· Case report ·

Isolated stromal type corneal graft rejection, a case report

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Abstract

• A 65-year-old male presented with central leucomatous corneal opacity for which penetrating keratoplasty was done. Isolated stromal graft rejection was noticed 3 weeks after penetrating keratoplasty, which was confirmed on histopathology. Repeat penetrating keratoplasty 6 months later also had same fate. Diagnosis and management of isolated stromal graft rejection is a very challenging situation.

• KEYWORDS: graft rejection; graft failure; corneal graft
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INTRODUCTION

The failure of a technically successful graft is very disappointing both for the patient as well as for the surgeon. Despite better techniques of penetrating keratoplasty, graft failure still remains a significant problem. Allograft rejection can occur at the level of epithelium, stroma and endothelium. Isolated stromal graft rejection is very rare[1]. We herein report a case of isolated stromal graft rejection in a 65-year-old male.

CASE REPORT

A 65-year-old male presented with decreased vision in both eyes of one year duration. He had past history of recurrent pain, redness and photophobia in his right eye followed by similar complaints in the left eye also six months later. Ocular examination revealed visual acuity of counting fingers at one meter in both eyes with accurate projection of rays. On slit-lamp examination there was homogeneous leucomatous corneal opacity involving almost the whole cornea leaving a small rim of clear cornea at temporal edge with uveal tissue adherent at the back of the cornea in the right eye. Left eye showed adherent leucoma with nasal clear cornea. Ultrasonography revealed normal posterior segment. The patient was taken up for optical penetrating keratoplasty in the right eye. A good quality donor corneal graft of 7.0mm size from a young donor was transplanted. Postoperatively, standard therapy in form of topical steroids, antiglaucoma drugs, antibiotic eye drops and cycloplegics were given.

The graft remained clear for the first three weeks. Then the patient presented to us with mild pain, redness, watering and decreased vision. On slit-lamp examination there were peripheral full thickness corneal stromal infiltrates all around with circumcorneal congestion (Figure 1). Epithelium and host graft junction was normal. There were few pigmented keratic precipitates in the central part of cornea. Presuming it to be stromal graft rejection, patient was put on systemic and topical steroids. There was no improvement and the whole graft became opaque within 1 month of surgery. The patient underwent penetrating keratoplasty again 6 months later. The opacified graft was sent for histopathological examination, which revealed mixed inflammatory cell infiltrates in the stroma. Remarkably it also revealed proliferating capillaries in the stroma supporting the diagnosis of corneal stromal rejection (Figure 2).

Second graft remained clear for two weeks (Figure 3). Three weeks later, patient started having similar symptoms and signs in the form of mild pain, redness, watering with markedly decreased vision. There were similar types of full thickness infiltrates in the peripheral part of cornea all around (Figure 4). This time the patient was put on intravenous methylprednisolone, 1gm per day for 3 days followed by oral prednisolone of 60mg per day along with topical steroid 1 hourly, cyclosporine eye drops 2% bid for 2 weeks. In spite of all sort of treatment, the graft became totally opaque and ectatic within 6 weeks of surgery (Figure 5).

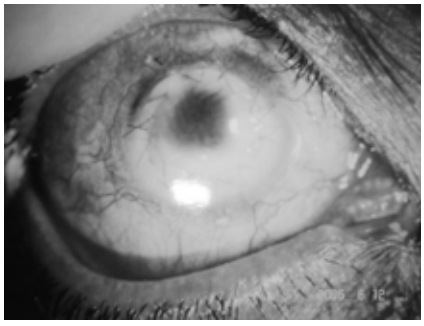

Figure 1 Slit-lamp photograph of right eye showing peripheral corneal opacification with relatively clear central cornea at 3 weeks following first penetrating keratoplasty.

