

Patch graft following perforation in Terrien's Marginal degeneration

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ABSTRACT

PURPOSE: To report a case of patch graft performed for corneal perforation in a patient with Terrien's marginal degeneration.

METHOD: A young woman presented with sudden painless loss of vision following a trivial trauma to her right eye. On examination, corneal thinning with perforation, lipid deposition and vascularization was noted. Left eye examination also revealed a crescentic thinning with lipid deposition and vascularization. A patch graft was done for the right eye.

RESULT: At two months follow-up, graft was clear and her visual acuity was CF2m in right eye with tectonic stable globe.

CONCLUSION: Patch graft is a viable option in cases of perforation to maintain globe integrity.

Keyword: Terrien's marginal degeneration, patch graft, trivial trauma, perforation

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I. Introduction

Terrien's marginal degeneration (TMD) is a rare peripheral corneal degeneration. The etiology and pathogenesis are yet unknown. Clinical presentation is usually asymmetric and bilateral. It is more common in males with mean age of presentation at 40 years.¹ This disorder is characterized by a peripheral stromal thinning that typically begins superiorly with intact epithelium, superficial vascularization and lipid deposition at the leading edge.² Patients present to the clinic with decreased vision due to 'against the rule astigmatism' or 'irregular astigmatism'. Most patients can be observed with glasses or contact lenses as the disease progresses slowly. Only a few cases have been reported in literature which presents with corneal perforation spontaneously or due to trivial trauma.^{3,4,5} In this case report, we describe the management of bilateral TMD in a young female who presented with perforation following trivial trauma in her right eye.

II. Case Report

A 35-year-old female presented to the cornea clinic with decreased vision in her right eye following injury with her hand 7 days ago. It was sudden in onset and painless in nature. Her best corrected visual acuity was HM+ in right eye and 20/20 in left eye with +0.75 DS/-0.75 D Cyl @80°. The right eye had corneal stromal thinning extending from 9 to 3 o'clock and perforation from 10 to 2 o'clock with prolapsed iris tissue (**Figure-1**). There was associated corneal opacification with lipid deposition at the edge and superficial vascularization. The cornea in the left eye had crescent shaped thinning extending from 10 to 2 o'clock with intact overlying epithelium, stromal thinning, lipid deposition at the advancing edge and superficial vascularization (**Figure-2**).

The size of the thinned out cornea including the perforated area was measured to be 11 mm horizontally and 4 mm vertically using callipers. The donor cornea was punched using a 6 mm trephine eccentrically. Relaxing cuts were given to the graft to open up the tissue. Superior 180° conjunctival peritomy was done. The thinned out cornea with the perforated area was cut with a corneal scissors and the adherent iris tissue was abscised. Pupilloplasty was done using a single 10/0 nylon suture. Central trephined area of the donor graft was placed on the defect and sutured to the host cornea margin using interrupted 10/0 nylon sutures. Excess donor tissue was excised along the recipient limbus using free hand dissection ensuring good alignment. The graft was checked for leak. Postoperatively the patient was prescribed 0.3% gatifloxacin eyedrops 4 times per day for 1 week and 1% prednisolone acetate eyedrops 8 times per day with gradual taper. Lubricants and protective polycarbonate glasses were prescribed for left eye.

The excised host corneal tissue was sent for histopathology evaluation, and it showed intact, but irregularly thickened epithelium with subepithelial fibrosis. Bowmans' membrane could not be discerned. There was diffuse stromal fibrosis, more anteriorly. Stroma demonstrated thinning in the peripheral cornea, however sparing the extreme periphery. Diffuse stromal rarefaction and patchy vascularization; more in the anterior stroma was observed. Descemets membrane showed an acute outward bend at the site of maximal stromal thinning (**Figure-3**).

On follow up visits the graft remained clear with intact sutures and a well formed anterior chamber. At last follow up, two months after primary surgery, the vision in her right eye was counting fingers at two metres with a mild edema in the corneal patch graft and irregular corneal contour (**Figure-4**).

