

Therapeutic Penetrating Keratoplasty for Severe Fungal Keratitis in a Thai Tertiary Care Center

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ABSTRACT

Objective: To evaluate the outcomes of therapeutic penetrating keratoplasty (TPK) performed for severe fungal keratitis. **Materials and Methods:** Medical records of all patients who underwent TPK in Siriraj Medical Center between April 2010 and July 2020 were culled, and those in which fungal pathogens were definitively identified were studied. Patient records with follow up less than three months were excluded. Patient demographic and outcome measures and complications following TPK were recorded. The primary outcome was eradication of the fungal infection. Secondary outcomes were preservation of anatomical integrity, graft survival and achievement of visual acuity (VA) greater than or equal to 3/60.

Results: Sixty patients met the study criteria and were included in the analysis. The mean patient age was 56 (range: 23-79) years, and most patients were men (46, 77%). The mean follow up time was 30.87 months (range 1.61-122.71). Fifteen eyes (25%) sustained corneal perforation before undergoing TPK. Graft survival was 30% at 1 year, 18% at 5 years, and 11% at 10 years. The most common organism was *Fusarium* in 23 patients (38%). The median duration from presentation to surgery was 14 (8-21) days. Fungal eradication was achieved in 44 patients (73%) and VA better than 3/60 was achieved in 14 (23%). Anatomical integrity was maintained in 46 (76%) eyes. Repeat PKP was performed in 15 patients (25%), most commonly for persistent infection.

Conclusion: TPK offers a good chance for disease eradication and maintenance of anatomical globe integrity and is a reasonable therapeutic option for patients with severe fungal infection.

Keywords: Therapeutic penetrating keratoplasty; fungal keratitis; fungal ulcer (Siriraj Med J 2023; 75: 575-583)

INTRODUCTION

Infectious keratitis is a vision-threatening condition and the leading cause of corneal blindness worldwide. Bacterial, fungal, and parasitic causes are all well recognized pathogens, and all can progress to endophthalmitis or corneal perforation with devastating results. Fungal keratitis presents a particular treatment challenge due to its typically widdling response to medical therapy.

In warm climates, filamentous fungal species, most notably *Fusarium* and *Aspergillus*, are the most common types of fungal pathogens.^{1,2} In cooler climates, yeast species

predominate, typically *Candida*.³ Most patients have a recognized history of corneal trauma or contact lens wear. In general, the first line management of fungal keratitis is with topical and systemic anti-fungal medications. The number of available and approved topical agents is small, and most are azoles, the exception being natamycin, a polyene compound.⁴ Periodic corneal debridement may improve drug penetration and is often performed as an adjunctive therapeutic procedure.

Therapeutic penetrating keratoplasty (TPK) is commonly performed to treat very severe fungal keratitis,

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