



FONSECAEA PEDROSOI – A CAUSE OF OCCULAR CHROMOBLASTOMYCOSIS

Microbiology

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ABSTRACT

Fonsecaea pedrosoi (*F. pedrosoi*) is dematiaceous fungus and is the most common cause for chromoblastomycosis. It affects the exposed skin, mostly of the lower extremities. A rare case of mycotic keratitis was diagnosed in our hospital caused by *F. pedrosoi*. Corneal sample received in the laboratory was processed by standard mycological methods, *F. pedrosoi* was isolated, patient was started on antifungals his condition improved and there was no relapse. This case report shows that *F. pedrosoi* can infect cornea. Further, a prompt diagnosis and vigorous treatment improves patient's clinical condition.

KEYWORDS

Chromoblastomycosis, Ocular Mycosis, Keratitis, Dematiaceous

INTRODUCTION

Keratitis is inflammation of the corneal layer and its stroma. There is involvement of the anterior chamber in severe case of keratitis. Common microbial agents causing keratitis are Bacteria, fungi, viruses, with fungal keratitis contributing to 40-50% of the cases.¹ Tropical climate and certain occupations (agricultural, forestry) predisposes a person to fungal keratitis.^{2,3} Most common fungal agents causing keratitis are *Aspergillus spp*, *Penicillium spp*, *Curvularia spp*, *Candida spp*, *Fusarium spp*; some rare fungi can cause keratitis in compromised and traumatic eye.⁴ Filamentous fungi causing keratitis are divided in two groups: pigmented/pheoid/dematiaceous fungi (produce brown pigment due to melanin production) and non-pigmented/hyaline/moniliaceous fungi. Most of studies show that non-pigmented filamentous fungi are most common cause of fungal keratitis. However, incidence of corneal chromoblastomycosis caused by dematiaceous fungus, *Fonsecaea pedrosoi* (*F. pedrosoi*) recently have increased causing corneal ulcers, after to *Fusarium spp* and *Aspergillus spp* (hyaline fungi).^{5,6} *Fonsecaea pedrosoi* is a dematiaceous fungus that may cause a cutaneous and subcutaneous infection known as chromoblastomycosis, this fungus is saprophytic and found in soil.⁷ However, only few cases of corneal infections caused by dematiaceous fungus are seen and there is less literature available on this. Hence we are reporting a rare case of *fonsecaea pedrosoi* corneal ulcer in a 70 year old patient from a tertiary care hospital.

Case report

A 70 year male patient with complaint of sudden pain, redness and watering of right eyes since 2 day came to Ophthalmology OPD with history of trauma with stem of tree in right eye 4 days back followed by onset of symptoms after 2 days.

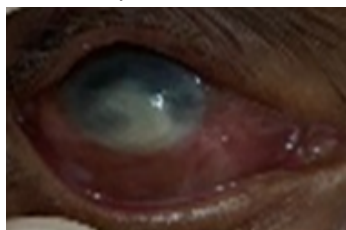


Figure 1: Corneal abscess seen at 4 to 10 o'clock position with well-defined margin of size 5.2 mm × 3.5 mm along with corneal vascularization at 11, 4, and 7 o'clock position

On examination left eye was found to be in normal limit and right eye with no perception of light, blepharitis was seen on slit lamp examination. Corneal abscess was seen at 4 to 10 o'clock position with well-defined margin of size 5.2 mm × 3.5mm along with corneal

vascularization at 11, 4, 7 o'clock position. Patient was admitted and reexamination on 4th day reveals corneal thinning with multiple vitreous exudates and fundus was not visible. For diagnosis corneal scrapping was collected from edge of abscess with help of cataract knife under local anesthesia and sample was sent for bacterial and fungal culture sensitivity. Gram-stained smear and KOH mount was prepared, simultaneously sample was inoculated over two SDA slant one to be incubated at 25°C and other at 37°C. at same time sample was plated on blood and MacConkey agar to follow any bacterial growth. On direct KOH mount examination septate hyphae like structure suggestive of filamentous fungi was seen. After overnight incubation of blood and MacConkey agar plate no growth was observed suggestive of no bacterial etiology, and SDA slant was observed on alternated day for growth. On 20th day growth was observed on obverse side of SDA which was dark green with velvety mycelium and protrusion in the center and obverse was black in color (Figure no 2). To further confirm the diagnosis, slide culture was done on PDA to enhance conidiation. On LPCB mount fungus showed septate, branched hyphae with dark pigmented conidia. Conidiation was suggestive of *F. pedrosoi* Septate, erect conidiophore with distal end developing swollen denticles that bear primary single celled ovoid conidia. Denticles on primary conidia support secondary single celled conidia that may produce tertiary conidia. These conidia are arranged in short chains. Fungal culture report was communicated to Ophthalmologist.



