

A Historical Perspective on UGH Syndrome

A malpositioned IOL is the source of this complication.

BY JOHANN OHLY, MD

We ophthalmologists are fortunate to have a wide variety of IOLs for use in the anterior chamber, sulcus, and capsular bag. Iterations of IOLs were developed in parallel to advances in cataract surgery, however, and each iteration revealed flaws in design and use. The test of time demonstrated some lenses to be less than ideal companions to the structures in the anterior segment. Even today, IOLs that are used improperly lead to problems. The variable constellation of inflammation, pigment dispersion, and hyphema-related pressure elevation is the common denominator in IOL incompatibility and is called uveitis-glaucoma-hyphema (UGH) syndrome.

THE FIRST ATTEMPT WAS UNSUCCESSFUL

ACIOLs were the first class of IOLs to be developed for use in the absence of capsular support after intracapsular cataract extraction. Iris-supported ACIOLs created inflammation due to the iris' movement against the lens. Bleeding into the anterior segment and vitreous occurred secondary to the IOL's migration into adjacent tissues and neovascularization of the corneoscleral incision. This complication would be followed by an increase in IOP as a result of the blockage of outflow by inflammatory cells and fibrin, the creation of peripheral anterior synechiae, anterior chamber hemorrhage, and ghost cell glaucoma from an associated vitreous hemorrhage. Many types of early ACIOLs were prone to these problems, particularly closed-loop, semi-flexible, and iris-fixated ACIOLs.^{1,2} To resolve these issues, the surgeon had to explant the ACIOL and then control the inflammation and IOP. Unfortunately, in many cases, explantation did not provide satisfactory visual outcomes, although pain and inflammation improved.³

ANGULATION IS HELPFUL

The presence of capsular support after extracapsular cataract removal created possibilities for PCIOLs to be placed either in the sulcus or the capsular bag. After several years of using PCIOLs, Masket described a spectrum of disorders that include iris-pigment epithelial window defects, pigment dispersion with or without elevated IOP, intermittent microhyphemas with transient visual obscurations, and UGH syndrome.⁴ He found that three-piece IOLs with planar haptics caused UGH syndrome more commonly than IOLs with angulated haptics, and he realized that placing the haptics in the capsular bag decreased the risk of pigment dispersion and UGH syndrome. Even when the haptics are placed in the capsular bag, however, zonular weakness and resultant pseudophacodonesis can cause inflammation and recurrent hyphemas secondary to iris and ciliary body trauma.

KEEP IT IN THE BAG

The most commonly used PCIOL since its initial approval by the FDA in 2001 is the single-piece acrylic lens. Nearly all IOL manufacturers now offer a single-piece IOL that fits through small incisions, gently unfolds in the eye, and centers well in the capsular bag. Unfortunately, some surgeons early on did not recognize the potential harm of placing an IOL in the sulcus when it was not suitable to do so in the capsular bag.⁵ Sometimes, one haptic is inadvertently placed in the sulcus, usually secondary to poor pupillary dilation and visualization. The square edge and planar haptic in the sulcus against the iris and ciliary body produce a slow, smoldering UGH syndrome that has a delayed onset

but is eventually flagrant. The diagnosis is often made more than 12 months after the IOL's implantation. Classically, an iris pigment-epithelium window defect is visible overlying the offending haptic(s), and gonioscopy demonstrates significant pigmentation of the trabecular meshwork. A Krukenberg spindle, however, is often absent. Despite improper or even partial placement in the sulcus, a PCIOL can appear well centered, which can lead one to overlook the primary problem.

ADDRESS THE UNDERLYING PROBLEM

Initially, medical management to control inflammation and IOP is appropriate, but the definitive treatment is an IOL exchange. (For surgical pearls, see "Single-Piece Syndrome" by Garry P. Condon, MD, in the June 2011 issue of *Glaucoma Today*.⁶) In the absence of capsular support, the best solution is a sclera-fixated lens. An ACIOL can be considered because modern designs are better tolerated, but it may aggravate the compromised drainage apparatus. An iris-fixated PCIOL may not have adequate support if the iris has been badly damaged by the previous lens implant. A lens that is in the sulcus needs to be completely removed and replaced with an IOL designed for placement in the



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sulcus. The ideal lens for the sulcus has a large diameter, angulated haptics, and round edges. If the optic of the three-piece sulcus lens has a square edge, it is advisable to prolapse the optic behind the anterior capsule. If only one haptic is in the sulcus, it can be amputated as close to the optic as possible. ■

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