

Therapeutic deep lamellar keratoplasty for corneal perforations

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Abstract

Objectives/aims Corneal perforation can be potentially blinding unless the integrity of the globe is restored quickly. Although penetrating keratoplasty (PK) may achieve this, it carries a high risk of endothelial rejection in inflamed eyes. Deep lamellar keratoplasty (DLK) may be an alternative option to PK in such eyes owing to its potential for a lower incidence of rejection. We report the efficacy of DLK in patients with corneal perforations.

Patients and methods Four patients underwent layer-by-layer DLK for noninfective corneal perforation, after measures such as the use of a bandage contact lens, tissue adhesive, and conjunctival pedicle flap had failed. The preoperative visual acuity was hand movements in one patient, 1/60 in two, and 6/60 in one. All four had iris incarcerated within the corneal perforations. SF6 gas (three patients) and air (one patient) were injected into the anterior chamber at the end of surgery.

Results The integrity of the globe was restored in all four patients with an improvement in visual acuity (6/60 in one and 6/36 or better in three). The mean follow-up time was 7 months. All four patients had clear corneas 3 months postoperatively, apart from the area of the original perforation. There was no recurrence of ulceration or perforation.

Conclusion DLK is a safe and effective therapeutic measure in the management of patients with corneal perforations acting to preserve the integrity of the globe and restore vision.

Eye (2007) 21, 1168–1173; doi:10.1038/sj.eye.6702428; published online 12 May 2006

Keywords: corneal perforation; deep lamellar keratoplasty; penetrating keratoplasty

Introduction

Corneal perforation is an ocular emergency and, if not managed promptly and effectively, can have devastating consequences. Of prime importance is the restoration of the integrity of the globe and ocular tension. Short-term measures have included therapeutic soft contact lenses, tissue adhesives, epithelial transplantation, scleral patch grafts, conjunctival flaps, and amniotic membrane transplantation.^{1–7}

Although these procedures may restore the integrity of the globe, they fail to achieve a clear visual axis. Penetrating keratoplasty (PK) eliminates the scar and corneal surface abnormalities, offering a chance of visual recovery, but its success in the presence of inflammation has been variable and generally poor.^{1,8,9} Penetrating keratoplasties performed in the acute setting of corneal perforation are more likely to fail.⁹ Deep lamellar keratoplasty (DLK) involves dissection of the host's corneal stroma down to the level of Descemet's membrane.^{10,11} It offers a significant advantage over PK in terms of endothelial graft rejection and prevention of long-term endothelial loss.^{10–14} The successful use of DLK in corneal perforation has only been reported in two cases in the literature.¹⁵ We present four cases of noninfectious corneal perforation managed by DLK.

Patients and methods

Four patients with noninfectious corneal perforation underwent DLK. Patient age ranged from 11 to 70 years (mean average age 46.8 years). All patients had pre-existing comorbidity. Patient 1 had a long history of herpetic disciform keratitis and developed a descemetocele and subsequent perforation. A bandage contact lens (BCL) followed by a conjunctival pedicle graft (CPG) had failed to

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Received: 16 February 2006
Accepted in revised form: 7 April 2006
Published online: 12 May 2006

Part of this work was presented as an oral presentation at the 10th Nottingham Eye Symposium, 2006 and as a poster at the Annual Congress of the Royal College of Ophthalmologists, Manchester 2006