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RARE CASES OF FUNGAL KERATITIS: COMPLICATIONS

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Abstract: Fungal keratitis is a rare eye infection, usually caused by filamentous (*Fusarium*, *Aspergillus*) or yeast-like (*Candida*) fungi. The main risk factors include eye trauma, steroid use and contact lenses. The infection can lead to serious complications, requiring early diagnosis and treatment. The article describes two rare clinical cases caused by unusual infectious agents: the first is of a 72-year-old patient with an *Acremonium spp.* infection following ocular trauma and steroid use, who required therapeutic keratoplasty and made a good recovery; the second, of a 58-year-old patient with a *Scytalidium sp.* infection resulting from a marimbondo sting, who responded positively to treatment with topical antifungals. Early diagnosis is challenging and requires corneal scraping. Treatment involves topical antifungals and, in refractory cases, keratoplasty. Prophylaxis includes wearing safety glasses and taking care when wearing contact lenses.

Keywords: Fungal keratitis; plant trauma, *Acremonium sp.*; *Scytalidium sp.*

INTRODUCTION

Fungal keratitis is a rare eye infection resulting from invasion of the cornea by fungi, which can be classified into filamentous and yeast-like. The agents most commonly associated with filamentous keratitis include *Fusarium spp.* and *Aspergillus spp.*, with *Acremonium spp.* appearing less frequently. Yeast-like fungi, such as *Candida spp.* are responsible for a significant proportion of cases.

The main risk factor for fungal keratitis is ocular trauma, especially trauma caused by plant material. Other relevant factors include the use of topical steroids, the use of contact lenses, geographical location and climatic conditions, with filamentous keratitis being more prevalent in warm climates and yeast keratitis in cold climates. This infection can lead to serious complications and often results in a poor

visual prognosis. It is therefore crucial that the ophthalmologist performs early diagnosis and treatment to minimize sequelae.

CLINICAL CASES

FIRST CASE

A 72-year-old male patient was admitted to a tertiary ophthalmology service complaining of low vision, pain, redness and photophobia in his right eye for 40 days. The patient reported the removal of a corneal foreign body in another service 30 days earlier, with progressive worsening of symptoms since then. He had used tobramycin, dexamethasone and gatifloxacin for 20 days prior to admission. At the time of assessment, he was being treated with amphotericin B and atropine, as well as systemic voriconazole.

During the biomicroscopy examination, 4+/4+ conjunctival hyperemia was observed, as well as a lower nasal corneal infiltrate with hyphal borders, the presence of a central descemetocoele and a fluoride-positive area measuring 1.1 mm vertical x 5.2 mm horizontal. Scraping the bed of the corneal ulcer initially resulted in a positive culture for *Bacillus*.

As his condition worsened, therapeutic keratoplasty was performed and the corneal fragments were cultured positively for *Acremonium spp.* on Sabouraud agar. Postoperatively, the patient progressed well with the use of pimaricin, although he developed intolerance to systemic itraconazole. After two months of treatment, the infection was under control, with no signs of recurrence.



Photo 1: Image of the eye before the corneal transplant.

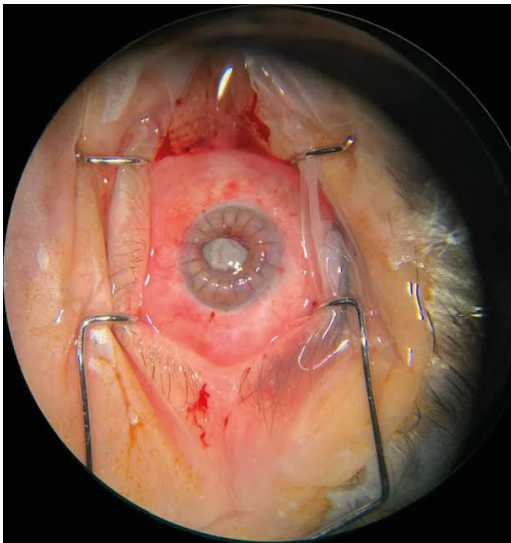


Photo 2: Immediate post-operative image of the corneal transplant.

SECOND CASE

A 58-year-old male patient came to a tertiary ophthalmology service complaining of low vision, itching and redness in his right eye (OD) for 17 days after being stung by a marimondo. The patient had used vigamox topically and prednisone and ketoconazole systemically for 7 days, without improvement. The corrected visual acuity (CVA) in OD was 20/30. The biomicroscopy findings showed conjunctival hyperemia 3+/4+, inferior cor-

neal infiltrate with hyphal borders and a 1.5 mm hypopia, as well as anterior chamber reaction 4+/4+, with other structures preserved.

The initial approach included suspending previous treatment for 24 hours and taking a culture of the corneal scraping, which was positive for *Scytalidium sp.* The patient progressed with clinical improvement after topical treatment with pimaricin associated with vigamox and is currently being followed up as an outpatient, with no signs of recurrence and good visual rehabilitation after more than 30 days of treatment.

DISCUSSION

The symptoms of fungal keratitis can be non-specific, including ocular hyperemia, visual clouding, tearing and photophobia. Clinical signs identifiable during ophthalmic examination, such as dense infiltrates with hyphal borders, hypopia, satellite lesions and endothelial plaques, can guide the diagnosis.

Early recognition and treatment of fungal keratitis is essential, but can be challenging due to its similarity to other infections, such as bacterial keratitis. For this reason, it is essential to perform corneal scraping in suspected and severe cases, especially in corneas with visual axis impairment, thinning of more than 50% and an extension of more than 2 millimeters. This test is crucial for confirming the etiologic agent and guiding treatment. In cases with negative cultures, corneal biopsy can be considered.

In the cases presented, the delay in starting specific treatment and the use of topical steroids may have contributed to unfavorable outcomes. In situations of high suspicion of fungal keratitis, where there is no improvement with broad-spectrum antibiotics, it is necessary to re-evaluate the diagnosis and the medications in use. It is important to avoid the use of topical corticosteroids in cases of unknown agents, as these drugs can favor the

growth of fungal and herpetic infections.

The treatment of keratomycosis is a challenge, especially for rare etiological agents, with poorly established therapeutic protocols and little information in the literature. Standard treatment is based on topical antifungals, with natamycin being the most widely used due to its broad spectrum, although it has poor penetration into the corneal epithelium. Amphotericin B and voriconazole are frequent alternatives. Other options include intrastromal injections, intracameral injections, nanoparticles and crosslinking. In cases refractory to clinical treatment, penetrating keratoplasty may be necessary.

CONCLUSION

Given the difficulties in the treatment and management of fungal keratitis, especially by *Acremonium spp*, prophylaxis is the most appropriate approach. It is recommended to wear safety glasses during activities in rural or gardening environments, proper hygiene when wearing contact lenses and avoid the non-essential use of topical corticosteroids. In addition, the differential diagnosis of fungal keratitis should always be considered in cases of lack of clinical improvement under treatment with broad-spectrum antibiotics

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