

# LEPTOSPHAERIA SENEGALENSIS CAUSING MYCETOMA PEDIS IN MADRAS

## (Case report)

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### Summary

Two cases of eumycetoma pedis caused by *Leptosphaeria senegalensis* in Tamilians are reported. Both presented with swelling of the foot and multiple sinuses discharging serosanguinous material which contained black granules. In the first case, the specific diagnosis was made by histopathology and isolation of *L. senegalensis*. In the other, the characteristic granules were demonstrated in the tissue section.

Mycetoma is caused by a variety of Actinomycetes and eumycetes and the agents which are common in one region are rarely reported from others. Segretain et al<sup>1</sup> and Baylet et al<sup>2</sup> in the year 1959, described for the first time *Leptosphaeria senegalensis* as a causative agent of black grain mycetoma. Since then, it was reported in Africans and till recently it has not been recorded outside Africa.

The first report of this disease caused by *L. senegalensis* in non-Africans was that of Klokke et al<sup>3</sup> in 1968, who in a retrospective study of pathological material from South India recorded nine cases from Madurai, four from Vellore and one from Madras. Subsequently Reddy et al<sup>4</sup> reported three cases from Vishakhapatnam based on histopathology.

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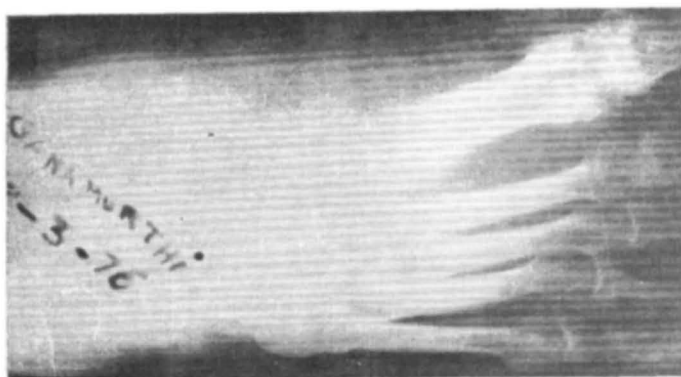
In this paper we present two cases of mycetoma caused by *L. senegalensis* from Madras. The morphological appearance of the granules in tissue sections was characteristic in both. In one case the causative agent was isolated in pure culture. To our knowledge, ours is the first Indian case of mycetoma where *L. senegalensis* has been isolated in pure culture.

### Case Reports

#### Case 1:

A 53-year-old Tamilian agricultural worker from Ramanthapuram attended the Dermatology Out-patient Department of the Government Royapettah hospital, for a painless swelling of the right ankle and foot. The lesion had started 10 years previously as a small swelling on the sole following a thorn prick injury. Slowly, multiple nodules developed which used to ulcerate and discharge purulent material, often containing black granules.

Clinical examination disclosed a swelling in the region of the right ankle and



**Fig 1:** Case 1 Roentgenogram of foot showing osteolytic lesions in first metatarsal bone

foot. There were a number of sinuses, some dry and others discharging seropurulent material with black granules. Inguinal lymphnodes were enlarged on both sides.

Roentgenogram of the foot showed osteolytic lesions in the base of the first metatarsal bone (Fig 1).

The sero sanguinous fluid along with the black granules from the discharging sinuses and biopsy material from the site of the lesion were sent for mycological investigation.

#### Case 2:

A 31-year-old Tamilian peon from Andamans was admitted to the Department of Surgery, Government General Hospital, Madras for swelling of the left foot and ankle with multiple nodules and sinuses discharging sero-sanguinous fluid containing black granules of six years' duration.

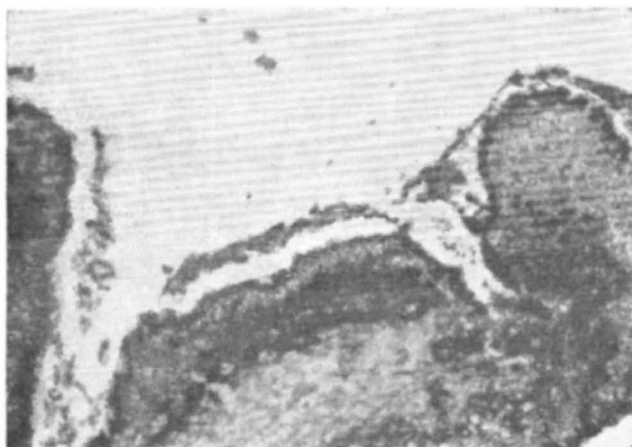
Examination revealed swelling of the left ankle and foot with multiple nodules and almost heal-

ed sinuses covered with granulation tissue. X-ray of the left foot revealed osteolytic lesions in the fourth and fifth metatarsal bones with rarification of all the bones.

Since the sinuses were not discharging any material, deep biopsy was made and the material was inadvertently placed in formalin and sent for histopathological examination.

#### Histopathology

The histopathological findings in both the cases were identical. In haematoxylin-eosin stained sections, small irregular hollow or tubular granules with a central core of hyaline hyphae were seen in the middle of microabscesses (Fig 2). The periphery of the granules was characteristic with dense black hyphae and large vesicular cells imbedded in black cement (Fig 3).



