

MYCETOMA OF THE HAND

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Summary

The Clinical, histopathological and mycological features of mycetoma of the hand in a 20 year old female patient are described. The condition improved with oral therapy of dapsons. The relevant literature is briefly reviewed.

Mycetoma is a chronic deep mycotic infection of the skin, subcutaneous tissue and bones. Occasionally dissemination may occur to lungs and brain. Madura foot is often used as a synonym for this condition. This is not an appropriate one for the reason that mycetoma can occur at sites other than the feet. Usual sites affected are feet but less commonly other parts such as hands, forearms, shoulders, back of the chest and gluteal region may also be involved^{1,4}. The purpose of this paper is to describe a rare case of mycetoma due to *Madurella mycetomi* occurring on the hand of a young female patient.

Case Report

20 years old, female patient was admitted to skin and V.D. Unit of S.S. Hospital, Varanasi, in Feb. 1973 with the complaints of swelling and pus-discharging sinuses on the right hand of 5 years' duration. There was no history of injury prior to the onset of this complaint. No constitutional symptoms were present.

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Examination revealed diffuse swelling of the right hand and lower 1/3 of the forearm. Multiple fibrotic sinuses discharging pus and adherent scars were observed on the palmar aspect of hand and wrist (Fig. 1 Page No. 301). The overlying skin was hyperpigmented and thickened. Ulcerations were seen in some areas with bleeding. Movements of all fingers and the wrists were restricted. There was no significant lymphadenopathy. Systemic examination did not reveal any abnormality.

Investigations

TLC-11500/C.mm, DLC-P83, L 13, E 4, ESR 65 mm after 1 hr., X-ray chest was normal. Direct microscopic examination of KOH preparation of the pus revealed irregular, brittle, black grains containing multiple, light brown septate hyphae with numerous vesicles and chlamydospores embedded in the brown granular cement. Culture of the granule on Sabouraud's dextrose agar after treatment with streptomycin and penicillin solution demonstrated multiple, brownish colonies in three weeks. Microscopy revealed branching septate hyphae with numerous chlamydospores. The species was identified as *Madurella mycetomi* on the basis of morphological and various biochemical characteristics.

X-ray of the right hand revealed diffuse soft tissue shadow, multiple destructive lesions of the carpal bones, lower end of ulna and radius. Histological section stained with haematoxylin and eosin revealed a granuloma. In the dermis there was an intense inflammatory infiltrate of both acute and chronic inflammatory cells. Black granules of the fungus were seen surrounded mostly by polymorphs, lymphocytes and varying amount of epithelioid cells and plasma cells (Fig. 2 Page No. 301). Multiple areas of fibrosis were also seen.

The condition was diagnosed as mycetoma due to *Madurella mycetomi* and the patient was advised to take 100 mg of dapsone twice daily. With six months of this treatment, the patient improved markedly. All the sinuses healed although the movements of the joints continued to be slightly restricted. The patient was instructed to continue the same treatment for another three months and return. Unfortunately she failed to report for follow up.

Discussion

Mycetoma is a locally invasive, painless condition characterised by the triad of tumefaction, draining sinuses and presence of granules in the pus or tissues. Zaias et al¹ classified the causative organisms of this condition into two groups namely Actinomycetoma and Eumycetoma. The former comprises *Actinomyces israeli*, *Nocardia asteroides*, *N. braziliensis*, *N. madurae*, *N. pelletierii* and *strep. somaliensis*. The Eumycetoma agents includes *Allescheria boydii*, *cephalosporium falciforme*, *C. reefeii*, *Leptosphaeria senegalensis*, *Madurella grisea*, *M. mycetomi*, *Neotestudina rosatii*, *phialophora jeanselmi*, *pyrenochaeta romeroi*.

Madurella mycetomi is the most frequently encountered causative agent of mycetoma in the world⁵. Desai et al¹⁹

reported two cases of mycetoma occurring on the hand due to *N. asteroides* in their extensive study on mycetoma. Joshi et al⁴ described mycetoma of hand due to *M. grisea*. As far as it is ascertained, mycetoma of the hand due to *M. mycetomi* has not been reported from this country.

Diagnosis of mycetoma is based on many factors. It has been rightly pointed out by Mohapatra and Bhargava⁶ that the diagnosis of mycetoma rests on a close collaboration between clinical, mycological, histopathological and radiological features. These features enabled us to arrive at an early and correct diagnosis in our patient.

Mycetoma occurs more commonly in males and this may be due to their increased vulnerability to trauma. It has been however pointed out by Vanbreuseghem⁷ that males are more prone to develop mycetoma because of their increased susceptibility to mycoses rather than to occupational or other factors. It is interesting to observe that our patient is a female and denies history of trauma.

Chemotherapy in mycetoma caused by true fungi has been reported unsatisfactory and surgical intervention is often needed⁸. But our patient improved markedly with dapsone. Similar results have been reported in the past^{9,10}. Hence we feel it may be worthwhile to try chemotherapy in mycetoma before resorting to major surgical procedures.

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False

The Staphylococcal exfoliatin (S. .) is remarkably nontoxic to keratinocytes. It has a purely extracellular site of action on an as yet unidentified substance(s). Although several cytochemical and immunologic markers have been used to detect these, the results have been so far negative. It is presumed, therefore, that this exfoliatin may attack other as yet unidentified surface substances or it may be able to cleave keratinocytes through removal of small morphologically undetectable quantities of target molecules which have already been studied.

Reference: Elias PM, Fritsch P, Dahl MV et al: Staphylococcal Toxic Epidermal Necrolysis: pathogenesis and studies on the subcellular site of action of exfoliatin, *J Invest Derm*, 65 : 501, 1975.