

An Exchange of Subluxated Lenses

BY HOWARD V. GIMBEL, MD

When I decided to perform a refractive lens exchange on a 25-year-old female with a history of long-standing bilateral ectopia lentis and progressively worsening vision, I knew I had taken on a challenging case.

CASE PRESENTATION

During the patient's initial evaluation, she stated that her vision had always been poor. Her visual acuity with spectacles measured 20/100 OU (-18.25 -2.25 X 176 OD and -18.00-1.25 X 176 OS), because her crystalline lenses were convex and subluxated superonasally. The keratometry readings were -3.25/176° OD and -3.00/157° OS. On examination, I noted that the equator of each lens was displaced beyond the midpoint of her pupils (Figure 1). After a review of risks, benefits, and alternatives, the patient consented to undergo a refractive lens exchange.

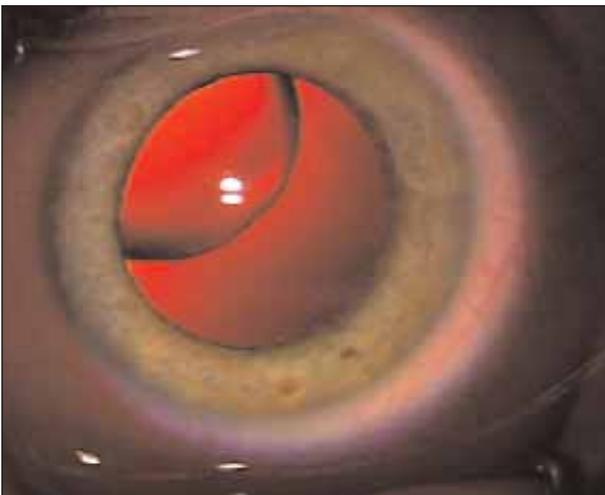


Figure 1. The patient's crystalline lenses were subluxated superonasally in both eyes.

"The equator of each lens was displaced beyond the midpoint of the patient's pupils."

SURGICAL COURSE

Preoperative Planning

Due to the complexity of the planned procedure and the patient's level of anxiety, she was given general anesthesia. Because I did not want to induce astigmatism with limbal grooves, I used a modified version of the technique described by Hoffman et al¹ to create a fornix-based conjunctival flap and a scleral groove to start the scleral pocket. The scleral tunnel was placed inferotemporally 180° from the subluxation. I later buried the knot

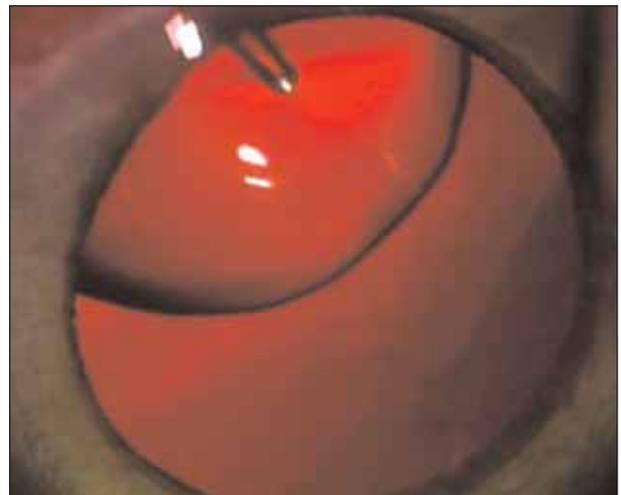


Figure 2. The surgeon created a slit in the center of the capsule with a sharp cystotome and used a capsulorhexis forceps to start the continuous curvilinear capsulorhexis.

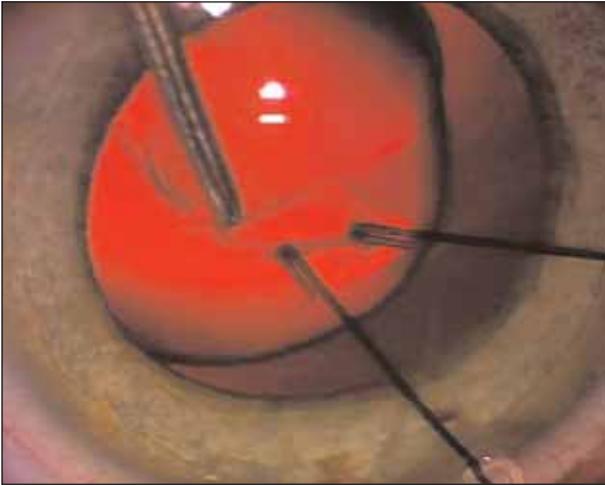


Figure 3. The surgeon used iris hooks to place traction on the lens during the capsulorhexis' formation.

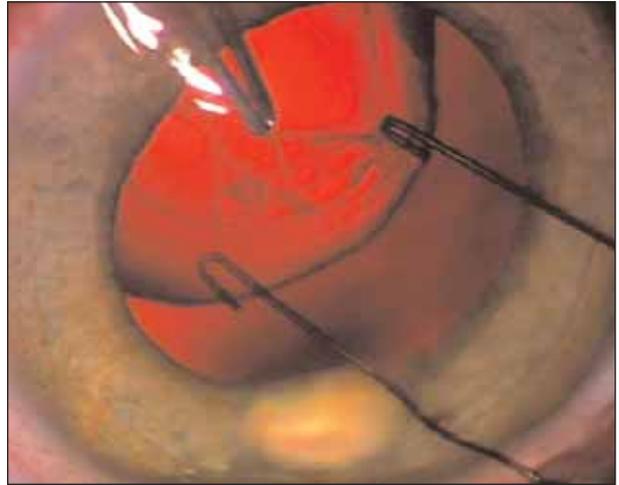


Figure 4. The surgeon disengaged the iris hooks from the anterior capsule before completing the capsulorhexis.

