

SHOULD IT STAY, OR SHOULD IT GO?

Surgeons debate whether to remove a corneal inlay before cataract surgery.

BY CRISTOS IFANTIDES, MD, MBA; NEEL DESAI, MD; RAHUL TONK, MD, MBA; AND WILLIAM WILEY, MD

CASE PRESENTATION

A 57-year-old woman presents with glare, halos, and difficulty reading fine print and street signs. The patient's ocular history includes bilateral myopic LASIK and a LASIK enhancement with the implantation of a Raindrop Near Vision Inlay (no longer available) in the right eye.

Upon examination, each eye has a grade 2+ nuclear sclerotic cataract and no corneal haze

or scarring. The photopic pupil is 4.96 mm in the right eye and slightly smaller in the left eye. Topographic findings are shown in the Figure. The patient's UCVA is 20/70 OD and 20/40 OS. Her BCVA with a manifest refraction of -1.75 D spherical equivalent in each eye is 20/40- OD and 20/40 OS. Her corrected near visual acuity is J1 OD and J5 OS.

The patient desires spectacle independence if possible.

How would you proceed? Would you leave the corneal inlay in situ or remove it before surgical intervention? Which IOL would you select and why?

— Case prepared by Cristos Ifantides, MD, MBA

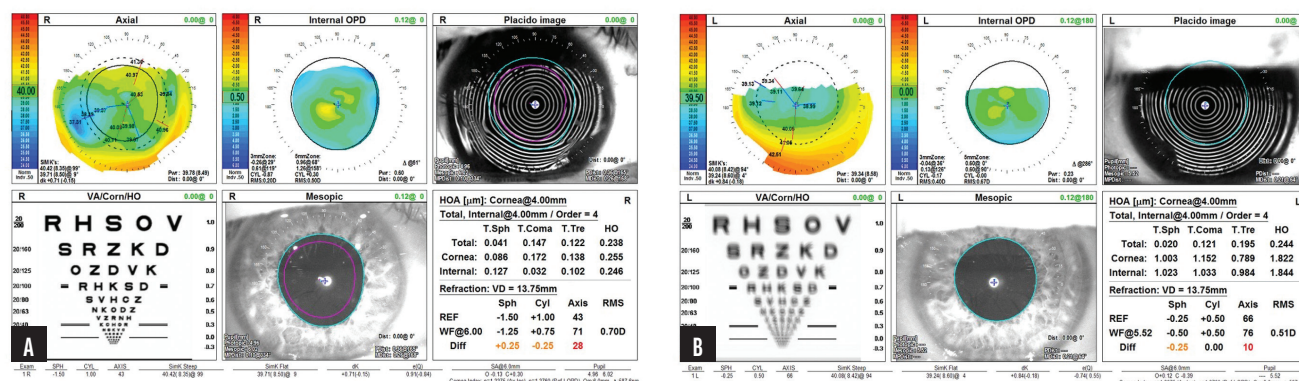


Figure. Analysis with the OPD-Scan III (Nidek) shows the corneal topography, internal wavefront OPD, Placido images, mesopic and photopic pupil sizes, and higher-order aberrations for the right (A) and left (B) eyes.



NEEL DESAI, MD

With all refractive cataract surgery, a successful outcome depends on precise biometry and careful lens selection that takes into consideration the patient's visual lifestyle and refractive goals. When evaluating individuals who have a history of refractive surgery, I often find it helpful to ask whether they were happy with their results before they developed cataracts. An affirmative response suggests that their current vision problems are related to

cataracts. In contrast, patients who were unhappy immediately or soon after their earlier refractive procedure(s) might have surgically induced, visually significant irregularities (eg, decentered ablation, macrostriae, ectasia, ocular surface disease, irregular astigmatism, higher-order aberrations, stromal fibrosis around the inlay) that must be addressed before cataract surgery.

Given the cataracts of equal grade, significant asymmetry in BCVA between the patient's two eyes, and pronounced topographic irregularity, my first step would be to remove the corneal inlay. Next, the ocular surface would be optimized, including management of epithelial basement membrane dystrophy or Salzmann nodules,

if present. Once corneal epithelial remodeling and stabilization are observed—at least 4 weeks after inlay removal—the patient's BCVA would be reassessed, biometry would be repeated, and her goals, expectations, and IOL options would be discussed.

