Laser in situ Keratomileusis for overcorrection after radial keratotomy

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Purpose: To evaluate laser in situ keratomileusis (LASIK) for induced hyperopia after radial keratotomy.

Methods: Twenty eyes had LASIK for induced hyperopia after radial keratotomy. All eyes were treated using the Nidek excimer laser (EC-5000) and the Hansatome microkeratome with a 905mm ring and 180mm plate. Hyperopic correction was done using a 5.5 to 7.5mm ablation zone.

Results: Mean preoperative spherical equivalent refraction was +3.44 ± 1.25D (range, +0.88 to +6.00D). Postoperatively, all eyes achieved a reduction in hyperopia. At follow-up (range, 6 to 24 mo), mean refraction was -0.66 ± 1.00D (range, -2.25 to +1.50D). At the last examination, 11 eyes (55%) were within ±0.50D, 16 eyes (80%) were within ±1.00D, and 19 eyes (95%) were within ±2.00D of emmetropia. In terms of best spectable-corrected visual acuity, 10 eyes (50%) saw 20/20 or better, 16 eyes (80%) saw 20/25 or better, and 18 eyes (90%) saw 20/40 or better. Regarding loss and gain of visual acuity lines, 11 eyes (55%) lost no lines, 2 eyes (10%) lost more than 2 lines, 1 eye (5%) lost 2 lines, 3 eyes (15%) lost 1 line, 1 eye (5%) gained 1 line, and 2 eyes (10%) gained 2 lines of visual acuity. Keratometric power increased from a preoperative mean of 37.32 ± 2.44D (range, 33.80 to 43.13D) to a postoperative mean of 39.64 ± 1.81D (range, 37.42 to 43.74D). Complications included 4 eyes with incisions that opened without any risk to the patient and in 2 eyes, epithelium ingrowth occurred in the interface.

Conclusion: LASIK for induced hyperopia after radial keratotomy is safe and effective, without vision-threatening complications.

Laser in situ Keratomileusis for hyperopia after thermal Keratoplasty

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Background: The correction of hyperopia remains challenging because regression occurs often after treatment. The authors evaluated laser in situ keratomileusis (LASIK) using the Nidek EC-5000 scanning slit excimer laser to correct residual hyperopia after thermal keratoplasty.

Methods: Twelve eyes underwent hyperopic LASIK for residual hyperopia after thermal keratoplasty. All eyes were treated using the Nidek excimer laser and Chiron Automated Corneal Shaper. Hyperopic correction was done using a 5.5 to 7.5mm ablation zone.

Results: Mean preoperative cycloplegic spherical equivalent refraction was +3.31D (range, +1.00 to +6.50D). Mean preoperative astigmatism was -0.48D (range, 0 to -2.00D). Postoperatively, all eyes achieved a reduction in hyperopia. After 1 year of follow-up, the mean refraction was +0.88D (range, 0 to +1.50D). Mean postoperative astigmatism was -0.38 (range, 0 to -1.50D). Two eyes experienced improvement in visual acuity and 3 eyes had reduced visual acuity, but no other vision-threatening complications were reported. The rate of regression was slow over 24 months. No morphological changes on the radial thermal scars were observed.

Conclusion: Hyperopic LASIK after thermal keratoplasty is safe and effective, and without vision-threatening complications.

Exchange of a posterior chamber phakic intraocular lens in a highly myopic eye

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A 38-year-old woman had posterior chamber phakic intraocular lens (IOL) implantation as a secondary refractive procedure to correct residual refraction (20/50 with -16.50 -1.50 x 80) in May 1998, 3 years after intrastromal corneal ring segment surgery for high myopia (-30.00 dipters). Ultrasound biomicroscopy revealed an oversized lens, leading to malpositioning. Moreover, the patient remained undercorrected (20/40 with -5.25 -0.75 x 120). Ten months later, the phakic IOL was uneventfully exchanged for a shorter one with the correct dioptric power. It was well placed in the posterior chamber. The patient's visual acuity was 20/30 with -2.25 -0.75 x 145, very close to the refraction in the fellow aphakic eye (20/30 with -2.50 -0.75 x 75). Patient satisfaction with the final visual outcome was high. Accurate ciliary sulcus measurement is critical for proper phakic IOL sizing.

Clinical course of hurricane keratopathy

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Background/aims: "Hurricane keratopathy" is the name given to the whorl pattern, highlighted with fluorescein, seen in situations where corneal epithelial cell turnover is exaggerated. Although the condition is well described, follow up data on patients with this condition and its sequelae have only been reported in corneal graft patients. The aim was to study the clinical course of hurricane keratopathy in corneal graft patients and contact lens wearers, and to document any sequelae of this condition.

Methods: Hurricane keratopathy, occurring in 20 eyes with corneal grafts and 16 eyes (six bilateral) wearing rigid gas permeable contact lenses, was studied and followed. The occurrence, pattern, progress, resolution, and residual effects of the whorls were noted.

Results: Hurricane keratopathy was noted to occur in grafts as previously reported and also in contact lens wearers, which has hitherto not been reported. The whorls usually appeared within the first 3 weeks postoperatively and persisted up to 4 months. A small epithelial defect (11.1%), heaped epithelial cells (5.6%), and a nebular grade opacity (2.8%), were the only significant sequelae noted at the epicentre of the whorls. Resolution occurred from the periphery towards the centre of the cornea.

Conclusions: The whorl pattern is sustained as long as the stimulus for increased cell turnover is maintained. Once this stimulus is eliminated, the pattern tends to resolve spontaneously.