

Actinomycotic Mycetoma of the Right Foot: A Case Report from Central India

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ABSTRACT

Mycetoma is endemic in many developing countries. We report here a case of actinomycetoma in a 70 year old male, farmer by occupation, who presented with multiple discharging sinuses and swellings over the right foot which was instigated by thorn prick 8 years back. Actinomadura was demonstrated and identified by microbiological studies from the granules obtained from the sinuses. Mycetoma has been called "the most misdiagnosed disease" as it requires a high index of suspicion. It remains a diagnostic challenge. This case is reported to emphasize the importance of awareness among the clinicians and clinical microbiologists that will help in the early diagnosis of the disease and initiation of early and prompt treatment and to reduce the substantial morbidity associated with this devastating infection and assessment of the prognosis of such cases.

KEYWORDS: actinomadura, actinomycetoma, mycetoma

INTRODUCTION:

Mycetoma is a chronic granulomatous infection of skin and subcutaneous tissues caused by actinomycetes or filamentous fungi with involvement of underlying fascia and bones. Mycetoma is defined by triad of tumefaction of affected tissue, formation of multiple draining sinuses and presence of oozing granules. Eumycetoma is more common in northern^[1] India^[2] while actinomycetoma is more common in southern India. The incidence is more likely seen in^[3] people like farmers and field workers, who come in contact with causative agents of mycetoma, present in the soil and thorny vegetation, because of their tendency being barefooted.

The disease usually begins as a small subcutaneous swelling of foot which enlarges, burrowing in the deeper tissues and tracking to the surface as multiple sinuses, discharging fluid containing granules. These granules or grains are

CASE REPORT:

A 70-year-old male patient from Madhya Pradesh presented with chief complaints of swelling

periphery with sterile gauge, and sent to the laboratory in a sterile petridish. Macroscopically it revealed white granules. These were washed several times in sterile saline and then crushed between the slides and further processed for 10% KOH mount which was negative for fungal elements. Gram stained smear showed gram positive fine thread like

and multiple discharging sinuses over the medial, dorsal and plantar aspect of the right foot of 3 years duration. Initially the patient noticed a painless nodule over the dorsal aspect of the right foot that became painful and gradually developed into discharging sinuses on medial, dorsal and plantar aspect of the foot over a period of few weeks. These healed leaving puckered scars and recurred after few months for which patient took antibiotic and analgesics from many hospitals but was relieved temporarily. Patient was a farmer by occupation and past history of thorn prick 8 years back was given.

On local examination of the right foot, diffuse swelling with multiple discharging sinuses and puckered scars were present. Gross examination of the seropurulent discharge and sinuses revealed white granules. On palpation, tenderness was not present. The regional lymph nodes were not enlarged. The patient's clinical history and physical examination was highly suggestive of mycetoma at this point of time.

For diagnosis, granules discharged from multiple sinuses were collected by pressing sinus from branching bacteria and modified Kinyoun's stain with 1% sulphuric acid and Ziehl Neelsen stain were both negative. The above findings were strongly suggestive of actinomycotic mycetoma.

Simultaneously granules were inoculated on Sabouraud's Dextrose Agar (SDA), incubated at 25 °C and 37 °C, and 10% sheep blood agar incubated at 37 °C

under aerobic and anaerobic conditions. On 10 day, ath growth appeared on blood agar. It showed glabrous waxy, heaped and folded colonies which were initially white but later changed to tan colour. Gram staining, showed gram positive fine thread like branching bacteria. The isolate was further identified by standard bacteriological methods such as hydrolysis of casein,



(View 1)

Figure 1: Swelling of the right foot with multiple discharging sinuses.

tyrosine, xanthine, gelatin, starch, and urea. Acid formation from lactose xylose and cellulose were definitive identification of bacteria *Actinomyadura madurae*.

