Refractive lens exchange is easy to perform and yields predictable, accurate results in most cases. Moreover, the procedure respects the architecture of the central cornea, and it provides patients with both superb quality of vision and stable, rapid visual rehabilitation. As a result, refractive lens exchange is gradually gaining popularity within the US. According to a 2001 survey of ASCRS members, 75% of respondents did not perform the procedure, but 25% performed between one and two cases per month (up from 19% in 2000). This article assesses the risk of retinal complications following refractive lens exchange in highly myopic eyes.

THE POTENTIAL FOR COMPLICATIONS

With a small-incision technique, refractive lens exchange is generally considered safe and effective except in eyes with extreme hyperopia, small axial lengths, shallow anterior chambers, small corneal diameters, and nanophthalmos. There have been no case reports of uveal effusion, retinal detachment (RD), intraocular hemorrhage, or malignant glaucoma associated with refractive lens exchange for hyperopia or presbyopia, however. Even so, the procedure can lead to postoperative infections, a loss of accommodation, anterior capsular retraction, posterior capsular opacification (PCO), and retinal complications. For these reasons, some ophthalmologists believe that the risks of refractive lens exchange outweigh its benefits in highly myopic eyes, particularly because these eyes have a 40-times greater lifetime risk of RD without surgery than emmetropic eyes.

RATE OF RD

The rate of RD after myopic refractive lens exchange varies. A meta-analysis of 13 papers on myopic refractive lens exchange and cataract extraction in 1,790 highly myopic eyes found that the RD rate at 37 months was 1.53%. Differences depended upon the patient populations studied and the length of follow-up. According to another study, patients undergoing refractive lens exchange for myopia run a 4.6% chance of moderate visual impairment and a 3.3% chance of severe visual impairment, strictly as a result of retinal complications. When the procedure is performed bilaterally in a patient who is extremely myopic in both eyes, the risk of visual loss increases.

In a study by Dr. Colin and colleagues, they performed phacoemulsification on and implanted PMMA IOLs in 52 eyes with a mean level of myopia of 15.50 D (range, 12.00 to 20.00 D) and a mean axial length of 29.7 mm (range, 28.5 to 31.0 mm). When necessary, they preoperatively performed retinal argon laser prophylaxis, although the benefit of this treatment has not been established. The investigators created an Nd:YAG capsulotomy in 60% of cases. Figure 1 shows the rate of RD over 10 years. The mean time to RD was 5.6 years (range, 1.5 to 9.0 years). Risk factors for RD included a... (continued on page 68)
high incidence of PCO and Nd:YAG capsulotomies (60%) and a low incidence of preoperative posterior vitreous detachment (16%). Twenty percent of the eyes that had an RD lost greater than two lines of BCVA. Based on these results, the need for an Nd:YAG capsulotomy after refractive lens exchange in young, myopic eyes increases their risk of retinal complications.

**CONCLUSION**

Refractive lens exchange is an efficient procedure for addressing high ametropia without the need for specific, expensive equipment. The implantation of monofocal, multifocal, or accommodative IOLs can provide excellent visual rehabilitation without affecting the patient’s central corneal architecture.

The incidence of RD in unoperated eyes with greater than -10.00 D of myopia has been estimated at 0.68% annually (6.8% over 10 years vs 10% in Dr. Colin’s study). Also worth noting, newer IOLs are associated with lesser rates of PCO, which may lead to lower rates of RD after refractive lens exchange. Additionally, risk factors for RD in highly myopic candidates for refractive lens exchange include high-risk peripheral retinal lesions, undetached posterior vitreous, and a personal or familial history of RD.

The risk of progression of myopic macular degeneration following refractive lens exchange is unknown, and this intraocular procedure may lead to vision loss in myopic patients. New, prospective studies are needed.

Joseph Colin, M.D., is Professor of Ophthalmology and Chairman of the University Department at CHU Université de Bordeaux in France. Dr. Colin may be reached at: +33 55 679 56 08; joseph.colin@chu-bordeaux.fr.

Julien Kerautret, M.D., is a fellow at CHU Université de Bordeaux in France. Dr. Kerautret may be reached at: +33 55 679 56 08; jkerautret@hotmail.com.

Jean-François Korobelnik, M.D., is Professor of Ophthalmology at CHU Université de Bordeaux in France. Dr. Korobelnik may be reached at: +33 55 679 56 08; jean-francois.korobelnik@chu-bordeaux.fr.