Anterior capsule contraction syndrome can dislocate a lens implant or otherwise impair visual function. A comparative study presented at the American Academy of Ophthalmology Annual Meeting in November 2003 found a higher incidence of this complication with the AcrySof Single-Piece IOL (SA60AT; Alcon Laboratories, Inc., Fort Worth, TX) than the three-piece AcrySof MA60BM lens (Alcon Laboratories, Inc.).

**STUDY MOTIVATION**

In an interview, Michael Rauser, MD, one of the study’s authors, commented that he has used acrylic lens implants for approximately 6 years. His primary IOL was the AcrySof MA60BM until 2 years ago, when he switched to the AcrySof SA60AT lens, which he has found easier to insert. Within 6 months of the transition, he says, “[I noticed] signs of anterior capsule contraction syndrome. At first, it seemed anecdotal, but then we had several cases, which prompted us to do a study” comparing the rate of the complication with the two lens models.

**METHODOLOGY**

The retrospective chart review that Dr. Rauser and his colleagues conducted comprised 418 surgeries, with 230 eyes receiving the AcrySof SA60AT lens and 188 eyes receiving the AcrySof MA60BM. The primary surgeon in all cases was Dr. Rauser, and his surgical technique reportedly remained unchanged for all cases. He created a 5-mm capsulorhexis and made no attempt to polish the surface of the anterior capsule.

**RESULTS**

Seven patients (3%) who received the AcrySof SA60AT lens developed anterior capsule contraction syndrome that Dr. Rauser believed would threaten the central visual axis. These patients underwent anterior Nd:YAG capsulotomies. Anterior capsule contraction syndrome occurred 4 months (range, 1 to 12 months) postoperatively. No patients who had received the AcrySof MA60BM lens developed the complication. This difference was statistically significant ($P<.02$). The study results indicate that this complication may be more likely in single-piece versus three-piece acrylic IOLs.

**“No patients who had received the AcrySof MA60BM lens developed the [anterior capsule contraction syndrome].”**
The important question concerning hydrophobic acrylic lens implants that this study asks is, does lens design alone affect the incidence of anterior capsule contraction? Other studies\(^1\)\(^2\) have indicated that lens material does play a role and that hydrophobic acrylic lenses are associated with a lower incidence of this complication.

The primary weakness of this study is that it is a non-randomized retrospective review. Among its strengths are a large patient population, a single surgeon consistently using one surgical technique, and the elimination or statistical matching of risk factors for anterior capsule contraction. The study’s most important strengths are that the IOLs compared were composed of the same material and produced by the same manufacturer. As a result, lens design was the only variable studied.

The investigators recommended two modifications to surgical technique that might reduce the incidence of anterior capsule contraction. One was to create a larger capsulorhexis. This suggestion seems sound, especially for patients with risk factors predisposing them to the complication. The second recommendation was for the more vigorous removal of anterior lens epithelial cells at the time of surgery. Although this suggestion intuitively seems correct, another study\(^3\) indicated that this technique may result in a greater incidence of posterior capsule opacification.

Regarding a possible etiology for the difference in the incidence of anterior capsule contraction between IOLs noted in this study, the investigators proposed that the thicker haptics of the AcrySof SA60AT lens (Alcon Laboratories, Inc., Fort Worth, TX) may delay capsular adhesion, which they suggested would resist fibrotic contraction. I would suggest two additional possible etiologies. First, the thicker haptics of the one-piece IOL may stimulate the overlying epithelial cells and result in their greater proliferation, leading to anterior capsule contraction. Another possibility is that the haptics of the AcrySof MA60BM IOL (Alcon Laboratories, Inc.) may provide greater mechanical stretch and force to the capsule than those of the AcrySof SA60AT lens, and, as a result, these haptics may more effectively resist capsule contraction.

The study supports the conclusion that the lower incidence of anterior capsule contraction syndrome associated with hydrophobic acrylic lenses (as noted in the studies mentioned earlier) may be the result of both lens design and material.

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