

# Madura foot (Mycetoma) with unusual presentation - Study of five cases

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## Abstract

**Background:** Mycetoma is a chronic and progressive subcutaneous granulomatous infection characterised by a triad of painless swelling and tumefaction, draining sinus tracts and purulent discharge consisting of granules. It can mimic squamous cell carcinoma or soft tissue sarcoma of the foot. Surgical incision and biopsy is must for diagnosis. **Methodology:** This is a retrospective study of 5 patients who underwent incisional biopsies of foot in various hospitals in and around Mangaluru and in Yenepoya Medical College and hospital, Mangaluru from October 2013 to August 2016. Histopathological diagnosis was made. Periodic acid sciff stain was done in each case. **Results:** Among the 5 cases studied of Madura foot, four (90%) were males (n=4) and one (10%) was female (n=1) with a ratio of 4:1. This indicates the male preponderance of Madura foot. Mycetoma cases were divided into eumycetoma and actinomycetoma. Three (75%) cases were actinomycotic and two (25%) cases were eumycotic. Maximum number of patients with mycetoma were in the age group of 40-55 years. PAS stain and Gram stain done in all cases. **Conclusion:** In conclusion, it is important to maintain a high index of suspicion for an infectious agent causing a focal mass. With this in mind, it is essential to remember the maxim: biopsy every infection and culture every tumour. **Keywords:** Mycetoma, Actinomycetoma, Eumycetoma, Biopsy.

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Received Date: 14/06/2016 Revised Date: 03/07/2016 Accepted Date: 12/08/2016

Access this article online	
Quick Response Code:	Website: <a href="http://www.statperson.com">www.statperson.com</a>
	DOI: 16 August 2016

## INTRODUCTION

Mycetoma may present clinically as atypical presentation, mimicking the sarcoma. It can occur on foot, face, scalp, back etc. Etiology may be bacterial or fungal. Historical aspect- It was first described by Gill in 1842 in Madurai (India) and is therefore known as "MADURA FOOT". It is common in South India, some parts of Rajasthan, Africa and America. **Types:** Bacterial: Actinomycete, madurae, Actinomycete, pelletieri, Nocardia. brasiliensis, Nocardia. asteroides, Nocardia. dossonvillie, Streptomyces. somaliensisuction<sup>1</sup> Fungal:

Mycetoma.mycetomatis, Mycetoma.grisea, Exophiala jeanselmei Fusarium etc. **Warning signs:** Discharge with yellow granules, Diffuse swelling (TUMEFICATION) with sinus exist. The organisms reside in soil and senescent plant material. They are implanted through breaches in the skin following cuts or bruises. Once implanted, they form micro abscesses in the subcutaneous tissue discharging aggregates of fungal or actinomycetes filaments. known as grains. It is mainly a disease of the tropical and subtropical zones, especially between the Tropic of Cancer and the Tropic of Capricorn, that is between latitudes 15° S and 30° N especially in arid zones interspersed with short bouts of heavy rainfall and higher relative humidity.<sup>2</sup>

## MATERIALS AND METHODS

Five new patients with mycetomas seen in the last 3 years (May 2013 to May 2016) were evaluated retrospectively at the Department of Pathology, yenepoya medical college Mangalore. The clinical diagnosis was made by the classic triad of tumefaction, discharging sinuses, and presence of grains in three cases. Two of the cases were diagnosed as soft tissue sarcoma clinically and

radiologically. The patient variables studied were age, gender, occupation, site of involvement, duration of disease, and underlying bony involvement detected by X-ray examination. Categorization of the lesion into eumycotic or actinomycotic was based upon the findings on hematoxylin and eosin (H and E) stained paraffin sections of the biopsy material supplemented with special stains such as Periodic acid Schiff (PAS), Gomori methenamine silver (GMS), Gram stain. Histopathological diagnosis was based upon the identification of the characteristic grains within an abscess cavity present in the dermis and/or subcutaneous tissue. Various morphological parameters, such as grain size, grain morphology (compact/disorganized, macro/micro filaments), staining qualities, presence or absence of Splendore-Hoeppli phenomenon around grains, intensity of tissue reaction, and nature of inflammatory components (neutrophils, eosinophils, lymphocytes, plasma cells, histiocytes, foreign body giant cells) were evaluated. Microbiological parameters such as grain size, color (by direct examination with 10% KOH),

