

GO-TO USES FOR A LIGHT ADJUSTABLE LENS



How I'm using this lens technology.

BY FARRELL "TOBY" TYSON, MD, FACS

The Light Adjustable Lens (LAL, RxSight) is a foldable three-piece IOL made of photosensitive silicone that allows multiple postoperative refractive adjustments with UV light before the final refractive power is locked in. Both sphere and cylinder can be adjusted positively or negatively, permitting a large change in postoperative refractive power. This article describes the scenarios in which the LAL is my go-to lens.

PRIOR REFRACTIVE SURGERY

I prefer the LAL for patients with a history of refractive surgery such as LASIK, PRK, radial keratotomy (RK), or conductive keratoplasty and for those who underwent a combination of these procedures. Refractive accuracy in this population can be difficult to achieve because of an inability to predict the effective lens position.

Newer IOL power calculation formulas have been developed that are more accurate for patients with corneal irregularities due to previous refractive surgery, but individual results can still be unsatisfactory. The utility of intraoperative aberrometry in these cases is also limited because it does not take into account whether the earlier refractive treatment was for distance or monovision. Another issue is that corneal surgery affects spherical aberration, which can exacerbate the phenomena of glare and halos patients may experience after receiving diffractive multifocal IOLs.

I favor the LAL for patients with a history of refractive surgery because the lens is agnostic to spherical aberration and can achieve precise refractive outcomes. This is of particular benefit for patients whose refractive treatment was decentered. Decentered ablations tend to confuse biometry machines and can complicate IOL calculations. The LAL treatment is based on the patient's refraction with their normal pupil size rather than on keratometry or topography. The benefit is most evident when a patient has small pupils that mask corneal irregularity.

SULCUS PLACEMENT

The LAL can be advantageous when sulcus placement is necessary. Its three-piece design lends itself to several of today's popular techniques for sulcus placement with the added benefit of adjustability on the back end for fine-tuning the refractive outcome.

Posterior capsular tear. I use the LAL as an emergency lens when posterior capsular tears occur. The lens is especially useful if the planned IOL was a toric or a multifocal because no equivalent three-piece lens options are currently available. When a tear in the posterior capsule occurs, the LAL can be placed in the sulcus and its refractive power adjusted a few weeks later. This makes the postoperative discussion with the patient easier. I can explain that it wasn't safe to implant the planned IOL because the structures weren't stable

enough to support it and that a new technology was implanted instead that allows me to customize their result. The LAL is more expensive than a multifocal or toric IOL in my practice, and patients are typically pleased to learn that a more expensive lens was placed at no additional cost to them.

The magnitude of pupillary dilation is an important consideration in the sulcus placement of an LAL. If the entire optic cannot be visualized postoperatively, the lens should not be placed in the sulcus because the refractive adjustments and lock-in will be unsuccessful.

IOL exchange. Over the past several years, I have seen many patients who experienced premium IOL placement issues. One patient, for example, had enjoyed several years of success with the Crystalens (Bausch + Lomb) after undergoing an Nd:YAG laser capsulotomy but later required retina surgery that resulted in what appeared to be vaulting of the IOL or Z syndrome. Fibrosis around the lens was evident when the patient presented to me for an evaluation. The haptics were amputated, and the IOL was removed from the eye. An LAL was placed in the sulcus. After refractive adjustments, the patient's UCVA was 20/15 and J3 for reading. The patient stated that their vision was sharper than with the previous lens technology.

I am also seeing an increasing number of patients who are dissatisfied with their vision with diffractive

multifocal IOLs, especially older lens designs and among patients who underwent an Nd:YAG laser capsulotomy. These patients are often particularly dissatisfied with their vision while driving at night. I now offer them the option of an IOL exchange for an LAL.

If the capsular bag is intact, then I can remove the existing lens and place an LAL in the bag. If the bag is open, then I can remove the multifocal IOL, perform a vitrectomy, and place an LAL in the sulcus (see *Watch It Now*). Because most of these patients underwent bilateral



surgery, I can aim for plano in both eyes, which typically produces a pseudoaccommodative effect of about +1.50 D, or I can adjust the refraction of the nondominant eye to enhance reading vision with a mini-monovision approach. If the patient doesn't like mini-monovision, then I readjust the refractive power to achieve bilateral distance vision.

Aphakia. Patients who are aphakic present unique challenges. First, there is much greater variability in the effective lens position with sutured IOLs compared to IOLs placed in the bag. Second, lens tilt can induce myopia and astigmatism.

AVIATION

A new patient demographic recently started visiting my practice: pilots.

The Federal Aviation Administration limits the flight privileges of pilots who undergo cataract surgery and the placement of a diffractive multifocal IOL. The agency requires these individuals to be reevaluated at 3 months postoperatively to have their flight status reinstated. This requirement is a major disruption to their lives, and there is no guarantee of reinstatement after the reevaluation. Implanting an LAL can allow these individuals to achieve excellent visual acuity and return to flying as soon as they feel comfortable. ■

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