Diplopia 10 Years After a PCIOL's Dislocation

BY JOHNNY L. GAYTON, MD; DIAMOND Y. TAM, MD; ANDREA L. BUTLER, BSc;
IQBAL IKE K. AHMED, MD, FRCSC; MICHAEL A. HATER, MD;
BONNIE AN HENDERSON, MD; D. MATTHEW BUSHLEY, MD; AND TERRY KIM, MD

CASE PRESENTATION

An elderly gentleman underwent seemingly uncomplicated cataract surgery 10 years ago. When the patch was removed the day after surgery, however, it was apparent that the IOL had dislocated into the vitreous cavity. The patient returned to the OR the next day for a second procedure, which provided him with good vision for 1 decade. He now comes to see you with a complaint of intermittently blurry vision and double vision. His BCVA measures 20/20 with a manifest refraction of -1.25 + 0.50 X 180. An examination shows a nicely centered ACIOL as well as a PCIOL that is located in the anterior vitreous cavity and partially within the pupillary axis (Figure 1). The PCIOL demonstrates pseudophacodonesis.

How would you manage this patient?

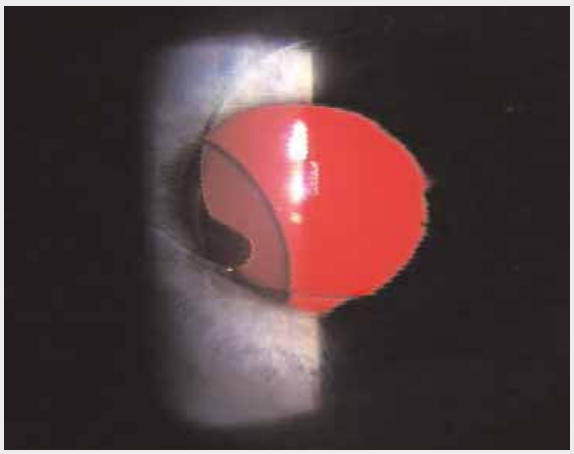

Figure 1. The ACIOL in this eye is well centered. The PCIOL in the anterior vitreous cavity demonstrates pseudophacodonesis.

JOHNNY L. GAYTON, MD

Two old sayings occur to me: (1) The enemy of good is better, and (2) Less is more. I have seen elderly patients undergo major eye surgery and come out in significantly worse physical condition. That observation combined with the fact that this patient has tolerated a PCIOL in his vitreous for 10 years leads me to make the following recommendation. If his retina is healthy, I would go way back in the annals of eye surgery and perform a modified couching technique. After administering a topical anesthetic, I would insert a 30-gauge needle through the limbus superotemporally for a left eye or superonasally for a right eye. I would then use the needle to push the implant toward the inferior equator. This measure would not harm the patient's general physical condition and should be well tolerated by the eye. The procedure also would not prevent later, more aggressive surgical intervention (ie, the IOL's removal) if the couching approach proved to be unsuccessful or only a short-term fix. I believe this simple 5-minute procedure could safely meet the patient's needs and could be repeated, should the implant ever move back into the visual axis.

DIAMOND Y. TAM, MD; ANDREA L. BUTLER, BSc; AND IQBAL IKE K. AHMED, MD, FRCSC

The course of therapy should be governed by the patient's symptoms. Observation would be appropriate if the patient were asymptomatic. If the edge of the PCIOL in the pupillary aperture or a large floater were affecting his visual acuity, however, we would consider explanting one of the lenses. Any surgical technique would likely require pars plana incisions and a limited anterior vitrectomy to free the PCIOL of vitreous adhesions.

Removing the PCIOL, which would require the temporary explantation of the ACIOL, is likely the least technically demanding approach, and it would leave the patient with an ACIOL. Alternatively, one could refixate the PCIOL to the iris (or sclera) according to a previously described technique.[1] For refractive purposes, and to facilitate the procedure, the surgeon would explant the ACIOL at the time of

the PCIOL's refixation to the iris or sclera. We assume that the PCIOL's power would achieve a similar postoperative refraction as the ACIOL, because the initial surgeries were performed close together in time and the same IOL measurements/formula were likely used. Finally, one could explant both IOLs and implant an iris-claw–style IOL. This surgical option might be the safest in terms of the intraoperative technical difficulties and postoperative refractive challenges mentioned earlier that might present upon the rearrangement of the previously existing IOLs.

