

CASE OF THE MONTH

ZEISS AT LARA

Optimal treatment for elderly cataract patients with active lifestyle

Pascal Rozot, MD

CASE HISTORY

An 84-year-old woman presents on referral for cataract surgery. She is in good health and leads an active lifestyle. The woman is still driving, but not at night, and enjoys hiking and reading novels as E-books on her tablet. Current medications include 81 mg acetylsalicylic acid once daily and dorzolamide 2% 2 times daily for ocular hypertension that was diagnosed 5 years earlier. Findings from her ophthalmic examination are summarized in Table 1.

DIAGNOSIS AND SURGICAL PLAN

The patient has natural micromonovision and prior to development of her cataracts, she had good vision without glasses for most activities. She says she is interested in maintaining the same functional performance after cataract surgery.

Surgery is planned using conventional phacoemulsification performed under topical anaesthesia with implantation of the AT LARA 829MP extended depth of focus (EDoF) IOL (Figure 1) targeting micromonovision (emmetropia in the dominant eye and slight myopia in the nondominant eye).

The patient's Ocular Scattering Index values indicate that the cataract is more advanced in the left eye than in the right eye. The left eye procedure is scheduled first with implantation of a +18.5 D AT LARA 829MP IOL and a refractive target of -0.50 D. The patient is put on the sur-

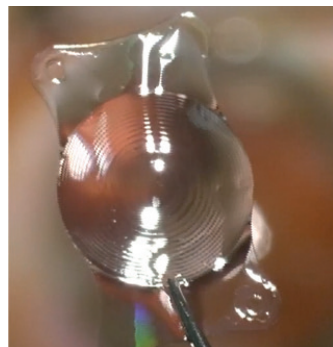


Figure 1. The AT LARA 829MP EDoF IOL

gical schedule to have her right eye operated on 1 week later with implantation of a +17.0D AT LARA 829MP IOL to target emmetropia.

OUTCOME

Cataract removal with IOL implantation is completed successfully in the left eye, and the patient underwent uneventful surgery in the right eye as planned.

At the 1-month follow-up visit, the IOLs are well-centered (Figure 2). Refraction is +0.00 -0.25 X 60°, +0.00 add OD; -0.75 -0.25 X 95°, +0.00 add OS. Monocular uncorrected visual acuity (UCVA) at distance and near is 0.00 logMAR and J2 OD and 0.00 logMAR and J3 OS. Binocular UCVA is 0.00 logMAR at distance, J4 at intermediate, and J2 for intermediate and near.

The binocular UCVA results are consistent with the binocular defocus curve that showed logMAR VA 0.00 to 0.10 was sustained between 0.5 and -2.0 D of defocus (Figure 3). The patient states that she is thrilled with her vision that has allowed her to return to enjoying her usual activities.

DISCUSSION

IOL selection for cataract surgery patients is a multifactorial decision taking into account the condition of the eye and patient goals that are based on lifestyle needs. Today's cataract surgery patients differ from previous generations in their lifestyles and visual expectations. People today are remaining active later in life and spending more time working at computers and looking at cell

phones and tablets. As a result, they are placing greater priority on having good uncorrected vision and particularly in the range from far to intermediate.

Presbyopia-correcting IOLs provide the opportunity to reduce the need to wear glasses after cataract surgery, but the functional performance of these technologies varies depending on the optic design. Having two distinct foci, bifocal diffractive IOLs can provide functional distance and near vision, but leave a gap in the intermediate range. Trifocal diffractive IOLs address the latter limitation by providing a useful focal distance at intermediate. As drawback, however, both bifocal and trifocal diffractive IOLs are associated with reduced contrast sensitivity. Therefore, these IOLs are best avoided in eyes that already have contrast sensitivity loss due to pathological or physiological changes, including eyes with senescent changes of the macula.

Monovision with bilateral implantation of monofocal IOLs may be considered as a strategy to decrease dependence on spectacles after cataract surgery while preserving contrast sensitivity. However, it is not an ideal solution because it is associated with impairment of binocular vision.

Launched in Europe in the fall of 2017, the AT LARA 829MP EDoF IOL expands the portfolio of presbyopia-correcting IOLs with an option that may provide a substantial degree of spectacle independence while inducing little side effects. The AT LARA 829MP is a 4-point haptic, hydrophilic acrylic IOL with hydrophobic surface properties. The anterior surface of the optic has a diffractive design with an optical light bridge that continuously extends the range of focus to deliver good functional vision across a range of distances. In addition, the AT LARA has an aberration-neutral aspheric design and advanced chromatic aberration correction that optimize contrast sensitivity. The AT LARA 829MP also features patented design and manufacturing technology that reduces visual symptoms by minimizing light scattering. Because of its benefits, the AT LARA 829MP IOL provides cataract surgeons the opportunity to offer a presbyopia-correcting IOL to a broader pool of patients and grow the premium segment of their practice.

