A 37-year-old Latino man presented for a refractive surgery evaluation in October 2008. At that time, his refractive error was -13.00 -0.75 X 170 = 20/40+ OD and -7.25 -1.25 X 176 = 20/40 OS. The Visian ICL (STAAR Surgical Company) was implanted in his right eye in November 2008.

Just prior to that, in October 2008, he underwent conventional PRK with the Visx Star S4 laser (Abbott Medical Optics Inc.) in his left eye. Adjunctive mitomycin C (MMC) 0.02% was applied for 30 seconds. In February 2009, 4 months postoperatively, mild haze was evident, and the patient was started on fluorometholone drops. By June 2009 (8 months after PRK), the haze was more dense, and the manifest refraction was -3.75 -1.50 X 165 = 20/200 (Figure 1).

The patient was taking artificial tears, flaxseed oil, vitamin C, and fluorometholone t.i.d. In September 2009 (10 months after PRK), the haze persisted, and his refraction was -4.25 -2.00 X 155 = 20/100. The patient was instructed to continue using all drops, except the fluorometholone was changed to prednisolone acetate (Figure 2).

In October 2009, the patient underwent alcohol de-epithelialization, followed by a mechanical superficial keratectomy using a corneal burr. Additional phototherapeutic keratectomy (PTK) to a depth of 20 µm at a 6-mm zone was delivered, followed by PRK for a correction of -2.75 -1.00 X 155 using a conventional beam profile. MMC 0.02% was applied for 2 minutes. One month after the superficial keratectomy, the patient’s refraction was plano -0.75 X 5 = 20/40 (Figure 3A).

By May 2010, 7 months after the superficial keratectomy, the haze had returned (Figure 3B), and the patient’s refraction was -6.25 -1.00 X 150 = 20/150. A repeat superficial keratectomy was performed using alcohol de-epithelialization, followed by a mechanical superficial keratectomy using a corneal burr. Additional PTK to a depth of 250 µm at a 6.5-mm zone was delivered, followed by PRK with a target of -2.50 -1.00 X 150 using a conventional beam profile. MMC 0.02% was applied for 2 minutes. It is important to note that a fraction of the patient’s residual myopia was treated using the excimer laser.
This is a very difficult case to deal with, because the patient has been unresponsive to MMC treatment to avoid the formation of haze. The residual corneal thickness in his left eye after all of these refractive and therapeutic procedures is not provided, but I assume it is limited. Given the eye’s history, I see no room for further scraping or a PTK approach to remove the residual haze and restore vision. Moreover, I would assume that the haze would return, just as it regularly did after the previous attempts, and I see no reason to apply MMC given the previous failures.

Unfortunately, the only realistic approach is kerato-plasty. If the residual corneal thickness allows, I would favor a lamellar keratoplasty and perform the cut with a femtosecond laser. Otherwise, a full-thickness corneal graft may be necessary.

One of the take-home messages from this case is...
that, when possible, one should always try to fix a patient’s refractive error using the same approach in both eyes. A Visian ICL implanted in this patient’s left eye would have been appropriate.

**S. LANCE FORSTOT, MD**

At this point, I doubt that surface treatment will be successful, and MMC has proven to be ineffective at preventing recurrent haze in this patient. Considering the successful result in his right eye, in all probability, the implantation of a phakic IOL would be a viable option for his left eye. After the steroid therapy that has been used, a cataract should be excluded. Assuming the lens is clear, lamellar surgery would be required to restore clarity to the cornea. No data on the present corneal thickness are given. Depending on the corneal thickness, either a superficial anterior lamellar or, more likely, a deep anterior lamellar keratoplasty should restore corneal integrity. Once the cornea and refraction are stable, a phakic IOL could be implanted.

“At this point, I doubt that surface treatment will be successful.”
—S. Lance Forstot, MD

**WILLIAM B. TRATTLER, MD**

Understanding the risk factors for corneal haze is important when patients are undergoing surface laser vision correction. In this case, three important risk factors for haze are present, including a deep ablation for the treatment of more than 7.00 D of myopia; the use of conventional laser ablation, which leaves a rougher stromal bed than the Visx CustomVue (Abbott Medical Optics Inc.); and ocular surface disease (meibomian gland dysfunction appears to be visible in the photographs of the upper eyelids). Other risk factors such as occupations or hobbies with excessive exposure to ultraviolet light were not mentioned. In this case, one important preventive step was undertaken, the intraoperative application of MMC 0.02% for 30 seconds. In high-risk eyes such as this one, other preventive strategies that could have been used include a longer initial course of a strong topical steroid (eg, prednisolone acetate or difluprednate) and optimization of the ocular surface with interventions such as punctal plugs, topical cyclosporine, and topical azithromycin.

To make an appropriate treatment recommenda-

“Understanding the risk factors for corneal haze is important.”
—William B. Trattler, MD

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