

Anterior Chamber IOLs

Re-evaluating these lenses' history and their role in surgical practice.

BY MANUS C. KRAFF, MD

After Danheim's and Barraquer's initial problems with anterior chamber IOLs (ACIOLs) in the 1950s, Peter Choyce, MD, developed eight iterations of the ACIOL in England over the course of the next decade. Dr. Choyce's lens was relatively successful in Europe by the 1970s, and the manufacture of ACIOLs began in the US during the middle of that decade. Poor manufacturing techniques, lens warping, and rough edges resulted in problems associated with the American ACIOLs such as uveitis, glaucoma, and hyphema (dubbed *UGH syndrome*) as well as painful, inflamed, and uncomfortable eyes. The fact lost on surgeons was that these complications occurred mainly with lenses manufactured in the US.

The second era of problems with ACIOLs occurred from 1979 to 1982. Small, tubular haptics implanted in the angle caused chronic inflammation and an overgrowth of iris tissue that resulted in UGH syndrome as well as chronic CME. Concern over implicated ACIOLs such as the Azar, Leiske, Sheppard, Hesburg, and Stableflex obscured the fact that well-manufactured lenses, including the Rayner's Choyce Mark VIII, Precision Cosmet, and, later, the flexible Kelman Tripod and Quadraflex, did not produce the chronic inflammation leading to UGH syndrome and iris distortion.

All ACIOLs were lumped together as inferior lens products that should not be used. Surgeons developed myriad techniques (many of which were supremely difficult technically and caused trauma to the eye) that allowed them to avoid using ACIOLs. They began suturing posterior chamber IOLs (PCIOLs) to the sclera or iris from the posterior chamber. This article addresses ACIOLs' place in surgical practice and shares my results with this lens type.

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ADVANTAGES OF AN ACIOL

These lenses are useful as secondary IOLs after intracapsular cataract extraction (ICCE). They are also appropriate for eyes in which there is insufficient capsular support for a PCIOL due to intraoperative traumatic capsular rupture. ACIOLs are indicated in cases of major zonular dehiscence and/or subluxation of the crystalline lens as well as after the removal of a subluxated PCIOL.

In the last three surgical scenarios just described, implanting an ACIOL is technically much easier, far less traumatic to the eye, and much more time efficient when compared with a sutured PCIOL. ACIOLs are the preferred lens type after a successfully performed ICCE with or without vitreous loss. In certain cases of severely compromised zonules, this surgical approach may be associated with a decreased incidence of posterior dislocation of the crystalline lens compared with phacoemulsification. In such cases, the implantation of an ACIOL after a planned ICCE avoids the risk of dropped lenticular fragments, as can occur if phacoemulsification is attempted. Moreover, because an ACIOL is in contact with mesodermal tissue (eg, anterior iris), this lens type poses less risk of pigmentary glaucoma, uveitis, hyphema, and CME than does a PCIOL, which is in contact with the iris pigment (eg, neural ectoderm). Because a PCIOL's haptics are not in the bag, they may cause friction and erosion of iris pigment and vascular tissue upon pupillary movement, thereby

TABLE 1. VISUAL ACUITY AFTER ACIOL IMPLANTATION

BSCVA	Percentage of Patients
20/15	4%
20/20	19%
20/25	34%
20/30	9%
20/40	6%
20/50	8%
20/60	11%
<20/60	9%

resulting in intermittent bleeding (posterior or anterior) and/or pigmentary glaucoma.

FIVE-YEAR DATA

A review of my own surgical data from the past 5 years revealed the use of ACIOLs in 53 eyes (approximately 1.5%). The Kelman Quadriflex lens was used exclusively in this study, and my follow-up data range from 6 months to 5 years. Of the ACIOLs implanted, 31 were secondary IOLs, 12 were placed in cases of a subluxated crystalline lens,

eight replaced subluxated PCIOLs that I had removed, and two were placed after intraoperative capsular rupture and in the absence of sufficient capsular support for a PCIOL. The median age of the patients who received an ACIOL was 59 years (range, 26 to 92 years).

Table 1 shows the postoperative visual acuities for the study patients. Seventy-two percent achieved a postoperative BSCVA of 20/40 or better, and 79% saw 20/50 or better after ACIOL implantation. Only 9% had a BSCVA worse than 20/60. When analyzed by patient's age, 84% of patients younger than 70 years and 68% of those 70 years of age or older achieved a BSCVA of 20/40 or better.

CONCLUSION

A definite, although small, need for ACIOLs exists today. This type of lens and the surgery involved are far less traumatic to the eye and easier for the ophthalmologist to implant/perform. ■

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