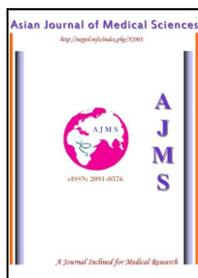


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## Need to suspect fungal etiology in presumed bacterial keratitis - A case report of keratitis due to *Scedosporium prolificans*

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### Abstract

We describe a case of keratitis with acute presentation and without any history of trauma caused by *Scedosporium prolificans*; a rare cause of fungal keratitis, from a tertiary care hospital. To the best of our knowledge this is the first such case reported from the region. Because of early diagnosis and prompt treatment the patient could be managed well.

**Keywords:** Keratitis; *Scedosporium prolificans*; Prompt treatment

### 1. Introduction

Fungi are rare but important cause of keratitis as they may lead to devastating ocular damage if not diagnosed or treated at the earliest.<sup>1</sup> Yeasts are mainly responsible for opportunistic infections of eye whereas filamentous fungi cause infections in healthy individuals following trauma.<sup>[1]</sup> Worldwide *Aspergillus* species are the most common cause out of all filamentous fungi followed by *Fusarium* and *Penicillium* species.<sup>2</sup> Association of *Scedosporium prolificans* with ocular infections is rare. Only few cases of keratitis and two cases of endophthalmitis have been reported due to this fungus.<sup>3</sup>

### 2. Case Report

A 55 year old female agriculturist, reported to the out patient department of Ophthalmology with chief complaints of pain, foreign body sensation, redness and watering from right eye for last one week. There was no history of injury to the affected eye. On examination, an ulcer of about 2 mm in diameter was present on the medial side of the corneal stroma. There was severe inflammation in the anterior chamber of eye. A provisional diagnosis of bacterial keratitis was made.

Prompt treatment was started with gentamicin and ciprofloxacin eye drops, after taking the sample of corneal scrapings from the affected eye. The sample was inoculated directly on 5% blood agar and chocolate agar at the bedside and the plates were incubated at 37°C for 48 hours. Routine blood tests including fasting blood sugar were also done. Bacterial culture of corneal scrapings were reported to be sterile and routine blood tests were found to be within normal limits.

When there was no improvement in the condition of the patient even after two days of therapy, fungal etiology was suspected. Corneal scrapings were again taken for fungal culture and inoculated at the bedside on two sets of media, each of which included Sabouraud dextrose agar (SDA) and SDA with antibiotics but without Cycloheximide (actidione). One set was incubated at 25°C and the other at 37°C. After 2 days of incubation, fungal growth was obtained in both tubes incubated at 25°C. The growth was white, cottony, floccose and spreading in nature. The reverse of the culture showed no pigment (Fig-1). A lactophenol cotton blue (LCB) preparation was made, which showed hyaline septate hyphae with swollen flask shaped conidiophore, bearing single conidia (Fig-2). The mold was identified as *Scedosporium prolificans* on the basis of typical morphological features. The initial report was sent to the Ophthalmology department, in order to start treatment of the patient. Further identification and

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confirmation of species was done by subculture of growth on cornmeal agar. No cleistothesium formation was seen from growth on cornmeal agar thus confirming the diagnosis of *Scedosporium prolificans* in contrast to *Scedosporium apiospermum*. Followed by the initial report, debridement of the affected eye was done by the ophthalmologist and the patient was treated with Natamycin 5% eye drops and oral Ketoconazole 200 mg. The patient responded well with only a minimal scar on the cornea seen after one month and was advised regular follow-ups.



Figure-1: White cottony, floccose and spreading growth on Sabaraud's Dextrose Agar

### 3. Discussion

The genus *Scedosporium* includes two species *Scedosporium apiospermum* and *Scedosporium prolificans*. *Scedosporium apiospermum* is a perfect fungus having a sexual stage, known as *Pseudallescheria boydii* but *Scedosporium prolificans* is an imperfect fungus with no sexual state. *Scedosporium spp* are ubiquitous filamentous fungi in nature and can be isolated from soil, decaying matter, and polluted water.<sup>4,5</sup> They may cause localized and disseminated opportunistic infections in immunocompromised patients, although in immunocompetent patients infection occurs after massive exposure and trauma.<sup>5</sup> As per review of literature very few cases of keratitis due to *Scedosporium prolificans* have been reported.<sup>3</sup>

We observed a case of keratitis due to *Scedosporium prolificans* in an immunocompetent patient, without any history of trauma. But contact with vegetative material cannot be ruled out as she was an agricultural worker. Alternatively infection could have been introduced by airborne spores or improper hand washing, after working with soil or plants. Initially treatment was started on the

lines of bacterial keratitis. It was switched over to antifungal treatment after no response to initial treatment, sterile report for bacterial culture and positive culture report for fungus.

*Scedosporium prolificans* can be identified on the basis of early growth, cultural characteristics and microscopic examination. It can be differentiated from *Scedosporium apiospermum* by the lack of formation of cleistothesium on cornmeal agar.

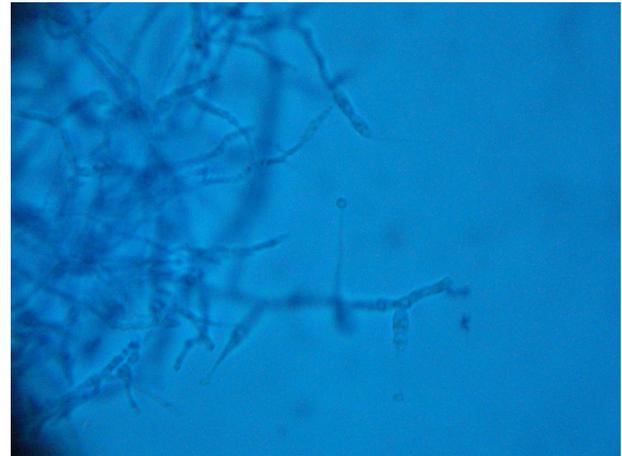


Figure-2: A lactophenol cotton blue (LCB) preparation showing hyaline septate hyphae with swollen flask shaped conidiophore, bearing single conidia

*Scedosporium spp* are known to be resistant to many antifungals. *S. prolificans* is generally more resistant than *S. apiospermum*.<sup>6,7</sup> Usually, surgical intervention with adjuvant antifungal therapy is recommended for treatment.<sup>4</sup> *S. prolificans* ocular infections appear to have varied responses to medical therapy.<sup>8-10</sup> In contrast, the case of *S. prolificans* keratoscleritis reported by Kumar et al.<sup>9</sup> was successfully managed with scleral debridement combined with topical natamycin and 200 mg of itraconazole twice a day. Similarly our patient responded well to surgical debridement, Natamycin 5% eye drops and oral Ketoconazole 200mg. The reason for this may be that the infection was limited to the necrotic mass only.

### 4. Conclusion

Fungal keratitis despite its uncommon incidence, must be considered in all cases presenting with keratitis in the presence or absence of any history of traumatic exposure to organic matter. Samples must be simultaneously taken for investigation of both fungal and bacterial causes. Early diagnosis, hence appropriate treatment is the key to minimize morbidity in such cases.

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