

# ONE SOLUTION TO NEGATIVE DYSPHOTOPSIAS: THE FEMTIS IOL



With its stable position, this lens can decrease the incidence of visual side effects, including negative dysphotopsia.

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First reported by Masket in the early 1990s, positive and negative dysphotopsias are accompanied by frequent patient complaints including streaks of light and arcs (with positive dysphotopsia) and a temporal dark crescent (with negative dysphotopsia, ND).<sup>1</sup>

ND is the more common of the two, and although its cause is unknown at this time, multiple etiologies like ring scotoma, location of the temporal corneal incision, and IOL position have been proposed.<sup>2</sup>

A variety of management options also exist to combat ND after IOL implantation, including a wait-and-see approach, Nd:YAG laser capsulotomy in the nasal anterior capsule, placing another optic outside the capsular bag, IOL exchange, piggyback IOL, reverse optic capture, and use of an antidysphotopic IOL such as the Masket ND IOL 90S (Morcher).

Recently my colleagues and I tested a new method of management for ND, and that is placement of the FEMTIS IOL (Oculentis). Unlike other IOLs, the FEMTIS is designed with the addition of enclavation flanges that facilitate attachment of the IOL into the anterior capsulotomy. Because the IOL optic is fixated to a laser-created capsulotomy, it is an exciting option to prevent ND, especially in patients that experienced ND with another lens in the eye.

Here we present a case in which we placed the FEMTIS IOL in the patient's second eye, after cataract surgery in the first eye resulted in ND.

## CASE HISTORY

A 81-year-old woman with a healthy ocular anatomy presented with disturbing corticonuclear cataracts in both eyes. Besides low with-the-rule corneal astigmatism (<1.00 D), no other ocular pathology was present at time of the preoperative screening. A commonly used monofocal IOL

(SN60WF, Alcon) was chosen. Optical biometry was performed, and the SRK/T formula was used to calculate the correct spherical power of the IOL. As the patient was used to reading without glasses, a target of -2.00 D was chosen for her left eye.

Surgery was uneventful in this eye. After topical anesthesia, a 5.2-mm capsulotomy was created using the LenSx femtosecond laser (Alcon), and standard divide-and-conquer phacoemulsification was performed through a superior 2.2-mm clear corneal incision. A 17.50 D SN60WF IOL was implanted in the empty capsular bag (Figure 1).

One week after surgery, the patient's BCVA was 20/20 with a spherical equivalent of -2.25 D. However, she noted

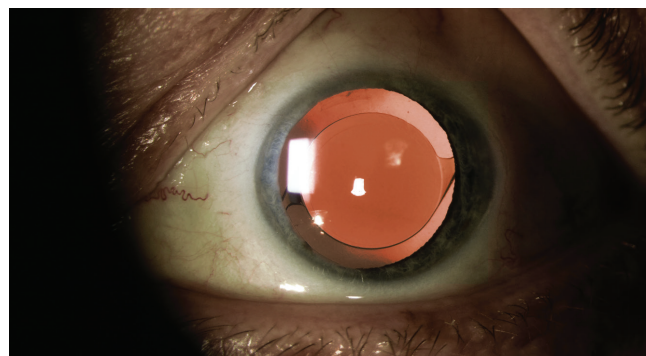


Figure 1. The SN60WF IOL in situ.



Figure 2. The patient complained of a temporal moon-shaped shadow in her left eye.

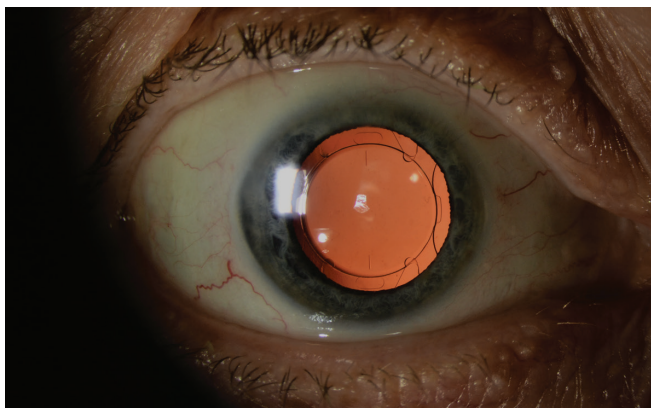


Figure 3. The FEMTIS IOL in situ.

that she had been experiencing a temporal moon-shaped shadow in her left eye, which wasn't there before surgery and persisted during further follow-up (Figure 2). No obvious decentration or tilt of the IOL optic was seen in full mydriasis.

### SURGERY IN THE SECOND EYE

Based on the patient's complaints after surgery in her first eye and because the moon-shaped shadow did not spontaneously improve during follow-up, we decided it was best to select a different IOL for her second eye. Again, surgery was uneventful, and exactly the same procedure was performed on this eye as the first. The only difference was that a FEMTIS IOL was implanted (Figure 3) instead of the monofocal IOL we implanted in her left eye. The laser-assisted capsulotomy was created and then enclaved by the two anterior and the four posterior haptics, providing optimal stability of the optic.

One week after surgery, the patient's BCVA was 20/20 with a spherical equivalent of -2.75 D. She confirmed that there were no signs of ND in the eye that received the FEMTIS IOL.

### FOLLOWUP

Three months after surgery, the patient returned for routine followup. At this time, her binocular best correct distance visual acuity was 25/20 and there was no evidence of posterior opacification of the capsular bag. Furthermore,

there was no evidence of IOL decentration or tilt in full mydriasis.

Although the temporal moon-shaped shadow in her left eye was still present, she noted that it was slightly less disturbing compared to the early postoperative period. She expressed no comparable complaints in her right eye.

### PREVENTING ND PROBLEMS WITH FEMTIS?

The occurrence of ND in patients in the early postoperative period has been documented to be as high as 15%, decreasing to 3.2% at 1 year.<sup>2</sup> Although the exact factor or factors causing these complaints is still unknown, the case presented in this article illustrates the risk for ND after cataract surgery with standard monofocal IOL implantation in the capsular bag.

An IOL implanted in the capsular bag leaves plenty of space between the lens and iris. The combination of this space and a posteriorly positioned IOL can create a shadow on the functional retina. Compared to the standard in-the-bag IOL design, the FEMTIS IOL is fixated in the laser capsulotomy by its unique haptic design. Two anterior haptics, placed anterior of the capsulotomy, and four posterior haptics, placed in the empty capsular bag, enlave the femtosecond laser-created capsulotomy. It provides optimal IOL stability, but in fact it decreases the space between the IOL and the iris. This, in theory, could decrease the risk of ND from occurring postoperatively in our patients. ■

1. Masket S, Geraghty E, Crandall AS, et al. Undesired light images associated with ovoid intraocular lenses. *J Cataract Refract Surg.* 1993;19:690-694.

2. Osher RH. Negative dysphotopsia: Long-term study and possible explanation for transient symptoms. *J Cataract Refract Surg.* 2008;34(10):1699-1707.

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