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Case report

Tectonic corneal lamellar grafting for surgically-induced necrotizing scleritis after strabismus surgery: Case report & literature review

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ABSTRACT

Purpose: To report the first case of infectious surgically-induced necrotizing scleritis following strabismus surgery which was treated successfully with a tectonic corneal graft.

Observations: We report a case of surgically-induced necrotizing scleritis after strabismus surgery in a 61-year-old gentleman with gout and a subconjunctival abscess. Surgical drainage of the subconjunctival abscess led to a diagnosis of scleral melt which was subsequently treated with a tectonic corneal graft along with aggressive medical management. Over the following eight months, the patient showed no signs of endophthalmitis, graft necrosis, nor graft dehiscence, and serial anterior segment optical coherence tomography imaging demonstrated anatomic stability.

Conclusions and importance: This case offers further insights into a rare but vision-threatening and potentially life-threatening diagnosis. In conjunction with aggressive local and systemic treatment, tectonic lamellar keratoplasty provides good therapeutic and tectonic results for scleral necrosis after strabismus surgery. This case also demonstrates the importance of screening for associated systemic risk factors in any patient with scleritis for appropriate, targeted therapy.

1. Introduction

Surgically-induced necrotizing scleritis (SINS) is a rare but serious complication of ocular surgery. Though the majority of SINS cases occur after cataract surgery and pterygium excision, SINS has been reported after all types of ocular surgeries.[1–3] Its occurrence after strabismus surgery is rare but has been reported in both adults and children.[4–11] The treatment of SINS includes immunosuppressive agents, antibiotics, and/or tectonic reconstruction. Most of the reported cases of necrotizing scleritis were controlled with steroids with or without surgical debridement. Tectonic reconstruction with the use of corneal grafting for SINS has not been well documented. We report a case of SINS after strabismus surgery that was successfully treated with a tectonic corneal graft.

2. Case report

A 61-year-old man presented with an acute onset of severe eye pain and discharge in his right eye. He had undergone uncomplicated strabismus surgery for a large-angle, sensory exotropia ten days prior and had recently discontinued his post-operative antibiotic-steroid eye drops.

Past ocular history was significant for advanced glaucoma, strabismus surgery performed in childhood, and his recent uncomplicated strabismus surgery which was a re-recession and re-resection of the horizontal muscles of the right eye. He had a long history of being monocular due to advanced glaucoma in the right eye. His past medical history and review of systems were negative. The patient denied fevers, joint pain, rashes, and headaches. He was on ocular hypotensive eye drops for advanced glaucoma and was not on any systemic medications. He smoked one pack of cigarettes per day and consumed alcohol daily.

On examination, best-corrected visual acuity was hand motion vision in the right eye and 20/20 vision in the left eye, which was the same visual acuity he had prior to his most recent strabismus surgery. He was orthotropic with normal ductions. Slit lamp examination of the right eye demonstrated a subconjunctival abscess adjacent to the medial rectus muscle associated with a small conjunctival epithelial defect and a trace amount of mucopurulent discharge. There were no signs of intraocular inflammation.

Mucopurulent material from the subconjunctival abscess was easily drained through the surgical wound at the slit lamp and sent for cultures. Cultures grew methicillin-resistant *Staphylococcus aureus* (MRSA) that was sensitive to clindamycin and vancomycin. Over the ensuing week, the patient gradually improved on oral clindamycin and topical

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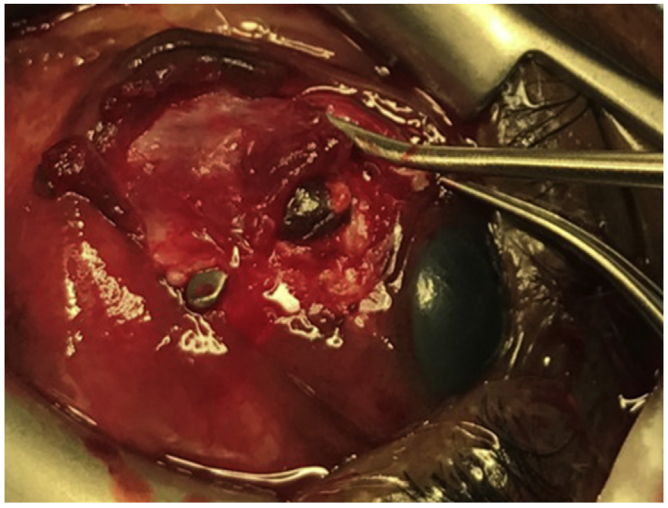

Fig. 1. Intraoperative photograph showing exposed uveal tissue anterior to the medial rectus muscle.

fortified vancomycin along with serial drainages in the clinic.

