

## TRANSPOSITIONAL AUTOKERATOPLASTY

Vijay Pai<sup>1</sup>, Jayaram Shetty<sup>2</sup>, Hrishikesh Amin<sup>1</sup>,  
<sup>1</sup>Professor, <sup>2</sup>Professor & HOD, Department of Ophthalmology  
 K.S. Hegde Medical Academy, Mangalore

Correspondence:

Vijay Pai,  
 Professor, Department of Ophthalmology  
 K.S. Hegde Medical Academy, Mangalore.

### Abstract:

Rejection is the most common cause for corneal graft failure<sup>1,2</sup>. Therefore, for obvious reason, ideal material for corneal graft is the host's own cornea, either from the same eye or the fellow eye, which is totally blind from the cause that leaves the cornea healthy and intact or possibly, from an identical twin, that has a cornea to spare for the same reason. Herewith, we report a case of Transpositional Autokeratoplasty.

Keywords : Autokeratoplasty, Transpositional, Rotational, graft rejection

A 70 year old lady presented to the cornea services of the Ophthalmology Department of Justice K.S. Hegde Charitable Hospital, Mangalore with complaints of bilateral loss of vision since about 20 years following cataract surgery in both eyes. She had recurrent episodes of pain, redness and watering in the right eye, since the time of initial surgery. She had no previous records of the details regarding the surgical procedure. She was neither a Diabetic, nor a Hypertensive, and was not on any ocular or systemic medications at the time of presentation.

On examination, her visual acuity was light perception with accurate projection of rays in all quadrants in the right eye whereas there was no light perception in the left eye. Slit lamp examination showed mild conjunctival congestion, with epithelial bullae and diffuse stromal oedema in the right eye, whereas left eye showed a clear cornea. She was aphakic in both eyes with no evidence of vitreous in the anterior chamber. The status of the posterior capsule was not visible in the right eye, whereas it was found to be intact in the left eye. The intra-ocular pressure was 17.3 mm of Hg and 14.6 mm of Hg with 5.5 gm. by Schiottz Tonometry in the right eye and the left eye respectively. Dilated fundus examination

revealed a chalky white disc with a normal retina in the left eye, whereas that in the right eye could not be visualized.

B-scan of the right eye showed normal posterior segment. A-scan biometry in aphakic mode was also done for the right eye and posterior chamber intraocular lens power calculated by SRK II formula, using the keratometry values of the left eye, was +22.0D. Specular microscopy or pachymetry was not performed.



Figure 1(a): (RE) Aphakic Bullous Keratopathy, (LE) Clear cornea



Figure 1(b): B-Scan (RE) within normal limits

Surgery was performed under peribulbar anaesthesia to both the eyes<sup>3</sup>. First, an 8.2mm corneal button was trephined from the left eye, which was then carefully placed in a sterile bowl and covered with viscoelastic. Donor tissue from our Eye Bank was sutured in place and the eye was patched.

Subsequently, in the right eye, an 8.0 mm cornea was trephined out, posterior capsule was found to be intact, and hence, a +22.0D posterior



Figure 2(a)& 2(b): Preparation of Donor button from Left Eye

Figure 2(c): Preparation of Recipient Bed

chamber intraocular lens was placed in the sulcus. The corneal button trephined earlier from the left eye was now sutured using 16 interrupted 10-0 nylon sutures. Peripheral button-hole iridectomy was also done and residual viscoelastic was washed from the anterior

On the first post-operative day, the right eye revealed a mild stromal oedema in the graft with few Descemet membrane folds. The graft-host junction was well apposed, anterior chamber well-formed and the intraocular lens was in place. The vision was counting

fingers 3 metres. She was asked to use Moxifloxacin-Prednisolone Acetate eye drops 6 times in a day, tab. Acetazolamide (250 mg) b.d. for 3 days and ocular lubricants.

At the end of one week, the right eye showed a clear graft with an uncorrected vision of 6/60 improving to 6/18 with pin-hole. The steroids were now tapered off and lubricants were continued. At 4 weeks, the visual acuity of 6/60 was maintained, and the graft was clear.



Figure 3(a): Post-Op Day 1



Figure 3(b): Post-Op 4 weeks

**Discussion:**

Autokeratoplasty is a surgical procedure, wherein the patient's own cornea is used for visual rehabilitation, the greatest advantage being negligible chances of immune rejection. Traditionally, 2 types of autokeratoplasty have been described – transpositional and rotational. Transpositional grafts are those which involve exchange



Figure 3(c): Post-Op 6 months

of corneal buttons between the two eyes of the same person, wherein the eye with clear cornea has no visual potential, while the recipient eye has opaque cornea, but good visual potential<sup>5</sup>.

Review of literature shows many case reports of rotational grafts, but very few reports of transpositional graft. To the best of our knowledge, there have been 11 reported cases of Transpositional grafts in the literature so far.<sup>6, 7, 8</sup>. Therefore, we would like to report this particular surgical procedure as an alternative to penetrating keratoplasty.

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