CONCLUSION

The patient in this case had been able to avoid wearing glasses for most tasks prior to development of her cataracts and was keen to minimize spectacle-dependence after surgery. The AT LARA 829MP was a good fit for her because it provides a range of functional vision matching her lifestyle needs without compromising contrast sensitivity. Targeting micromonovision offers a strategy to improve near vision. Nevertheless, the patient was counseled that she might need to use glasses when reading up close, particularly for a long period of time.

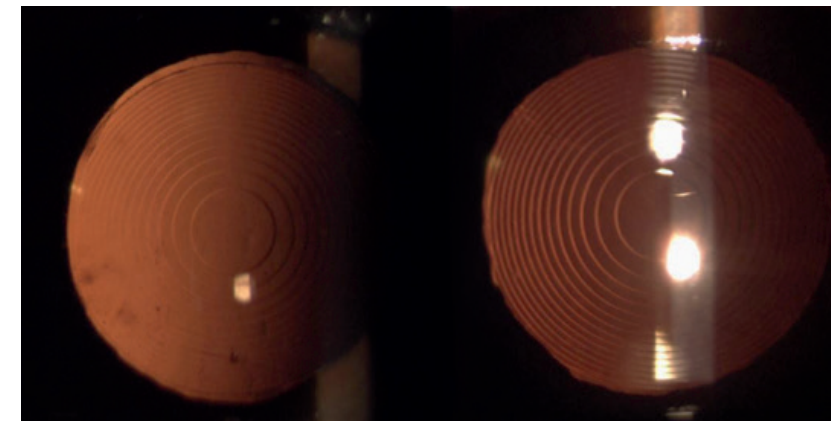


Figure 2. Slit-lamp examination at 1 month after surgery shows well-centered IOLs bilaterally.

Of course, achieving good UCVA outcomes with any IOL depends on achieving the refractive target, and that requires accuracy in biometry and IOL power calculation. The latter needs are met using the IOLMaster 700 for measuring axial length and keratometry and using the fourth-generation Haigis formula.

The refractive results, functional outcomes, and satisfaction of the patient in this case validate the success of the surgical plan. ■

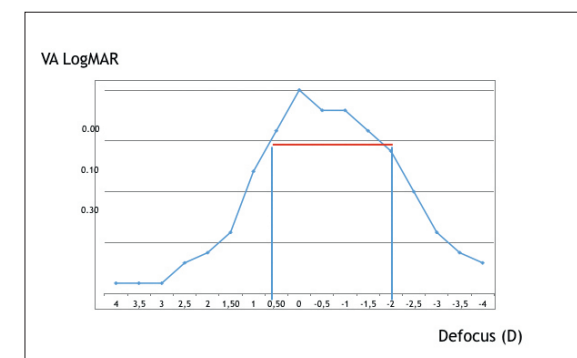


Figure 3. The patient's binocular defocus curve at 1 month after surgery

Refraction: plano, +3.00 add OD; -0.50 -0.50 X 120°, +3.00 add OS
 BCVA (distance/near): 0.50 logMAR/J4 OD; 0.54 logMAR/J5 OS
 IOP: 18 mmHg OU
 Pachymetry: 524 μm OU
 Slit-lamp examination: Brown cataracts OU N05 N05 (LOCS III)
 No evidence of ocular surface disease
 Specular microscopy count: 2420 cell/mm² OD; 2762 cell/mm² OS
 Objective Scattering Index (HD Analyzer, Visiometrics SL): 5.5 OD; 11.4 OS
 Fundus examination: cup-to-disc ratio 0.6 OU; senescent changes of the macula, but no signs of age-related macular degeneration
 Optical biometry (IOLMaster 700, Carl Zeiss Meditec):
 OD – Axial length 24.59 mm; mean keratometry 43.13D; IOL power +17.0 D (Haigis formula, A=117.9, emmetropic target)
 OS – Axial length 24.41 mm; mean keratometry 43.23D; IOL power +17.5 D (Haigis formula, A=117.9, emmetropic target)

Table 1. Ophthalmic examination findings

Pascal Rozot, MD
 Chief of private clinic, Marseille, France

Pascal Rozot, MD, is an ophthalmologist with 28 years of experience, currently working in his private practice in Marseille, France. He specializes in anterior segment surgery, refractive cataract surgery, challenging cataract cases, IOL exchange, and glaucoma surgery. Dr. Rozot is on the board of directors of the French Society of Cataract and Refractive Surgery and an active member in the Société Française d'Ophthalmologie, the American Society of Cataract and Refractive Surgery, and the European Society of Cataract and Refractive Surgeons.

