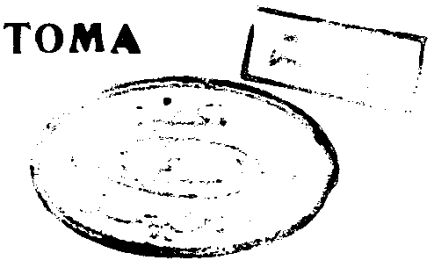
REVIEW ON MYCETOMA



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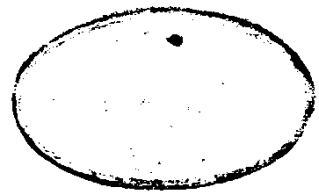

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OF MASTER DEGREE IN

Dermatology, Venereology & Andrology

By

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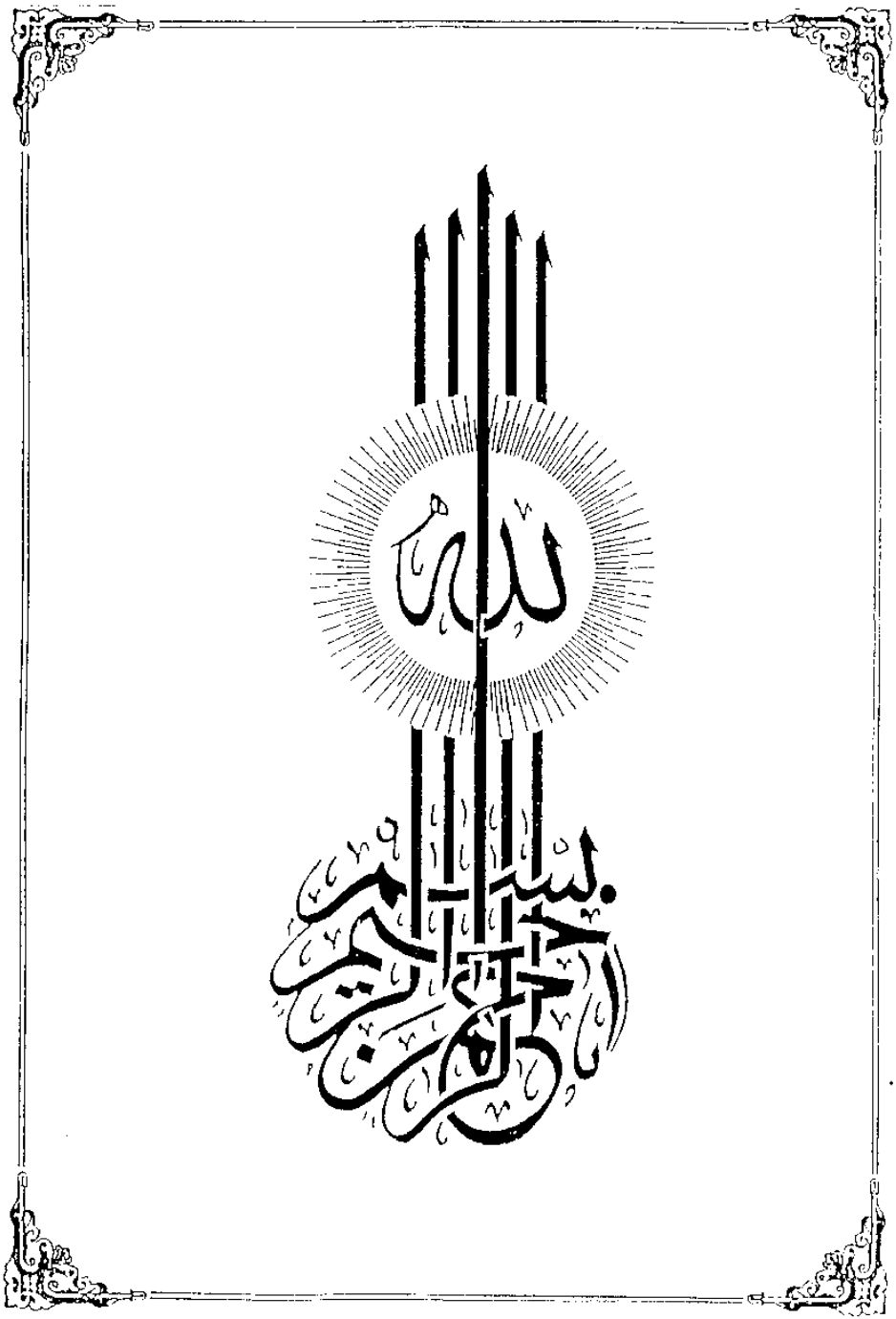
بسم الله الرحمن الرحيم



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God Bless them all.

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INTRODUCTION

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Mycetoma is a deep chronic fungal infection that progressively invades the different tissues from the skin up to the bones.

It can occur in any part of the body but the commonest sites are those which come in contact with the soil where the fungus lives in saprophytic phase. Of these sites, the foot is the commonest and hence the name "Madura foot" is designed because of the site and the locality from which the disease was first identified in India.

Mycetoma is prevalent in tropical and subtropical areas with few sporadic cases reported from temperate countries. Thus the disease is endemic in Africa in Sudan, Senegal, Somalia and it is also endemic in India and Venezuela (Mahgoub and Murray, 1973).

On the basis of the main aetiological agents of mycetoma (Eumycetes - true fungi and Actinomycetes - related bacteria) it was classified into two main types, Maduromycetoma and Actinomycetoma (Barnetson and Milne, 1978).

