Grand Rounds

A 23-year-old man with a cystic iris lesion

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Figure 1. Initial appearance of cyst (three months after ruptured globe).

History

A twenty-three year old man suffered a “ruptured” globe of the left eye after an assault. He did not present for medical care for 2 days, at which time emergent repair of a temporal limbo-scleral wound of the left eye was performed. The patient tolerated the procedure well. Visual acuity OS was 20/25, and intraocular pressure (IOP) was 8 mm Hg OS at post-op week #2. The patient did not return for follow-up for 3 months at which time he complained of a red, painful left eye, and photophobia.

Examination

Visual acuity was 20/30 OS, and IOP was 14 mm Hg OS. Slit-lamp examination revealed a 5.0 mm × 3.5 mm cystic lesion from 3:00 to 6:00 in the left eye (Figure 1). There was an underlying transillumination defect of the iris. There was no cell or flare present in the anterior chamber. The lens was clear, and dilated fundus exam

was unremarkable with no clinical evidence of macular edema.

The patient was treated with cycloplegia and asked to return in 1 month, at which time the visual acuity had fallen to 20/70. IOP was still in the mid-teens. The cyst had enlarged to 8.0 mm × 4.5 mm and was encroaching on the visual axis (Figure 2). The decline in vision was attributed to this encroachment on the visual axis, as there was no evidence of any other anterior segment or fundus abnormalities. Cycloplegia was continued to provide the patient with a larger pupil. He was asked to return in 1 month for ultrasound biomicroscopy and re-examination.

At the next visit, visual acuity was stable at 20/70, and IOP was 17 mm Hg. The cyst now measured 10.0 mm × 8.0 mm and appeared to be obscuring the visual axis (Figure 3).

Ancillary Testing

Ultrasound biomicroscopy (UBM) revealed an iris cyst originating from the original wound. The cyst appeared to be adherent to the surrounding cornea. Figure 4 shows the cyst separating the anterior and posterior layers of the iris. Figure 5 shows the extent of the cyst near the ciliary body; note this image is from the peripheral portion of the cyst, since at the wound the differentiation of cyst and ciliary body was difficult to view. Figure 6 shows the full extent of the cyst in the anterior-posterior direction, which measured 3.80 microns.

Treatment

The patient underwent surgical aspiration of the cyst contents and injection of medical grade ethyl alcohol. The patient tolerated the procedure well; the cyst walls

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Figure 2. Cyst progression over one month (4 months after open globe).

Figure 3. Cyst progression over two months (five months after ruptured globe).

Figure 4. UBM showing cyst walls made up of anterior and posterior iris.

Figure 5. UBM centered near ciliary body.

Figure 6. UBM showing anterior-posterior extent of cyst.

Figure 7. Cyst collapsed on Post-operative day 1.

remained intact throughout instillation and aspiration of alcohol and during the rinse with balanced salt solution. On post-op day #1, the cyst had completely collapsed (Figure 7) and was still collapsed at post-op week #2

Figure 8. Cyst collapsed on post-operative week 2.

(Figure 8) and post-op month #2. At post-op week #2, visual acuity had improved to 20/60, and IOP was 16 mm Hg. There was 2+ cell and flare in the anterior chamber OS. At post-op month #2 there was a slight decline in visual acuity to 20/70, with IOP of 16 mm Hg, trace cell and flare in the anterior chamber and the development of a posterior sub-capsular cataract. Given the resolution of the anterior chamber reaction, the continued reduction in vision was attributed to the development of the cataract, as the fundus and central cornea appeared normal.

Differential Diagnosis

Iris inclusion cyst secondary to traumatic ruptured globe is the most likely diagnosis given the rapid progression and appearance. Other far less likely diagnoses might include proliferation of iris melanocytes following the trauma, or other types of retrocorneal membranes, such as fibrous metaplasia of the corneal endothelium.¹

Diagnosis

This is an example of a post-traumatic iris inclusion cyst, which are very difficult to treat and often recur. The proposed mechanism is invading epithelium from the conjunctiva or cornea having access to the anterior chamber through a traumatic or surgical wound. In addition, there are likely to be other factors which are not fully understood; there appears to be some cell-cell

interactions that can both promote epithelial down-growth as well as prevent it.¹

Upon review of the literature, we decided to use the alcohol injection described by Behrouzi and Khodadoust.² Other possible treatment regimens have been described including cryotherapy, photocoagulation, en-bloc excision, and Mitomycin C injection.³⁻⁷ These are all viable options, and there are advantages and disadvantages to each. Given our patient's relatively good vision and lack of any painful symptoms, we decided to use a minimalistic approach initially. At the last follow-up the patient continued to do well; the cyst remained collapsed, and there was only minimal post-operative intraocular inflammation. If there is recurrence of the cyst, a different approach may be considered. The patient's visual acuity did show a line of improvement immediately after draining the cyst. However, the patient has now developed a posterior subcapsular cataract that is the most likely cause of his decreased vision, since the cornea remains clear, and the fundus appears normal without any clinical evidence of macular edema. Cataract extraction will be considered in the future after the patient has fully recovered from this cyst evacuation procedure.

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