

Keratitis due to a Rare Fungus *Colletotrichum dematium*: A Case Report

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ABSTRACT

Keratitis is a very serious clinical condition caused by bacteria, fungi or parasites. It is associated with serious complications like blindness or endophthalmitis if remained undiagnosed. A 42-year-old male patient with the history of foreign body inoculation presented with mild pain and redness. After clinical examination, fungal keratitis was diagnosed. Corneal scraping was sent for microbiological investigation. A very rare fungi *Colletotrichum dematium* was isolated and identified. Patient was managed with Natamycin tab fluconazole and atropin eye drops. To know the geographical distribution of the rare fungi, more and more cases should be studied and reported, which will help in management of rare fungi and standardisation of therapy.

Keywords: Corneal ulcer, Dematituous fungi, Fungal keratitis, Unuseal fungi

CASE REPORT

A 42-year-old male patient presented with complaint of redness, watering, pain, and photophobia associated with diminution of vision in the Left Eye (LE) since three weeks. He encountered unidentified foreign body exposure to LE while riding as a pillion rider. After which he experienced pain, redness and watering in LE. Pain was non-radiating and mild in nature. Patient also gave history of gradual progressive diminution of vision. Patient had visited a nearby clinic and was put on topical medications of which detail was not available with patients but found no relief.

With patients consent, Slit lamp examination with diffused light was performed which revealed a mild lid oedema in his LE with mixed type of congestion, central corneal ulcer with epithelial defect of size 7×7 mm, stromal infiltration of size 8×8 mm, with multiple radiating descemet folds around central ulcer. There was streak hypopyon and intra-stromal bleed at centre with superficial corneal vascularisation at limbus at 360 degrees [Table/Fig-1]. There were no satellite lesions. The details of lens and posterior segment could not be assessed due to hazy view. Visual acuity in patients LE was only hand movement with accurate projection of rays in all four quadrants. Direct pupillary reaction assessed from periphery, found dilated pupil, might be under effects of drugs used by patient. B-scan was found normal with anechoic vitreous cavity. The corneal scraping was obtained with 15 number surgical blade under topical anaesthesia. It was sent for KOH, Gram stain and Fungal culture. KOH mount revealed plenty of hyaline septate hyphae [Table/Fig-2] while Gram stain revealed no organisms. So, the patient was treated with tablet fluconazole 150 mg, 5% natamycin, 1% Atropine eye drops. But there were no signs of improvement after start of treatment. It is cultured on Sabouraud's Dextrose Agar (SDA) plate and incubated at 27°C. It started with white filamentous growth which turned mouse grey with woolly mycelium. After a week, it turned much darker with dark brown reverse [Table/Fig-3]. Lactophenol Cotton Blue (LPCB) mount of colonies showed septate hyphae and sickle-shaped conidia with acute apex of size 20-30×2.0-3.5 μm. Presence of falciform conidia without septation and presence of brown coloured pear shaped, irregular appressoria (Thick walled swelling at the end of hyphae or germ tube useful for the attachment to the host surface) with setae (thick walled dark pigmented sterile hyphae usually pointed at the tip) were observed [Table/Fig-4a-c]. On the basis of these characteristic morphological features, it was identified as

Colletotrichum dematium. The virological seromarkers for HIV and Hepatitis B were within normal limits.



[Table/Fig-1]: Clinical presentation of patient with whitish large ulcer.

[Table/Fig-2]: KOH mount showing plenty of thin septate hyphae. (Images from left right)



[Table/Fig-3]: Growth on SDA medium; white filaments which became mouse grey, woolly aerial mycelium and turned felt-like. Reverse was dark brown.

[Table/Fig-4]: LPCB mount of colonies showing characteristics features of *Colletotrichum*: a) Setae; b) Fusiform conidia without septations; c) Appressoria (in arrow). LPCB: Lacto phenol cotton blue (Images from left to right)

After culture confirmation Amphotericin B was added. There was improvement in lesion which was observed till two weeks. Later on, he did not report for further follow-up.

