SURVEY OF OPHTHALMOLOGY VOLUME 57 • NUMBER 6 • NOVEMBER–DECEMBER 2012

CLINICAL PATHOLOGIC REVIEWS

STEFEN SEREGARD AND MILTON BONIUK, EDITORS

A Case of Interface Keratitis Following Anterior Lamellar Keratoplasty

Douglas A. Lyall, MRCOphth,[1] Sathish Srinivasan, FRCS(Ed), FRCOphth,[1,2] and Fiona Roberts, MD, FRCPath[3]

[1]Department of Ophthalmology, Ayr University Hospital, Ayr, Scotland; [2]Faculty of Medicine, University of Glasgow, Glasgow, Scotland; and [3]Department of Pathology, Western Infirmary, Glasgow, Scotland, UK

Abstract. Anterior lamellar keratoplasty (ALK) is indicated in patients with anterior corneal opacities. Benefits over penetrating keratoplasty include quicker visual rehabilitation, less postoperative astigmatism, and preservation of the host endothelium, thus minimizing the chances of graft rejection. A rare complication of lamellar corneal surgery is infectious interface keratitis between the donor and host tissue. We report a case of infectious interface keratitis following automated ALK successfully treated medically and by removal of the ALK disk, eventually having a deep anterior lamellar keratoplasty with good visual recovery. (**Surv Ophthalmol 57**:551–557, 2012. © 2012 Elsevier Inc. All rights reserved.)

Key words. ALK • corneal transplant • deep anterior keratoplasty • interface keratitis • lamellar keratoplasty

Anterior lamellar keratoplasty (ALK) is indicated in patients with visually significant anterior corneal opacities. Benefits over penetrating keratoplasty (PK) include quicker visual rehabilitation, less postoperative astigmatism, preservation of the host endothelium, and less chance of rejection. As an extraocular procedure ALK also avoids the risks of endophthalmitis. A rare complication of lamellar corneal transplant surgery is interface keratitis—microbial infection developing between donor and host tissue. Infection at the interface between corneal flap and underlying stroma following laser assisted in situ keratomileusis (LASIK) is a recognized complication of refractive laser surgery with an incidence rate of 0.035%.[29] Interface keratitis occurring between donor and host cornea following lamellar corneal graft surgery is a much rarer entity with only a handful of cases described.[3,4,7,10,15,16,37,A] We report a case of infectious interface keratitis following automated ALK that was successfully treated by deep anterior lamellar keratoplasty (DALK) with good visual recovery.

Case Report

A 44-year-old white man with bilateral lattice corneal dystrophy presented with recurrent eye pain and persistent corneal epithelial defects in the left eye (OS) (Figs. 1A, 1B). Best corrected distance visual acuities (BDVA) were 20/16 in the right eye and 20/80 in the left. Medical treatment with intense topical