III. Discussion

Terrien's marginal degeneration is an uncommon but distinct variety of marginal thinning of the cornea.⁶ It is typically painless, does not ulcerate and is usually non-inflammatory.⁷ However, an inflammatory variant is thought to exist especially in young females, and has recently been reported to be associated with meibomian gland disease and rosacea.^{8,9} Although the exact cause for Terrien's is unknown, it has been linked to repeated bouts of episcleritis and scleritis.^{8,10} Hypersensitivity reaction has been implicated in the pathogenesis of the disease and meibomian gland dysfunction & ocular rosacea have been found to be associated with the disease.^{9,10} Repeated episodes of inflammation has been attributed to cause perforation.¹¹ Patient usually presents with refractive error due to irregular astigmatism. Serious complications like perforation either spontaneous or after trivial trauma are seen in only 15% of cases.¹² They have been managed with bandage contact lens, conjunctival flap, patch graft and lamellar or penetrating keratoplasty.^{3,4,5,12} Since our patient presented with a perforation in the superior part of the cornea sparing the visual axis, we planned to do a patch graft to maintain the integrity of the globe. Another option would have been a large penetrating keratoplasty, which could be eccentric but is associated with its own complications like limbal stem cell deficiency and increased chances of rejection. Eccentric trephination of six mm in the donor ensured that adequate corneal scleral rim was available to cover the entire defect.

Over the next few months, once the corneal graft stabilizes, suture removal will be done between 6-9 months and rigid gas permeable (RGP) contact lens trial would be done to determine visual acuity. Mini-scleral or scleral lenses could also be tried if RGP fitting is not possible. If severe irregular astigmatism is present central optical penetrating keratoplasty may be tried.

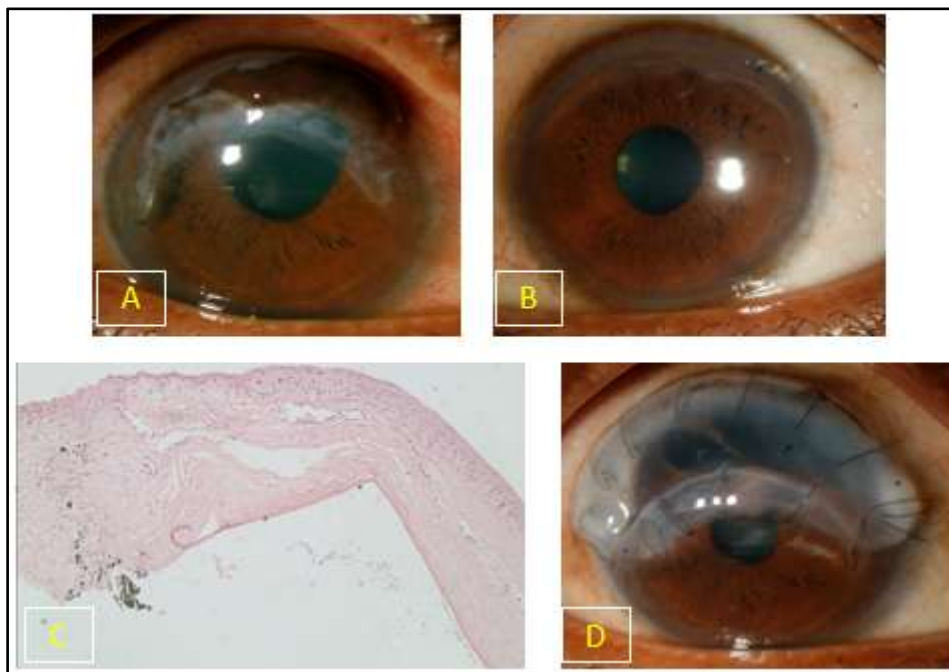
This case is a rare case of Terrien's degeneration which presented with perforation. Anatomical integrity was successfully restored by corneal patch graft. The other eye of the patient is given protective glasses to prevent similar eventuality.

IV. Conclusion

TMD may present as perforation following trivial trauma. Patch graft is a viable option in TMD if perforation occurs. Close observation and protective glasses for the other eye is warranted.

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- A: Right eye showing superior corneal perforation with iris prolapse.
B: Left eye showing superior corneal crescentic thinning with vascularization and lipid deposition.
C: Photomicrograph shows excised corneal tissue, with stromal thinning (arrow marked), scarring and vascularization.
D: Right eye post operative 8 week following patch graft

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