

Cataract

5+ Posterior Subcapsular Plaque Cataracts

BY LISA BROTHERS ARBISSER, MD

CASE PRESENTATION

A 49-year-old white female with a history of profound mental retardation unassociated with any known genetic or systemic disease presented to my office for evaluation because she had begun to trip over objects. She had never worn glasses and had no history of prior eye examinations. The patient was largely uncommunicative and mildly combative. The examination showed a visual acuity of central, steady, and unmaintained vision via a cover test in each eye with a 30-prism esotropia by Krimsky reflex. Due to the patient's lack of cooperation, it was difficult to evaluate her for a relative afferent pupillary defect, although her pupils were round and reactive. Retinoscopy revealed no red reflex bilaterally, and a quick view with a portable slit lamp illustrated probable dense bilateral posterior subcapsular plaque cataracts.

HOW WOULD YOU PROCEED?

1. What examinations under anesthesia would you plan?
2. What equipment would be handy in the OR?
3. What should be the aim for IOL power?
4. How should the surgical plan be tailored to the needs of this patient?

SURGICAL COURSE

The patient was cleared for general anesthesia, and her intubation and induction were uneventful. The nurse was able to place the pledgets in the usual manner with antibiotic, mydriatic, and nonsteroidal anti-inflammatory agents. Prior to preparing her for surgery, I examined the patient with a portable slit lamp and confirmed the presence of the dense posterior subcapsular plaques without evidence of posterior polar characteristics or anterior segment anomaly. Using a Perkins Tonometer (Sussix Vision, Lancing, UK), I measured the patient's IOP at 9 mm Hg OD and 10 mm Hg OS (normal levels under anesthesia). My certified technician used a handheld portable keratometer and proceeded to measure the patient's axial length bilaterally with an applanation A-scan biometer. The resulting lens powers were

28.00 D OU for emmetropia. Because the axial lengths and corneal curvatures were symmetric and there was no clear preference for the fixating eye preoperatively, I chose to aim for emmetropia in one eye and -1.50 D in the fellow eye to allow for adequate function for most daily activities without glasses, which that patient had never worn. Indirect ophthalmoscopy showed a grossly normal posterior pole, the absence of a cup, and an attached retina without significant findings in the periphery. The patient was then prepped and draped in the usual fashion for cataract surgery in her right eye.

I performed a standard temporal clear corneal incision and a 5.0- to 5.5-mm continuous curvilinear capsulorhexis (Figure 1). Vertical phaco chop quickly disposed of the nucleus, after which I completed cortical cleanup. Next, I perforated the posterior capsule centrally with a new, sharp cystotome and injected Viscoat (Alcon Laboratories, Inc., Fort Worth, TX) through the opening to push back the intact vitreous face. Under high magnification with a very centripetal vector, I was able to complete a posterior capsulorhexis in the central 3 mm. I then inflated the periphery of the bag with Provisc (Alcon Laboratories, Inc.) and, with a B

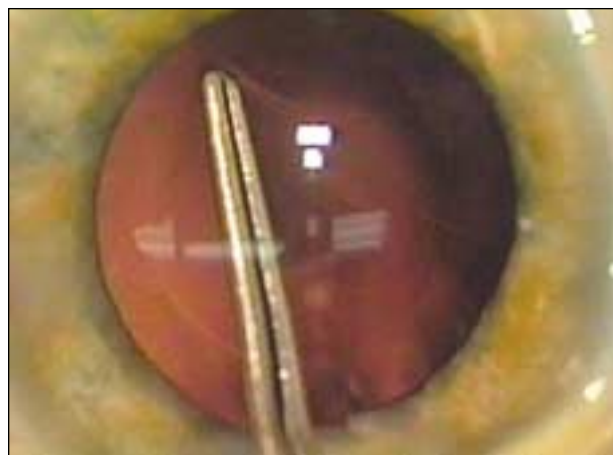


Figure 1. The author uses Utratta forceps to create the posterior curvilinear tear.

CHALLENGING CASES

cartridge, inserted into the bag a one-piece acrylic lens (SA60 AT; Alcon Laboratories, Inc.) under direct visualization (Figure 2). This maneuver did not distort either capsulorhexis edge. I then irrigated the anterior chamber with Miochol-E (CIBA Vision, Duluth, GA) to begin miosis and further tamponade the open vitreous face. I performed this step just prior to clearing the anterior chamber of viscoelastic with the I/A handpiece. Unlike a routine case, I made no attempt to clear the posterior chamber under the lens. Because the vitreous face was intact, I did not need to use a vitrector handpiece to remove viscoelastic. I made sure that the pupil was round and that there was no vitreous present. I ascertained that the wound was securely watertight and had a generous tunnel.

Contrary to my normal surgical routine, I next placed a subconjunctival injection of gentamicin and dexamethasone inferotemporally to assure good levels of these medications in the event that the patient's caretakers would have difficulty administering them postoperatively.

