

Cataract Surgery in Postrefractive Surgery Patients

As postrefractive surgery patients age, their likelihood of undergoing cataract surgery increases. Recent breakthroughs in IOL technology enable surgeons to offer multifocal and accommodative lenses as alternatives to monofocal IOLs.

BY ERIC D. DONNENFELD, MD

A major concern relating to multifocal IOL implantation after previous refractive surgery is the incidence of glare and halos resulting from the induction of higher-order aberrations from the refractive procedure, that can diminish contrast sensitivity and quality of vision. Another concern is that IOL power calculation in eyes with previous refractive surgery is notoriously inaccurate. With this in mind, my colleagues and I have investigated the use of multifocal and accommodative IOLs after LASIK surgery and found that, with certain strict criteria, these patients do very well.

PRECATARACT SURGERY CONSIDERATIONS Centration of Ablation in Previous Refractive Surgery

The most important criterion is that the ablation of the first refractive surgery procedure is well centered over the visual axis. Any decentration of that ablation will result in an increased incidence of coma and a loss of contrast, both of which will add to the aberrations created by the multifocal IOL and result in an ineffectual postoperative surgical outcome. To date, my colleagues and I have implanted 20 multifocal or accommodative IOLs in previous LASIK patients undergoing cataract surgery with Acrysof Restor (Alcon Laboratories, Inc., Fort Worth, TX), Rezoom (Advanced Medical Optic, Inc., Santa Ana, CA), and Crystalens accommodating IOLs (Eyeonics, Inc., Aliso Viejo, CA). Overwhelmingly, these patients are satisfied with their quality of vision and their ability to see at distance and near.

Need for Enhancement, Additional Surgery

One major concern is the significant need for enhancement (13/20) in the aforementioned patients. With all three lenses' designs, we needed to perform LASIK enhancements by lifting the flap. In doing so, we were able to fine-tune our results to provide a much better quality of vision. Because more than 50% of patients will need additional refractive surgery to reduce astigmatism or residual spherical refractive error, we consider cataract extraction with multifocal IOL implantation in post-LASIK patients to be a two-staged procedure. In addition, these patients, although they do well, must be informed of the added risk of glare and halos, particularly if they have had large refractive errors corrected with ablative corneal surgery. Patients with high refractive errors tend to have smaller optical zones with previous ablation profiles and have more higher-order aberrations, which add to their visual problems after multifocal IOL implantation. It is imperative that patients considering this surgery be informed of this potential problem.

PERSONAL EXPERIENCE

BCVA

After receiving presbyopia-correcting IOLs, the majority of our patients achieved a BCVA of 20/20, although there were four patients with BCVAs of 20/25. For this reason, patients, particularly those who have had refractive surgery, must be made aware that their BCVA may not be as good with a multifocal IOL as with a conventional IOL.

Glare and Halos

Surgeons can diminish the problems of glare and halos, as seen in today's post-LASIK patients, by using new ablation profiles, including more prolate ablations with a reduction of spherical aberration, such as colleagues and I are able to achieve today. In addition, it is extraordinarily important that patients who undergo multifocal IOL implantation have well-centered IOLs. In circumstances in which there is any loss of capsular-bag support or a question of IOL centration after cataract surgery, I would recommend that an aspheric or negative aspheric lens be used to improve patients' quality of vision. Currently, all of the IOLs that are available for patients undergoing multifocal IOL implantation have positive asphericity. The development of an aspheric lens to increase quality of vision will happen in the near future and will be a significant advance. The Tecnis multifocal IOL (Advanced Medical Optics, Inc.; not FDA approved), currently available and being used in Europe, has an aspheric optic.

CONCLUSION

For patients who require corneal ablative enhancements after multifocal or accommodative IOL implantation, excellent registration and centration are extremely important. I routinely perform an argon laser iridoplasty to center the iris over the middle of the IOL in any patient undergoing an excimer laser photoablation following presbyopia-correcting IOL implantation. In addition, we need to develop better registration for patients who have had previous cataract surgery to ensure that they receive the best ablation profile possible to diminish unwanted glare and halos and to improve the quality of vision. I believe that satisfaction with multifocal and accommodative IOL implantation after LASIK is high in patients who have had successful previous refractive surgery with appropriate preoperative selection and who understand and accept the probability that an enhancement will be necessary. Multifocal and accommodative IOLs represent a significant advance for patients requesting independence from spectacles. ■

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