Any paradigm-altering technique is certain to create an enormous amount of controversy. Refractive surgery, like phacoemulsification, is no exception. Refractive surgery’s popularity has surged so sharply that it is now a part of the routine ophthalmic practice of approximately 25% of US eye surgeons. The next large growth area in refractive surgery will probably involve the implantation of phakic IOLs for the correction of ametropia and presbyopia. As a result, IOLs developed for the treatment of a cataract will become a mainstay of refractive surgery. The greatest difference between cataract/IOL surgery and refractive surgery is not so much one of surgical technique as of the philosophy behind the use of these surgeries. This article briefly examines certain aspects of refractive surgery and contains observations that may help explain why refractive surgery differs from cataract/IOL surgery and why refractive surgery has evoked such controversy.

A HISTORY OF CONTENTIOUSNESS
In the late 1980s, when the American Society of Cataract Surgery changed its name to the American Society of Cataract and Refractive Surgery, 25% of the membership resigned in protest against the inclusion of refractive surgery as a focus of the organization. At
about the same time, one prominent American ophthalmologist opined categorically that it was not possible under any conditions to provide a valid informed consent for refractive surgery.

Despite the constant climate of adversity, scores of dedicated eye surgeons continued to advance the field of refractive surgery. There were great clinical successes and great clinical failures. Overall, however, the lure of dramatically improving a patient’s lifestyle by providing excellent UCVA was simply too compelling to resist.

**THE REASONS BEHIND THE ATTITUDES**

*“Do No Harm” Dilemma*

To determine how and why an ophthalmologist might perceive refractive surgery as different from cataract surgery, one should consider several possibilities. Take for example the patient with a cataract who presents with impaired visual function. Psychologically, it is much easier for a surgeon to rationalize a surgical complication in an 80-year-old patient whose vision was already poor than one that deprives a 21-year-old of good visual function for 50 years, especially when that patient had excellent visual function with glasses or contact lenses.

The fear of harming a young patient’s vision is a conscientious eye surgeon’s greatest single barrier to performing refractive surgery. The risk-benefit ratio is too high for him. The development of a safer refractive surgery procedure would surmount this obstacle.

Figure 3. The surgeon has created a plano disc of cornea with a microkeratome and placed the disc on the Delrin plastic base of the cryolathe. This base will spin, and the hollow, cold, stainless steel tool will reshape the frozen corneal disc according to the dictates of a programmable calculator. In LASIK, the excimer laser replaces the Barraquer cryolathe.
True Belief
Some eye surgeons truly believe that refractive surgery will decrease the patient’s quality of visual function. In other words, they hold that refractive surgery is inherently defective. If this is the surgeon’s true belief after a thorough investigation of the subject, then his decision not to perform refractive surgery should be respected without reservation.

“Despite the constant climate of adversity, scores of dedicated eye surgeons continued to advance the field of refractive surgery.”

False Belief
Certain surgeons state their belief that refractive surgery is defective only as a means of hiding their inability to adequately perform refractive surgery. This attitude is as despicable as the previously mentioned attitude is respectable.

Inertia
Ten to 15 years ago, the majority of cataract surgeons made a reasonable living performing cataract/IOL surgery. They had no desire to learn a new skill (such as refractive surgery), which might necessitate changing their office routines and treating finicky, complaining, potentially litigious refractive surgery patients. Many surgeons are not opposed to progress; they just hope that the need for learning new surgical techniques will occur immediately after their retirement.

Glasses and Contact Lenses Are Adequate
Another form of inertia is the attitude that glasses and contact lenses are adequate means of correcting refractive error. The argument often made is that, because these modalities function at a reasonable level, an improved and riskier solution is unnecessary. This stance ignores the strong desire of many patients to eliminate their contact lenses and glasses (Figure 1). These factors interact with an eye surgeon’s personality, ego, lifestyle, and training to determine whether or not he will include refractive surgery in his ophthalmic practice.

A NEW PHILOSOPHY EMERGES
The revered grandfather of refractive surgery, Professor José Ignacio Barraquer, MD, (himself a +3.00-D hyperope) had a unique way of looking at ametropia, glasses, and contact lenses in the 1960s. He believed that refractive error was a disease and that glasses and contact lenses were prosthetic devices used to treat that disease. In Dr. Barraquer’s view, the true cure for the disease of ametropia was surgery.

He acted upon his beliefs by investigating myriad ways to change the anterior corneal curvature. By the late 1960s, Dr. Barraquer had settled on a method of removing the anterior cornea, lathing it into a new shape while it was frozen, and then returning the tissue to its original bed (Figures 2 through 4). This surgery, which he called keratomileusis, was a form of autolamellar keratoplasty that involved reshaping the donor tissue. This procedure was radical enough to lead both to Dr. Barraquer’s ostracization by many of his peers and his later acceptance by many supporters. Certainly, his story plays out similarly to that of Charles Kelman, MD, and his quest to integrate phacoemulsification into the practice of cataract surgery.

REFRACTIVE SURGERY’S MATURATION
Cynics may point to the financial advantages associated with performing thousands of refractive surgeries as surgeons’ prime motivation for becoming involved in the
field. Although the desire to earn money has become an increasingly important issue in modern American ophthalmology (especially when the fee for cataract/IOL surgery has dropped from $1,800 to $500), it is difficult to maintain a practice by performing poor-quality refractive surgery for financial gain only when confronted with great patient dissatisfaction and many impending lawsuits.

“In Dr. Barraquer’s view, the true cure for the disease of ametropia was surgery. He [investigated] ... myriad ways to change the anterior corneal curvature.”

Refractive surgery has matured into a legitimate form of ocular surgery. Just as a cataract surgeon can dishonestly remove a clear crystalline lens, ophthalmologists can approach the field of refractive surgery from either the high road of respectability and intention or from the low road of poor quality and a sole desire for financial gain. The abuse of a surgical technique is not caused by the technique itself but by a surgeon, and such abuse exists in all forms of surgery.

The field of refractive surgery is now expanding to include techniques for correcting presbyopia. The ability to correct both ametropia and presbyopia will be a major advance for the civilized societies of the earth. Certainly, not all of the surgical procedures proposed for correcting ametropia and presbyopia will function well, however. In the near future, refractive surgeons worldwide will be in the difficult position of differentiating at an early stage the techniques that work well from those that do not. Otherwise, the credibility of the field will always be in doubt, because surgeons will be asked to perform techniques that will be proven defective and rife with complications a few years later. This problem cannot be overestimated.

**CONCLUSION**

The development of refractive surgery has been exciting to observe. As with any other controversial ophthalmic endeavor, at the core of refractive surgery has been a cadre of innovative, brave souls who defied the common wisdom of “established ophthalmology” and risked their reputations in an effort to correct ametropia and presbyopia. The impact of this evolving field upon the world’s population will be dramatic.

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