

ORIGINAL ARTICLE

CORNEAL STROMAL THINNING: A RARE CORNEAL COMPLICATION AFTER BARE SCLERA PTERYGIUM EXCISION TECHNIQUE

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ABSTRACT: INTRODUCTION: Bare sclera technique without using any anti-mitotic drugs are commonly employed in rural population. Corneal dellen formation and recurrence of pterygium are more common in these cases. But the corneal complication like stromal thinning, necrosis of cornea and sclera are not common. The corneal epithelium is a highly differentiated cell type that is self-renewing. Also corneal epithelium is important for the stromal replacement in the situations like chemical, thermal burns, ocular surgery like pterygium surgery. Interference with status of stem cell replacement and as a consequent to it, stromal thinning is occurring in the pterygium surgery. **Patient 1:** A 68 yrs. old male patient underwent pterygium surgery (Baresclera excision technique). After 30 days he developed corneal thinning with the punched out partial stromal loss without perforation or descmetocele or scleral thinning. **Patient 2:** A 60yrs. old male patient underwent pterygium surgery 2months back, he developed same type of corneal thinning. Both Patients were treated with tear drops and improved. **CONCLUSION:** The stromal thinning in these two cases is may be due to chemical factors like collagenase which might have been released from the traumatised conjunctival epithelial cells causing thinning without replacement of stroma by limbal stem cells.

KEYWORDS: Pterygium, Corneal stromal thinning, Limbal stem cell deficiency, Teardrops, Enzyme collagenase, Bare sclera excision technique.

INTRODUCTION: Pterygium an ocular surface disease caused by ultraviolet rays. So the Pterygium is more common in tropical countries especially among the people who are working under direct exposure to ultraviolet rays.

These ultraviolet rays activates the signalling pathway and consequently the mediators responsible for elastic & fibroblastic precursors are up regulated resulting proliferation of fibro vascular pterygium. In some recent studies, there is genetic alteration in these limbic stem cells. This alterations in proteins namely p 53, p 63 and p 73 cause the escape of these protein dependent cell cycle checkpoint. As a result proliferation of elastic fibres through the elastic fibre precursors resulting the growth of pterygium.⁽¹⁾

Since the poor people are major sufferers of pterygium. It is difficult to perform either cosmetic correction or by excision with conjunctival auto graft or amniotic membrane graft to prevent recurrence and astigmatism. Councelling regarding management is still difficult in these patients because the affected tissues are very small in size and technically total clearance of pathology is not possible. Bare sclera technique without using any anti-mitotic drugs are commonly employed in rural population. Corneal dellen formation and recurrence of pterygium are more common in these cases.⁽²⁾ But the corneal complication like stromal thinning, necrosis of cornea and sclera are not common after a month postoperative period.

This presentation makes an ophthalmologist to think about pterygium surgery also a cause of marginal corneal stromal thinning in an old patient.

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Patient 1: A 68 yrs. old male patient underwent pterygium surgery (Baresclera excision technique). After 30 days he developed corneal thinning with the punched out partial stromal loss without perforation or descmetocele or scleral thinning. Patient was treated with tear drops and improved after 15 days.

RESULTS: On slit lamp examination partial stromal loss of 3mm outer edge with 2mm inner edge without wetting of tear film is present in the limbus involving 2mm of cornea inner to the limbus.

Patient 2: A 60 yrs. old male patient underwent pterygium surgery 40 days back, he developed same type of corneal thinning.

Both Patients were treated with tear drops and improved.

Both the patients are not willing for histopathological, microbiological & cytological studies on the lesion.

CONCLUSION: Corneo-scleral melting is reported after pterygium surgery with use of mitomycin-C,⁽²⁾ but these two patients developed a de-novo corneal thinning without sclera melting after a period of 30-40 days of pterygium excision (Baresclera excision technique) without mitomycin-C.

The stromal thinning in these two cases is may be due to chemical factors like collagenase which might have been released from the traumatised conjunctival epithelial cells causing thinning without replacement of stroma by limbal stem cells.^(1,2)

DISCUSSION: The corneal epithelium is a highly differentiated cell type that is self-renewing. Also corneal epithelium is important for the stromal replacement in the situations like chemical, thermal burns, ocular surgery like pterygium surgery.⁽³⁾ Interference with status of stem cell replacement and as a consequent to it, stromal thinning is occurring in the above said conditions.

In the previous reports the peripheral lesions are only due to dellen or drug toxicity.^(2,4) But in these two cases the pathological process of stromal thinning after wound healing is due to deficient stem cells (Which is an anchor for the proper epithelial and stromal healing) and this stromal thinning disappears and replaced by opacified scar tissue after a period of 2 to 3 weeks.

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Fig. 1: 30th Post-Operative Day. Right eye showing Stromal thinning at the site of Pterygium excision



Fig. 2: 35th Post-Operative Day. Right eye showing Stromal thinning at site of Pterygium Excision

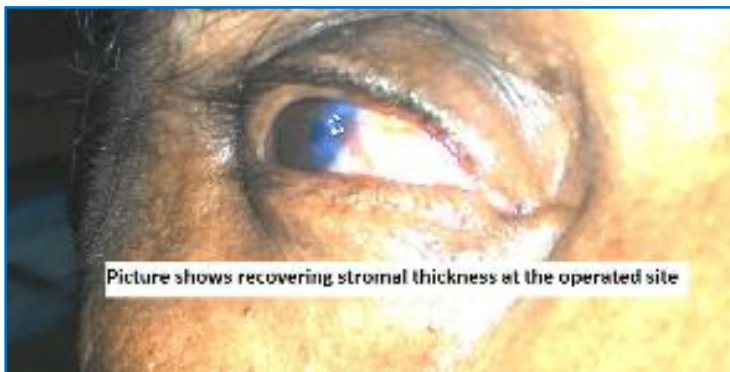


Fig. 3: Picture Shows Recovering Stromal thickness at the operated site

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