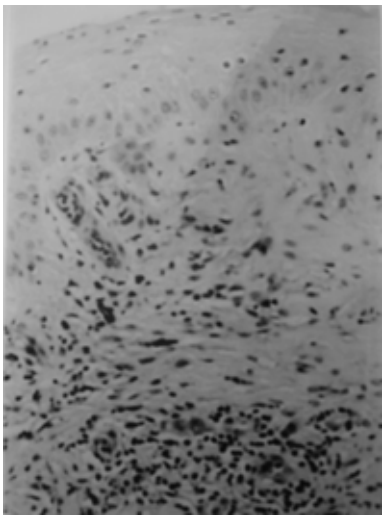

Figure 2 Photograph of the first graft showing mixed inflammatory cell infilterates and a few proliferating capillaries (HE×100).

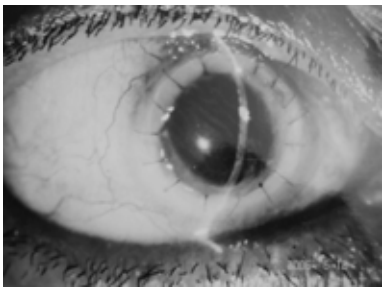

Figure 3 Slit-lamp photograph of the right eye 2 weeks following regraft showing cornea with clear graft with minimal circumcorneal congestion.

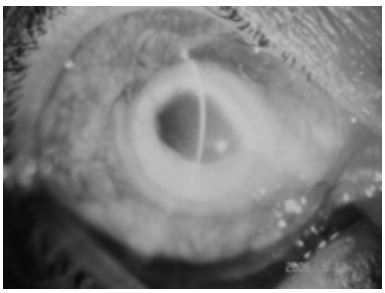

Figure 4 Slit-lamp photograph at 4 weeks following repeat keratoplasty showing peripheral corneal opacification with relatively clear central cornea with circumcorneal congestion.

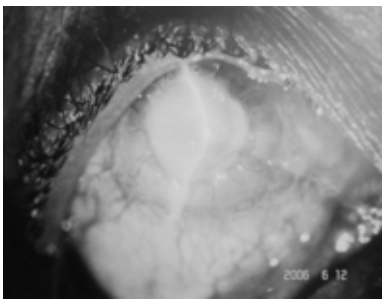

Figure 5 Slit-lamp photograph 6 weeks after surgery showing total opacification of graft with ectasia.

DISCUSSION

Immunological graft rejection is the most common cause of the late graft failure[2,3]. The first description of the corneal allograft rejection was published by Paufique, Sourdille, and Offret in 1948[4]. These authors proposed an allogenic response to the transplanted tissue as the cause of late clouding of the corneal graft and suggested the term graft sickness[4]. Maumenee *et al*[5,6] subsequently demonstrated in the rabbit that the donor cornea could stimulate an immune reaction.

Khodadaust and Silverstein demonstrated that the epithelium, stroma and endothelium could separately undergo immunological rejection. Stromal rejections have been described by Stark[1] as consisting of a sudden onset of peripheral full-thickness haze in a previously clear graft, associated with circumcorneal injection, and often appearing as an immunological arc which progresses centrally. Since stromal rejection commonly occurs simultaneously with endothelial rejection, it may be difficult to detect. Stromal rejection has been demonstrated in rabbits, but there is little information regarding its occurrence in humans. Stromal rejection as an isolated phenomenon is usually not seen because it is commonly overshadowed by concurrent endothelial rejection[7]. Nonetheless isolated stromal rejection has been described in literature as sudden onset of peripheral full thickness corneal haze usually associated with circumcorneal congestion[1]. Histologically leucocytes are seen invading the stroma with destruction of epithelial basement memberane. The rejection may progress centrally even if treated. Our case was one such case of isolated stromal graft rejection that had similar clinical presentation in both the grafts and showed quick progression to graft destruction despite intensive medical therapy unlike endothelial rejection which responds to early medical treatment with good optical results.

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单纯基质型角膜植片排斥1例

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摘要

患者,男,65岁,因中央角膜白斑性角膜混浊而行穿透性角膜移植术。术后3wk发现单纯基质型角膜植片排斥,并经组织学证实。6mo后再次行穿透性角膜移植术,单纯基质型角膜植片排斥再次发生。单纯基质型角膜植片排斥的诊断和处理是一个棘手问题。

关键词:植片排斥;植片失败;角膜植片