

Commentary: Tarsorrhaphy: A stitch in time

Tarsorrhaphy is a simple option for accelerating the healing of corneal surface and is a useful tool for treating persistent epithelial defects (PEDs) secondary to exposure keratitis, neurotrophic keratopathy, and dry eye syndrome.^[1] Generally, tarsorrhaphy is underused as a prophylaxis and treatment option for recalcitrant surface healing problems.

Management of the neurotrophic cornea caused by damage to the reflex arch of the trigeminal nerve and the consequent loss of corneal sensation is a major challenge for the ophthalmic surgeon.^[2] Neurotrophic cornea predisposes to corneal disorders like superficial keratopathy, PEDs, and corneal ulcers. Tarsorrhaphy is an easy but powerful surgical tool for the management of such conditions.

PEDs and stromal ulceration have multifactorial etiology, which is usually an amalgamation of immune or neurologic disease, tear film anomalies, chemical burns, infections, metabolic disease, medicamentosa, corneal hypoxia, trauma, neoplasms, and chronic eye rubbing. They may be idiopathic as well.^[3] Tarsorrhaphy works well in these cases.

Epithelial defects frequently occur in the donor cornea in the early and, less commonly, in the late postoperative period after penetrating keratoplasty (PK). Reepithelization in early postoperative period is critical for wound healing, improved visual acuity, graft transparency, graft survival, and protection against infection and melting. In patients with ocular surface disease, PED may lead to graft failure. In patients in whom problems with epithelization are anticipated, a permanent or temporary tarsorrhaphy at the time of keratoplasty or early in the postoperative period is crucial in salvaging the corneal graft.^[4]

Tarsorrhaphy is reported to have 80% to 100% success rate for complete healing and this can be attributed to various factors.^[5,6] It helps by decreasing the palpebral fissure width and hence decreasing the evaporation rate of tears, thus keeping the precorneal tear film layer intact and maintains the ocular surface. In addition, immobilization of the lid over the epithelial defect decreases the traumatic effect of the moving lids (windshield wiper effect) on the healing epithelium. There are many other mechanisms related to the neurotrophic effects on reepithelization which have been postulated but they need more scientific evidence to conclusively prove them.^[7]

Small descemetocles and very small peripheral perforations heal by epithelization after a tarsorrhaphy as it provides a

smooth tarsal conjunctival surface, which protects descemet's membrane and promotes epithelization by releasing growth factors at the site of the defect.^[7]

A tarsorrhaphy should be performed in a manner that results in maximal coverage of the defect. Depending on the temporal or nasal location of defect, a lateral or medial tarsorrhaphy can be performed. Some cases may require the placement of both lateral and medial tarsorrhaphies. It could also be either temporary or permanent/suture tarsorrhaphy.

Temporary tarsorrhaphy can be done either with sutures or cyanoacrylate glue as a simple OPD procedure. A 1-mm wideline of adhesive is applied along the lashline, at the lateral end of the lower the lashes after adequate drying to ensure a firm hold. This procedure easily serves the purpose in small nonhealing defects where a short duration of closure is adequate.

Temporary-induced ptosis from injection of botulinum toxin into the levator palpebrae superioris could also act as a temporary tarsorrhaphy. For patients unwilling or medically unable to undergo a surgical procedure, such as suture tarsorrhaphy, this may be an alternative. This may be especially useful for patients of Bell's palsy who are expected to have recovery of facial nerve function over few weeks.^[8]

In more chronic cases of ocular surface disease, permanent tarsorrhaphy can be done. The lid margins are sutured in apposition after removal of the intermarginal strip and kept opposed with bolsters. This adequately reduces the palpebral fissure permanently and promotes healing. It also prevents any future breakdown of the surface epithelium.

In a study by Panda *et al.*, complete healing of epithelial defects and symptomatic relief after keratoplasty was found to be faster in the tarsorrhaphy group than in the patching group.^[9] Another study comparing bandage contact lenses, pressure patching, and temporary tarsorrhaphy for nonhealing epithelial defects after epikeratoplasty concluded that the eyes with tarsorrhaphy healed significantly faster.^[10]

Tarsorrhaphy definitely has advantages over patching as it allows more oxygen to go to the corneal epithelium than a totally closed or patched eye, hence also preventing an anaerobic atmosphere for microbial growth. Allowance for the administration of eye drops, retention of partial eye sight, and examination of the cornea by having the patient adduct the eye are other advantages of tarsorrhaphy over patching.^[9]

The authors of the current study compared the efficacy of tarsorrhaphy and amniotic membrane transplantation in healing of PEDs. The authors report equal efficacy but a faster healing time with tarsorrhaphy, thus highlighting the importance of tarsorrhaphy in clinical practice.^[11]

In conclusion, tarsorrhaphy is a very effective and safe procedure in the management of nonhealing epithelial defects and other ocular surface problems with good success rate and minimal complications. It should be performed sooner than later when PEDs do not respond to medical therapy as this stitch if performed on time can definitely reduce chances of many more stitches.

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