

A FUNCTIONAL SOLUTION TO INCREASE DEPTH OF FOCUS

The Lentis Comfort IOL can help patients achieve good functional vision at a wide range of distances.

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Clinical studies have confirmed that multifocal IOL implantation can lead to improvement in near UCVA, no significant degradation of distance UCVA, and acceptable levels of quality of vision.¹ However, some patients report discomfort due to reduced contrast sensitivity and the perception of blurriness or photic phenomena such as halos and glare.²

Diffractive multifocal IOLs provide good levels of distance and near visual acuity, but they are associated with reduced efficiency at intermediate distance and decreased contrast sensitivity. Although some improvements have been implemented in modern multifocal IOL designs, these limitations are still present to some degree.³

A new concept of refractive correction has been developed, aiming at a functional solution to increase depth of focus. This concept is the basis of the Lentis Comfort (Oculentis), a foldable acrylic one-piece IOL with an aspheric back surface that includes a near addition of 1.50 D (Figure 1). Good visual and refractive outcomes in bilaterally implanted patients have been reported.⁴ Moreover, the presence of photic phenomena associated with all types of multifocal IOLs is significantly reduced. A mix-and-match technique using two Lentis IOLs (the Mplus and the Comfort) with different near additions (3.00 D in one eye and 1.50 D in the other) has also been proposed.⁵

SELECT THE APPROPRIATE IOL

Surgeons should select the appropriate IOL for a given patient based on relevant information such as lifestyle and preferred activities. Nowadays, because of increased use of computers and devices (mobile phones and tablets), many patients prefer spectacle independence for intermediate rather than for very near vision tasks. For such patients, I often recommend a lens with a 1.50 D addition, preferably the Lentis Comfort IOL.

Our research group recently performed a retrospective, nonrandomized clinical study to evaluate the clinical outcomes of providing increased depth of focus with the Lentis Comfort. Of 46 consecutive patients, 29 and 17 underwent

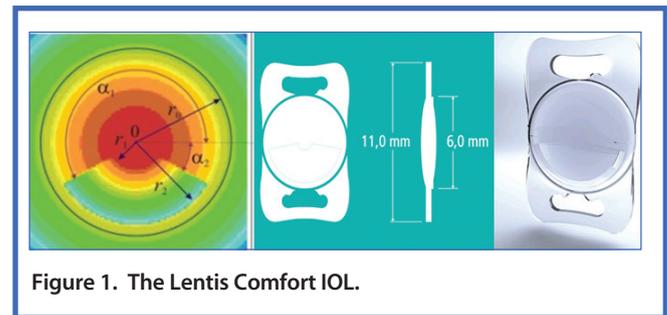


Figure 1. The Lentis Comfort IOL.

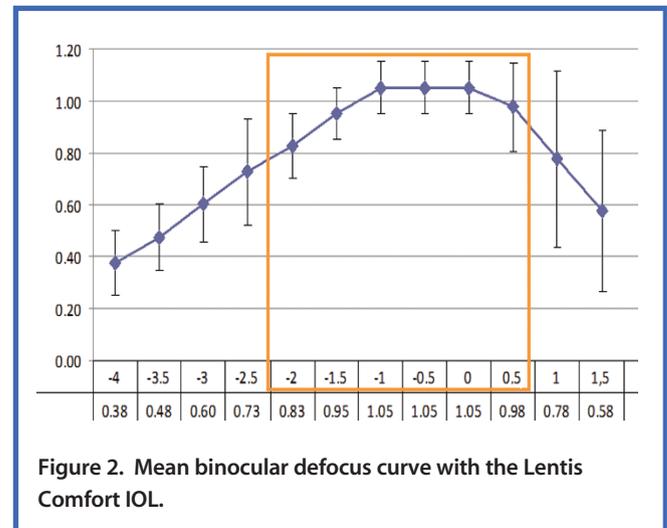


Figure 2. Mean binocular defocus curve with the Lentis Comfort IOL.

bilateral and unilateral surgery, respectively (75 eyes). All patients had a cataract of Lens Opacities Classification System grade 3, had corneal toricity of 1.00 D or less, and had asked for spectacle or contact lens independence at all distances. Mean preoperative distance and near BCVA was 0.45 ± 0.38 and 0.30 ± 0.26 logMAR, respectively.