Assuming some topographic irregularity remains and she would be intolerant of postoperative dysphotopsias, I would recommend placing a Light Adjustable Lens (LAL; RxSight) in the dominant eye and an IC-8 Aphthera lens (Bausch + Lomb) in the nondominant eye to maximize her spectacle independence. IOL calculations would be performed using the Barrett True K formula, with refractive targets of +0.50 D for the LAL and -1.00 D for the Aphthera lens.

**RAHUL TONK, MD, MBA**

I would begin by asking the patient whether the inlay ever provided significant near vision benefits. Next, anterior segment OCT imaging, corneal densitometry, and epithelial thickness mapping would be performed to check for subclinical haze and assess corneal remodeling.

Unless the patient strongly desires to retain the inlay, I would remove it via gentle dissection and light scraping of the stroma and the underside of the flap to avoid potential long-term risks. Mitomycin C (MMC) would be administered if haze is present. Serial topography would be performed 3 to 6 months later to confirm stable keratometry.

IOL calculations would be performed using an advanced formula that accounts for posterior corneal power.¹ I would recommend an LAL to capitalize on its high-quality monofocal optics and postoperative adjustability, allowing the refraction and degree of monovision to be fine-tuned to suit her preferences. Although a small-aperture IOL could be another option for the right (presumably nondominant) eye, I worry the procedure could intensify residual central aberrations.

Thorough preoperative counseling would be essential. No single solution can guarantee the patient complete spectacle independence, but modern technology could provide excellent outcomes in this challenging situation.

**WILLIAM WILEY, MD**

Given that the patient's corrected near visual acuity with the corneal inlay is currently J1 OD, optimizing the distance vision in her left eye first with cataract surgery might improve her overall visual

function enough that the inlay need not be addressed. Once her distance vision has been improved with cataract surgery on the left eye, her overall visual performance would be reevaluated. If the difficulties with her functional near visual acuity persist, intervention in the right eye might be necessary.

In my experience, the incidence of haze is far lower among eyes that underwent Raindrop inlay implantation with adjunctive MMC. I would therefore want to know whether MMC was used during the original procedure. If MMC was employed, it might be appropriate to leave the inlay in situ. If MMC was not used, the risk of haze formation over time would lead me to recommend removing the inlay before cataract surgery to promote refractive stability and optimize the surgical outcome.

Should inlay removal be warranted, my preference would be to implant an LAL or LAL+ (RxSight) to allow postoperative fine-tuning of the refractive outcome. If the patient was initially happy with the near vision in her right eye after corneal inlay placement years ago, an LAL+ with central lens power could replicate that near functionality effectively. A standard LAL implanted in the contralateral eye would then be optimized for distance vision to enhance overall binocular function.

**WHAT I DID: CRISTOS IFANTIDES, MD, MBA**

Some surgeons routinely remove corneal inlays in situations like this because haze may develop later, but given the lack of corneal haze and likelihood of MMC use during inlay surgery, I felt it was reasonable to monitor the cornea and address a problem if it arises later.

I selected an LAL because of the patient's history of refractive surgery and desire to remain spectacle independent at both distance and near. Her postoperative BCVA was 20/30 OD with

a manifest refraction of $-1.50 +0.50 \times 45^\circ$. A light treatment targeting -1.75 D was performed. Her corrected distance visual acuity was subsequently 20/25 OD with a manifest refraction of -1.50 D spherical equivalent, and her uncorrected near visual acuity was J5 OD. A second light treatment targeting -2.25 D was performed. At the next examination, the patient's uncorrected near visual acuity was J1 OD, and her manifest refraction was -1.50 D spherical equivalent. Lock-in treatments of both IOLs were then performed. ■

1. Anter AM, Bleeker AR, Shammas HJ, et al. Comparison of legacy and new no-history IOL power calculation formulas in postmyopic laser vision correction eyes. *Am J Ophthalmol*. 2024;264:44-52.

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