

# Correcting High Astigmatism During Cataract Surgery

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## CASE PRESENTATION

A 60-year-old symptomatic patient presents with bilateral cataracts as well as 4.00 D of against-the-rule astigmatism in each eye. What would your strategy be for reducing the astigmatism in the initial eye undergoing surgery?

### ROBERT H. OSHER, MD

A European surgeon who has access to high-powered toric lenses would manage this case differently. My approach, however, would be similar to that presented in a recent edition of the *Video Journal of Cataract and Refractive Surgery*.<sup>1</sup> After performing microcoaxial phacoemulsification through a 2.2-mm incision, which is astigmatically neutral, I would implant an AcrySof Toric lens (model T5; Alcon Laboratories, Inc., Fort Worth, TX) into the capsular bag and leave the IOL oriented as close to the steepest meridian as possible. If the placement were precise, this lens would correct 2.00 D of astigmatism in the corneal plane. I would treat the remaining 2.00 D with astigmatic keratotomy (AK).

Since 1983, I have used corneal relaxing incisions to reduce preexisting astigmatism. Although these incisions have a greater effect than limbal relaxing incisions (LRIs), the results are variable and highly dependent upon the incisions' depth and length, the size of the optical zone relative to the corneal diameter, the patient's age, and the type of astigmatism. AK is an acquired art in contrast to toric lenses, which are becoming a more precise science. Inaccuracy in identifying and marking the steepest meridian, however, remains a problem that must be improved. Nevertheless, the combined approach I described offers a satisfactory method for managing the cataract surgery patient with high astigmatism.

### ROGER F. STEINERT, MD

Ophthalmologists have three effective modalities for dealing with astigmatism at cataract surgery: LRIs; toric IOLs; and LASIK/surface ablation. The disadvantages of excimer laser-based correction are its cost and the need for a separate procedure. Of the three options, however, it is the only one proven to be highly accurate.

In this case, the age of the patient and his high level of astigmatism make excimer laser refractive surgery the optimal choice based on its accuracy and optical superiority. Its added cost compared with a toric IOL is modest for most practices.

### LOUIS "SKIP" D. NICHAMIN, MD

The decision whether to use corneal relaxing incisions or a toric IOL to reduce preexisting astigmatism at the time of cataract surgery is determined by the surgeon's level of comfort and experience with each modality as well as specific characteristics of a given patient. I am fortunate to have learned incisional keratotomy and astigmatic theory from pioneers such as Spencer Thornton, MD. I began correcting astigmatism at the time of cataract surgery in the late 1980s, as first described by Dr. Osher<sup>2,3</sup> and later by William Maloney, MD.<sup>4</sup> In the early 1990s, I became familiar with LRIs through my good friend David Dillman, MD, who first observed Stephen Hollis, MD, as he performed this important variation of AK. I have gradually modified Dr. Hollis' nomogram<sup>5</sup> and have achieved superb results with stable outcomes during the past 10 years.<sup>6</sup>

Using the current NAPA (Nichamin age- and pachymetry-adjusted) nomogram along with pachymetry-guided adjustable depth settings of the diamond blade, I can typically correct up to 2.00 to 3.00 D of astigmatism based upon the patient's age.<sup>7</sup>

In the presented case, the first factor in my decision would be the patient's desire for a premium multifocal or

