

Case Report

Eumycetoma - A Rare Case Report in Present ERA

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ABSTRACT

Eumycetoma is a chronic cutaneous and subcutaneous infection caused by different group of fungi. They are most commonly seen in agricultural workers. The incidence rate has drastically reduced due to use of pesticides and fertilizers. In our hospital it's the first case in last two years. Here we present a case of a 50 yrs old male presented to surgical department with complain of swelling and draining sinus for 8 months. Biopsy was done and by histopathology and histochemistry it was diagnosed as Eumycetoma.

Keywords: Eumycetoma, madura foot, sulphur grains.

INTRODUCTION

Eumycetoma is a chronic infective disease of skin and subcutaneous tissue characterized by draining sinuses, tumefaction and presence of colonial grains in the exudates. [1] The most common site is foot (70%) which explains the synonym "Madura foot." [2] Infection can be caused by true fungi in 40% cases where it is known as eumycetoma and by filamentous bacteria of order actinomycetes (actinomycetoma) in 60% cases. [3] Differentiation between the two mycetomas is important as they have a different course of disease progression, treatment and prognosis. Multiple cultures often provide no growth at times, such culture-negative cases can be diagnosed and common species can be identified on histopathology and histochemistry examination. Eumycetoma has frequent relapse where as actinomycetomas has a favorable outcome without any relapse after treatment.

CASE REPORT

50yrs old male, farmer by occupation presented to surgical department with complains of swelling and fibrosis over right ankle with draining sinus for 8 months. His previous reports showed multiple broad spectrum antibiotics treatment. Wound care does not show any sign of healing. X-ray showed features of osteomyelitis. A clinical diagnosis of mycetoma was done and tissue biopsy was send from the site for histopathological examination.

The tissue was processed and stained with Hematoxylin and Eosin (HE), Periodic acid Schiff (PAS), Gomori methenamine silver (GMS) and Gram's stain. Microscopy show necroinflammatory areas and granuloma consisting of foreign body type of giant cells and fungal colonies arranged in irregular, circular to crescentic pattern. In PAS and GMS irregular interlacing septate hyphae were seen and dark granules were seen with gram's stain which was the

sulphur granules. So a diagnosis of Eumycetoma was confirmed.