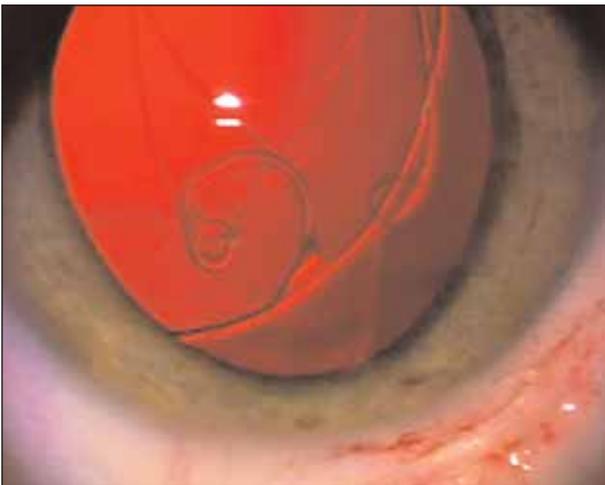


Figure 5. The Cionni Modified CTR was anchored to the previously created inferior scleral flap by a 9-0 Prolene suture.

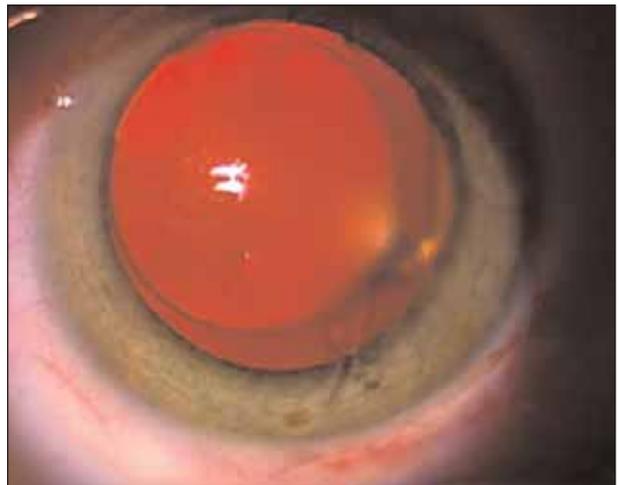


Figure 6. At the end of the procedure, the IOL was well centered in the pupillary aperture.

of the fixation suture with which I anchored a Cionni Modified CTR (Morcher GmbH, Stuttgart, Germany; distributed in the United States by FCI Ophthalmics, Inc., Marshfield Hills, MA) inside this tunnel.

Next, I created paracenteses at the 2-, 4-, and 5:30-o'clock positions that allowed me to insert iris hooks into the anterior chamber. I planned to use the iris hooks to center the lens while I created the capsulorhexis.

The Capsulorhexis

By this point, I realized I had reached the most challenging part of the procedure: the creation of a complete, reasonably centered continuous curvilinear capsulorhexis. I could see that more than 100° of the lens had missing or

lax zonules, and I anticipated that I would have little-to-no counter-traction for the capsulorhexis in the affected arc segment. I injected Viscoat (Alcon Laboratories, Inc., Fort Worth, TX) into the anterior chamber through the limbal paracentesis to prevent vitreous from herniating into the area of subluxation. Next, I created a fornix-based flap and a 3-mm corneal scleral tunnel superiorly at the 11-o'clock position and added a cohesive viscoelastic (Healon5; Advanced Medical Optics, Inc., Santa Ana, CA) to help maintain the anterior chamber during the creation of the capsulorhexis and the insertion of the capsular tension ring.

Using a sharp cystotome, I started the capsulorhexis as a short vertical slit in the center of the lens. At that time, the lens' center was located at the border of the

dilated pupil. I then turned the tear with a capsulorhexis forceps to start the circle and continued it for about a millimeter (Figure 2).

Next, I used the iris hooks to engage the small opening I had created in the anterior capsule. This maneuver allowed me to place traction on the capsule as I enlarged the capsulorhexis with 1-mm tears (Figure 3).

Before completing the capsulorhexis, I disengaged the hooks from the capsule, because they were creating folds in the opening's edge (Figure 4).

Stabilizing the Capsule

After I completed the capsulorhexis, I was confident that I had successfully accomplished the most critical part of the operation. My next task was to stabilize the capsule before aspirating the lens. I began by inserting a Cionni Modified CTR into the capsule and anchoring it to the sclera (inside the previously created inferotemporal tunnel) with a 9-0 Prolene suture (Ethicon Inc., Somerville, NJ) (Figure 5).

Once I had aspirated the soft, clear lens, implanted the IOL, and removed the viscoelastic from the eye, I adjusted and tied the suture to center the IOL in the pupillary aperture (Figure 6).

OUTCOME

One month after the events described herein, the patient underwent a similar procedure on her right eye. Three months postoperatively, the patient's BCVA was 20/30 OU with a refraction of +0.75 -3.25 X 5 OD and +1.50 -3.75 X 145 OS.

CONCLUSION

The use of iris hooks, a dispersive as well as a cohesive viscoelastic, and a Cionni Modified CTR helped me to overcome the challenges presented by this complex case. ■

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1. Hoffman RS, Fine IH, Packer M. Scleral fixation without conjunctival dissection. *J Cataract Refract Surg.* 2006;32(11):1907-1912.