The patient's right eye was then undraped, and her lid was splinted shut with tape. Her fellow eye was prepped and draped in the usual manner for cataract surgery. I used new instruments and a fresh phacoemulsification machine cassette and BSS bottle for her left eye. I performed the second procedure in the exact same manner as the first. At its conclusion, I administered Diamox 500 mg (Lederle Pharmaceutical, Pearl River, NY) intravenously prior to discontinuing the line due to the potential for residual viscoelastic, which was evacuated from the anterior chamber but not evacuated from the posterior chamber due to the open posterior capsule and the attendant risk of rupturing the vitreous face with the port of the I/A handpiece behind the lens.

The patient was extubated, and she recovered from her surgeries without incident. Taped Fox shields remained over her eyes until the patient was awakened, and then they were removed. The patient was noted to quietly view her environment postoperatively and was cooperative upon discharge.

OUTCOME

The patient's caretakers reported that she was attentive to her surroundings and pointing at pictures and objects for the first time in their experience. Her visual acuity was central, steady, and maintained between blinks with cover testing bilaterally. This indicated that there was no significant amblyopia and she had an altering esotropia. The patient cooperated for a slit-lamp examination long enough for me to determine the chambers were deep, the pupils round, her eyes white with minimal cell, and the wounds well opposed. The visual axis was clear in both eyes, and retinoscopy showed roughly the intended refraction with approxi-

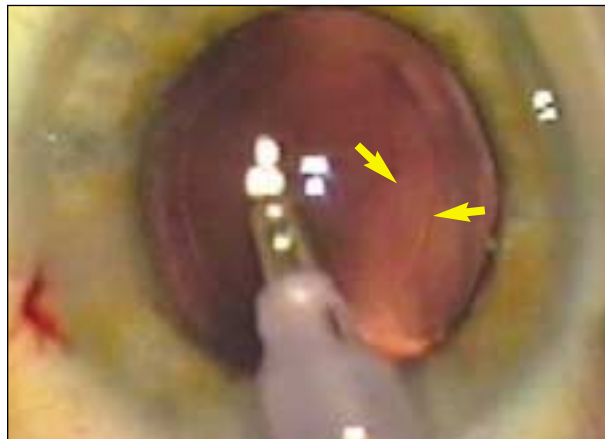


Figure 2. The author positioned the IOL in the bag. Arrows point to the edges of the posterior capsulorhexis and the anterior capsulorhexis.

mately 1.00 D of cylinder against-the-rule. The patient's IOP was symmetric to palpation. She had an uneventful postoperative course and will never require an Nd:YAG laser posterior capsulotomy.

DISCUSSION

In my opinion, this case was one in which bilateral, simultaneous cataract surgery was not only acceptable, but optimal. Because neither eye was functional, and the patient required general anesthesia, the savings in anesthesia risk, the caretakers' time, and the patient's cooperation and recovery far outweighed any theoretical disadvantage. In general, changing equipment that has undergone a separate sterilization and using separate fluids increases safety. The literature has, so far, no examples of bilateral endophthalmitis in this setting. It's unfortunate that, under Medicare and Medicaid, doing the right thing and saving the patient and society extra anesthetic events, surgical costs, office visits, and postoperative care, we are only paid for one-and-a-half cataract surgeries.

Access to adequate technology for examination under anesthesia is a critical component of the operative plan when preoperative evaluation is not feasible and concurrent surgery is planned. A sufficient inventory of IOLs to cover any calculation outcome is also a prerequisite.

Because I could not expect ample cooperation from this debilitated patient for a laser capsulotomy, despite her low risk (arguably 3% to 10%) of posterior capsular opacity, I deemed it appropriate to perform a planned posterior capsulorhexis. This is the only setting in which I have electively performed this maneuver in adults. I have found that, even when there is considerable unpolishable capsular haze or fibrosis, patients rarely require an Nd:YAG capsulotomy in the immediate postoperative period. It is well accepted that

once the blood retinal barrier is restored, opening the capsule is safer with regard to creating cystoid macular edema than opening it when there is ongoing inflammation. As this patient was unable to complain of her poor vision while she suffered from grossly uncorrected hyperopia or during the development of her significant lens opacity, I did not expect her to receive prompt care in the event of a significant capsular opacity either. Therefore, I felt that the benefit outweighed the risk of this planned primary posterior capsulotomy.

Although I would have a low threshold for the placement of a radial 10-0 Biosorb suture (Alcon Laboratories, Inc.) had I had any doubt as to a secure closure, sutures can also present problems in this setting, even when the knot is buried. When needed for a clear corneal tunnel incision, 10-0 Biosorb is my suture of choice because it dissolves over 6 to 10 weeks and incites very little reaction. It also does not require removal except in the rare case in which it is too loose and begins to collect mucus, thereby posing a risk of infection and discomfort. When the clear corneal incision is properly constructed, I trust it to be secure. The one exception is that, in the pediatric eye, the tissue does not have the rigidity to be securely sutureless, and I will always suture those incisions.

Although I do not use subconjunctival injections for prophylaxis in routine cases, I feel that they have a place when the patient's compliance with topical therapy may be in question, especially when I have opened the posterior capsule.

The change in a patient's behavior that restored vision can sometimes induce makes all of my efforts worthwhile. ■

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