

**CASE REPORT- FUNGAL KERATITIS BY CURVULARIA LUNATA**

**AUTHORS AFFILIATION:**

**1.DR. R. PRABHA**

Assistant professor  
Department of Microbiology  
Mahatma Gandhi Medical college and research Institute  
Sri Balaji Vidyapeeth, (Deemed – to – be -University),  
Pillaiyarkuppam, Puducherry -607 402.

**2.Dr. S.PRAMODHINI**

Professor  
Department of Microbiology  
Mahatma Gandhi Medical college and research Institute  
Sri Balaji Vidyapeeth, (Deemed-to-be-University)  
Pillaiyarkuppam, Puducherry -607 402.

**3.A.R. Rajalakshmi**

Professor  
Department of ophthalmology  
Mahatma Gandhi Medical college and research Institute  
Sri Balaji Vidyapeeth, (Deemed-to-be-University)  
Pillaiyarkuppam, Puducherry -607 402.

**4. Dr. JOSHY M ESAOW**

Professor & Head  
Department of Microbiology  
Mahatma Gandhi Medical college and research Institute  
Sri Balaji Vidyapeeth, (Deemed-to-be-University)  
Pillaiyarkuppam, Puducherry -607 402.

**Corresponding Author:**

**DR. R. PRABHA**

Assistant professor  
Department of Microbiology  
Mahatma Gandhi Medical college and research Institute  
Sri Balaji Vidyapeeth, (Deemed – to – be -University),  
Pillaiyarkuppam, Puducherry -607 402.

Mobile: +91-9629769060

E-mail: philomeena.rajendran@gmail.com

## **CASE REPORT- FUNGAL KERATITIS BY CURVULARIA LUNATA**

### **ABSTRACT:**

Fungal infections of the eye are a growing threat. Fungal eye infections have a more mortality rate. We report a case of human keratitis due to *Curvularia lunata* in a 55 yrs old farmer, who developed corneal ulcer following injury in the right eye with a stick while working in the paddy field. The patient was initially treated with gatifloxacin eye ointment, as keratitis caused by filamentous fungi, such as *Fusarium*, *Aspergillus* and *Acremonium*, is relatively common, but her symptoms did not get better. Later when the fungal culture was positive for *Curvularia* growth, she was treated with natamycin eye drops and she started showing improvement. In any case of ocular injury, leading on to keratitis, corneal scrapings for fungal isolation and identification will yield a better clinical response and prevent the development of complications like corneal opacity and blindness.

### **INTRODUCTION:**

Fungal infections of the eye have more morbidity. In India, The prevalence of fungal keratitis in all corneal ulcer has been dramatically increasing. Dematiaceous fungi inhabit in the soil and on plants. Keratitis caused by filamentous fungi, such as *Fusarium*, *Aspergillus* and *Acremonium*, is more common and is usually predisposed by trauma<sup>1,2</sup>. We report a case of human keratitis due to *Curvularia lunata*. *Curvularia* species were initially considered as non-pathogens. They are very rare human pathogens. But now, fungal infections due to these fungi are increasingly being reported to cause human disease. These days, dematiaceous fungi are also evolving as potential pathogens causing keratitis, because of their widespread presence in the environment<sup>3,4</sup>.

### **CASE REPORT**

A 55yrs old farmer presented to ophthalmology OPD, with complaints of pain, redness, watering, diminished vision in right eye for 1 month. Patient was apparently normal 1 month back after which she sustained injury to her right eye with stick while working in the paddy field following which she developed above symptoms. Next day, she visited nearby PHC and was started on treatment (treatment details were not available). One week later she visited another eye hospital and was started on gatifloxacin eye ointment. She was non-compliant to the prescribed medications and stopped the same after 4 days. Since her symptoms did not get better, she visited our hospital. She does not have any comorbidities like diabetes mellitus or hypertension. On examination the patient's vitals were normal.

Examination of the left eye showed early lens changes, right eye showed corneal ulcer measuring 4X4 mm with irregular margin, hypopyon, conjunctival congestion, centrally involving pupil surrounded by infiltrates and corneal oedema, reduced corneal sensation, anterior chamber

was of normal depth, pupil was 6mm, Intra Ocular Pressure(IOP)-digitally was normal (figure:1).

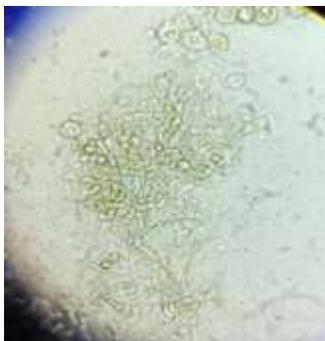
Corneal scraping sample was collected from right eye and was sent to the microbiology department, for KOH, gram staining, aerobic bacterial culture and fungal culture. On KOH mount, branching hyaline septate hyphae were seen (figure:2). Aerobic bacterial culture on blood agar and chocolate agar at 37°C after 48 hours of incubation showed no growth. Fungal culture in BOD incubator at 25°C showed velvety-black fluffy growth on obverse with blackish pigment on reverse on 3<sup>rd</sup> day of inoculation on Sabourauds dextrose agar (figure:3). Lacto Phenol Cotton Blue (LPCB) mount of the growth from the fungal culture showed septate, brown hyphae with Conidiophores containing multicelled conidia with characteristic lunate arc with larger, darker, and curved conidial cell in the centre (figure:4). Following which the isolate was identified as *Curvularia lunata*.

