Curvularia lunata causing mycetoma pedis - a case report

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Abstract

A 49 year old female from a farming community in the North Central province presented with chronic left leg swelling for past 25 years. She had indurated swelling of the left foot and ankle with nodules and sinuses that discharge black grains. Fungal colonies were detected in histology sections. *Curvularia lunata* was isolated from tissue biopsy. There was a satisfactory response to treatment with oral itraconazole. *Curvularia lunata* is a rare cause of black grain mycetoma reported from Sudan and Senegal. This is the first published report of mycetoma caused by *Curvularia lunata* from Sri Lanka.

Introduction

Mycetoma is a chronic, localized, granulomatous infection caused by true fungi (eumycetoma) or actinomycetes (actinomycetoma). It is characterized by formation of abscesses that suppurate and drain through sinus tracts. The pus contains aggregates of the causative organisms (grains)[1].

At least 22 species of fungi are known to cause eumycotic mycetoma[2]. The commonly incriminated fungi include *Madurella mycetomatis, Madurella grisea, Exophiala jeanselmi, Acremonium falciforme and Pseudallesceria boydii*[2].

Curvularia lunata is a rare cause of mycetoma reported from the Sudan and Senegal[2].

We report a case of mycetoma pedis caused by *Curvularia lunata*. This is the first published report of *Curvularia lunata* mycetoma from Sri Lanka.

Case report

A 49 year old woman from a farming community in the North Central province presented to the dermatology unit at the National Hospital of Sri Lanka with history of chronic left leg swelling of 25 year duration.

She could not recall a history of preceding trauma.

The lesion had started as a painless nodule on the left foot 25 years ago. Several nodules and discharging sinuses that discharge "black grains" had appeared on the left foot and ankle subsequently, with gradual swelling of the left foot, ankle and the lower leg. Constitutional symptoms were absent. She had no comorbid factors.

The lesions had been excised on several occasions at the local hospital and treated with antibiotics with little improvement.

On examination, the left foot, ankle and the lower leg were swollen, indurated and non tender. Several firm, 0.5-1 cm sized nodules and a few discharging sinuses were present (Fig 1). Black granules measuring up to a millimeter were noted in the discharge.

Figure 1. *Swollen left foot and ankle with multiple nodules and discharging sinuses*

General and systemic examination was otherwise unremarkable.

The ESR was 22 mm 1st hour. Blood count, fasting blood sugar, and liver and renal function tests were normal. Pus culture isolated *Staphylococcus aureas* sensitive to cloxacillin. Radiograph of left foot showed mild periosteal reaction.

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Tissue sections revealed brownish grains surrounded by a mixed cellular infiltrate (Fig 2). The fungal elements stained positively with Periodic Acid-Schiff (PAS) and methenamine silver stains.

Fungal culture of tissue biopsy specimen grew cottony, black and dark gray colonies.

Microscopy showed septate hyphae bearing smooth, four celled conidia with a pale to dark brown large penultimate cell (Fig 3). The colony morphology and microscopic appearance were characteristic of *Curvularia lunta.*

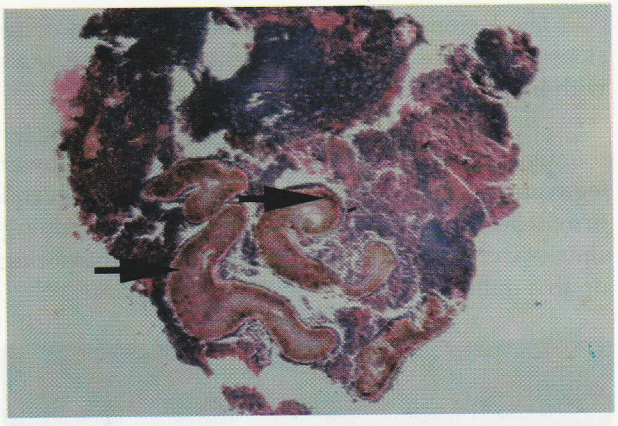

Figure 2. *Histological appearance of a nodule: Brownish grains (arrows) surrounded by a mixed cellular infiltrate – H & E 10x.*

Figure 3. *Septate hyphae bearing four celled conidia with a dark brown, large, penultimate cell (arrows).*

Bacterial superinfection was treated with oral cloxacillin. She was treated with itraconazole 200 mg twice a day for 6 months. Liver function and left foot girth were periodically assessed.

After 6 months of treatment there was significant improvement in leg swelling (5cm reduction in the girth). The sinuses and skin nodules had healed.

Discussion

A mycetoma develops after traumatic inoculation of fungi by contaminated thorns, splinters from plants, farm implements, fish scales and fins, insect bites, etc. Certain occupational groups such as farmers, sugar cane workers, field workers and fishermen, who are in contact with contaminated materials, are at increased risk. Though the prevalence is higher among males, women and children who walk barefoot are also susceptible[2].

The lesions are characterized by indurated swelling, abscesses, and sinuses that drain serosanguinous "pus" containing granules[1]. The size, colour, shape and texture of the granules give a fair indication to the identity of the species[2].

Most of the fungi causing eumycotic mycetomas grow slowly on culture media. Identification of the isolated fungus is based on gross colony morphology and pigmentation, the morphology of conidia and conidiophores (stalks), and the mechanism of conidiogenesis[2].

Curvularia is a dematiaceous (naturally pigmented) filamentous fungus. Most species are facultative pathogens in soil, plants and cereals in tropical and subtropical areas. The genus *Curvularia* contains several species. In immunocompromised humans systemic and disseminated infection caused by *Curvularia* species have been reported[3]. *Curvularia lunata* is the commonest species to infect humans and animals[3].

Curvularia lunata produce black, firm, 0.5-1 mm sized granules. In tissue sections the granules are spherical, ovoid or irregular shaped. They are composed of a dense, interwoven mass of septate mycelium and thick walled chlamydospore like cells embedded in cement like substance[2]. They are better visualized with Gomori methenamine silver or PAS stains.

In culture *C. lunata* produces olive brown or black wooly colonies. The septate hyphae, conidiophores and conidia are brown coloured. Conidiophores are bent at points where the conidia originate. This characteristic bending pattern is called sympoidal geniculate growth. The conidia are smooth, multiseptate, and four celled with enlarged and darker penultimate cell[3].

Treatment modalities for *Curvularia* infections have not been standardized yet. Azoles, amphotericin B and terbinafine have been used to treat *Curvularia* infections[3,4,5]. Capsofungin also appears active in vitro against *Curvularia lunata*[3]. Our patient showed a satisfactory response to itraconazole.

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