Laser Refractive Cataract Surgery With a Femtosecond Laser After Penetrating Keratoplasty: Case Report

Cataract surgery after corneal transplant must minimize endothelial cell damage because postoperative transplant cell counts are lower than those of normal corneas. As the femtosecond laser was successfully introduced in cataract surgery,1,2 we applied this technology in an eye that had a previous penetrating corneal transplant.

A 33-year-old man had a 7.0-mm diameter penetrating keratoplasty in his right eye 6 years prior to presentation. He later developed posterior polar cataract. The cornea was clear and corrected distance visual acuity (CDVA) was 20/40. Femtosecond laser–assisted cataract surgery (Alcon LenSx, Aliso Viejo, California) was performed as described previously.1,2 The corneal scar was peripheral to the planned capsulotomy. Centration was assessed using the pupillary edge. A 4.8-mm capsulorrhexis was performed with the femtosecond laser and the nucleus was liquefied.

Corneal wounds were created with a 2.8-mm and 15° blade so as not to interfere with the transplant scar. The anterior chamber was filled with viscoelastic material, and the edge of the capsulorrhexis was identified with a cystotome and removed with a capsulorrhexis forceps. After hydrodissection, the lens nucleus and cortex were aspirated with the irrigation-aspiration handpiece. A +12.00-diopter (D) hydrophobic acrylic posterior chamber intraocular lens (Acrysof; Alcon Laboratories Inc, Ft Worth, Texas) was implanted in the posterior chamber.

On postoperative day 1, CDVA was 20/200 because of slight corneal edema, which improved to 20/25 over the next 3 months. Subjective refraction was stable at 1.25 D sphere and 6.00 D cylinder at 1-year follow-up, with CDVA of 20/20. Corneal thickness measured with a Scheimpflug camera (Pentacam HR; Oculus Optikgeräte GmbH, Wetzlar, Germany) was 609 μm preoperatively and 598 μm 1 month postoperatively.

We report the first patient having successful laser refractive cataract surgery after penetrating keratoplasty. The curved interface aligned perfectly along the transplanted and donor cornea. Optical coherence tomography identified the scar line of the transplant and the scar did not interfere with the laser capsulotomy. The corneal incisions were created manually because of the peripheral localization of the transplant scar.

As reported previously,1 the use of a femtosecond laser may minimize the ultrasound energy required to remove the nucleus, thereby preserving endothelial cells in postoperative transplant corneas. Graft failure following phacoemulsification and intraocular lens implantation is reported to be between 3% and 8%.3,4 Endothelial cell loss related to ultrasound use is usually markedly higher in transplanted corneas than in normal, unoperated eyes.5 In our case, most likely due to the use of the femtosecond laser to liquefy the nucleus, no ultrasound was required to remove the lens and endothelial cell count did not change up to 1 year after surgery.

Zoltán Z. Nagy, MD, DSC
Ágnes I. Takács, MD
Tamás Filkorn, MD
Éva Juhász, MD
Gábor Sándor, MD
Andrea Szigeti, MD
Budapest, Hungary
Michael C. Knorz, MD
Mannheim, Germany

Drs Nagy and Knorz are consultants to Alcon LenSx Inc. The remaining authors have no financial interest in the materials presented herein.

REFERENCES

Successful Management of Burkholderia cepacia keratitis After LASIK

Burkholderia cepacia is a lactose-nonfermenting, gram-negative bacteria.1 Endotoxins released from the sterilizer reservoir biofilms formed by B cepacia cause diffuse lamellar keratitis after LASIK, which can be prevented by controlling biofilm formation.2 Frank infectious keratitis caused by B cepacia after LASIK has not been reported previously. We report successful management of a patient with B cepacia keratitis after LASIK.

A 27-year-old man, who underwent LASIK 2 weeks prior, presented with pain, redness, and decreased vi-
sion of 3 days’ duration in the right eye. He was using ofloxacin and fluorometholone acetate eye drops. On examination, the right eye showed conjunctival congestion, epithelial defect (6.0×7.5 mm), multifocal infiltrates in the LASIK flap, hypopyon, clear lens, and uncorrected distance visual acuity (UDVA) of counting fingers at 2 feet (Fig A). The left eye had a well-positioned LASIK flap with clear interface. Corneal scrapings were obtained under topical anesthesia from the surface and edge of the LASIK flap and subjected to microbiological evaluation. As the smears were negative, broad-spectrum antimicrobial (fortified vancomycin, fortified tobramycin, gatifloxacin, fortified voriconazole) and atropine eye drops were initiated.

By day 4, cultures showed growth of gram-negative bacilli. Antibiotics and atropine were continued. On day 7, *Burkholderia cepacia* was isolated and the sensitivity pattern showed resistance to moxifloxacin, gatifloxacin, azithromycin, colistin, ceftazidime, gentamicin, and tobramycin and susceptible to trimethoprim and meropenem. As the patient showed improvement, topical fortified tobramycin and gatifloxacin were continued. During the subsequent follow-up period (2 weeks), the patient showed excellent response and UDVA improved to 20/25. Three weeks after initial presentation, the patient presented with pain and decreased vision. On examination, conjunctival congestion, corneal epithelial defect (3.4×3.2 mm), anterior stromal infiltrate (1.4×1.2 mm), endothelial exudate, and fibrinoid anterior chamber inflammation were noted. Culture was retaken, which yielded the same organism with the same sensitivity pattern. The patient was started on topical imipenem-cilastatin sodium (5 mg/mL), polymyxin B sulfate (10000 units/mL)/trimethoprim (1 mg/mL) ophthalmic solution every 1 hour, atropine drops two times/day, and oral sulfamethoxazole (800 mg)/trimethoprim (160 mg) two times/day. On subsequent follow-up, the epithelial defect and infiltrate resolved but corneal edema and scarring were present (Fig B). Oral antibiotics were stopped after 2 weeks and topical loteprednol etabonate (0.5%) was started 4 times/day after resolution of the epithelial defect. Topical antibiotics and corticosteroids were slowly tapered over a period of 6 weeks and the patient achieved UDVA of 20/20 in the right eye with complete resolution of infiltrate but some residual anterior corneal scarring (Fig C).

Microbial keratitis is one of the most dreaded complications and is reported in 0 to 1.5% of patients after LASIK.³ Keratitis due to *Burkholderia* is rare and reported to occur in patients associated with risk factors such as contact lenses, concurrent endophthalmitis, trauma, penetrating keratoplasty, and long-term use of corticosteroids.⁴,⁵ *Burkholderia* is resistant to most of the commonly used antibiotics as seen in our case. Timely diagnosis, complete microbiological work-up, and appropriate management can help in the treatment of keratitis caused by organisms that present rarely and are resistant to multiple drugs.

Jagadesh C. Reddy, MD
Michael D. Tibbetts, MD
Kristin M. Hammersmith, MD
Parveen K. Nagra, MD
Christopher J. Rapuano, MD
Philadelphia, Pennsylvania

The authors have no financial or proprietary interest in the materials presented herein.

REFERENCES


doi:10.3928/1081597X-20121228-02