Mycetoma is not a contagious disease in the sense man to man infection. Also the incidence of the disease does not correlate with population exposed. Thus an immunological defect in mycetoma patients was suggested.

Mycetoma constitute a health problem as mutilating surgery and amputation still are the main lines of treatment in most patients and the recurrence rate is very high.

In spite of the progress in the medical treatment of mycetoma still, it is not conclusive and well beyond the achievement obtained in the medical treatment of ounce a troublesome disease like tuberculosis.

AIM OF THE WORK

Mycetoma is prevalent in Sudan, and because of the recent rich literature concerning this subject Prof. Dr. Zenab El-Gothamy advised me to write on this topic.

Besides my interest, I have a short preliminary experience with mycetoma at home.

During my work at the Surgical Department of Omdurman Teaching Hospital in Sudan, I observed many cases of mycetoma who had lost one of their limbs via amputation.

I, myself, did a through-knee amputation for a woman in her thirties with a massively swollen foot and active sinuses over the leg. In another occasion, I have removed the calcanium of a 12 year oly boy full of black madura colonies.

All these encouraged me to collect up to date the literature on the subject with over emphasis on the immunology and medical treatment of mycetoma hoping for a better future for mycetoma patients.

Review of Literature

HISTORICAL REVIEW

HISTORICAL REVIEW

Definition of mycetoma

Mycetoma is a disease entity which was described and defined by many workers.

Chalmers and Archibald (1916) gave the following description, "All growth and granulations producing enlargement, deformity and destruction in any part of the body of man brought about by invasion of the affected area by certain species of fungi which give rise to variously shaped bodies called "grains" which are found embedded in the pathological tissue or in the discharge from the diseased area." Lynch (1964) said that, "Mycetoma, literally are fungus tumours, which are progressive, chronic granulomas characterised in their later stages by the discharge of grains, pigmented or non-pigmented, through one or more fistulae. Mahgoub and Murray (1973) put forward the following comprehensive definition, "Mycetoma is a chronic, progressive fungal tumour of subcutaneous tissues and will ultimately attack bone as well. Development is slow, pain is not a prominent feature and sinuses discharging at the skin surface are usually formed. These sinuses discharge little grains of various colours. The grains are colonies of the causal

organism and the colour is dependent on the species." The term mycetoma is also used to denote pulmonary fungus balls commonly caused by Aspergillus fumigatus (Harman, 1980).

Historical Review

According to Tight and Bart-lett (1981) mycetoma was first noted by the Indian physicians.

The term "Perical" was used by Kaempfer (1712) for any enlargement of the foot. The French missionary in Pondicherry in 1714 described a foot disease "fourmiliere des vers", characterised by numerous small ulcers with communicating channels, some of them healing and others opening. This description was suggested by Castellani and Chalmers (1919) to refer to "Madera foot". On the other hand, Lynch (1964) said that this description is too vague and its early differentiation from other enlarged foot diseases like tuberculosis,yaws and elephant foot is impossible. The specific recognition of madura foot was due to Gill (1842) and Colebrook (1846), who worked in the medical dispensary at Madura town in India; but the earliest documented description is that of Godfrey, surgeon at Madura (1846). He reported four cases during the years 1844 and 1845. The first was a fisherman who was presented with an ulcer of the foot of three years duration. His general health was good but amputation

was required. The other three were agricultural labourers who also presented with indurated foot ulcers of several years duration. Goodfrey thought that the disease was different from any previously described ones, hence he named it tuberculated disease of the foot or morbis tuberclosis pedis.

Eyre (1859) described 40 cases treated between 1844 and 1848. Most of his patients had painless swellings of various sizes confined to the foot, the skin being studded with tubercular prominences with some ulcerated and discharging sanguinous fluid. The swellings increased gradually over a period of three to seven years or longer without affecting the general health of the patients. The patients ranged in age from 20 to 60 years and the male to female ratio was 7:1. Sections revealed that the soft parts had been converted into a gelatinous substance containing numerous minute grains, often black, which were at that time thought to be blood. Amputation was the only effective treatment. Its destructive effect on the bones in two cases were described by Ballingali (1855).
Minas (1860) described the disease in the Hisaar, in India and observed that the hand could develop identical lesions. He also discovered that there were more cases discharging black grains than pale-yellow ones and that of his 26 cases only one was a woman.

A year before 1860, Carter had found large and small black masses in bony cavities among the tissues of amputated foot. A month later he examined another foot containing pale-yellow grains. He concluded that the foot disease of India is not a caries of stroma or myeloid but it is a real parasitic disease due to the growth and extension of an indigenous mould or fungus of true plant nature. The parasite in question is represented by the little bodies termed by him "fungus particles."

The term "mycetoma" (from the Greek mykes, meaning fungus) was introduced by Carter (1860) to distinguish it from other localized cutaneous conditions such as tuberclosis and filarial elephantiasis. He also established the fungal aetiology and classified the cases on the basis of the colour of the discharged grains, e.g., black, yellow, red or white. He wrongly identified the causative agent as "chionyphe carteri" and considered the yellow grain to be a degenerate from the black. On the other hand, Boyce and Surveyor (1894) established that the black and yellow grains represented different prganisms.

Bidie (1862) described the disease and tried to map out the areas of occurrence of mycetoma. He noted that it occurred in Bombay and Madras areas but was commoner in the district of Madura, Guntoor and Bellary.