Case Report

Mycotic keratitis due to *Neoscytalidium dimidiatum*: A rare case

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ABSTRACT

Neoscytalidium dimidiatum is a plant pathogen capable of causing infection in humans. The infections are generally indolent and found in the nails and skin. Corneal infection due to this fungus is rare. A case of keratitis caused by *Neoscytalidium dimidiatum* in an adult male resulting from trauma to the eye is reported.

Key words: Corneal infection, mycotic keratitis, *Neoscytalidium dimidiatum*

INTRODUCTION

Keratitis due to molds is more common in the tropical climates. *Neoscytalidium dimidiatum*, a significant plant pathogen,[1] is also an established pathogen causing nail and skin infections in humans. Ophthalmic infections such as endophthalmitis or keratitis due to *Neoscytalidium dimidiatum* or its synanamorph, *Nattrassia mangiferae* is a very rare infection. The present case of *Neoscytalidium* keratitis is being reported due to its rarity. Farjo *et al.* have reported one case.[2] One other case of keratitis has been reported from Chennai, Tamil Nadu, India, caused by the synanamorph of *Neoscytalidium dimidiatum*, viz. *Nattrassia mangiferae*.[3]

CASE REPORT

A 50-year-old male sewer worker presented with history of redness, pain, watering, and diminished vision in the left eye for 2 months. The patient had a history of a fall near a sewer with resultant injury with plant material to his left eye. The patient consulted local practitioners and used prescribed topical medications, details of which he could not express. However he had no relief with the medications. The patient did not have any history of diabetes mellitus, hypertension, or any other major medical or surgical illness in the past.

On examination, the left eye revealed an edematous lid with circumcorneal congestion of the conjunctiva. The cornea showed a central ulcer, which was 5 × 4 mm in size with stromal infiltrates in the inferotemporal quadrant. When first seen, the patient had a minimal hypopyon [Figure 1]. A dense immune ring was seen on the cornea away from the edge of the ulcer. The anterior chamber was clear and the pupil and lens appeared normal. The fundus could not be visualized due to haziness in the media. The vision of the patient was considerably reduced to hand movements and finger counting. The x-ray of the orbit revealed no bony infiltration.

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Microbiological investigations included corneal scrapings for bacterial and fungal culture. The corneal scrapings were collected using the blunt edge of a sterile scalpel blade following local lignocaine eyedrop instillation. The Gram stain of the corneal smear showed tissue debris and plenty of septate fungal hyphae, some of which were poorly stained [Figure 2]. There were no bacteria seen in the smear. For bacterial culture, the scrapings were inoculated on blood agar and chocolate agar plates at the bedside by cutting through the agar with the blade. For fungal culture, the scrapings on the blade were wiped on a sterile swab and the swab was dipped in Sabouraud's dextrose broth for *in situ* incubation. The blood agar and chocolate agar were incubated at 37°C and the Sabouraud dextrose broth with the swab *in situ* was incubated at 28°C in the cooling incubator.

Mold growth along the line of inoculation was seen in both the blood agar and chocolate agar. Sabouraud dextrose broth also showed growth of mold on the swab. On subculture on Sabouraud dextrose agar (SDA) plate, the colony was cottony, grayish-brown in color, and flat, and it developed a black pigment on reverse by the end of 10 days [Figure 3]. When the preparation was observed on slide culture, the microscopic morphology showed thin, hyaline, septate hyphae as well as thicker, pigmented fungal hyphae. Some of the pigmented hyphae showed chains of thick-walled, cylindrical arthroconidia [Figure 4]. Culture on the banana peel revealed no pycnidia.[3] The fungus was identified by its morphologic characteristics as *Neoscytalidium dimidiatum*.[4] The patient was treated with debridement and topical fluconazole eyedrops at hourly intervals, along with atropine eyedrops. Oral voriconazole was also prescribed. However, the patient did not return for follow-up.

DISCUSSION

Neoscytalidium dimidiatum (earlier known by the term *Hendersonula toruloidea* and *Scytalydium dimidiatum*) was first reported in humans by Gentles and Evans in 1970 in the infection of the feet and nails. The authors recovered the fungus from eight other cases over a 7-year period

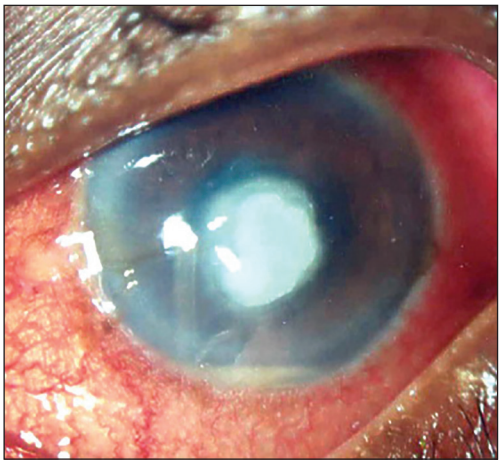

Figure 1: Central; corneal ulcer seen with a dense immune ring encircling the ulcer

