17 mm Hg LE. Extraocular muscle testing showed full and extensive eye movements without pain. B scan ultrasound examination revealed a LE with a clear vitreous and an intact retina.

Two hours after presentation, the hyphaema started resolving and went down to 80%. Five hours after presentation, the hyphaema was down to 30% with IOP of 23 mm Hg LE. With part of the anterior segment being visible we could observe that there was an IOL in the capsular bag, however,

the iris was absent. Posterior segment examination with limited view revealed no apparent abnormality.

TREATMENT

The patient was prescribed brimonidine drops three times per day LE and dexamethasone drops four times per day LE for 1 week.

OUTCOME AND FOLLOW-UP

At one-day follow-up visit, the patient's visual acuity was counting fingers LE. The hyphaema was about 10%, however, her IOP was raised to 40 mm Hg. Anterior segment examination revealed mild blood staining of the corneal endothelium. The most remarkable finding was total aniridia (see figure 1). On posterior segment examination, the view was hazy, but there was no apparent damage from the trauma. Additional medications were prescribed to lower the IOP LE, including Xalatan (Pfizer) once a day LE and oral acetazolamide 250 mg two times a day.

At 1-week follow-up visit, the patient reported of glare, which was incapacitating her LE. Her visual acuity was 6/6–2 LE, and anterior segment examination was remarkable for total aniridia (figure 1). The IOP was 10 mm Hg LE and posterior segment examination was unremarkable. The Acetazolamide was stopped.

In the next couple of weeks, the patient's IOP remained low, so both brimonidine and Xalatan were stopped, and IOP remained within normal levels in subsequent follow-up visits. After a couple of months, we offered the option of cosmetic contact lens or implantation of artificial iris to reduced the glare and the patient opted for the cosmetic contact lens. The patient is regularly monitored for possible rise of the IOP in the future.

Figure 1 Photograph of the left eye taken with iPhone1 1-month post-blunt trauma, showing total traumatic aniridia with intact capsular bag and a well-centred intraocular lens. The ciliary process tips are visible nasally.

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DISCUSSION

A number of similar, but not identical, cases of traumatic iris loss through an old iatrogenic clear cornea incision have been reported in the literature.

Navon² proposed a possible mechanism for the cause of this type of expulsive traumatic aniridia: first, the force of trauma transiently distorts the cataract incision, causing aqueous outflow followed by the iris, which plugs the wound. Second, sudden block causes a pressure gradient that disinserts the iris and expels it through the wound. Third, renewed outflow depressurises the eye, preventing new rupture sites. Fourth, the chamber reforms by the self-sealing properties of the wound or blockage by clotted blood.

Ball *et al*³ suggested that the foldable IOL has a protective role in blunt trauma, as it absorbs the impact of the force because it is soft and flexible, and thus prevents disruption of the lens bag and zonules, or rupture of the globe. This protective role of the foldable IOL and the self-sealing clear corneal incision is further supported by our case as well as by other similar published cases of traumatic partial or complete aniridia in pseudophakic patients. Four cases (with CCI between 3–3.5 mm) have shown that, after complete clearance of the anterior chamber and vitreal haemorrhages, vision returned to pretrauma levels and the IOP normalised without the need for further treatment, similar to what happened in our case.^{4–7} In addition, another case when the iris was expelled through a 3 mm opposite clear corneal incision had the same outcome.⁸ Yet another case, with 3 mm CCI and a posterior chamber sulcus IOL, showed that the IOL remained in place post-traumatic aniridia, but no information about the final vision or IOP was given.⁹

Non-expulsive total iris loss post-blunt trauma has also been reported. In the reported case, the iris dis-inserted, but remained as necrotic tissue in the anterior chamber and got phagocytosed by macrophages with the final vision improving to the pretrauma level and IOP normalisation without the need of chronic use of medications.¹³

In our case, the trauma happened 3 years post-phacoemulsification cataract surgery and IOL implant. In the other cases reported, this timeline ranged from 2 months to 6 years postsurgery. This shows that traumatic iris expulsion through corneal wound dehiscence can even occur many years after phacoemulsification surgery with small clear corneal incision.

Traumatic aniridia should be considered in all cases of blunt trauma with intact globe and history of previous phacoemulsification surgery.

Learning points

- ▶ Total traumatic aniridia with loss of iris through an old iatrogenic clear corneal incision can occur in severe blunt trauma in patients with history of phacoemulsification cataract surgery.
- ▶ The dehiscence and opening of an old clear corneal incision can help decompress the eye and hence prevent a devastating globe rupture in severe blunt trauma.
- ▶ The presence of an artificial foldable intraocular lens in the eye could be protective as it could absorb some shock from impact.

Competing interests None declared.

Patient consent Obtained.

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