Use of Oral Mucosal Graft for Corneal Patching in a Complicated Case of Stevens-Johnson Syndrome

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Stevens-Johnson syndrome (SJS) can cause severe ocular surface damage, manifesting as dry eye, symblepharon, eyelid abnormalities, and keratopathy. Repairing corneal perforations in such cases can be particularly challenging.[1] This report describes the use of an oral mucosal graft (OMG) to repair a corneal perforation in a patient with complicated SJS-a technique that, to our knowledge, has not been previously documented.

An 18-year-old female with a history of SJS presented with acute bilateral dacryocystitis and a corneal perforation in the right eye. She had been diagnosed with SJS 10 years earlier, possibly in association with the use of metoclopramide and cefixime. Since that time, she had been using eye drops and therapeutic contact lenses to manage dry eye and distichiasis. Three months prior to presentation, she developed acute dacryocystitis in both eyes and ulcerative keratitis in the right eye. Despite antibiotic therapy, the dacryocystitis progressed to cutaneous fistulization, and a corneal perforation subsequently developed. Corneal repair was attempted twice using multilayer amniotic membrane transplantation with fibrin glue; however, in both instances, the membranes dissolved within a few days.

On examination, eyelid swelling and conjunctival erythema were noted. Biomicroscopy of the right eye revealed a 3-mm corneal defect with iris prolapse in the inferonasal quadrant and a flat anterior chamber (Figure 1a). Diffuse distichiasis, focal trichiasis, and marginal keratinization were present in all eyelids. Visual acuity measured hand motion in the right eye and 20/30 in the left eye. The following day, bilateral dacryocystectomy and proximal lacrimal canaliculotomy were performed.

Ten days later, surgical repair of the corneal perforation was undertaken. The affected area was marked with a 4-mm dermal punch, and the epithelium overlying the defect was removed. Iridocorneal adhesions were released, and a viscoelastic material was injected into the anterior chamber. Oral mucosa was then harvested from the lower lip using the same punch, and submucosal tissues were trimmed. The graft was sutured in place with interrupted 10-0 nylon, cyanoacrylate glue was applied to the graft edges, and a contact lens was placed (Figure 1b). During the same session, anterior lamellar recession and margin reconstruction were performed on the upper

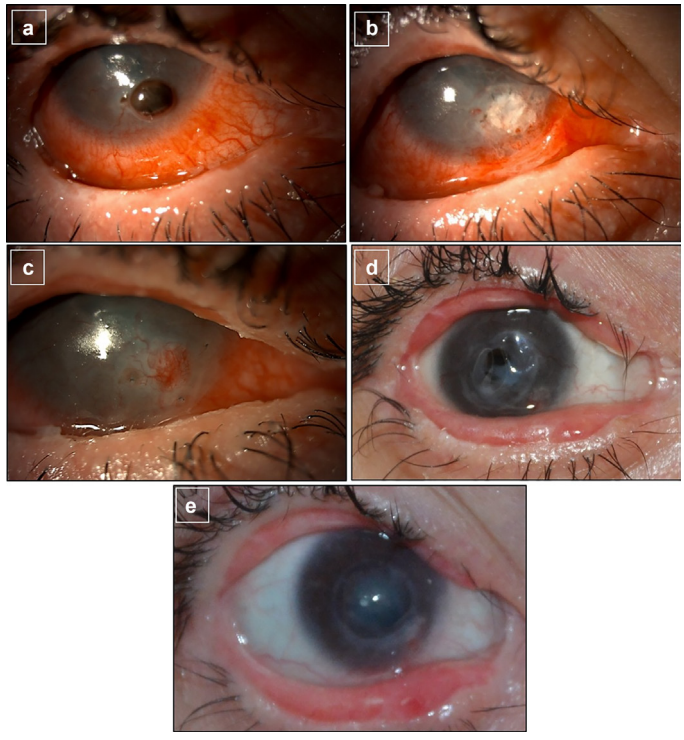

FIG. 1. (a) Diffuse conjunctival erythema, corneal perforation, and iris prolapse in the right eye. Appearance 1 week (b) and 2 months (c) after corneal patching with oral mucosal graft. The patch-grafted area showed durability during central corneal melting and tectonic penetrating keratoplasty (d, e).

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and lower eyelids of the fellow eye using OMGs. Postoperatively, a topical steroid-antibiotic combination was prescribed four times daily. Six weeks later, the corneal sutures were removed, and margin reconstruction with OMGs was performed on the eyelids of the operated eye. Following these interventions, corneal integrity was restored and inflammatory signs in both eyes resolved (Figure 1c).

Seven months later, the patient returned with central corneal melting in the right eye (Figure 1d). For tectonic purposes, penetrating keratoplasty and amniotic membrane transplantation were successfully performed. At 31 months postoperatively, the tear meniscus height was satisfactory, and the anterior chamber depth was normal. The mucosal patch area appeared grayish, was epithelialized, and showed stromal vascularization (Figure 1e). Visual acuity was finger counting at 1 meter in the right eye and 20/20 in the left eye. No therapeutic contact lenses were required in either eye.

Microbial keratitis is a common complication of SJS and can lead to corneal perforation. In one 5-year study[1], 34% of patients with SJS developed infective keratitis, and 31% of those cases progressed to corneal perforation. Of the perforations, 31% were treated with cyanoacrylate gluing, and 69% required therapeutic keratoplasty.

Although purulent dacryocystitis is relatively uncommon in SJS and other conjunctival cicatrizing diseases, it can occur.[2] In this case, we first addressed the dacryocystitis to prevent potential graft infection, performing dacryocystectomy to improve tear volume. A proximal canaliculotomy was also carried out to eliminate microbial colonization within the canaliculi. While these procedures can help alleviate dry eye symptoms, they may also increase the microbial load on the ocular surface. To reduce the risk of postoperative infection, corneal and eyelid surgeries were performed in separate sessions. Both dacryocystectomy and margin reconstruction produced a marked reduction in ocular surface inflammation. OMG is a well-established and effective treatment for palpebral margin abnormalities such as distichiasis, trichiasis, and keratinization.[3]

The central corneal melting occurred after the patient had returned to her hometown. No signs of suppurative keratitis were observed in association with the corneal melting. The patient's history suggested that the use of colored contact lenses and nonsteroidal anti-inflammatory eye drops may have precipitated the melting. Notably, during both the melting episode and subsequent tectonic keratoplasty, the patch-grafted area remained intact.

Treatment options for corneal perforation include tissue adhesive, amniotic membrane transplantation, patch grafting, conjunctival flap, and keratoplasty.[4] Tissue adhesive is effective for defects smaller than 3 mm, whereas larger defects require patch grafting or tectonic keratoplasty.[4] Patch grafts are typically used for paracentral and peripheral corneal defects and can be obtained from donor cornea, amniotic membrane, autologous sclera, or Tenon's capsule.[5-8] Similar to other patch grafts, the OMG provides tectonic support and serves as a scaffold for epithelial cell migration. The oral mucosa is thicker and more durable than the amniotic membrane or Tenon's graft, and it can be readily sutured to the cornea, ensuring a secure interface. Its epithelialized surface resists infection and erosion, while its autologous origin minimizes the risk of immune rejection. Additionally, oral mucosa can be harvested in large quantities if needed. In the present case, all grafts were harvested from the lower lip, with no donor-site complications. The OMG should be slightly wider than the corneal defect and not excessively thinned. Nylon sutures should avoid passing at full thickness through both the graft and cornea. OMGs may be a valuable option for corneal patching, particularly in cases where surgical trauma to the conjunctiva is undesirable.

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