Figure 2: dark green with velvety mycelium and protrusion in the center

Patient was started on topical voriconazole and oral ketoconazole treatment for next 7 days, however no significant improvement was seen. on 20th day invasive procedure was performed to give invitro voriconazole and further continued with topical and oral medication. Drugs were discontinued at 38th day as clinical healing was visible, hypopyon disappeared, stromal infiltration resolved visual acuity was improved by 60th day, follow-up was done for next 3 month for every 15th day, and there was no relapse.

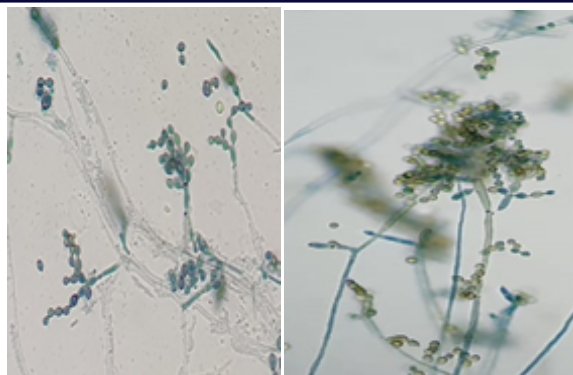


Figure 3: Septate, branched hyphae with dark colored conidia. Conidiation seen was of Fonsecaea type: Septate, erect conidiophore with distal end developing swollen denticles that bear primary single celled ovoid conidia. Denticles on primary conidia support secondary single celled conidia that may produce tertiary conidia. These conidia are arranged in short chains.

DISCUSSION

Ocular mycosis is a common preventable cause of blindness after cataract in developing countries.⁸ Fungal Keratitis is third most common clinical presentation of ocular fungal infections.⁹ Fungal keratitis in India varies from 5% to 40%.^{10,11} The incidence of fungal keratitis has increased over the past due to increased number immunosuppressed patients.¹⁰ Fungal keratitis usually occurs after trauma with fungus-contaminated vegetation mostly in agricultural workers.⁹ Fungal infections of the cornea are relatively infrequent in the developed world, but constitute a larger proportion of keratitis in many parts of the developing world, especially tropical countries.^{3,12} India having tropical climate and large agricultural population is home to fungal infection.¹³ Many different fungal species have been reported as causative agents of keratitis, as saprophytic inhabitants of soil, plants and trees, can be traumatically implanted into the cornea.¹⁴

In present case patient was having agricultural background and had ocular trauma prior to loss of vision.. Mycotic keratitis is associated with morbidity and in severe cases it can lead to endophthalmitis. Early diagnosis and proper treatment can lead to good prognosis of patient. In present case, after 15 weeks of medical therapy, lesion resolved, and the visual acuity improved from PL to 1/60.

F. pedrosoi is the commonest causative agent of cutaneous chromoblastomycosis.¹⁵ Dematiaceous fungus are difficult to treat due to required prolonged therapy with follow up and less antifungals availability.

CONCLUSION

Due to diversity in the causative agents of mycotic keratitis and various dematiaceous fungi involved in such infections, *F. pedrosoi* should be kept in mind as rare but important etiological agent causing fungal keratitis. Although the characteristic visible pigmented infiltrate can be an important diagnostic clue, this classical finding may not be apparent in all cases. Therefore, it is important to establish an accurate diagnosis through microscopic evaluation and culture. Prompt diagnosis and intensive treatment can prevent the considerable morbidity associated with the disease.

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