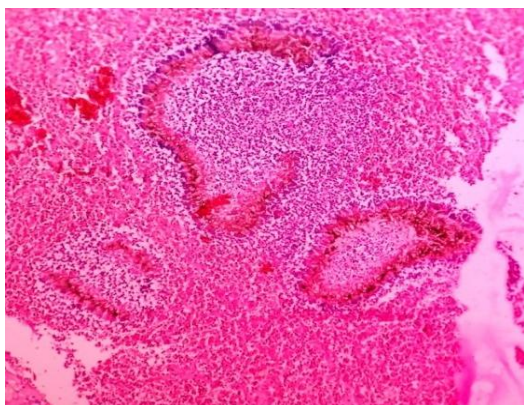


Figure 1: HE showing crescentic shape of fungal colonies

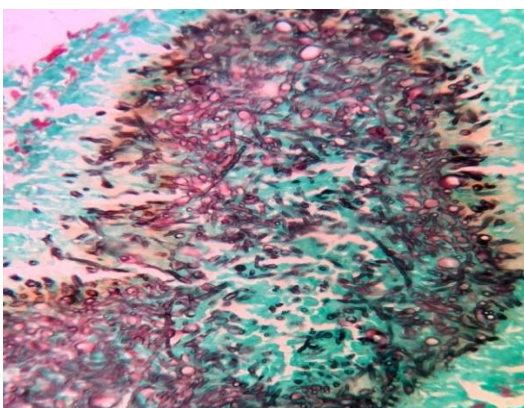


Figure 2: GMS showing branched hyphae

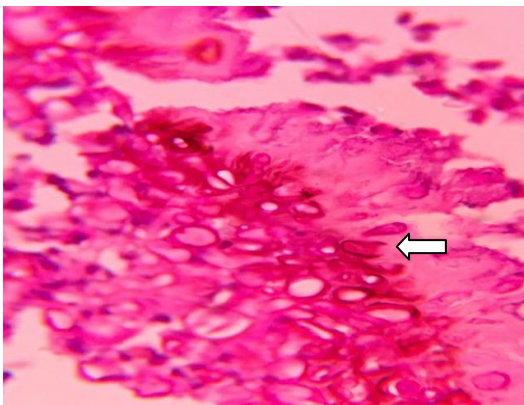


Figure 3: PAS showing hyphae

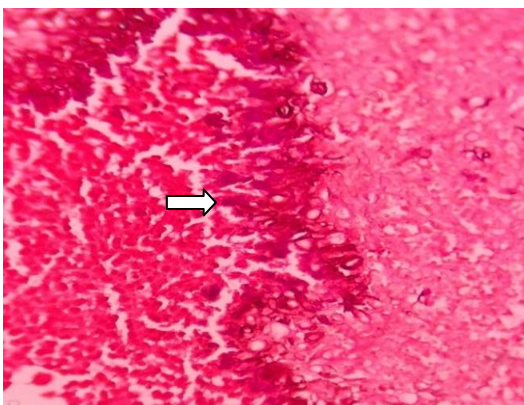


Figure 4: Gram's stain showing granules

DISCUSSION

Mycetoma is endemic in the tropics and subtropics. In India it was first described in 1842 by Dr Gill. Eumycotic mycetomas were more common in northern India; however, the recent trend shows an increase in incidence of Actinomycetomas. [4] Minor injury allows pathogens to enter the skin from soil. Eumycetoma is caused by a group of true fungi with thick septate hyphae, including *Petriellidium boydii* (*Allescheria boydii*, *Pseudallescheria boydii*), *Madurella grisea*, *M. mycetomatis* and show sulphur granules along with 4 to 5 μ m thick septate hyphae positive with PAS and GMS. [5] Common Actinomycotic agents are *Actinomadura*, *Streptomyces* and *Nocardia*.

Eumycetoma is a persistent, invariably progressive local infection without a tendency for systemic spread. There is no obvious association with immunosuppression. The infection starts as a subcutaneous nodule usually on the foot at a site of trauma; thus the term Madura foot has been used synonymously with mycetoma. [5] The nodules then develop into abscesses and draining sinuses. Gradually then deeper compartment like the muscles and tendons are damaged and osteomyelitis may develop. Grossly from the discharging sinuses sulfur granules or grain are seen which are tightly knit clusters of organisms. These granules are black in cases of eumycetoma caused by the dematiaceous fungi *M. grisea* and *M. mycetomatis*, [6,7] whereas they are colorless in eumycetoma caused by *Petriellidium boydii*. [8]

Histological examination of the indurate skin shows extensive granulation tissue containing abscesses that may lead into sinuses. The granulation tissue is nonspecific in appearance. It can be seen in both type of mycetoma. In the early phase of the disease, the tissue surrounding the abscesses is composed of lymphoid cells, plasma cells, histiocytes and fibroblasts, whereas in the late phase fibroblasts may predominate and fibrosis can be seen. The diagnosis can be established only by finding

the sulphur granules or grains in the discharging sinuses. So biopsy must be taken from the purulent material from the discharging sinuses. Most granules measure between 0.5 and 2.0 mm in diameter, and are thus large enough to be visible macroscopically.^[6] Granules of eumycetoma are composed of septate hyphae 4 to 5 µm thick, whereas the granules of actinomycetoma usually consist of fine, branching filaments or bacillary forms that are only about 1 µm thick.^[7] A Gram stain aids in differentiating bacterial from fungal causes of mycetoma; the filaments of actinomycetoma are Gram positive, whereas the hyphae in eumycetoma are Gram negative.^[9] The study of discharged granules crushed on a slide and stained with lactophenol blue also allows differentiation between the thin filaments of actinomycetoma and the thicker hyphae of eumycetoma.^[9]

CONCLUSION

Differentiation between the two etiologic agents is important as the treatment and prognosis for them is different. Multidrug therapy is given for actinomycetoma which has very good response. For eumycotic mycetoma, surgery followed by antifungal therapy at an early stage is the best possible therapy at present if delayed outcome is poor even after aggressive treatment.^[10] Progression to fibrosis, mutilation, and loss of function is rapid in actinomycetoma. Histopathology has an important role and is the only option

in culture-negative cases for confirming the diagnosis.

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