Case Study

Mycetoma Foot caused by *Fusarium solani* in a Young Boy from Karnataka, India

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**A B S T R A C T**

*Fusarium* species are common soil-inhabiting organisms and plant pathogens. Human infections are usually precipitated by local or systemic predisposing factors, and disseminated infection is associated with impaired immune responses. Skin infections caused by *Fusarium* spp include keratitis, onychomycosis, mycetoma, painful discrete erythematous nodules. We report a case of mycetoma caused by *Fusarium solani* in an immunocompetent young boy from Karnataka.

**Introduction**

Mycetomas are chronic subcutaneous infections caused by fungi or actinomycetes, known as eumycetoma and actinomycetoma, respectively (Hay, 2005). It is usually posttraumatic, most commonly involves foot and rarely other body parts. It is mainly seen in Africa, India, Mexico, and South America. In India, actinomycetoma is prevalent in South, Southeast Rajasthan, and Chandigarh; while eumycetomas are common in North India (Chakraborti et al., 1998). The most common agents of eumycetomas are *Madurella mycetomatis*, Madurellagrisea, Acremonium spp. and *Fusarium* spp (Kaur et al., 2013).

*Fusarium* species are common soil-inhabiting organisms and plant pathogens. Among immunocompetent patients, tissue breakdown (trauma, severe burns or foreign body) is the risk factor for fusariosis. Superficial infections commonly caused by *Fusarium* spp.

Include keratitis, onychomycosis, and Mycetoma while cellulitis, erythematous pustules, painful discrete erythematous nodules, and ulcerative lesions are less common.

**Case Report**

A 20 year old boy belonging to low socioeconomic status presented with mildly painful swelling of 4 years duration on the sole of left foot. There was history of thorn
prick. On examination, the patient was apparently healthy. There was no other significant finding. Local examination showed ulcer over the sole of the left foot (Fig 1). Examination revealed non healing ulcer measuring 4×3×3 cm with verrucous changes of skin at the periphery. Skin biopsy was taken from the lesion. A saline mount, KOH mount, Gram’s-stain smear, and modified acid fast stain decolorized with 1% sulphuric acid and H and E, PAS (Fig 4), GMS stained smears were examined (Fig 5).

Direct KOH mount of the lesion showed septate branching hyaline hyphae (Fig 2). Culture done on Sabourauds Dextrose Agar (SDA) with and without cycloheximide revealed whitish-grey cottony colonies after 2 days of incubation at 37°C (Fig 3). No growth was observed on Sabourauds Dextrose Agar (SDA) with cycloheximide agar. Lactophenol cottonblue mount from the colonies showed branched septate hyphae with small oval-shaped macroconidia and single-celled microconidia, suggestive of Fusarium spp. On histopathology, hyperkeratosis with fungal hyphae was detected. Modified acid fast staining did not show any acid-fast bacilli. X-ray foot of the patient did not reveal any bony invasion.

**Results and Discussion**

F. solani is widely distributed plant pathogen. Fusarium species have been reported from variety of clinical conditions like keratitis, skin infection in burns, variety of skin lesions, arthritis, peritonitis, systemic infection in immunocompromised hosts, systemic, and granulomatous diseases, in a plastic anemia. Recently, a case of breast abscess in diabetic patient has been reported.

![Fig.1](image1)

![Fig.2](image2)
The earliest documented *Fusarium* mycetoma report is from Senegal. The patient may have acquired the fungus following trauma and showed slow progression of the lesion as reported in immunocompetent patients. The diagnosis of *Fusarium* infection may be made on histopathology, fungal culture. Tissue invasion can be studied by histopathological examination.

In conclusion, it is very important to
determine the causative agent in every patient suspected of Mycetoma to establish an adequate and timely plan for appropriate management to avoid persistence, dissemination of the disease and recurrence.

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References


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