

# White Cataract After Trauma

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## CASE PRESENTATION

A 25-year-old man presents with a history of traumatic rupture of his right globe by a broken light bulb in Kenya at age 8. His vision has been poor since the accident, and he has not had any surgical intervention. On examination, the patient's BCVA is count fingers at 3 feet. He has a central full-thickness corneal scar with iridocorneal adhesions, which limits pupillary dilation. There is a limited view of a white cataract with a dense central anterior capsular plaque (Figures 1-2). The IOP is 10 mm Hg bilaterally. There is no view of the posterior segment, but a B-scan ultrasound was unremarkable. The other eye is normal with 20/20 UCVA. How would you proceed?

—Case prepared by Bonnie A. Henderson, MD.



Figure 1. The right eye's appearance at the slit lamp.

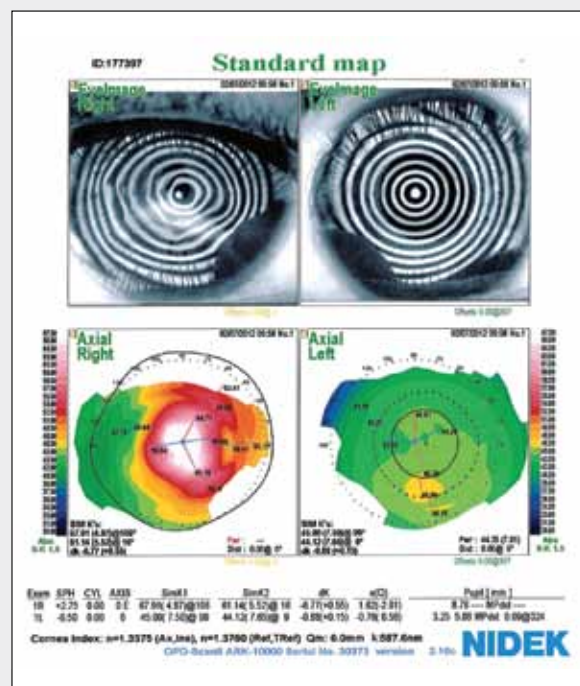


Figure 2. Topography of the right eye.

### ANAT GALOR, MD, MSPH

The first issue to consider is the patient's visual prognosis. Although the timing of the accident (age 8) is generally considered to be outside the window of amblyopia development, the possibility of visual limitations due to amblyopia should be considered. Furthermore, given the nature of the trauma, there is a possibility of visual limitation due to unidentified ocular damage (eg, macular scar or optic nerve atrophy).

If the patient remains interested in pursuing visual rehabilitation despite the guarded visual prognosis, the next issue becomes the surgical approach. Options for management include removal of the cataract followed by rehabilitation with a contact lens or combined cataract and corneal surgery. Because the central visual axis is clear, my prefer-

ence would be to remove the cataract with the assistance of iris hooks, capsular staining and a capsular support device (if needed due to zonular dialysis), followed by the placement of a single-piece acrylic lens in the bag or a three-piece lens in the sulcus, depending on the ocular anatomy. Given the potential compromise of the zonules and other ocular structures, I would discuss this case with a retinal surgeon and have backup available in case anatomical abnormalities precluded safe anterior segment removal of the cataract. Considering the steep keratometry measurements, the patient might benefit from a scleral lens or keratoconic design (eg, Rose K [Menicon Company Ltd.]) if a traditional hard contact lens does not fit well. If he is unable to tolerate a contact lens, however, a full-thickness penetrating keratoplasty could be performed at a later date.

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When approaching this patient, it would be important to counsel him preoperatively about the uncertainty of his final visual outcome and to explain that more than one surgery might be required. An ocular injury occurring at age 8 may cause some degree of amblyopia. The dense corneal scar has resulted in significant irregular astigmatism, rendering standard keratometry unreliable. In my experience, it is helpful to look at the results of different videokeratography systems like the Pentacam Comprehensive Eye Scanner (Oculus Optikgeräte GmbH) and the Orbscan (Bausch + Lomb). Also, in challenging cases like this one, I run the power calculations through different IOL formulas until I arrive at a consistent result.

The next challenge is to obtain a reliable axial length. Going back to a manual A-scan might be necessary. If a consistent IOL estimation could be achieved with the methods mentioned earlier, an IOL could be placed at the time of the initial cataract surgery, and the astigmatism could be addressed by a trial of an RGP lens. I would use the lowest keratometry readings and aim for mild myopia. If there were an undesirable refractive outcome, the patient's refractive needs could be evaluated with the use of contact lens overrefraction. An IOL exchange, potentially with the off-label use of a toric IOL, could be considered.

In terms of planning, I would not consider a penetrating keratoplasty as a first-line option. Of course, these cases present intraoperative challenges as well, and surgeons have to use all the tools in the bag, including pupil expanders, trypan blue, and lysis of synechiae. The surgeon must be prepared to perform suture fixation of the IOL if he or she encounters loose zonules. For this type of patient, there may be a role for intraoperative wavefront aberrometry to aid in IOL selection, but I have no data on how tolerant the method is of irregular corneal scars.

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Given the history and clinical picture, some additional information would be helpful prior to surgical intervention. An evaluation for sensory strabismus should be noted; if present, possible postoperative diplopia should be discussed. Potential acuity meter testing and an RGP contact lens overrefraction should be considered, but they likely will not be helpful because of the cataract opacity. Red cap color testing would determine how well the cone photoreceptors are functioning. Dynamic anterior segment ultrasound might help determine the stability of the lens-capsular bag complex.

After these tests, I would have a conversation with the patient regarding his options and prognosis. The alternatives are cataract surgery alone or combined with corneal transplantation. In the former scenario, an RGP contact lens fitting for corneal astigmatism will be necessary postoperatively. If the potential for good visual outcomes is guarded, avoiding corneal transplantation may be preferable. Combined surgery, however, would address all of the anterior segment problems in one surgical intervention.

In terms of surgical technique, the extent of the iridocorneal adhesions should be determined. With focal adhesions at the pupillary margin, cataract surgery alone is possible with synechiolysis at the time of surgery. With extensive iridocorneal adhesions, corneal transplantation is preferable. For cataract removal, iris hooks and staining of the anterior capsular bag will be necessary. A can-opener capsulotomy (vs continuous capsulorhexis) is likely preferable if there is anterior capsular fibrosis or if the lens is dense. Overall, the patient has a good prognosis for visual recovery. ■

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