RESULTS

Mean postoperative follow-up was 52 ± 30 days (range, 30–180 days). Mean distance UCVA was 0.10 ± 0.11 logMAR for the whole sample (n=75). In the bilateral and unilateral implantation groups, mean distance BCVA was 0.03 ± 0.05

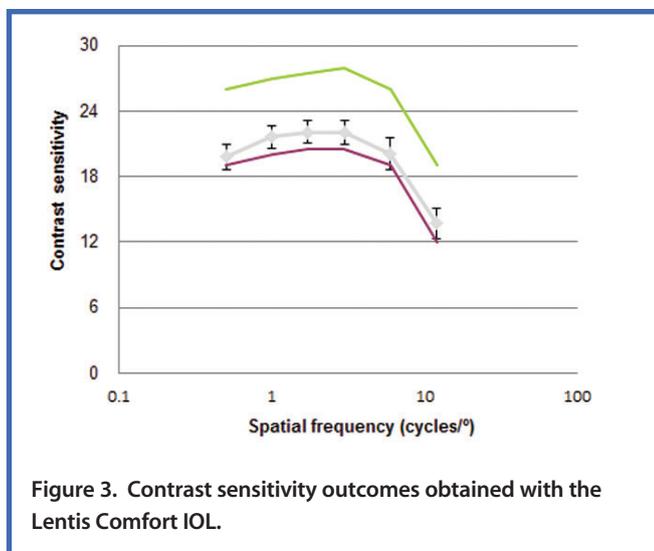


Figure 3. Contrast sensitivity outcomes obtained with the Lentis Comfort IOL.

and 0.02 ± 0.05 logMAR, respectively; mean near UCVA was 0.35 ± 0.23 and 0.35 ± 0.25 logMAR, respectively; and mean near BCVA was 0.13 ± 0.13 and 0.14 ± 0.14 logMAR, respectively. Mean postoperative spherical equivalent (SE) and cylinder were -0.37 ± 0.46 and -0.48 ± 0.39 D, respectively.

The binocular defocus curves (Figure 2) confirmed the expected good level of intermediate vision, with values close to 0.00 logMAR for different levels of intermediate focus. Binocular visual acuities were better than 0.2 logMAR for defocus levels between -2.00 D (simulating intermediate vision) and 0.50 D (simulating distance vision). This range of functional vision is wide enough to allow patients to perform most of their daily activities.

The mean reading speed without correction was 128 ± 27 words/minute for near distance (42 ± 5 cm) and 138 ± 37 words/minute for intermediate distance (73 ± 7 cm), confirming the efficacy for both ranges and comparing well to levels previously reported with other multifocal IOL models.⁶ Postoperative binocular uncorrected contrast sensitivity function under photopic conditions showed normal values at all spatial frequencies measured (Figure 3).

AT A GLANCE

- The Lentis Comfort is a foldable acrylic one-piece IOL; the aspheric back surface includes a near addition of 1.50 D in order to provide extended depth of focus.
- This IOL might become an alternative to standard monofocal lens implantation and a solution to treat patients who are worried about the side effects of multifocal IOLs.

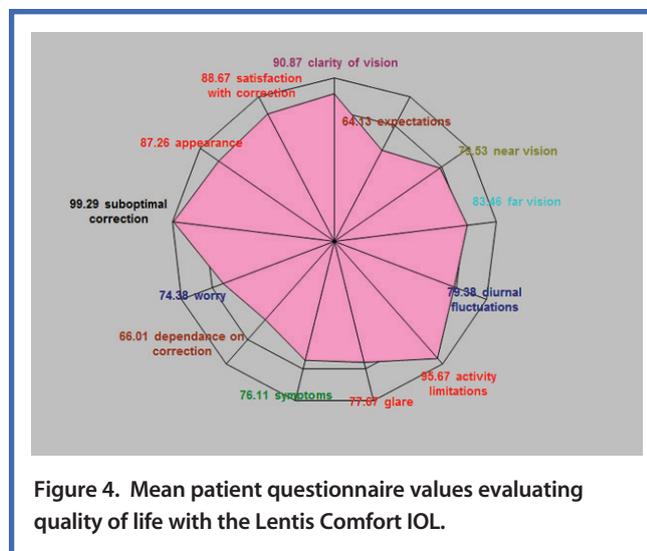


Figure 4. Mean patient questionnaire values evaluating quality of life with the Lentis Comfort IOL.

Moreover, patients reported excellent indices on 10 of 13 scales: clarity of vision, near vision, distance vision, diurnal fluctuations, activity limitations, symptoms, dependence on correction, worry, suboptimal correction, and appearance (Figure 4). The median index of satisfaction with correction approached 90%.

CONCLUSION

Implantation of the Lentis Comfort IOL can restore visual function over a large range of distances and provide predictable refractive correction and excellent optical performance. The level of functional vision achieved with this new modality of extended depth of focus can have a significant impact on multiple aspects of quality of life and promote spectacle independence for most daily activities.

The Lentis Comfort might become an alternative to standard monofocal lens implantation as well as an interesting solution to treat patients who are worried about the side effects of other multifocal IOLs. ■

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- Financial disclosure: None