A few days after finishing his fourteen-day course of oral clindamycin, the severe right eye pain returned. On exam, there was a recurrence of a subconjunctival elevation with no visible mucopurulent discharge. The cornea, anterior chamber, iris, vitreous, and retina remained stable with no signs of intraocular inflammation. Since the mass returned despite maximal antimicrobial therapy, the patient was taken to the operating room for surgical drainage.

Intraoperatively, after the limbal conjunctival incision was reopened, exposed uveal tissue anterior to the medial rectus muscle insertion was discovered (Fig. 1). A diagnosis of necrotizing scleritis was made and was assumed to be the most likely cause of the patient's severe pain. The devitalized scleral tissue surrounding the scleral melt was removed, fibrotic tissue was debulked and cultured, and a split-thickness corneal graft was fashioned to fit the scleral defect. The graft used was glycerol-preserved, pre-cut, partial thickness corneal allograft tissue, consisting of corneal epithelium and stroma, prepared by VisionGraft. Since optical clarity was not required, a full-thickness graft

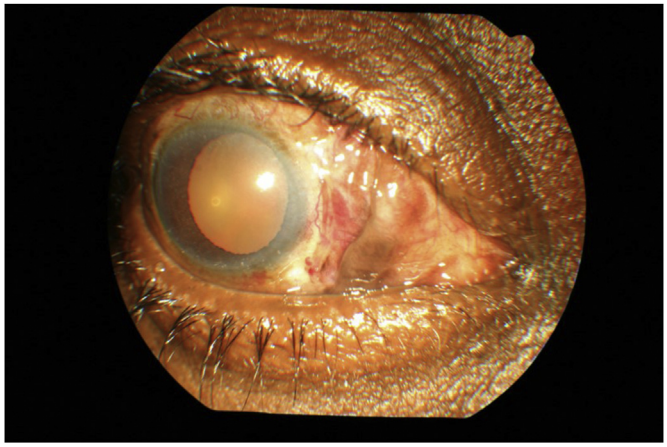

Fig. 3. External photograph of the right eye ten days after implantation of the tectonic corneal patch graft.

Fig. 4. External photograph of alignment and cosmesis eight months after implantation of the tectonic corneal patch graft.

with viable endothelium was unnecessary. The graft was secured to the area of scleral perforation with interrupted nonabsorbable sutures. The conjunctiva was draped over the corneal graft to prevent postoperative graft melt, and subconjunctival vancomycin was injected.

Cultures from the surgery showed no growth and the patient underwent a systemic work-up. Laboratory evaluation revealed a normal complete blood count, rapid plasma reagin, anti-neutrophil cytoplasmic antibody, serum lysozyme, angiotensin-converting enzyme, hepatitis C panel, sedimentation rate, antinuclear antibody, rheumatoid factor, and

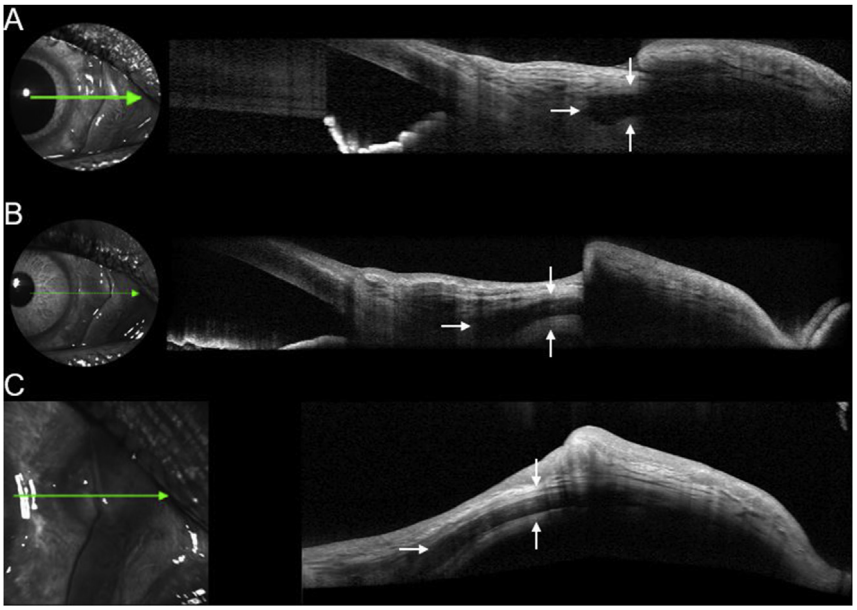

Fig. 2. Anterior segment optical coherence tomography demonstrating stable positioning of the graft at post-operative day ten (A), post-operative month one (B), and post-operative month eight (C). The white arrows indicate the margins of the graft.