Monitoring Of Glaucoma After The Implantation Of Keratoprosthesis

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INTRODUCTION

The Boston type 1 keratoprosthesis, approved by the Food and Drug Administration in 1992, was developed for patients who are poor candidates for traditional keratoplasty because of a high risk of graft failure or rejection. Long-term complications of the Boston type 1 Kpro, including glaucoma, are well documented by the literature. The rate of extrusion and endophthalmitis after KPro surgery is significantly lower since the introduction of bandage contact lenses, prophylactic antibiotics, and an improved threadless design. Despite such advances, glaucoma can compromise visual rehabilitation in these patients in spite of a clear optical window.

PATIENTS AND METHOD

Patient 1: Female, age 80, preoperative corneal diagnosis was graft failure in association with glaucoma, pre-operative best corrected visual acuity (BCVA) was finger counting (FC), post-operative BCVA was 20/63. This patient received anti-glaucoma treatment before and after Kpro surgery with timolol, latanoprost and oral acetazolamide.

Patient 2: Male, age 54, preoperative corneal diagnosis was bilateral chemical injury, pre-operative BCVA was light perception (LP), post-operative BCVA was 20/50, digital assessment of IOP was normal before and after surgery.

Patient 3: Male, age 42, preoperative corneal diagnosis was graft-versus-host disease, pre-operative BCVA was 20/40, digital assessment of IOP was normal before and after surgery.

Intraocular pressure assessment was performed by palpatation. Visual fields were performed after surgery by using automated perimetry with Humphrey SITA Standard programs and with Octopus Dynamic programs. Optic nerve and Retinal Nerve Fiber Layer evaluation were performed with HRT III (Heidelberg Engineering) and Rtvue OCT (Optovue, Inc). Reliability indexes of HRT, OCT and VF fixation losses were 28,5 μm [7,8], 38,4 [7,9], 1,4/17.

CONCLUSION

The Boston type 1 Keratoprosthesis is an important and viable option for salvaging vision after multiple keratoplasty failures and in patients with a high risk of failure with traditional grafting methods. Glaucoma emerges as an important long-term complication of this procedure. Monitoring of IOP is extremely difficult, is complicated by the lack of objective tonometry, leaving clinicians with no other means than palpation to evaluate IOP. Visual field examination and imaging methods are paramount for glaucoma monitoring; we show the feasibility in patients implanted with a keratoprosthesis.

References

Negrisoli L, Greiner MA, Li JY, Mannis MJ. Long-term outcomes and complications with the Boston type 1 keratoprosthesis at the University of California, Davis Ophthalmology, 2011 Aug;138(8):1549-53.

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