

consultation section

cataract surgical problem

edited by Samuel Masket, MD

In 1994, a then 55-year-old man had bilateral cataract extraction for familial posterior subcapsular cataracts. The right eye, operated on first, had uneventful phacoemulsification with positioning of a plate-haptic silicone intraocular lens (IOL) in the capsular bag. Postoperatively, the eye has retained 20/20 acuity and is asymptomatic. The left eye, operated on second, experienced nasal radialization of the anterior capsulotomy. Accordingly, a 3-piece looped silicone lens was implanted at the time of surgery.

The surgeon examined the patient 1 and 5 days after surgery, at which time visual acuity was 20/20 and the IOL appeared to be well centered. The patient returned to his referring optometrist and was not evaluated by the operating surgeon for 4 years. At that time, the involved left eye exhibited nasal displacement of the IOL. Visual acuity had fallen to approximately 20/50, but the patient was tolerant of the condition.

The patient returned recently, after 2 years. The IOL was similarly nasally displaced (Figure 1). The temporal edge of the IOL was evident in the pupillary axis, the temporal loop was encased within the capsular remnant, and there was significant fibrosis of the anterior capsule in contact with the silicone IOL. The marked nasal decentration of the IOL, in combination with a poorly dilating pupil, precluded an adequate view of the nasal edge of the IOL and the nasal support loop.

Visual acuity had fallen to 20/200 as a result of posterior capsule opacification (PCO) and IOL decentration. The cap-

sule bag appeared to be well anchored as there was no pseudophakodonesis. There were no other abnormalities of the anterior or posterior segment. The patient requests improved visual function for the left eye. How would you proceed?

■ In Figure 1, it almost appears as though there is a nasal subluxation of the capsular bag, such as can occur as a delayed complication of exfoliation or severe zonular laxity. I will assume that the case history is accurate and that this is not the situation. Knowing that the capsulorhexis was torn nasally and judging from the haptic orientation in Figure 1, I would assume that the nasal haptic is in the sulcus and the temporal haptic is in the bag. In this setting, capsule fibrosis and asymmetric contraction forces could produce progressive nasal decentration. Knowing the corneal diameter and overall IOL length would be helpful, as the potential for decentration increases with a large-diameter anterior segment or a short IOL length.

Two separate symptoms must be addressed. First is edge glare, which the patient apparently tolerated in the past. Second is the reduced vision from capsule opacification. Marked anterior capsule opacification is evident in Figure 1, and PCO is mentioned as being present as well.

The first intervention is to open the opaque anterior capsule with a neodymium:YAG (Nd:YAG) laser. In addition to clearing the visual axis of this opacification, Nd:YAG “sphincterotomies” of the anterior capsule edge should reduce ongoing capsule decentring forces. Intentionally leaving a small amount of overlapping opaque anterior capsule may diminish glare from the IOL edge. Pilocarpine remains an option. In the absence of symptomatic edge glare, there would be no need to reposition or exchange the IOL. A subsequent small posterior capsulotomy, if needed, might return the patient to a satisfactory functional state.

Surgery should be contemplated if there is significant edge glare after the anterior capsulotomy, in which case an Nd:YAG posterior capsulotomy would be de-

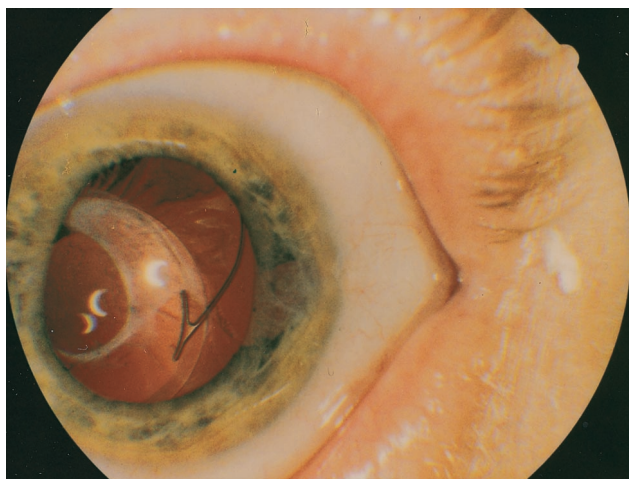


Figure 1. (Masket) Decentered IOL in the left eye.

layed. In deciding whether to reposition or replace the existing silicone IOL, one must consider the IOL's overall length and the patient's corneal diameter. For example, the risk of recurrent decentration of a 13.0 mm IOL in the sulcus would be far less in an eye with a corneal diameter of 11.0 mm than in one with a 12.0 mm diameter. If the corneal diameter were 11.5 mm or smaller with a 13.0 mm IOL, I would attempt to surgically reposition the IOL. After making radial cuts in the anterior capsule to release the lens optic, I would attempt to dial the temporal haptic out of the bag and into the sulcus. If possible, I would orient the haptics vertically to avoid a potential zonular defect hidden nasally. Adequate fixation and centration would be confirmed with the "tap" test.