With a visual acuity of 20/20, a mildly myopic refraction, and minimal against-the-rule cylinder, the patient requires comprehensive counseling about the risk, albeit minimal, of losing BCVA upon further surgical intervention due to many possible complications (eg, cystoid macular edema [CME], corneal endothelial decompensation, induced astigmatism, retinal tears and/or detachment, glaucoma, uveitis, endophthalmitis, suprachoroidal hemorrhage).

MICHAEL A. HATER, MD

Because this patient has visual symptoms, he requires treatment. The decision to implant a PCIOL or an ACIOL may depend on the initial examination and the reason for the original PCIOL's dislocation. If the patient has pseudoexfoliation, an ACIOL may be a poor choice, because it could promote the development of glaucoma. I have also, however, seen the PCIOL/capsule complex dislocate as a unit in cases of pigmentary dispersion syndrome. In order to explant the PCIOL from this eye, the surgeon must first remove the ACIOL. Placing a new ACIOL could be appropriate if the cornea shows no signs of decompensation and the patient needs expeditious surgery due to other medical issues. My preference would instead be a PCIOL so as to avoid pupillary ovalization and the possibility of eventual corneal decompensation.

The selection of a PCIOL in this case requires deciding whether to use or explant the current lens and determining how to achieve fixation. The degree to which the capsular bag is compromised is unclear from the case presentation. A thorough preoperative examination of the eye through a dilated pupil may be revelatory, but often the capsular status only becomes apparent intraoperatively.

After explanting the ACIOL, I would secure the PCIOL by lassoing it with a 10–0 Prolene suture (Ethicon, Inc., Somerville, NJ) to prevent the lens' full dislocation into the vitreous cavity. Next, I would retract the iris with a Kuglen hook or similar device in order to examine the capsule. If enough of it remained, I might reposition the existing PCIOL or place a new PCIOL in the sulcus. If roughly 50% (or more) of the peripheral capsule remained, I would likely use the capsule for fixating one of the haptics and fixate the other with a suture. For insufficient support, both haptics would require suture fixation, either transsclerally or to the peripheral iris. Because the patient is elderly and long-term erosion is thus of little concern, I see no reason not to use 10–0 Prolene.

In this case, it would likely be technically much easier as well as quicker to use the current PCIOL and to suture one or both of its haptics to the peripheral iris. The knot could quite easily be tied using a Siepser tying technique. Transscleral fixation would also be an excellent choice. If the current lens were unsuitable or could not be stabilized/centered, then I would explant it and fixate a new PCIOL (with haptic eyelets) using a suture.

Cases like this one are challenging and require great flexibility in the OR. It pays to have a plan B (and perhaps a plan C and a plan D) as a backup in case of a surprise. The patient should understand that the final result may not be what the surgeon anticipated and that many solutions may provide acceptable results. Changing plans intraoperatively in these cases should not be viewed as a failure or complication but simply as a reaction to the particulars of a unique situation.

BONNIE AN HENDERSON, MD

The first option in this case is to treat the patient medically and not intervene surgically. Because he is elderly and has a BCVA of 20/20 with no stated problems with inflammation, CME, or increased IOP, it might be best to leave the PCIOL in place. His intermittent diplopia might be improved by slightly constricting his pupil with topical brimonidine or pilocarpine. Although there is pseudophacodonesis, the PCIOL may never prolapse completely and therefore may not necessitate a surgical intervention.

If the diplopia and blurry vision are still problematic with pupillary constriction, however, or if the PCIOL fully dislocates, the second option is to perform a pars plana vitrectomy in conjunction with a retina specialist. I would create a 6-mm limbal incision to remove the ACIOL, prolapse the PCIOL into the anterior chamber, remove the PCIOL, and replace the ACIOL.

The third option would be to remove the ACIOL, perform a vitrectomy, and fixate the PCIOL to the iris. I would prolapse the optic of the PCIOL anteriorly and capture it in the pupil while leaving the haptics posterior to the iris. Next, I would insert a spatula posterior to the optic to stabilize the IOL during the fixation. The outlines of the haptic are visible underneath the iris and can be fixated to the iris using long, curved needles such as CIF-4 needles (Ethicon, Inc.). I would recommend 9–0 rather than 10–0 Prolene sutures, because there have been reports of late suture breakage with the latter.[2] The distal haptic's fixation suture could be closed with a modified

Siepser knot to minimize the number of incisions and tugging on the iris during tying of the suture.