DISCUSSION:

Mycetoma was described in 1842 for the first time at Madurai district of Tamil Nadu in India and

same regardless of whether the disease is caused by actinomycetes or fungus. The most common clinical types are cervicofacial, thoracic, abdominal and in women pelvic.

Talwar et al^[6] reported actinomycotic mycetoma in which feet were affected in 70% of cases. The disease has no defined geographic boundaries and occurs throughout life, with a peak incidence in the middle decades. Males have a threefold higher incidence than females. Most of

Figure 2: Swelling of the right foot with multiple discharging sinuses.

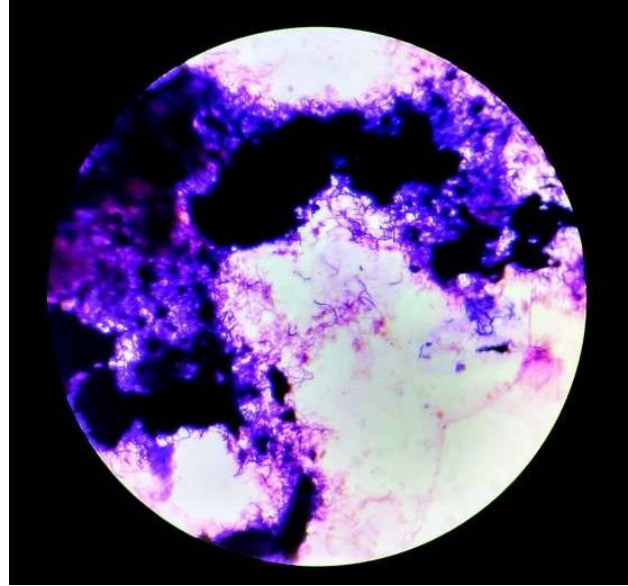


Figure 3: Gram stained smear from colony showing branching gram positive filamentous bacilli.

henceforth was named Madura Foot. It is defined by^[1] triad of tumefaction of affected tissue, formation of multiple draining sinuses and presence of oozing granules. Broadly two categories are recognised namely, eumycetoma caused by fungi and actinomycetoma/ actinomycotic mycetoma caused by higher bacteria of the class Actinomycetes. It usually affects the foot, hand and legs with tissues becoming necrosed and swollen after infection. *Actinomadura*^[4] genus includes three species, *Actinomadura madurae*, *A. pelletieri* and *A. dassonvillie*. *A. madurae* is distinguished from *A. pelletieri* by its ability to produce acid from cellulose. It is one of the commonest causes of actinomycotic mycetoma. The growth rate of actinomadura is slow. It grows on routine mycological media and under aerobic conditions. The clinical characteristics are almost the^[5]

the^[7] cases reported give a clear history of trauma. Our patient also had a past history of thorn prick 8 years back. Diagnosis was made by Gram staining and confirmed by culture. Although actinomycotic mycetoma is less common in northern and central India than eumycetoma, Bakshi and Mathur^[8] have reported a rising occurrence of actinomycotic mycetoma in western Rajasthan due to climatic changes. They have observed that the prevalence of maduramycotic mycetoma to actinomycotic

mycetoma has reduced from 4:1 to 1.91:1 during the last five years. The management of mycetoma is^[8] highly challenging for the clinicians. Treatment regimens consist of combination of drugs. Combination of two or more drugs is used to prevent antibiotic resistance. Our patient responded to combination of Dapsone, Bactrim DS and Rifampicin for five weeks. The patient showed good progress with diminution of local pain and size of nodule and hence treatment was further continued for a period of 6 months. The novelty of this case is its unusual geographic presentation in Central India.

CONCLUSION:

This case is reported owing to its rare occurrence as only a few such mycetoma cases have been reported from Central India. This case is reported to emphasize the importance of awareness among the clinicians and clinical microbiologists that will help in the early diagnosis of the disease and initiation of early and prompt treatment and to reduce the substantial morbidity associated with this devastating infection and assessment of the prognosis of such cases.

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