Indications for IOL exchange would be inadequate overall IOL length, nasal haptic damage, or inability to extricate the temporal haptic from the bag. In the latter scenario, the haptic could be amputated and left in place. For a larger eye (eg, 12.0 mm or larger corneal diameter), I would select a 6.5 mm optic poly(methyl methacrylate) (PMMA) IOL with a 13.5 to 14.0 mm overall length to be placed in the sulcus. An Nd:YAG posterior capsulotomy (if needed) should be delayed until several months after surgery to decrease the risk of cystoid macular edema (CME).

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■ The nasal decentration of the IOL is apparently secondary to escape of the nasal haptic from the capsular bag. In such instances of capsule–sulcus fixation, decentration of the IOL in the direction of the haptic, which is fixated in the sulcus, is quite common. However, the patient may also have a nasal zonular defect, and the nasal haptic may be located on or even in the ciliary body. The absence of pseudophakodonesis is of no help in determining the location of the nasal haptic. An IOL with even 1 haptic that has capsular fixation will not show pseudophakodonesis unless the entire capsular bag is loose. According to the information provided, however, it is presumed that a temporal zonular dialysis (which could also result in nasal decentration of the IOL) is not present.

The location of the nasal haptic could be determined by an ultrasound biomicroscopy study. If IOL repositioning is to be attempted, such a study, in com-

ination with intraoperative endoscopy, can be invaluable in determining whether the haptic is embedded in the ciliary body (in which case forcible recentration of the IOL would be inadvisable) or collapsed benignly in the sulcus.

Assuming that the nasal haptic is not embedded in the ciliary body, recentration of the IOL can be accomplished by suturing the temporal haptic to the ciliary sulcus. Following is the technique I would use: After conjunctival reflection, a small groove is made in the sclera, 1.0 mm from and parallel to the limbus, at 2 o'clock. A 27 gauge disposable needle is inserted through this groove and anterior to the IOL and capsule. (Viscoelastic injection into the temporal posterior chamber facilitates this maneuver.) A long straight needle attached to a 10-0 polypropylene (Prolene®) suture (double armed) is passed through a small limbal incision made anywhere between 6 and 12 o'clock. This needle is directed into the 27 gauge needle, which is then withdrawn from the eye. The procedure is repeated using the other needle of the double-armed Prolene suture, with the 27 gauge needle inserted through the scleral groove approximately 1.0 mm adjacent to the initial entry site. With the latter pass, the straight needle is passed between the optic and temporal haptic, through the capsule, and into the 27 gauge needle, which is placed just beneath the capsule. Tying the 2 ends of the externalized 10-0 Prolene suture centers the IOL.

There may be another option. On Figure 2, I have indicated what appears to be the geometric center of the cornea. We are not shown the location of this patient's

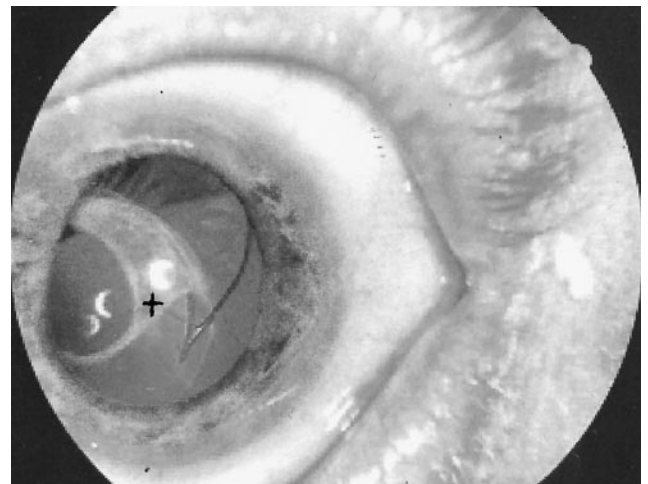


Figure 2. (Masket) The + marks what appears to be the geometric center of the cornea.