Subluxation of the Aniridia Ring-Bag-Lens Complex

BY LISA BROTHERS ARBISSER, MD

Have you ever wanted to run rather than operate? Upon my first microscopic view of the eye in this case, I came close to flight from the OR.

FIRST ENCOUNTER WITH THE PATIENT

I practice in Iowa, and my colleagues and I treat some stoic Midwestern characters. One such individual was a thick-fingered 67-year-old farmer who presented with a history of vision loss in his right eye "a few weeks ago." He had reportedly ignored a blunt injury while working with wood fence posts "some time back" but, as of late, could no longer see.

An examination revealed an atonic 9-mm pupil with a dense posterior plaque and anterior subcapsular cataract causing count fingers vision. The patient demonstrated no afferent pupillary defect on examination of the contralateral pupil with neutral density filters. The ocular examination otherwise appeared within normal limits, with no obvious lens subluxation or phacodonesis.

We discussed the risks and benefits of various interventions. The standard approach at the time was to suture the iris to cover the lens implant's edge. I said that a new option offered potential benefits and described the Morcher Rauch-Rosenthal aniridia rings (not FDA approved; Morcher GmbH, Stuttgart, Germany), which—if zonules were disrupted—serve two purposes at once. We agreed to use the rings if appropriate during surgery. I obtained preapproval from my institutional review board and had already achieved favorable results with the rings in cases of trauma, coloboma, and aniridia. I had recently placed a cerclage suture in the traumatic iridoplegic eye of another patient who suffered from chronic iritis with giant cells on the exposed areas of suture. I was inclined to use the black-finned interdigitating rings instead if I found zonular pathology intraoperatively.

Figure 1. Preoperative view of a traumatically subluxated bag-lens-aniridia ring complex.

SURGICAL SUCCESS

Surgery was challenging but uneventful. I found minimal zonular loss from 10 to 12 o'clock, which prompted me to forego sutures. The aniridia rings created a functional iris diaphragm, and the IOL centered well in the bag behind the artificial iris. My patient achieved 20/30 visual acuity without glare, consistent with his macular potential. We were both delighted.

THE PATIENT RETURNS

The patient presented to my office 3 years later and told me, "Doc, I fell off the back of my pickup last week, and my vision isn't the same in 'your' eye." On examination, his visual acuity measured 20/80, and the bag-lens-aniridia ring complex was subluxated nasally. No pseudophacodonesis was apparent, but a small knuckle of vitreous protruded around the temporal edge of the IOL (Figure 1). I instructed the patient to lie back in the chair (my usual maneuver with any bag-lens subluxation), and I

noticed no movement of the IOL.

My schedule was full. I asked the patient to take it easy with physical activity and scheduled him for suture fixation of the bag-lens complex and a pars plana vitrectomy the next week. I was thankful for the small subluxation in one area that left a gap between the hard black PMMA ring segments where I planned to anchor the bag to the sclera.

On the day of surgery, the patient was blocked, prepared, and draped. I looked through the microscope and noted with horror the lens-ring-bag complex hanging back into the vitreous, apparently suspended by one zonule at the 12-o'clock position. I felt ready to flee. As I considered my options, I gently tapped the eye and watched the complex float back and forth. Despite the block, I could remove the drape, splint the eyelid shut, and direct the patient to see the practice's retinologist, Michael Howcroft, MD, the next day.

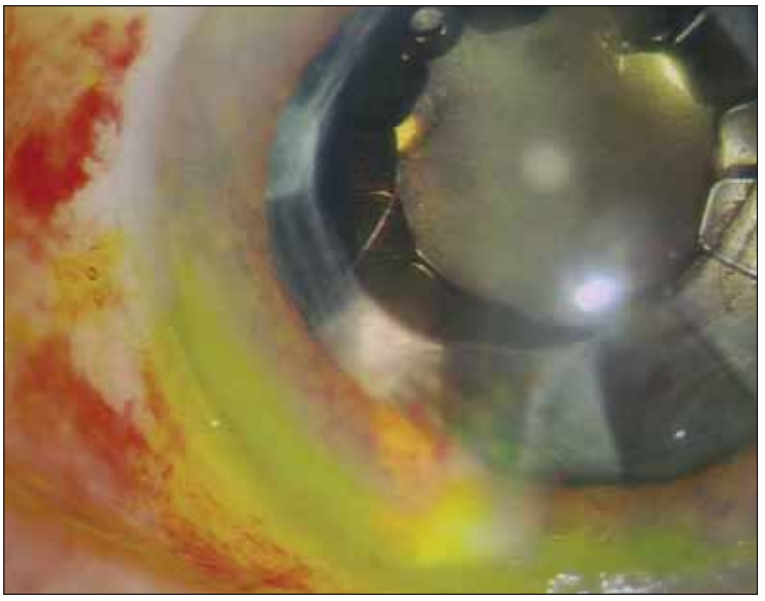

Figure 2. One day postoperatively, the bag complex is secure and centered.

