LASIK and Phakic IOLs

Surgeons should view these procedures as complementary.

BY ROBERTO PINELLI, MD

LASIK and phakic IOLs are two entirely different techniques of refractive correction; however, it is advisable to offer both options in your practice. In fact, I would take this logic one step further and say that LASIK and phakic IOLs are complementary technologies.

The issue that surgeons face is deciding when and why we should choose one technique over the other in a given patient. In order to better understand which procedure we should perform, a brief panorama of the two procedures is useful.

LASIK

This technique is common worldwide and represents an excellent refractive solution. A review of the literature[1,2] clearly and uniformly indicates the safety and effectiveness of the latest generation of LASIK, even for complex cases. In my colleagues' and my refractive center, we perform thin-flap LASIK in more than 90% of patients selected for corneal refractive surgery. This has been our technique of choice for the past 4 years; the thickness of the flap should be approximately 80 µm and never more than 90 µm thick. Both the femtosecond laser and mechanical microkeratome are able to create a thin flap.

Thin-flap LASIK requires applanation to create the flap on a flat cornea. Since we have added the use of applanation systems, our incidence of flap complications is approximately 0.1%. Additionally, only one epithelial shift occurred in 100 eyes. We believe that not only the applanation system but also the use of a solid suction system has decreased the rate of complications. For these reasons, modern LASIK is the main technique in our center, and presby-LASIK (called *P curve* herein) is performed on more than 50% of our patients.

PHAKIC IOLs

Phakic IOLs are another excellent refractive solution. We prefer to use this option in patients who have a high refractive error or a thin cornea (< 500 µm of pachymetric value in the center of the cornea). An excellent endothelial cell count (2,000 cells/mm^2 minimum) is required to ensure a safe cornea for many years after surgery.

Our experience with phakic IOLs, which extends to 7 years' follow-up, is with the foldable iris-fixated model

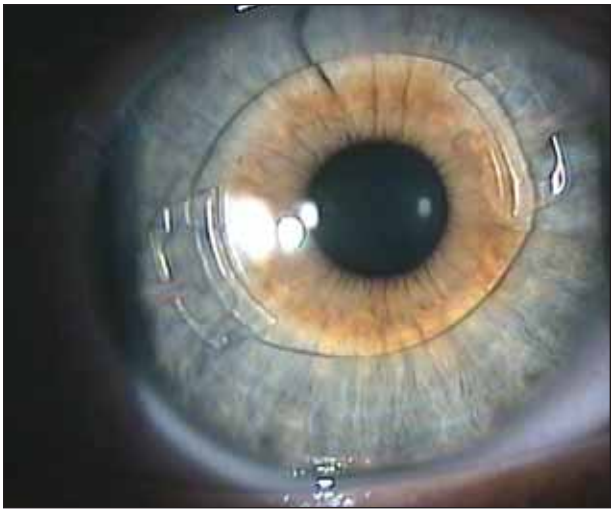

Figure 1. This phakic IOL was safely implanted under topical anesthesia.

bilaterally implanted under topical anesthesia (Figure 1). All patients have had safe postoperative endothelial cell counts. The next generation of angle-supported phakic lenses, especially if foldable, will also offer a safe solution.

Visual acuity and quality of vision with phakic IOLs are comparable to results with LASIK, and patient-satisfaction survey results for both techniques are similar. Bilateral implantation of phakic lenses is key, in our experience, to ensure patients' enthusiasm and surgical success. Sterility and surgical team preparation are imperative when we perform bilateral anterior chamber surgery, and therefore continued education is obligatory for the entire staff.

WHEN TO CHOOSE LASIK VERSUS PHAKIC IOLs

Guidelines must be implemented to choose the appropriate technique for each individual. At the Istituto Laser Microchirurgia Oculare in Brescia, Italy, our major points of discussion include corneal pachymetry, refractive error, anterior chamber depth, endothelial cell count, astigmatism, and patients' expectations.

Following is our preference of technique, depending on the patient's characteristics.

LASIK. We avoid LASIK in patients with myopia greater than -6.00 D or hyperopia greater than 4.00 D (with or

without astigmatism). If we choose to perform LASIK, we require a minimum central corneal pachymetry of 500 μm, and the patient must be free from corneal abnormalities.

Surface corneal procedures. Advanced surface ablation procedures are performed in our institute in fewer than 5% of patients. We typically perform this procedure in patients with a small refractive error associated with insufficient pachymetry for LASIK (ie, < 500 μm).

Phakic IOLs. These lenses are our first choice when the patient's pachymetry is less than 500 μm and the refractive error is between -3.00 and -14.00 D of myopia. Phakic IOLs are always the best solution in any case with more than -6.00 D of myopia.

Astigmatic or hyperopic correction. Astigmatism is currently managed (maximum, 1.50 D) with a longer tunnel or astigmatic LASIK; however, in the near future we will be able to implant a toric iris-fixated phakic lens. This development is on the horizon.

In patients with hyperopia, we prefer to perform LASIK because these cases often have anterior chamber depths of less than 3 mm; in fact, hyperopic patients often have a small anterior chamber depth.

CONCLUSION

We think that both LASIK and phakic IOLs are excellent techniques, and recent surveys show that satisfaction is similar for the two. One should be not considered better than the other, because this is neither scientifically correct nor true. Both procedures should be considered appropriate solutions for refractive errors; it is advisable to offer to perform either technique without acknowledging any personal preferences. This will allow the patient to make the best choice for him- or herself, without any influence from the surgeon.

Our goal as refractive surgeons and our goal as teachers is to perform both techniques equally well, using the best procedure for the individual patient. We must educate and encourage our fellows to practice both techniques. ■

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