

TREATING MY OWN REFRACTIVE MANAGER – A Case Report

By Florian T.A. Kretz, MD.
 Medical Director and Lead Surgeon Augentagesklinik Rheine & Augentagesklinik Greven ProVisus Research Institute
 CEO of the clinics and practices of Augenärzte Gerl, Kretz & Kollegen, Germany

CASE HISTORY

The refractive manager of my clinic presented with the wish for refractive lens exchange to achieve spectacle free vision. Due to her function as a refractive manager she was well aware of the advantages and disadvantages of presbyopia-correcting intraocular lenses (IOLs). As we implant many different presbyopia-correcting IOLs in our clinic, she knew about different optic principles, materials and lens designs. After evaluating all options, she decided for the enhanced depth of focus (EDoF) IOL, AT LARA.

DIAGNOSIS

The 53-year old female patient had a preoperative corrected distance visual acuity (CDVA) of OD 0.1 and OS 0.1 (logMAR) and a manifest refraction of OD -4.75 -0.5/18 and OS -4.0 -1.75/23. Her astigmatism was regular with comparable keratometry values in both eyes (OD: K1 43.4 D @ 173.7°, K2 44.8 D @ 83.7°; OS: K1 43.7 @ 13.1°, K2 45.9 D @ 103.1°). The topography (Pentacam HD, Oculus, Wetzlar, Germany) revealed further a total corneal astigmatism in the 4 mm central zone of -1.2 D @ 179.9° (OD) and -2.0 @ 11.6 (OS), total corneal spherical aberration (6 mm) of 0.265 µm (OD) and 0.261 (OS) and a total corneal HOA RMS of 0.171 µm (OD) and 0.134 µm (OS). The patient had no other ocular pathologies.

TREATMENT & OUTCOME

Our hypothesis was that by correcting the corneal astigmatism while keeping the spherical aberration with the aberration neutral optic of the AT LARA IOL we will further enhance the depth of focus, resulting in a broad range of spectacle free vision with good optical quality.

The AT LARA IOL (Fig. 1) is hydrophilic acrylic (25%) EDoF IOL with hydrophobic surface properties, providing a wider range of focus compared to monofocal IOLs. The aberration neutral aspheric design supports the broad depth of focus and also the post-LASIK usage of this IOL. With its patented Smooth Microphase (SMP) technology (Fig. 2) and the EDoF design, the AT LARA IOL is designed to cause less visual symptoms, such as halos, glare and other photic phenomena. The advanced chromatic optics are designed to increase contrast sensitivity. The 360° anti-PCO ring and square edge design should help to prevent secondary cataract.



Fig. 1. AT LARA 929M/MP toric enhanced depth of focus IOL

Due to the astigmatism of our patient, the toric version of the AT LARA IOL, model 929M/MP, was implanted. The bitoric IOL is available up to a cylinder power of 12.0 D.

The IOL calculation with the IOLMaster 700 (Carl Zeiss Meditec, Jena, Germany) confirmed the topographic results.

The surgery was uneventful by positioning the IOL with the use of the CALLISTO Eye System (Carl Zeiss Meditec, Jena, Germany). We implanted the IOL using the pre-loaded BLUEMIXS injection system through a 1.8 mm incision.

The visual outcome one day after surgery was excellent (Table 1). The patient achieved 1.0 (decimal) monocular visual acuity in both eyes, with even better binocular vision. Results improved slightly from the day after surgery to the next examination after one week.

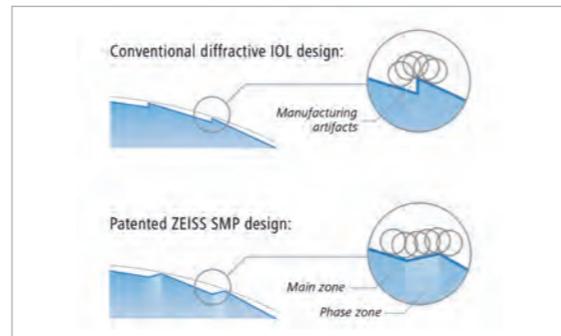


Fig. 2. Smooth Microphase (SMP) technology

Parameter	1 Day		1 Week		2 Months	
	OD	OS	OD	OS	OD	OS
Subjective refraction (D)	+0.25	-0.25, -0.5@107°	+0.25	+0.5	+0.75, -0.25@0°	+0.5
Monocular UDVA (logMAR)	0.0	0.0	0.0	0.0	0.1s	0
Binocular UDVA (logMAR)	-0.1		-0.1		-0.1	
Monocular CDVA (logMAR)	0.0	-0.1	-0.1	-0.1	-0.1	0
Binocular CDVA (logMAR)	-0.1		-0.1		-0.1	

Table 1. Visual acuity results 1 day and 1 week after surgery (OD right eye; OS left eye; D diopter; UDVA uncorrected distance visual acuity, CDVA bet corrected visual acuity)

One week after surgery, visual acuity was 0.1 logMAR or better over a defocus range from +0.5 to -2.5 D, as can be seen in figure 3.



Fig. 3. Defocus curve at 1 week after surgery (OD right eye, OS left eye, OU binocular)

Examinations with the Salzburg Reading Desk revealed no clinically relevant reduction of near and intermediate binocular reading speed under low contrast conditions. Compared to day 1, the patient's preferred reading and intermediate distance was slightly closer.

Figure 4 illustrates well the excellent centration of the AT LARA toric in the eye thanks to its stable 4-haptic platform.

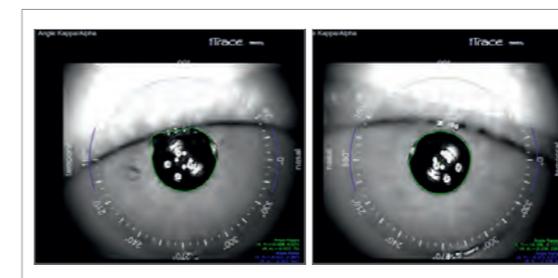


Fig. 4. Perfect centration of AT LARA toric

The patient did not report any visual symptoms and photic phenomena. One week after surgery, the patient could perform all daily activities without spectacles.

„You can't imagine how it feels to be free of contact lenses after 40 years time. I never felt more independent,“ reported the patient.

DISCUSSION & CONCLUSION

This case was particularly interesting for us, as the patient – as a refractive manager - had a significantly above average knowledge on presbyopia-correcting IOLs and the related benefits and limitations.

The new EDoF AT LARA 929M/MP toric IOL offers an additional option of individualized care. It provided my refractive manager with an excellent visual restoration across distances due to the special lens design, as well as excellent visual acuity and reading performance. The outcome met the patient's wish for spectacle independence. Patient and surgeon are very happy with choice of the IOL and the postoperative visual quality and performance.

Dr. Florian Kretz, is an anterior segment specialist. He is the Medical Director and Lead Surgeon of Augentagesklinik Rheine & Augentagesklinik Greven, Germany and its subsidiaries and head of the ProVisus Research Institute.