**Fig. 2:** Case 1 Biopsy specimen of lesion showing *Leptospaeria senegalensis* granules. (haematoxylin - eosin  $\times 100$ )

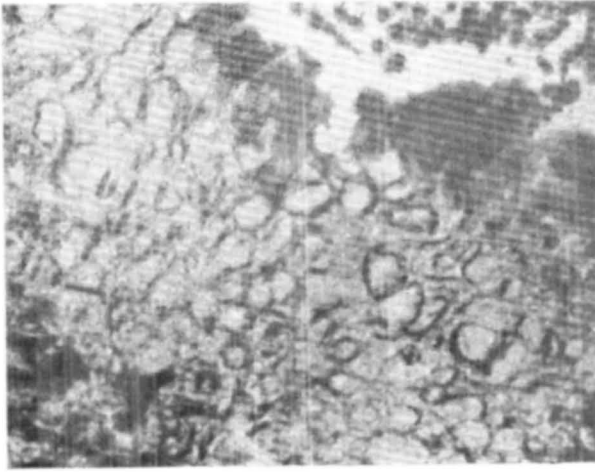


Fig. 3 Case 2 Biopsy specimen of lesion, showing *Leptosphaeria senegalensis* granule (haematoxylin - eosin  $\times 450$ )

**Mycology**

Mycologic study was possible only in case 1, since in case 2, the biopsy tissue was received in formalin and by the time the histologic diagnosis of *L. Senegalensis* infection was made, the patient had already left for Andamans.

The serosanguinous fluid and biopsy material from Case 1 revealed the presence of a number of small irregular soft granules of about 1 mm in diameter. When crushed and examined in a drop of KOH, they were shown to be composed of thick, septate, hyaline hyphae, deeply pigmented hyphae and large chlamydo-spores. The granules were repeatedly washed in sterile saline and inoculated on Sabourauds' dextrose agar slants with and without chloram-

phenicol and incubated at both 26°C and 37°C.

Growth was fast; the organism appearing in a few days' time as a grey, brown colony. A diffusible rose pigment developed in the agar later on. Culture mount revealed branching, septate hyphae and chlamydo-spores. When sub-cultured on to Corn meal agar, dark, brown, spherical perithecia of 100-300 $\mu$  in diameter were produced in 3 months' time (Fig 4). The ascospores were oval, septate and hyaline in colour.

The isolate was identified as *L. Senegalensis*

**Discussion**

*L. Senegalensis* infection is native to Africa seen only in Senegal, Mauritania and Chad. It appears to be a common agent of mycetoma in that area. The few cases which have been reported

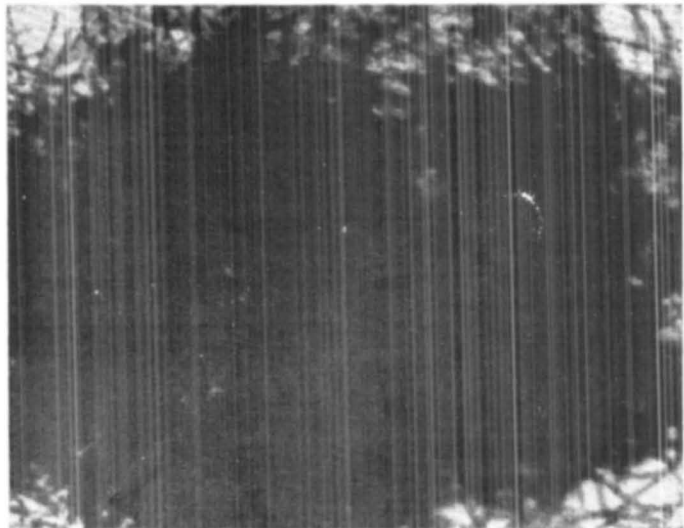


Fig. 4 Perithecium of *L. senegalensis* (Lectophenol cotton blue  $\times 100$ )

outside Africa were in African patients only till 1968. The retrospective study of pathological material obtained from five Medical Colleges in South India by Klokke et al<sup>3</sup> indicated the presence of *L. Senegalensis* infection for the first time in non-Africans.

*L. Senegalensis* infection has not been reported from North India. Of the 17 cases recorded so far from the South, 14 were from Tamil Nadu. The organism is said to frequent dry, arid regions where the rainfall ranges from 250-500 mm/year. The average rainfall in most areas of India being above 600 mm per year may account for the rarity of the infection in our country.

Though certain agents of mycetoma show some geographic and ecologic prevalence, most of them have been found all over the world and it is quite probable that they are ubiquitous, awaiting the proper circumstances for expression.

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#### References

1. Segretain G, Baylet J, Darasse H and Camain R : *Leptosphaeria senegalensis* n. sp., agent de mycetome a grains noirs, C R Acad Sci 248 : 3730, 1959.
2. Baylet J, Camain R and Segretain G : Identification des Agents des Maduromycoses du Senegal et de la Mauritanie. Description d'une Espece Nouvelle, Bull Soc Path Exot 52 : 448, 1959.
3. Klokke AH, Swamidasan G, Anguli R and Verghese A : The causal Agents of Mycetoma in South India, Trans Roy Soc Trop Med Hyg 62 : 509, 1968.
4. Reddi CRRM, Sundareshwar B, Pattabi Rama Rao A and Reddi SS: Mycetoma-histopathological diagnosis of causal agents in 50 cases. Indian J Med Sci, 26 : 733, 1972.

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