

# Eumycetoma of Great Toe Caused by *Madurella Mycetomatis*

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## Abstract

A Case of Eumycetoma of 36 year old male who presented with swelling of great toe. The diagnosis of Eumycetoma due to *Madurella mycetomatis* was confirmed in the laboratory. The case is being reported because of no such culture proven case is reported in Mumbai in recent years.

## Introduction

**M**ycetoma is a slowly progressive, chronic, localized, granulomatous infection of skin, subcutaneous tissue, fascia and bones. Mostly it affects the foot and hand. It is defined by a triad – tumefaction of the involved tissue, formation of draining sinuses and presence of grains and granules.<sup>1</sup> Mycetoma caused by actinomyces is known as actinomycetoma.<sup>2</sup> The organisms are traumatically implanted in subcutaneous tissue from plant material and form microabscesses which discharge aggregates of fungal and actinomycetes filaments called grains.<sup>3</sup>

Mycetoma is endemic in countries like India, Pakistan, Sudan, Senegal, Somalia and Mexico<sup>4</sup>. In India its high prevalence is seen in Rajasthan, Tamil Nadu and Andhra Pradesh. Actinomycotic mycetoma is prevalent in South India, south east Rajasthan and Chandigarh; while eumycetoma which constitutes one third of total cases in mainly reported from North India and Central Rajasthan.<sup>5</sup>

The most common aetiological agents of

eumycetoma reported from different centres are *Madurella mycetomatis*, *M. grisea*, *Acremonium* species; *Aspergillus* species, *Fusarium* species.<sup>5-8</sup> We report a case of black grain of eumycetoma in an adult caused by *M. mycetomatis*

## Case Report

A 36 year old male, from rural area of Maharashtra, presented with swelling of great toe, discharging sinuses since 3 years. He also complained of black granular deposits from last 2 months. There was a past history of trauma with wooden splinter 4 years back. The patient had received treatment from a village doctors without any relief.

Examination revealed swelling of the great toe with discharging sinuses, discharging purulent fluid (Fig. 1). There was no significant lymphadenopathy. Systemic examination was within normal limits. Laboratory examination showed normal haemogram. The patient was non diabetic and HIV seronegative. A radiograph of foot showed lytic areas in the metatarsals.

Sample was collected by probing the sinuses slightly with sterile cotton swabsticks. By applying slight pressure, discharge with granules was collected by needle and syringe. The aspirated material was rinsed in a test tube with sterile normal saline and allowed to settle. The granules were black measuring 0.5-1 mm in diameter and were hard in consistency. They were crushed, separated and subjected to microscopy and culture for mycological and bacteriological identification.<sup>1</sup> Gram's staining, 10% KOH examination (KOH mount) modified Ziehl-

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Fig. 1 : Swelling of great toe.

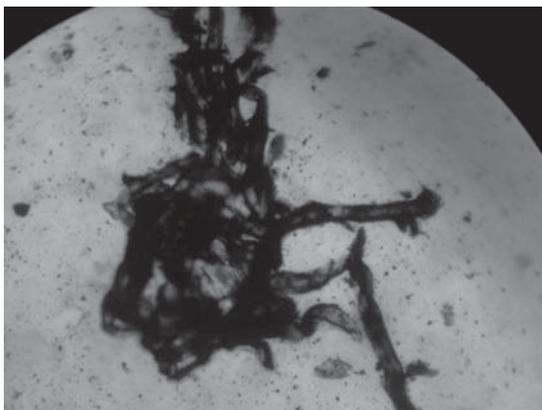


Fig. 2 : GMS stain showing brownish black hyphae.

Neelsen (1%  $H_2SO_4$  as decolorizing agent) and Gomori's Methenamine silver staining were done. The granules were inoculated into two sets of Sabouraud's Dextrose agar and Sabouraud's Dextrose agar with chloramphenicol (SDA-C) and incubated at 30°C and 37°C respectively. Material was also inoculated in Brain Heart Infusion agar (BHIA).

Microscopic examination of 10% KOH mount revealed septate hyphae. GMS stain showed brownish black hyphae on greenish background (Fig. 2).

