ACTINOMADURA PELLETIERI CAUSING WHITE GRAIN MYCETOMA
- A Case Report from Madras

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Summary

Actinomadura pelletieri causing white grain mycetoma pedis in a 32 year old farmer is reported. The right foot was swollen, firm, painless, non tender and had a number of small nodules breaking down to form sinuses. The seropurulent discharge contained dirty white grains measuring 0.5 to 1 mm, composed of unfragmented filaments of bacterial width. Histologic examination of the biopsy material revealed the characteristic granule of *A. pelletieri* and culture yielded typical coral red colonies.

KEY WORDS : Actinomadura pelletieri, white grain mycetoma.

Mycetomas caused by *Actinomadura pelletieri* are known as red grain mycetomas because of the characteristic colour of the grains in the discharge. But Pardo-Castello and Trespalacios[1] had reported two cases of *A. pelletieri* mycetomas with non-red grains from Cuba. Bergeron et al[2] had even doubted the identity of those Cuban strains on account of the colour of the grains. However, Koshi et al[3] had reported two cases of *A. pelletieri* mycetomas confirmed by histopathology and culture from Vellore and in one of them, the granules were cream coloured and not red.

In this paper we present a case of mycetoma caused by *A. pelletieri* with dirty white grains instead of the usual red grains. The morphological appearance of the grains in tissue sections of the biopsy material was characteristic of *A. pelletieri* and typical coral red colonies were obtained in culture. To our knowledge, this is the second case of white grain mycetoma due to *A. pelletieri* from India.

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Case Report

A 32 year old farmer from Chengleput district attended the Surgical outpatient Department of the Government General Hospital, Madras, for a painless swelling of the right foot. The lesion had started two

years earlier as a small nodule on the dorsal aspect of the foot, that softened, burst open and discharged seropurulent material. Patient could not remember any significant injury to the affected part prior to the onset of the disease. Successively, similar nodules developed on the foot, ulcerating and discharging seropurulent material.

Clinical examination disclosed a firm, painless, non tender swelling on the dorsal aspect of the right foot with a number of small nodules breaking down to form sinuses. Inguinal lymph nodes were enlarged on both sides. X-ray showed soft tissue swelling and demineralization of all the bones.

Histopathological study

Histological sections of the biopsy material showed the presence of granules conforming to the description of *A. pelletieri*. In haematoxylin-eosin stained sections, small granules with smooth or denticulate edge, without clubs and with dense, homogenous matrix were seen in the middle of abscess cavities (Fig. 1). The constituent filaments were not seen very clearly in Gram stained sections. The granules were not acid-fast by Kinyoun's acid-fast method.

Mycological study

The seropurulent material as well as the biopsy specimen had numerous, small, soft, dirty white grains, about 0.5 to 1 mm in size. When crushed and examined in a drop of KoH, these were shown to be composed of filaments of bacterial width. The smears showed thin, delicate, long branching, Gram-positive filaments which were not acid-fast.

The granules were repeatedly washed in sterile saline and inoculated on two sets of Sabouraud's dextrose agar slants and incubated at 26°C and 37°C. Growth was very slow, appearing in 4 weeks' time. The colonies were irregularly folded and coral red in colour. Growth was better at 37°C. Microscopic examination revealed Gram positive, branched, unfragmented filaments which were not acid-fast. The organism hydrolysed casein, decomposed tyrosine crystals, and liquified gelatin, but failed to decompose xanthine or to utilize paraffin. Urease was negative. Small puff-ball like,

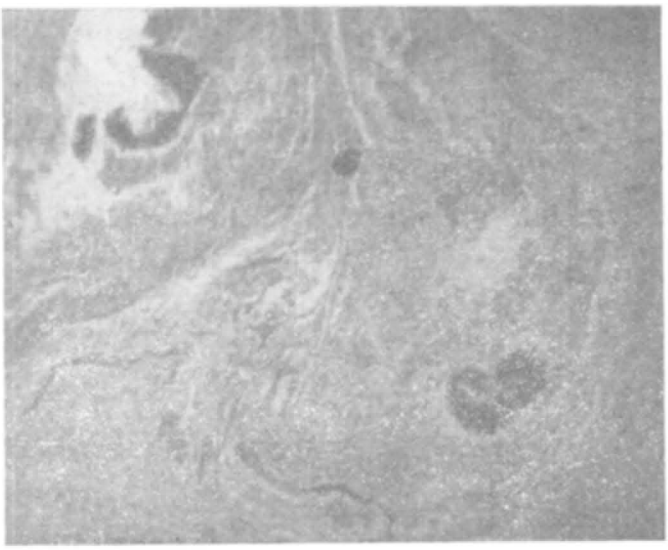

Fig. 1

Biopsy specimen of lesion showing *Actinomadura pelletieri* grains in abscess (Haematoxylin eosin × 100).

light red colonies developed in Sabouraud's dextrose broth. Acid was produced with glucose and not with lactose, arabinose, xylose, glactose and mannitol.

The isolate was identified as *A. pelletieri*.

Discussion

Mycetoma is characterized by localized swellings with multiple sinuses discharging granules or grain. Depending upon the etiologic agent, the grains are light coloured (white, yellow, cream), pink or red or dark-coloured (brown or black). The colour of the grain is useful in giving a clue to the identity of the organism; but several species may produce similar grains and the same agent may produce grains with different colours occasionally as seen in the present case and the one reported from Vellore[3].

The morphologic appearance of *A. pelletieri* grains in tissue sections is so characteristic that a specific diagnosis of *A. pelletieri* mycetomas is possible by mere histopathological examination alone[4]. In the present case, the organism is isolated in pure culture in addition. The dirty white grains, on culture yielded typical coral red, folded colonies. We had islaoted *A. pelletieri* from 2 cases of mycetoma from Madras earlier and both the patients had the characteristic red grains[5].

The exact reason for the change in the usual colour is not known. Bacterial contamination may account for a change in the colour of the grains[6], but the organism was isolated in pure culture in the present case as well as the one from Vellore[3].

The patient was given a preliminary course of tetracycline and excision of the mycetomatous tissue was carried out.

Since this is the second case of white grain mycetoma due to *A. pelletieri* from India, we are reporting the case to stress that further investigations such as histopathology and culture are always necessary for ascribing a specific cause to a case of mycetoma.

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