D. MATTHEW BUSHLEY, MD, AND TERRY KIM, MD

The options for managing a subluxated PCIOL include observation, exchanging the IOL, repositioning the lens with iris or scleral suturing, and removing the IOL. Nonsurgical treatment with miotics is typically a reasonable first-line treatment option for PCIOLs that are subluxated within the pupillary space. Deciding whether to proceed with surgical intervention should be based on considerations such as the patient's symptoms and disability as well as other factors, including his age, activity level, and visual requirements; the status of his fellow eye; and the presence or absence of secondary complications such as CME, uveitis, and vitreoretinal disease. A complete examination of both of the patient's eyes (including gonioscopy, IOP, a corneal endothelial cell count, a dilated examination, and a vitreoretinal consultation) would be essential in further delineating the risks versus benefits of proceeding with any surgical intervention.

Based on the case presentation, we would initially recommend miotic therapy in this patient and would be reluctant to offer any elective surgical intervention. Should a defined need for surgery exist or arise, the presence of bipseudophakia would make the case more challenging. Informed consent and the patient's education would be paramount.

One could approach this case via an anterior approach (limbus) versus posterior approach (pars plana). The former would entail significantly greater risk to anterior structures such as the corneal endothelium, because the ACIOL would need to be removed prior to the vitrectomy and the PCIOL's removal or fixation with a suture. A posterior approach would be our preference and would require a referral to a vitreoretinal surgeon for the PCIOL's removal, either by segmenting the IOL intraocularly and removing the pieces through a standard sclerotomy or by removing the entire PCIOL through an enlarged sclerotomy.[3] ■

Section Editors Robert J. Cionni, MD; Michael E. Snyder, MD; and Robert H. Osher, MD, are cataract specialists at the Cincinnati Eye Institute in Ohio. They may be reached at (513) 984-5133; rcionni@cincinnatieye.com.

Iqbal Ike K. Ahmed, MD, FRCSC, is Assistant Professor at the University of Toronto and Clinical Assistant Professor at the University of Utah in Salt Lake City. He acknowledged no financial interest in the products or company mentioned herein. Dr. Ahmed may be reached at (905) 820-3937; ike.ahmed@utoronto.ca.

D. Matthew Bushley, MD, is in private practice with the Franciscan Medical Group in Tacoma, Washington. He acknowledged no financial interest in the products or company mentioned herein. Dr. Bushley may be reached at (253) 502-5965; mbushley@aol.com.

Andrea L. Butler, BSc, is a medical trainee at the University of British Columbia. She acknowledged no financial interest in the products or company mentioned herein. Ms. Butler may be reached at albutler@interchange.ubc.ca.

Johnny L. Gayton, MD, is in private practice with Eyesight Associates in Warner Robins, Georgia. He acknowledged no financial interest in the products or company mentioned herein. Dr. Gayton may be reached at (478) 923-5872; jlgayton@aol.com.

Michael A. Hater, MD, is in private practice at the Cincinnati Eye Institute in Ohio. He acknowledged no financial interest in the products or company mentioned herein. Dr. Hater may be reached at (513) 984-5133; mhater@cincinnatieye.com.

Bonnie An Henderson, MD, is a partner at Ophthalmic Consultants of Boston and is Assistant Clinical Professor at Harvard Medical School. She acknowledged no financial interest in the products or company mentioned herein. Dr. Henderson may be reached at (781) 487-2200 ext. 3321; bahenderson@eyeboston.com.

Terry Kim, MD, is Associate Professor of Ophthalmology, Cornea and Refractive Surgery, Duke University Eye Center, Durham, North Carolina. He acknowledged no financial interest in the products or company mentioned herein. Dr. Kim may be reached at (919) 681-3568; terry.kim@duke.edu.

Diamond Y. Tam, MD, is the glaucoma and advanced anterior segment surgery clinical fellow with Dr. Ahmed at the University of Toronto. He acknowledged no financial interest in the products or company mentioned herein. Dr. Tam may be reached at (905) 820-3937; diamondtam@gmail.com.

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