I thought of the large incision the aniridia rings require for explantation. I envisioned my aphakic patient's requiring secondary implantation later, because contact lenses and hog containment facilities do not mix. I imagined his iris would then require suturing and considered how poorly suited atonic iris tissue is to either iris fixation of a secondary implant or planar support of an ACIOL. He might need an aniridia implant and another big incision. What to do?

I needed help. My circulator dialed one of my favorite gurus, Michael Snyder, MD, from the OR phone. He immediately proffered wonderful ideas, and his insight encouraged me to sit down and complete the case.

THE DEFINITIVE SURGERY

I lassoed the bag and placed one end of a 9–0 Prolene suture (Ethicon, Inc., Somerville, NJ) above and one arm through the bag in the sole gap in the interdigitated dual aniridia ring complex. I secured the complex to the sulcus via an ab externo approach to prevent its descent entirely into the vitreous. I then raised the complex via a pars plana approach. I placed a 27-gauge needle from pars to pars behind the complex to maintain its position for further fixation. The second scleral fixation suture traversed the peripheral optic of the one-piece acrylic lens and looped loosely around the bag's equator for sulcus fixation; the needle cannot pierce the black PMMA of the aniridia rings, but it can be coaxed through acrylate. Dr. Snyder suggested this technique, first devised by Ehud Assia, MD. I delineated the prolapsed vitreous (now 180º around the temporal bag) with washed Kenalog (Bristol-Myers Squibb Co.) and removed it through the pars plana incision.

At this point, the bag remained slightly tilted. There was little iris diaphragm to hold back the ring complex, and it required fixation in the sulcus at a third point through a peripheral lens optic. All sulcus fixation sutures were performed through a reverse scleral pocket, a technique described by Richard Hoffmann, MD.[1] In short, I fashioned a 350-µm groove at the limbus and created a pocket with a crescent knife backward into the sclera. The ab externo needle was placed through the conjunctiva and then the roof and floor of the pocket into the sulcus. The double-armed Prolene needle was passed through a paracentesis 180º away and docked into the hollow-bore needle. I cut the needles and retrieved the sutures with a Sinskey hook from under the scleral pocket through the limbal groove. The knot was buried under the scleral pocket without the need for a peritomy, cautery, or creation of a scleral flap.

I sutured the pars plana incision with 8–0 Vicryl (Ethicon, Inc.). Despite light bleeding of the ciliary body with one slightly anterior pass of the needle, the case concluded with a well-centered bag, no vitreous in the anterior chamber, sutureless paracenteses, and a well-sutured and covered pars plana sclerotomy.

OUTCOME

Early in the postoperative period, the eye appeared anatomically perfect with an attached retina but count fingers vision due to a dispersed vitreous hemorrhage (Figure 2). I instructed the patient to avoid heavy lifting,

"Sometimes, the hardest aspect of eye surgery is being brave enough to do what needs to be done."

stooping, and jogging for 10 days. He returned at 1 week with hand motions vision and a vitreous hemorrhage.

Anterior segment surgeons seldom see blood and do not typically limit patients' use of anticoagulants; this patient was taking aspirin, and I had not noticed. I therefore had not asked him to discontinue the medication. Moreover, because I had not specifically prohibited the activity, he had mowed his lawn. After I threatened him with bed rest and a catheter, the patient behaved, and the hemorrhage cleared over a 2-month period. His vision recovered to the original 20/30 and has been stable without retinal tears or detachment for well over a year.

LESSONS LEARNED

First, as Hillary Clinton said, "It takes a village." The application of that African proverb is not limited to raising children; it also pertains to achieving patients' optimal outcomes.

Second, sometimes, the hardest aspect of eye surgery is being brave enough to do what needs to be done.

Third, newer technology is not necessarily better. I will always wonder whether the bag-lens complex in this case would have dislocated with the second trauma if the somewhat heavy, rigid aniridia rings had not been present and I had initially performed a sutured iridoplasty with a simple capsular tension ring instead.

Lastly, patients will be who they are no matter how I try to bend them to my will. ■

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1. Hoffman RS, Packer M, Fine IH. Scleral fixation without conjunctival dissection. Film presented at: ASCRS Symposium Cataract, IOL and Refractive Surgery; April 4-9, 2008; Chicago, IL.