The colonies were whitish, leathery with diffusible brownish black pigment on the reverse side (Fig. 3). At 37°C it was moderately fast, matured in 7 days on BHIA. Slide culture from colony was put on Potato Dextrose Agar (PDA) and incubated at room temperature. Lactophenol Cotton Blue preparation (LPCB) from slide culture revealed septate hyphae with many chlamydospores (Fig. 4). The diagnosis of Eumycetoma due to *Madurella mycetomatis* was



Fig. 3 : Colony on BHIA agar showing dark brownish black pigment on reverse side.

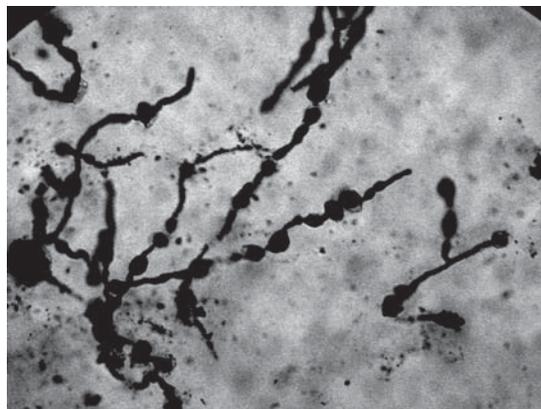


Fig. 4 : LPCB mount of slide culture on PDA showing septate hyphae with many chlamydospores.

confirmed. Antifungal tablets, Ketoconazole (100 mg BD) was initiated on the basis of microscopic findings in the first week. Surgical debridement was carried out a month later. The swelling was regressing when the last follow up was taken.

## Discussion

Mycetoma has been known for a long time

in India<sup>1</sup> but reliable epidemiological information remains scarce. The disease is characterized by a prolonged incubation period, slow and unremarkable clinical course and multiple causal agents.<sup>7</sup> It goes undiagnosed many times due to lack of diagnostic facilities in mycology, nevertheless some information is available from different centres in India.<sup>5,8</sup> In India actinomycotic mycetoma is more commonly encountered than eumycetoma.<sup>1</sup> Chakroborti and Singh<sup>5</sup> in their study of 23 cases diagnosed over a span of 16 years (1980-1996) showed that Actinomycotic agents were responsible for 56.5% cases while eumycotic agents were responsible for 43.5% cases of mycetoma. *Madurella mycetomatis* was the commonest isolate in eumycetoma. We also report *Madurella mycetomatis* as the aetiological agent in this case.

In this patient, the direct microscopy of granules revealed fungal elements which were confirmed in GMS stain, on the basis of which the diagnosis of eumycetoma was done and treatment was started. Currently ketoconazole is the drug of choice. Ketoconazole and surgical debridement helped in regression of the swelling.

In conclusion, a greater awareness of the disease on the part of the clinician is necessary to suspect and investigate for mycotic aetiology.

#### References

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#### CALCIUM SUPPLEMENTATION FOR OSTEOPOROTIC FRACTURES

Calcium supplementation, with or without vitamin D, has been suggested as an inexpensive treatment to prevent fractures and bone loss, but there has been uncertainty about its efficacy in lowering the fracture rate. Benjamin Tang and colleagues did a meta-analysis of all published randomised controlled trials that assessed the effect of calcium or calcium in combination with vitamin D supplementation, on osteoporotic fractures *and* bone-mineral density in adults aged 50 years and older. For best therapeutic effect, the investigators recommend minimum doses of 1200 mg of calcium and 800 IU of vitamin D.

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Eumycetoma due to *Madurella mycetomatis* is a major mycological health problem in endemic areas. We infected BALB/c mice (male or female) and expand. Is this relevant? 2002. 2002. Environmental occurrence of *Madurella mycetomatis*, the major agent of human eumycetoma in Sudan. Abdalla O A Ahmed, D. Adelman, Ahmed Hassan Fahal, Henri A. Verbrugh, Alex van Belkum, Sybren de Hoog. *Madurella mycetomatis* is the commonest cause of eumycetoma in Sudan and other countries in tropical Africa. Currently, the early host tissue reaction to *Madurella mycetomatis*: new classification.