

Role of Temporary Tarsorrhaphy in the Management of Corneal Ulcer

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Tarsorrhaphy is the fusion of upper and lower lid margins. It is one of the safest and most effective procedures for healing the corneal lesions which are usually difficult to treat. This randomized prospective study was carried out at Dinajpur Medical College Hospital from July 2012 to July 2015. Age of the patients ranged from 16 to 60 years of age. A total of 30 patients of both sexes suffering from non healing corneal ulcer were included in this study. Temporary tarsorrhaphys were done under local anaesthesia using 2% lignocaine. Informed written consent of the patients or patients legal guardians were taken for temporary tarsorrhaphy by using 4/0 black silk. There were 30 eyes of 30 patients included in the study who underwent temporary tarsorrhaphy with 4/0 black silk for non healing corneal ulcer. Age of the patients were between 16 and 60 years. There were 20 males and 10 females. The tarsorrhaphy was kept for 2 to 3 months. There after tarsorrhaphy was open by cutting the black silk. Out of 30 patients complete healing of the corneal ulcer occurred in 28 patients and 2 patients had partial healing of the corneal ulcer. Pain, watering and other symptoms were improve more or less in 30 patients. Temporary tarsorrhaphy using 4/0 black silk is a quick and effective outdoor procedure. It is a very effective and safe procedure in the management of non healing corneal ulcer and other ocular surface problems with a very high success rate and only minor complications.

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Key words: Tarsorrhaphy, Corneal ulcer

Introduction

Tarsorrhaphy is the fusion of upper and lower lid margins. It is one of the safest and most effective procedures for healing the corneal lesions which are usually difficult to treat.¹ It can also be performed to protect the cornea from exposure caused by inadequate eyelid coverage, as may occur in Graves disease or facial nerve dysfunction such as in Bells palsy.² It can also be used to aid in healing of indolent corneal ulceration.

Tarsorrhaphy may be temporary or permanent. Temporary tarsorrhaphy can be done with sutures.³ While in permanent raw tarsal edges are created to form a lasting adhesion. It may be total or partial, depending on whether only a portion of the palpebral fissure is occluded. Finally, they are classified as lateral, medial or central according to the location on the eyelid. We analyzed the results of temporary tarsorrhaphy by using 4/0 black silk.

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Methods

This randomized prospective study was carried out at Dinajpur Medical College Hospital from July 2012 to July 2015. Age of the patients ranged from 16 to 60 years of age. A total of 30 patients of both sexes suffering from non healing corneal ulcer were included in this study.

Inclusion criteria

- Age of the patients between 16 to 60 years of age.
- Patients suffering from non healing bacterial & fungal corneal ulcers.

Exclusion criteria

- Patients suffering from viral corneal ulcers were excluded from the study .

Temporary tarsorrhaphys were done under local anaesthesia using 2% lignocaine. Informed written consent of the patients or patients legal guardians were taken for temporary tarsorrhaphy by using 4/0 black silk.

Temporary tarsorrhaphy involves approximation of the eyelids with 4/0 black silk over a bolster to protect the eyelid margin tissues. Many different materials can be used for bolsters. For simplicity silicone tubing from a butterfly needle was a superior choice. After the tubing was cut into small segments that were 2-3mm long, a needle was threaded through a tubing segment. Both needles were then passed through skin and tarsus & out through the gray line of the lower lid & then through the gray line of the upper lid and then out through skin 3mm above the lashes. Care must be taken to avoid injury to the globe during needle passage. One needle was then threaded through a second 3mm silicone bolster and the suture was tied tightly. Pad and bandage was given for 24 hours. Systemic antibiotic, NSAID, H₂ blocker were given orally. On 1st POD pad and bandage was removed. Antibiotic, antifungal, selected

cases antiglaucoma and atropine eye drops were given through the medial or lateral angle of the eye. After 2 to 3 months 4/0 black silk was cut to remove the temporary tarsorrhaphy.

Results

There were 30 eyes of 30 patients included in the study who underwent temporary tarsorrhaphy with 4/0 black silk for non healing corneal ulcer. Age of the patients were between 16 and 60 years (Table I). There were 20 males and 10 females (Table II). The tarsorrhaphy was kept for 2 to 3 months. There after tarsorrhaphy was open by cutting the black silk. Out of 30 patients 10 patients were diagnosed as bacterial corneal ulcer, 5 patients as fungal corneal ulcer and there were no definitive diagnosis of 15 patients (Table III). Topical antibiotic, antifungal, cycloplegic eye drops were given and in selected cases antiglaucoma drop was prescribe pre operatively and post operatively. The aim of treatment was to help in the healing phase of the keratitis.^{1,5} Out of 30 patients complete healing of the corneal ulcer occurred in 28 patients and 2 patients had partial healing of the corneal ulcer (Table IV). Pain, watering and other symptoms were improve more or less in 30 patients (Table V). Causes of failure of healing in two patients were probably lack of patients awareness regarding the disease process and application of medication.