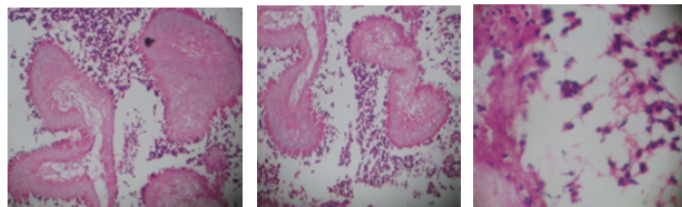
and culture results were correlated wherever available. When no growth was obtained, the etiologic description was restricted to grain color and/or actinomycotic/eumycotic etiology.

**RESULTS**

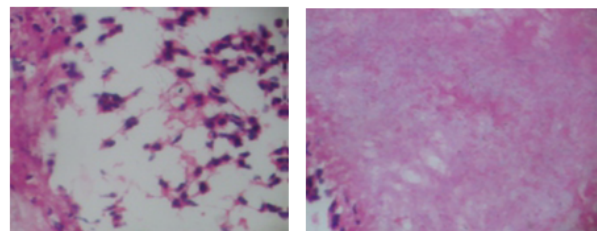
The clinico-pathological, microbiological, and therapeutic outcome data of all five patients with mycetoma are presented in Table 1. The actinomycetoma to eumycetoma ratio was 3:2. The male to female ratio was 4:1 with an age range of 40-55 years (mean = 45 years). The feet and/or lower extremities constituted the most common site of involvement (5 of 5, 100%), two patients were diagnosed soft tissue tumour clinically and radiologically and were amputated. Two cases presented with history of diffuses swelling over foot, firm to hard in consistency. There was no evidence of any discharge or suppuration on external examination. It was clinically and radiologically suspected as ‘soft tissue sarcoma’ of foot.

**Table 1**

Patent no.	Age/Gender	Occupation	Site	Clinical feature	Histopathological diagnosis
1	45Y/m	Farmer	Left leg	Cellulitis, swelling sinus-3 years	Actinomycetoma
2	51Y/m	Labourer	Right leg	Swelling, no sinus, no cellulitis-4 years	Eumycetoma
3	50Y/f	House wife	Left foot	Cellulitis, swelling sinus-3 years	Actinomycetoma
4	46Y/m	Labourer	Right leg	Swelling over foot, firm to hard in consistency 3 years	Eumycetoma
5	55Y/m	Farmer	Right leg	Cellulitis, swelling, sinus-3 years	Actinomycetoma



**Figure 1:** H and E low power view showing colonies with sulfur granules of mycotic mycetoma showing sunburst appearance and centre containing fungal elements



**Figure 2:** High power view showing filaments and sulfur Granules

**DISCUSSION**

Mycetoma has a clinical significance as it may mimic with sarcoma. The etiology may be bacterial (bacillary and coccal) or fungal origin. The different investigative modalities for this are as follows:--wet preparation from

sulfur granules,-Gram staining and PAS stain, FNAC/Exfoliative cytology and conformation by histopathological examination Culture on Sabour’d’s Dextrose Agar<sup>3</sup>

**Table 2**

<b>Desai <i>et al.</i></b>	<b>1970</b>	<b>40 cases</b>	<b>30</b>	<b>10</b>	<b>10 cases</b>
Reddy <i>et al.</i>	1972	30 cases	18	12	6 cases
Singh <i>et al.</i>	1979	15 cases	11	4	5 cases
Dieng <i>et al.</i>	2003	10 cases	8	2	3 cases
Zarei and Zarrin	2008	21 cases	15	6	10 cases
present study	2013	5 cases	3	2	2 cases

## CONCLUSION

As the etiology of mycetoma is different, the treatment modalities of each one differs and therefore the correct diagnosis becomes mandatory. Two cases initially were suspected to be sarcoma clinically; later on ; got

confirmed as mycotic mycetoma on incisional biopsy (on H and E and PASstaining). Remember the maxim: biopsy every infection and culture every tumour.

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Source of Support: None Declared  
Conflict of Interest: None Declared