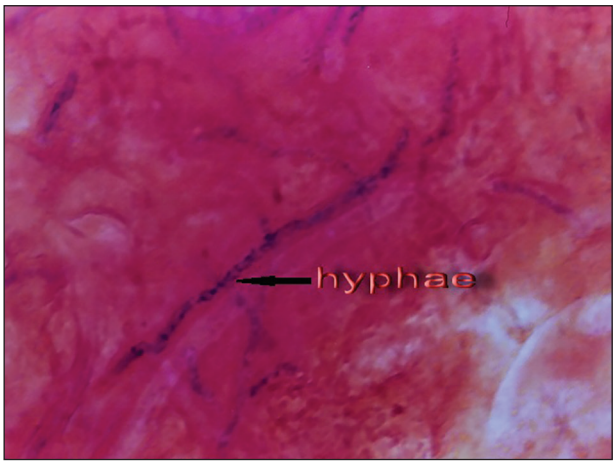

Figure 2: Cellular debris and septate fungal hyphae seen. Gram smear ×1000

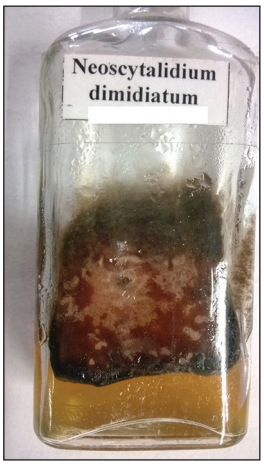

Figure 3: Flat, brown, cottony growth of *Neoscytalidium dimidiatum* on Saboraud dextrose agar

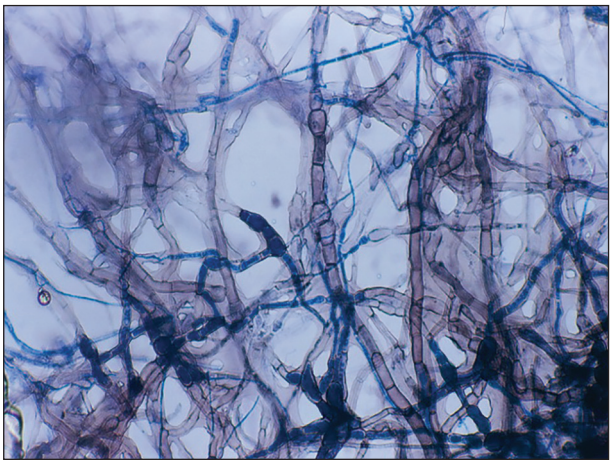

Figure 4: Thin, septate hyphae and thick-walled cylindrical arthroconidia of *Neoscytalidium dimidiatum* see. Lactophenol cotton blue mount ×400

thereafter.[5] Subsequently, several reports of the skin and nail infections due to *Neoscytalidium dimidiatum* appeared in the literature from various countries. The infections are known to be clinically indistinguishable from dermatophyte infection. Barua *et al.* have reported onychomycosis in tea leaf pluckers from India.[6] *Neoscytalidium dimidiatum* or its synanamorph *Nattrassia mangiferae* have also been reported from cases of subcutaneous lesions as well as disseminated infection.[7,8] Overall, it appears that infections caused by *Neoscytalidium dimidiatum* are difficult to treat. Despite the *in vitro* sensitivity of the fungus to various antifungals such as amphotericin B, voriconazole, and fluconazole, the clinical response is typically poor.[9] The first eye infection was noted in 1993 in a Yemeni farmer with endophthalmitis following trauma. Despite intraocular amphotericin B, miconazole, natamycin, and extensive surgical debridement, there was no improvement and enucleation had to be performed on the patient.[10] The case of keratitis reported by Farjo *et al*.[2] was treated with topical amphotericin B and oral fluconazole. Kindo *et al.* from Chennai, Tamil Nadu, India have reported keratitis due to *Nattrassia mangiferae* in a 70-year-old farmer following trauma to the eye. Topical itraconazole was initiated. However, their patient was also lost to follow-up.[3] *Neoscytalidium dimidiatum* is being increasingly reported from various types of localized and disseminated infections. The published literature indicates that this fungus is virulent and also difficult to eradicate. Since the culture of corneal scrapings is not always requested by ophthalmologists, it should be noted that the diagnosis of such fungal infection may be missed in many cases or treated empirically. Culture, being the only means for diagnosing this infection, is imperative and should be a part of the routine investigations asked for such patients. The clinical treatment failures also highlight the need for a proper follow-up of the patient so that an optimal therapy can be formulated. Most of the published reports on therapeutic aspects of this fungal infection are based on individual cases, many of which lament the incomplete follow-up of the patient as was the case even with our patient. Counseling of the patient by the ophthalmologists regarding the indolent course of the disease and the importance of regular follow-up will help in understanding the disease and formulating appropriate therapy.

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Conflicts of interest

There are no conflicts of interest.

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