0039-6257/$ - see front matter
doi:10.1016/j.survophthal.2012.01.010

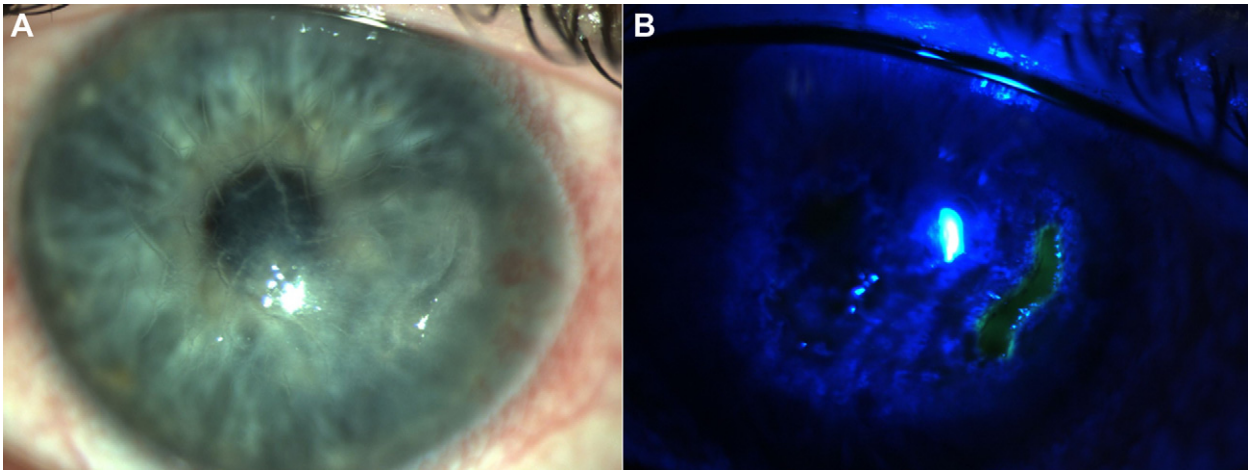

Fig. 1. *A*: Slit-lamp biomicroscopy showed the presence of stromal scarring and epithelial defect in the context of stromal lattice dystrophy. *B*: The persistent epithelial defect is made more obvious when viewed with cobalt blue light and stained with fluorescein 2%.

lubrication and silicon hydrogel bandage contact lens (BCL) did not relieve his symptoms. He subsequently developed peripheral corneal vascularization and subepithelial stromal scarring at the site of the persistent epithelial defect. Anterior segment optical coherence tomography (Visante, Carl-Zeiss Meditec, Jena, Germany) found the deepest stromal amyloid deposit at 150 μm from the corneal epithelium (Fig. 2). He underwent automated ALK under general anesthesia. A 200-μm microkeratome head (Moria, Antony, France) was used to the remove anterior stroma from the recipient cornea, leaving a 9.0-mm stromal bed. The same microkeratome was used to prepare a 9.5-mm anterior lamellar donor button with the donor cornea mounted on an artificial anterior chamber (Moria, Antony, France). The donor anterior lamellar graft was secured with eight 10-0 nylon sutures and fibrin glue (Tisseel, Baxter, Thetford, UK). An 18.5-mm BCL was then placed. Postoperatively he was treated with topical dexamethasone 0.1% (Maxidex, Alcon, Fort Worth, TX) and ofloxacin 0.3% (Exocin, Allergan, Irvine, CA) four times a day for four weeks. The topical antibiotic was then discontinued, but he continued on four times daily topical steroids for 2 months, then the topical steroids were tapered to twice a day. The initial postoperative course was uncomplicated, with three sutures removed by 1 month. Unaided distance visual acuity (UDVA) was 20/40. Histological examination of the anterior lamellar corneal button showed numerous eosinophilic deposits staining positively with Sirius red and birefringent with polarized light, consistent with the clinical diagnosis of lattice dystrophy (Figs. 3A, 3B).

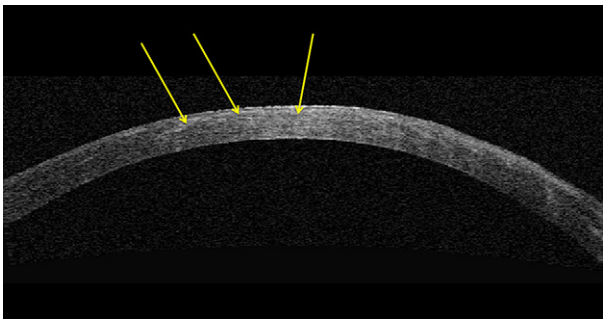

Fig. 2. Anterior segment optical coherence tomography demonstrating depth of amyloid deposits (*arrows*). The deepest measured 150 μm.

Four months following surgery he presented as an emergency with severe pain, photophobia, and decreased vision OS. He had ciliary injection, stromal infiltrate at the interface between donor and host cornea (Fig. 4A). UDVA fell to 20/120. His topical steroid therapy was discontinued, and he was placed on hourly topical fortified cefuroxime (5%) and fortified gentamicin (1.5%) eye drops. In spite of this, his clinical condition worsened with inflammatory contraction of the graft at its supranasal edge (Fig. 4B) and he underwent surgical removal of the donor anterior lamellar graft under topical and subconjunctival anesthesia. Cultures of corneal scrapings taken from the recipient stromal bed following removal of the donor lamellar graft showed no growth. Following the removal of the anterior lamellar disk, he was treated with topical fortified cefuroxime (5%) and fortified gentamicin (1.5%) eye drops for four weeks (Fig. 4C). The inflammation resolved, leaving a residual stromal scar. Histological examination of the donor anterior lamellar graft showed diffuse infiltration of the cornea with polymorphs and Gram stain showed the presence of