A case of recurrent keratitis caused by *Paecilomyces lilacinus* and treated by voriconazole

Uso do voriconazol na ceratite recorrente causada por fungo *Paecilomyces lilacinus*

Carolina Pelegrini Barbosa Gracitelli¹, Pedro Vanalle Ferrar¹, Carlos Alberto Pires Pereira², Flávio E. Hirai¹, Denise de Freitas¹

1. Department of Ophthalmology and Visual Sciences, Universidade Federal de São Paulo, São Paulo, SP, Brazil.
2. Department of Infectious Diseases, Universidade Federal de São Paulo, São Paulo, SP, Brazil.

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**Corresponding authors:** Carolina P. B. Gracitelli.
Rua Botucatu, 821 - São Paulo, SP - 04023-062 - Brazil - E-mail: carolepm@gmail.com

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**INTRODUCTION**

*Paecilomyces lilacinus* is a filamentous fungus that inhabits the soil, decaying plants, and food products; though usually considered a contaminant, and it also causes infections in humans and animals(1). The use of extended wear soft contact lenses, ocular trauma and the prolonged use of topical corticosteroids have been associated with infection-induced keratitis(2).

Several drugs have been used to treat ophthalmic infections caused by Paecilomyces. Amphotericin B (AMB) is probably the most commonly used drug; however, its efficacy is poor(3), as would be expected given its poor in vitro efficacy against Paecilomyces(4). Although studies on the clinical use of voriconazole (VRC) are limited, it appears to be an effective antifungal with regard to Paecilomyces(4). Here we describe a case of AMB-resistant Paecilomyces eye infection with related keratitis that was treated with topical voriconazole.

**ABSTRACT**

We describe here a case of a 21-year-old woman who presented with low visual acuity, pain, and hyperemia in the left eye for 45 days. Her eye had extensive corneal infiltrate with melting and a central perforation that was glued with cyanoacrylate, but with Seidel (+). She underwent tectonic corneal transplantation, and anterior chamber lavage with subconjunctival infiltration with voriconazole, as well as intracameral injections of amphotericin B. Laboratory tests revealed *Paecilomyces lilacinus* as the infectious agent. The patient was then maintained with oral voriconazole and eye drops for three months, after which the infection was considered cured. However, in the sixth postoperative month she presented with endothelial rejection, and two weeks later signs of recurrence of the fungal infection. She was treated with two further washes of the anterior chamber and subconjunctival injection of voriconazole, followed by intravenous voriconazole that was replaced with drops ten days later. The infection initially worsened, but then regressed, and at last follow-up, the patient was still infection-free.

**Keywords:** Keratitis/drug therapy; Eye infections, fungal/drug therapy; *Paecilomyces lilacinus*; Anterior chamber; Therapeutic irrigation; Voriconazole/therapeutic use
However, it is often difficult for a clinician to decide which antifungal to use and the route of administration in fungal infections. Corneal epithelium serves as a barrier to the penetration of most topical antifungal agents. In some cases, intracameral injections could be used to improve drug penetration.

This report shows a case of Paecilomyces keratitis treated with topical voriconazole.

CASE REPORT

A 21-year-old woman with a history of Turner syndrome (confirmed by karyotype) was referred to our service due to a 45-day long, continuing corneal infection. Her past medical, ocular, and family histories were mostly unremarkable, although she did report a history of severe bilateral blepharitis and corneal opacities due to phlyctenulosis. She was using 0.1% moxifloxacin eye drops (q.i.d.) and 0.1% dexamethasone ointment (b.i.d.). The ophthalmologic exam showed visual acuity of 20/100 in her right eye and light perception in her left eye. The corneal exam revealed severe stromal infiltration and melting with an area of tissue adhesive applied for a corneal perforation in her left eye. The patient underwent tectonic corneal transplantation. During the operation, microbiological testing identified *P. lilacinus* as the infective agent. At the end of the surgery, intracameral (100 µg) and subconjunctival (10 mg) VRC were injected; additional intracameral injections of AMB were administered. The infected material was sent to a mycology laboratory for antifungal susceptibility testing; the minimum inhibitory concentrations of AMB, fluconazole, and VRC were 16 µg/ml, 64 µg/ml, and 16 µg/ml, respectively.

The patient was placed on hourly topical (10 mg/ml) and oral (100 mg b.i.d.) VRC (the dosage was adjusted for the short stature typical in Turner syndrome), and after three months of treatment all the medication was discontinued and the patient was considered free of infection.

Three months after discontinuing the medication, the patient presented signs of endothelium rejection. She was treated with topical 1% prednisolone, and signs of improvement were noted one week later. However, two weeks after initiating the prednisolone, a deep corneal infiltration and anterior chamber reaction were observed during an exam, suggesting the fungal infection had recurred (Figures 1 and 2). She underwent a second intracameral VRC injection and sampling of the aqueous humor, lab cultures of which were positive for *P. lilacinus*. At this time, she was admitted to the hospital and administered intravenous VRC for ten days. On the fifth day of hospitalization, the stromal infiltration worsened and a third intracameral VRC injection was given. Lab cultures of aqueous humor were still positive for *P. lilacinus*.

After one month of intense topical (hourly) and oral (100 mg b.i.d.) VRC administration the stromal infiltrate regressed. The patient was then maintained on topical and oral VRC for an additional 6 months, after which she was maintained on topical VRC drops for six more months. Should the eye remain free of inflammation for one year after cessation of the medication a new corneal graft will be planned.

DISCUSSION

The prognosis following *P. lilacinus* infection is often poor due to its relatively high resistance to medical
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**REFERENCES**