

# MYCETOMA CAUSED BY STREPTOMYCES PELLETEIRII IN INDIA (Case report)

K. R. JOSHI,\* D. R. MATHUR,† KAMLA SHARMA ‡ AND S. N. CHAWLA ||

## Summary

One case of mycetoma caused by *Streptomyces pelletierii* is described. The diagnosis was established by the demonstration of red fungal granules from the lesion and typical structure of the grains in the histological sections. This is probably the first report of mycetoma caused by *Streptomyces pelletierii* in North West India.

Majority of the reported cases of mycetoma caused by *streptomyces pelletierii* are from Africa<sup>1</sup>. Cases have also been reported from Senegal, Somalia and Mexico<sup>2</sup>, U. S. A.<sup>3</sup> and South India<sup>4,5</sup>. Only a few cases of mycetoma caused by this fungus have been reported from North India and none from the North West desert part. The records of this hospital reveal that no such case was diagnosed in the last 10 years. Because of such rarity this case is reported.

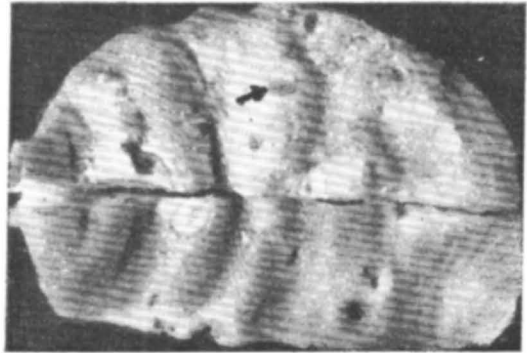


Fig. 1 The excised mass showing multiple ulcers with sinuses (Arrow)

## Case report

A 45 years old Muslim male was admitted to M. G. Hospital, Jodhpur with the history of swelling on medial side of right foot with multiple sinuses

discharging red tinged exudate for six months. However, the patient did not notice any granules in the exudates. The patient is a factory worker and employed in 'ALCOBEX' and lived in the factory campus for 10 years. He gave history of having sustained frequent pricks with sharp metal pieces.

On clinical examination the swelling was of the size 6 × 3.5 cms. and showed multiple discharging sinuses through the skin. It involved the medial aspect of right foot and sole. It was tender,

\* Professor & Head,

Department of Microbiology

† Lecturer, Department of Pathology

‡ Lecturer, Department of Surgery

|| Senior Demonstrator,

Department of Pathology

Dr. Sampurnanand Medical College

Jodhpur (Rajasthan)

Received for publication on 27-12-1978

firm in consistency and was fixed to deeper tissue. X-ray examination revealed no bone involvement.

There was no enlargement of regional lymphnodes. On examination, other systems were normal.

Excision of the swelling was done removing the surrounding fibrofatty tissue and covering skin. The excised mass on cutting showed pinpoint pinkish red granules approximately of 1 mm. diameter, many of which were joined together forming lobulated larger granules.

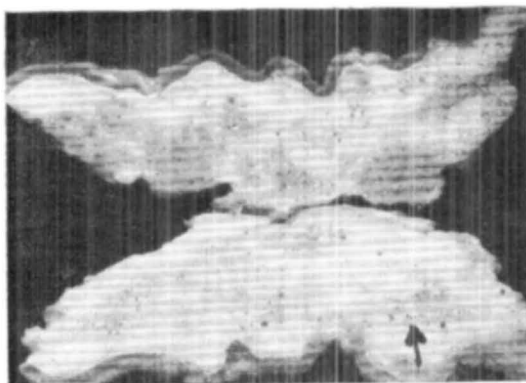


Fig. 2 Cross section of same mass showing reddish granules in the involved sub-cutaneous tissue (Arrow)

Microscopic examination - In haematoxylin and eosin stained section, the whole granule stained dark blue. The edges were denticulate without an eosinophilic fringe (Fig. 3). The fungus was surrounded by neutrophils and then by lymphocytes and large mononuclear cells. Fungal colony was Gram's positive, periodic acid schiff positive and negative for acid fast stain.

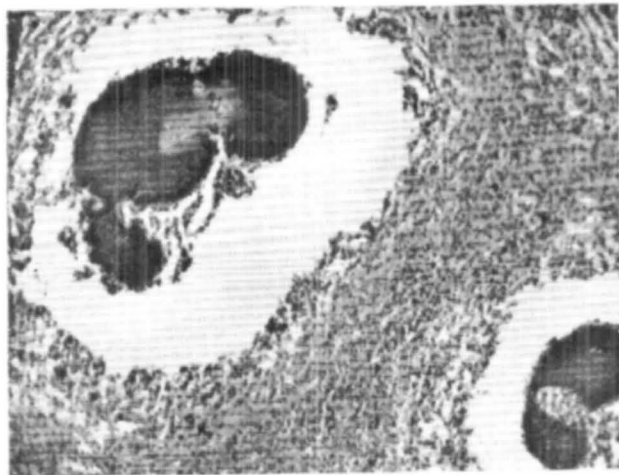


Fig. 3 Haematoxylin and Eosin stained section of the affected tissue showing deep basophilic staining of the central fungal colony lying in the clear space containing scattered neutrophils, which in turn is surrounded by inflammatory granulation tissue. (H & E  $\times$  300)