The ophthalmologist was advised for repeating sample to rule out contaminant and to confirm pathogen, which again showed similar picture of growth as that of the first sample on fungal culture. Based on the culture report, the patient was started on 5% natamycin eye drops for 1 month, 1% atropine eye drops thrice a day for 1 week, 2% homide eye drops thrice a day for 1 week. The patient was counselled to take medications regularly and currently she is on above prescribed medications.

**(FIGURE:1). PATIENT'S RIGHT EYE**



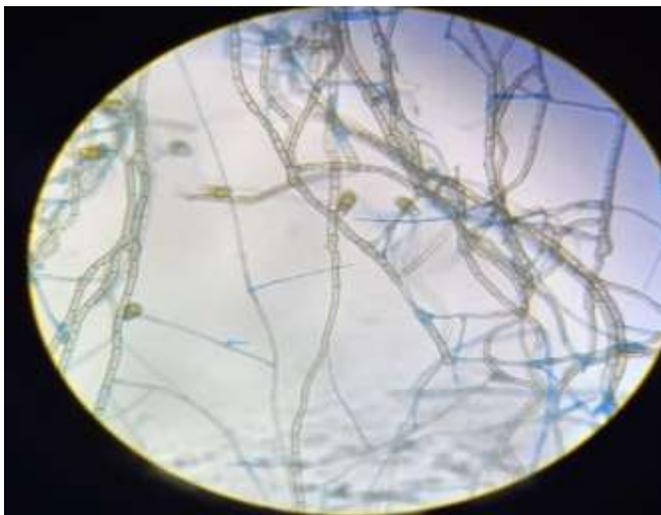
**(FIGURE:2). KOH FROM SAMPLE**



**(FIGURE:3). GROWTH ON SABOURAUD'S DEXTROSE AGAR (SDA)**



**(FIGURE:4). LACTO PHENOL COTTON BLUE (LPCB) MOUNT**



**DISCUSSION:**

Dematiaceous fungi consists of septate molds with melanin in their hyphae and conidia They are emerging as important opportunistic pathogens.. They are known to produce floccose growth

on SDA culture<sup>5,6</sup>. *Curvularia* is a member of the darkly pigmented phaeoid fungi. Some of these species are phytopathogens. *Curvularia* growth on dead plants, stored grain, thatch looks like blackish dust. *Curvularia* causes allergic sinusitis, bronchopulmonary disease, onychomycosis, skin ulceration, subcutaneous mycetoma, brain abscess, lung abscess, liver abscess, nosocomial infections like post surgical endocarditis and dialysis related peritonitis. The first case of *curvularia* keratitis was reported in 1959<sup>7</sup>. Other eye infections caused by this fungus are dacryocystitis, sino-orbital cellulitis and endophthalmitis. But cornea is the most common site to be affected by this fungus<sup>8,9</sup>. Compared to other fungal infections, *Curvularia* keratitis has less inflammation and slower course. Fungal antigens are responsible for inflammation and foreign granulomatous reaction. *Curvularia* produces several mycotoxins, such as the radicinin brefeldins and curvularins. These are cytotoxic toxins. In the pathogenicity, melanin in the cell walls of hyphae and conidia were involved<sup>10</sup>. Natamycin is an approved fungicide. It has agricultural applications. Environmental sources of *Curvularia* causing ocular infections showed high susceptibility to natamycin<sup>11</sup>.

**CONCLUSION:** In any case of ocular injury, leading on to keratitis, corneal scrapings for fungal isolation and identification will yield a better clinical response and prevent corneal opacity and blindness.

#### **REFERENCES:**

1. Basak SK, Basak S, Mohanta A, Bhowmick A. Epidemiological and microbiological diagnosis of suppurative keratitis in Gangetic West Bengal, eastern India. *Indian J Ophthalmol* 2005;53:17-22.
2. Saha S, Banerjee D, Khetan A, Sengupta J. Epidemiological profile of fungal keratitis in urban population of West Bengal, India. *Oman J Ophthalmol* 2009;2:114.
3. Gopinathan U, Garg P, Fernandes M, Sharma S, Athmanathan S, Rao GN. The epidemiological features and laboratory results of fungal keratitis: A 10-year review at a referral eye care center in South India. *Cornea* 2002;21:555-9.
4. Chowdhary A, Singh K. Spectrum of fungal keratitis in North India. *Cornea* 2005;24:8-15.
5. Oldenburg CE, Prajna VN, Prajna L, Krishnan T, Mascarenhas J, Vaitilingam CM, *et al.* Clinical signs in dematiaceous and hyaline fungal keratitis. *Br J Ophthalmol* 2011;95:750-1.
6. Wilhelmus KR, Jones DB. *Curvularia* Keratitis. *Trans Am Ophthalmol Soc* 2001;99:111-32.
7. Saha S, Banerjee D, Khetan A, Sengupta J. Epidemiological profile of fungal keratitis in urban population of West Bengal, India. *Oman J Ophthalmol* 2009;2:114.

8. Srinivasan M. Fungal keratitis. *Curr Opin Ophthalmol* 2004;15:321-7
9. Tilak R, Singh A, Maurya OP, Chandra A, Tilak V, Gulati AK. Mycotic keratitis in India: A five-year retrospective study. *J Infect Dev Ctries* 2010;4:171-4.
10. Matsumoto T, Ajello L, Matsuda T, Szaniszlo PJ, Walsh TJ. Developments in hyalohyphomycosis and phaeohyphomycosis. *J Med Vet Mycol* 1994;32:329-49.
11. Chowdhary A, Singh K. Spectrum of fungal keratitis in North India. *Cornea* 2005;24:8-15.