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Recurrent *Paecilomyces* Keratitis in a Patient with Jones Tube after Conjunctivodacryocystorhinostomy

Dear Editor,

Paecilomyces, which is found in soil and decaying vegetables, is a rare pathogen causing local and systemic infections [1]. We report a rare case of recurrent *Paecilomyces* keratitis 5 years after Jones tube placement in conjunctivodacryocystorhinostomy (CDCR).

A 69-year-old woman was referred by a local ophthalmologist for the management of presumed fungal keratitis in the left eye. One month before presentation, she noted ocular discomfort with decreased vision. She had undergone left eye ocular surgery of CDCR 6 years previous and cataract surgery 2 months previous. After CDCR, she had used daily topical tobramycin and 0.02% fluorometholone eye drops. No known history of ocular trauma, contact lens use, or herpes simplex keratitis was evident. At initial examination, her best corrected visual acuity was finger counting at 30 cm. Slit-lamp examination demonstrated a 2.0 × 2.0-mm-sized epithelial defect with corneal stromal infiltration. There was moderate anterior chamber reaction and linear hypopyon. Corneal scrapings were cultured and confirmed the diagnosis of *Paecilomyces* infection. Topical amphotericin B 0.125% and voriconazole 1% were started. After 4 weeks of topical antifungal therapy, the epithelial defect and hypopyon were resolved. Her vision was improved to 20 / 50, but corneal opacity and thinning remained. There was no evidence of recurrence during the follow-up.

Five years later, the patient presented with reduced vision in the left eye; her visual acuity in the left eye was 20 / 1,000 with spectacle correction. Slit-lamp examination

showed geographic ulceration and radial Descemet's membrane folding at the central cornea including the site of previous corneal opacity and thinning (Fig. 1A and 1B). The additional presence of mild anterior chamber reaction and no hypopyon led to a diagnosis of herpes simplex keratitis, for which acyclovir ointment and topical moxifloxacin were started. Cultures showed no growth of any organism. Geographic ulceration and chamber reaction were improved, but the corneal thinning resulted in a perforation despite treatment. The patient emergently underwent amniotic membrane transplantation and corneal button graft. Two weeks later, she developed a recurrence of keratitis in the graft and 2.0-mm hypopyon. A therapeutic keratoplasty was performed. The previous corneal graft was

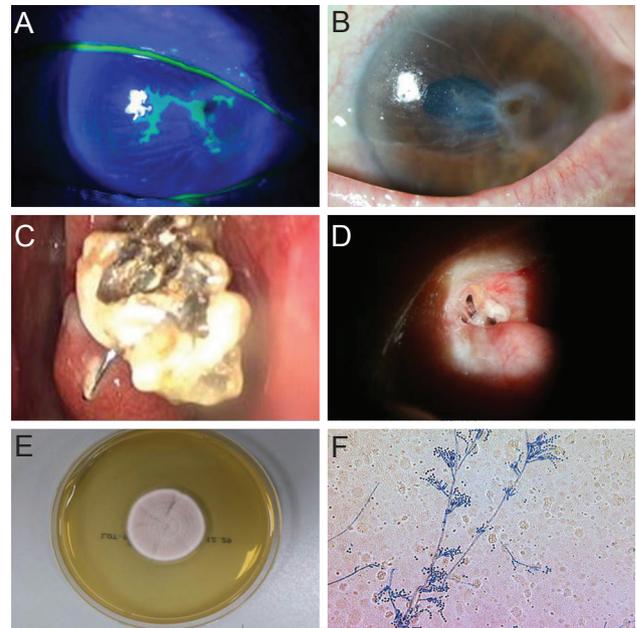


Fig. 1. Clinical photograph of left eye demonstrating geographic ulceration at previous corneal opacity and radial Descemet's membrane folding (A,B). Clinical photograph of Jones tube in nasal cavity (C). External photograph of Jones tube (D). Colony of *Paecilomyces lilacinus* isolated from cornea (E). Photomicrograph of *Paecilomyces lilacinus* from this case demonstrating conidiophores and chains of conidia (F).

sent for culture, as was a sample collected from the Jones tube placed during CDCR (Fig. 1C and 1D). These cultures were identified as *Paecilomyces lilacinus* based on DNA sequencing analysis of internal transcribed spacer regions (Fig. 1E and 1F). Despite treatment, no improvement was shown; the patient then underwent repeat penetrating keratoplasty, and the Jones tube was removed.

After penetrating keratoplasty and removal of the Jones tube, she showed marked improvements and no complaint of epiphora. There was no clinical recurrence during 6 months of follow-up. Unfortunately, the patient developed acute graft rejection 6 months later, although she refused an additional surgery.

Common causes of *Paecilomyces* keratitis are chronic keratopathy, ocular surgery, steroid therapy, and ocular trauma. Nissenkorn and Wood [2] reported that the use of topical steroid is an important risk factor of secondary infection after herpes simplex keratitis. Presence of an epithelial defect due to dendritic keratitis caused by herpes simplex virus can result in a secondary infection [3]. Boisjoly et al. [4] reported that persistent corneal epithelial defect and prolonged use of steroid eye drops are predisposing risk factors of fungal superinfection. In our patient, possible predisposing factors were chronic use of steroid eye drops after CDCR and presence of a Jones tube that acted as a reservoir for microbials. Especially, recurrence of keratitis was related to a persistent epithelial defect due to herpes simplex keratitis and secondary infection from *Paecilomyces* species present in the Jones tube.

Paecilomyces species are difficult to eradicate because of their resistance to common antifungal agents such as natamycin, amphotericin B, fluconazole, and ketoconazole [5]. In this case, initial *Paecilomyces* keratitis was successfully treated with topical amphotericin B and voriconazole. However, recurrent *Paecilomyces* keratitis required a temporary corneal button graft because of corneal perforation and repeated penetrating keratoplasty for complete fungal clearance.

This case report suggest that the careful use of steroid eye drops after ocular surgery is necessary in order to pre-

vent postoperative keratitis, and that the Jones tube placed during CDCR can develop as a cause of anterior segment infection or worsened infection. Therefore, patients presenting with infectious keratitis who underwent CDCR with Jones tube placement require additional culture of the Jones tube.

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Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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