

## Commentary: Recent advances in endothelial keratoplasty and the postoperative use of bandage contact lens

This issue of the *Indian Journal of Ophthalmology* contains an article evaluating the role of bandage contact lens in Descemet's Stripping Automated Endothelial Keratoplasty (DSAEK).<sup>[1]</sup> The concept of lamellar keratoplasty has dramatically changed the scope of corneal transplantation. Gone are the days of long waiting periods for visual rehabilitation and the fluctuation in vision even after the removal of sutures, especially in the scenario of endothelial keratoplasty.

Gerrit Melles demonstrated the rather complicated procedure of posterior lamellar keratoplasty, which was modified to deep lamellar endothelial keratoplasty by Mark Terry. Melles described descemetorrhexis and the result of this procedure, DSEK (Descemet's stripping endothelial keratoplasty) was published by Francis Price. Mark Gorovoy described the use of the automated microkeratome for preparing the donor graft tissue which was called DSAEK.<sup>[2,3]</sup> The final frontier, again pioneered by Melles, is DMEK (Descemet's membrane endothelial keratoplasty) where only the Descemet's membrane and the endothelium is replaced.

Faster visual rehabilitation in endothelial keratoplasty is due to the minimal alteration of the corneal topography. The selective replacement of the diseased layer of the cornea may result in fewer instances of allograft rejection, probably due to lesser antigenic load.<sup>[4]</sup>

Procedure wise many modifications have been made by several authors.<sup>[3]</sup> From the harvesting of the donor graft to donor button insertion techniques and air management, claims have been made as to the superiority of one technique over the other in terms of percentage loss of endothelial cells, regaining good UCVA (uncorrected visual acuity), epithelial healing, and of course, patient satisfaction.

Use of manual versus automated techniques of donor graft preparation, insertion by Tan's endoglide, endoinjector, endoserter, Macaluso inserter, or with Kobayashi-Busin glide, push-versus-pull techniques, and use of anterior chamber maintainer during donor insertion have been discussed in literature.<sup>[5]</sup>

Before donor insertion, however, the recipient cornea being very cloudy, epithelium may need to be debrided for better visualization. Postoperatively, this can lead to pain, watering, photophobia, and a lot of discomfort to the patient. Placement of a bandage contact lens alleviates the pain and discomfort and expedites epithelial healing.

The current article in the *Indian Journal of Ophthalmology*<sup>[1]</sup> explores through a randomized control trial, the role of bandage contact lens in not only relieving pain and discomfort of the patient but in possibly decreasing donor graft detachment and rebubbling rates. Decreased endothelial cell loss (ECL) was noted in the patients who received a bandage contact lens, though it was statistically not significant. It is well known that low ECL translates to higher graft survival rates.

Donor graft detachments, rebubbling, ECL, and repeat procedures are the most common fallouts of endothelial keratoplasty. Patients have to be counseled about the chances of

re-bubbling and probable necessity to replace the donor button if the amount of transplanted endothelium is insufficient to clear the corneal edema.

Multiple means to reduce the rates of donor detachment including thinner grafts (ultrathin DSEK/DSAEK), preparing donor grafts of uniform thickness, stripping Descemet's membrane of the recipient in a larger area compared to the size of donor button or even non-stripping (n-DSAEK) in a case of endothelial keratoplasty after failed penetrating keratoplasty, retaining full fill of air for a longer time, and venting incisions (not routinely done) have been tried.<sup>[2,3]</sup>

The use of bandage contact lens (BCL) after phototherapeutic or photorefractive keratectomy, corneal collagen crosslinking with epithelium off, and pterygium surgeries has been in vogue.<sup>[6]</sup> The limitations of BCL usage in the immediate postoperative period are the increased risk of microbial keratitis, and even endophthalmitis due to the use of topical corticosteroids with the BCL *in situ*.<sup>[7]</sup>

The benefit versus risk is probably more as demonstrated by this randomized control trial<sup>[1]</sup> and placing a bandage contact lens immediately after the procedure be it DSEK/DSAEK or DMEK may enhance its success due to increased patient comfort, faster epithelial healing time, and fewer incidences of donor detachment, thereby providing better long-term outcomes. Larger studies in this regard are needed to further explore the role of the bandage contact lens after such procedures.

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#### Conflicts of interest

There are no conflicts of interest.

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