DISCUSSION

Keratitis usually associated with bacterial, fungal, parasitic and viral infection that invades the cornea which leads to destruction of the corneal structures [1]. Comparatively fungal keratitis found to be more virulent and difficult to diagnose and treat. The cause of fungal keratitis is usually associated with history of trauma with some vegetative matter or contaminated soil particles while in the present case the patient was exposed to unidentified foreign body while riding as a pillion rider. Non-traumatic keratitis due to *Colletotrichum* was also reported [1,2].

There are variations in environmental distribution of fungi geographically, so there is variability in the fungi recovered from keratitis. In developing countries like India, mycotic keratitis comprises up to 40% of the all microbial causes and *Aspergillus* is the most commonly encountered fungus amongst all other causes [3].

Herewith, reported a case of corneal ulcer due to *Colletotrichum* which is known to cause plant diseases and rarely can cause human infections. *Colletotrichum* cases are reported from various parts in world and India, but not from Chhattisgarh [1].

The genus *Colletotrichum* is a pigmented fungus of coelomycetous group and is a most important plant pathogen causing anthracosis. They are known to cause keratitis but they can also cause subcutaneous and systemic infection among immunosuppressed patients [4]. There are various species of *Colletotrichum* but only five have been reported to cause human infections and these are *Colletotrichum coccodes*, *C crassipes*, *C graminicola*, *C dematium*, *C gloeosporioides* [2,4-7].

On artificial media, *Colletotrichum* generally produces filamentous pigmented colonies which are quite similar to colonies of some pheoid fungus such as *Alternaria* and *Curvularia* [7]. Key morphological features of *Colletotrichum* are acervular conidiomata along with setae having elongated conidia and appressoria. *C.dematium* and *C.graminicola* both are having sickle-shaped falcate conidia and have to be differentiated from septate conidia of *Fusarium* species which is frequently encountered fungus causing keratitis. Appressoria of *C.dematium* are more or less clavate while of *C.graminicola* are wider and irregular [5].

Patient was having large ulcer with comparatively less pain and history of association with foreign body exposure found to be significant suspicion of fungal keratitis. It is important to identify the species as species-wise disparity was reported in the therapeutic response to anti-fungal agents. Natamycin continues to be the first line treatment in fungal keratitis in the present case Natamycin with fluconazole was started after KOH report [3]. But patient had not responded to it. After culture report, considering it as rare fungi, Amphotericin B was added and patient responded well to the treatment. Though response to Natamycin has been noted in patients but Amphotericin B still remains the first choice for the treatment of this group of infections [6]. Differing statement was reported by Shukla PK et al., regarding Amphotericin B and reported it as less sensitive than Clotrimazole and Miconazole [8].

To do Minimum Inhibition Concentration (MIC) of filamentous fungi is not usual protocol of many laboratories and is performed in special cases only for study purposes [9]. The MIC data from two more studies suggested that *Colletotrichum* species are well susceptible to Amphotericin B, Itraconazole, Miconazole, Micafungin, Voriconazole, but resistance or high MIC to Natamycin [6,10]. Another study by Serfling A et al., concluded that use of azoles in agricultural field leads to resistant of these agents among plant pathogens [11]. As it is not isolated routinely, its therapy is yet to be standardised. Response to Amphotericin B, Natamycin, Fluconazole, Voriconazole was reported in literature search [8,11-13].

So as it is depicted from some studies that data regarding treatment of *Colletotrichum* species needs to be evaluated further [12-14]. So, reporting of more and more cases is needed to standardise the specific therapy against the rare fungal diseases.

Limitation(s)

The limitation of this study was that Authors could not perform the MIC of anti-fungal drugs for this *Colletotrichum* isolate.

CONCLUSION(S)

To conclude, fungal keratitis due to *Colletotrichum dematium* may not be rare but is not reported from all parts of India. Reporting of the more cases will help to study the epidemiological distribution and standardisation of therapy for the rare fungal infections.

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