Table I: Age of the patients (n = 30)

Age (years)	Number of patients	Percentage
16 - 25	10	33.3
26 - 45	15	49.95
46 - 60	5	16.65

Table II: Sex of the patients (n = 30)

Sex	Number of patients	Percentage
Male	20	66.6
Female	10	33.3

Table III: Aetiological factor (n = 30)

Aetiology	Number of patients	Percentage
Bacterial	10	33.3
Fungal	5	16.65
No definitive aetiology	15	49.95

Table IV: Healing of Corneal ulcer (n = 30)

Type of healing	Number of patients	Percentage
Complete healing	28	93.24
Partial healing	2	6.66

Table V: Relief of symptoms (n = 30)

Symptoms relief	Number of patients	Percentage
Pain	30	100
Watering	28	93.24

Discussion

Tarsorrhaphy is the closure of the eyelids either temporarily or permanently.¹ It is often performed in the management of various problems such as corneal ulceration or exposure, persistent corneal epithelial defects secondary to neurotrophic keratopathy, exposure keratopathy, dry eye syndrome and progressive corneal melting.^{1,2} It is also performed in patients susceptible to corneal ulceration because of 5th or 7th nerve palsies.² Tarsorrhaphy decreases the evaporation rate of tears by decreasing the palpebral fissure width. In addition immobilization of the lid over the epithelial defect decreases the traumatic effect of the moving lids on the healing epithelium.¹ Tarsorrhaphy may be temporary or permanent. Temporary can be done with 4/0 black silk.³ While in permanent raw tarsal edges are created to form a lasting adhesions. It may be total or partial depending on whether only a portion of palpebral fissure is occluded. Finally, they are classified as lateral, medial or central according to the

location on eyelid. We analyzed the results of temporary tarsorrhaphy by using 4/0 black silk.

Many authors in their studies suggested that temporary tarsorrhaphy is effective in the healing of corneal ulcer.^{4,5} John Kitchens *et al.*⁶ advocated temporary tarsorrhaphy has been shown to aid in the healing of corneal epithelial defects. Tarsorrhaphy is one of the safest and most effective procedures for healing corneal ulceration. Tarsorrhaphy is more effective therapy because of better oxygen delivery to the ocular surface.⁵ Indication of tarsorrhaphy include facial nerve palsy, non healing corneal ulcer, lagophthalmos, dry eye syndrome, keratitis, proptosis, chemical burn, thyroid ophthalmopathy, impending perforation, persistent epithelial defect and autoimmune disease like SJS.⁷

The complications of surgical Tarsorrhaphy include failure of lid adhesion, stretching of lid adhesion, misdirection of eyelashes, permanent scarring of the eyelids, hemorrhage and infection. Temporary tarsorrhaphy is a good alternative method for healing of corneal ulcer.^{8,9,10}

Advantages of temporary tarsorrhaphy with 4/0 black silk are that it is easily available, relatively non toxic to skin, can be done in the out patient clinic, relatively painless and very cheap. Temporary tarsorrhaphy with 4/0 black silk usually lasts for 3 to 4 months or more and can easily be repeated when necessary. We performed temporary tarsorrhaphy in 30 eyes of 30 patients age ranging from 16 to 60 years (Table I), in which male were 20 (66.6%) and female 10 (33.3%) (Table 2). Patients were suffering from bacterial corneal ulcer 10 (33.3%), fungal corneal ulcer 5 (16.65%) and no definitive aetiology found in 15 (49.95%) patients (Table III).

In our country male works at outdoor and are more vulnerable to various trauma. So incidence of corneal ulcer was more in male. Age incidence of corneal ulcer was more between 26 to 45 years of age (Table I). As this age group was young and active, so corneal ulcer was more in this age group.

In our study complete healing of corneal ulcer occurred in 28 patients (93.24%) and partial healing of corneal ulcer occurred in 2 patients (6.66%) (Table IV). Pain was improved in 30 patients (100%) and watering was improved in 28 patients (93.24%) (Table V). Causes of failure of healing in 2 patients were probably lack of awareness of the patients regarding the disease process and application of medication.

Kasaei *et al.*⁴ Farabi eye hospital, dept. of ophthalmology, school of Medicine, Tehran university of medical sciences, Iran, performed temporary tarsorrhaphy with botulinum toxin type A to improve corneal epithelial defects in corneal ulcer and other corneal surface diseases. In their study corneal pathology improved in 83.3% of patients including 100% of patients with corneal erosion and 79.1% of patients with corneal epithelial defect. Ellis *et al.*¹¹ performed temporary tarsorrhaphy with botulinum toxin type A in various corneal surface diseases including corneal ulcer. Corneal pathology improved in 76% of patients. John Kitchen's *et al.*⁶ performed temporary tarsorrhaphy in corneal ulcer. Their results were full satisfactory. Tzelikis *et al.*⁷ performed temporary tarsorrhaphy in various corneal surface diseases including corneal ulcer and success rate was 83.3%. Moin *et al.*⁵ performed temporary tarsorrhaphy using super glue in the management of painful non healing corneal ulcer and success rate was 84% of patients. In our study complete healing of corneal ulcer occurred in 93.24%. Relief of symptoms including pain was 100%

and watering was in 93.24% of patients (Table V).

Conclusion

Temporary tarsorrhaphy using 4/0 black silk is a quick and effective outdoor procedure. It is a very effective and safe procedure in the management of non healing corneal ulcer and other ocular surface problems with a very high success rate and only minor complications.

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