### Discussion

India is the birth place of mycetoma and many cases have been reported from various parts of the country<sup>6,1,4,7,8,5,9</sup>. Upto 1970, 610 cases of mycetoma have been studied of which identification was made in only 306 cases<sup>6,8</sup>. Reported data reveals that a large majority of patients had maduromycotic mycetoma caused predominantly by *Madurella mycetomii*. However, in South India, actinomycotic mycetoma were observed more frequently<sup>10,11,12,8,13,14</sup>. Klokke et al<sup>4</sup> in 1968 reported 187 cases of mycetoma from South India out of which 15 cases were of *Streptomyces pelletierii*. Chouhan and Agarwal<sup>7</sup> from Jabalpur reported 1 case of mycetoma caused by *Streptomyces pelletierii*. Desai et al<sup>8</sup> observed only one case of *Streptomyces pelletierii*, out of 40 cases of mycetoma studied by them. In 1970 Mankodi et al<sup>15</sup> reported 15 cases, of which 4 were actinomycotic type, and no record was made of *Streptomyces pelletierii*. In 1972, Koshi

et al<sup>5</sup>, reported 6 histologically diagnosed cases of mycetoma, 2 of which were caused by *Streptomyces pelletierii*. In 1974 Das Gupta et al<sup>9</sup> studied 92 specimens, collected from 83 patients and they reported only 2 cases which were caused by *Streptomyces pelletierii*.

There is general belief after Delahaye's original observation that the extent of bone damage vary with different species. Bone lesions are seen with increasing order of frequency in *S. madurae*, *M. mycetomii*, *S. somaliensis* and finally *S. pelletierii* which causes maximum destruction<sup>16</sup>. In our case there was no bone involvement, possibly because the case was detected in the early stages of the disease before any bone invasion could occur.

The appearance of fungus in haematoxylin and eosin is diagnostic. Histological identification was done as per Winslow and Steen<sup>17</sup>, Verghese and Klokke<sup>1</sup>. However, culture was not done as specimen was received in formalin.

Two series of mycetoma cases have been reported from Rajasthan and in none was *Streptomyces pelletierii* reported to be the causative agent<sup>18,19</sup>. The present case is thus the first report of this fungus causing mycetoma in this part of the country, which has a dry climate with average rain fall below 400 mm.

## References

1. Verghese A and Klokke AH: Histologic diagnosis of species of fungus causing mycetoma. *Ind J Med Res*, 54: 6, 1966.
2. Mahgoub ES and Murray IG: Epidemiology, Mycetoma. William Heinemann Medical Books Ltd., London, 1973.
3. Seabury JH et al: Mycetoma mandibularis due to *Nocardia pelletierii*. *Am J Med*, 55: 846, 1973.
4. Klokke AH, Swaminadan G, Anguli R and Verghese A: The casual agents of mycetoma in South India. *Trans Roy Soc Trop Med Hyg*, 62: 509, 1968.
5. Koshi G, Victor N and Chacko J: Causa agent in mycetoma of the foot in South India. *Sabouraudia*, 10: 14, 1972.
6. Carter HV: On a new and striking form of fungus disease, principally affecting the foot and prevailing endemically in many parts of India. *Transactions of medicine and Physiology Society; Bombay*, 6: 104, 1960.
7. Chouhan SS and Agarwal S: Histological diagnosis of mycetoma - "a clinical study of 24 cases". *Ind J Med Res*, 57: 71, 1969.
8. Desai SC, Pardamani DS, Sree Devi N, and Mehta RS: Studies on mycetoma - Clinical, Mycological, Histological and Radiological studies on 40 cases of mycetoma with a note on its History and Epidemiology in India. *Ind J Surg*, 32: 427, 1970.
9. Das Gupta LR, Sundararaj T and Agarwal SC: Actinomycetes from Mycetoma and other cases around Pondichery. *Ind J Med Res*, 62: 5, 1974.
10. Ghosh LM, Dey NC and Panja D: Madurafoot (Mycetoma). *Ind Med Gaz*, 85: 288, 1950.
11. Banerjee AK, Basu SP and Basu N: Studies on mycetoma. *Bull Calcutta School Trop Med*, 9: 113, 1961.
12. Maya Sanyal and Basu N: On the aetiology of mycetoma cases, *Bull Calcutta School Trop Med*, 12: 115, 1964.
13. Gruber HLE and Kumar TM: Mycetoma caused by *Streptomyces Somaliensis* in North India. *Sabouraudia*, 8: 108, 1970.
14. Thammayya A, Basu N, Sur-Roy-Choudhary D, Banerjee AK and Maya Sanyal: Actinomycetoma pedis caused by *Nocardia caviae* in India. *Sabouraudia*, 10: 19, 1972.
15. Mankodi RC and Kanvinde MS: Mycetoma - A histological study, *J Ind Med Assoc*, 54: 465, 1970.
16. Vanbreughem R: Early diagnosis, treatment and epidemiology of mycetoma, *Rev Med Vet Mycol*, 6: 49, 1967.
17. Winslow DJ and Steen FG: Considerations in the Histologic Diagnosis of Mycetoma, *Am J Clin Path*, 42: 164, 1964.
18. Sran HS, Bothra VC, Narula IMS, Joshi KR and Agarwal GR: Clinical study of mycetoma, *Ind J Derm & Vener*, 39: 3, 1973.
19. Mathur DR, Joshi KR and Mathur A: An etiological and pathological study of mycetoma in Western Rajasthan, *Curr Med Pract*, 23: 151, 1979.