A CASE OF ACTINOMYCOTIC MYCETOMA IN HAND TREATED SUCCESSFULLY WITH CO-TRIMOXAZOLE AND STREPTOMYCIN

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ABSTRACT:
Mycetoma is a chronic infection involving cutaneous and subcutaneous tissues. We describe a 33-year old man who presented subcutaneous nodules with draining sinuses that extrude masses of the infecting organism. The etiologic agent of disease was identified as *Nocardia asteroids* by direct examination, culture of exudates and physiological tests. The lesions were completely eradicated by using combination of streptomycin and co-trimoxazole.

KEY WORDS: Mycetoma, Nocardia, Co-trimoxazole, Streptomycin.

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INTRODUCTION

Mycetoma is a chronic, subcutaneous infection, which is caused by fungi (Eumycetoma) or higher bacteria (Actinomycetoma). Involved organs are usually swollen and painless with multiple sinuses which draining pus, blood and "grains" that are characteristic granules of the etiologic agents. Mycetoma is endemic in tropical and subtropical countries.[1] In Iran, the first case was identified in 1962 and about 34 cases have been reported so far, which their frequent etiological agents were *Nocardia otitidis-cavarum, Actinomadura madurae, Madurella mycetomatis and Pseudallescheria boydii.* However, in recent years the incidence of mycetoma has lessened significantly.[2-5]

The causative agent implanted from soil or plants traumatically or by superficial lesions. As the disease develops, it may involve contiguous structures such as bones or muscles. This infection usually occurs in foot or hand, however involving the other parts of the body is also possible.[1,3]

CASE PRESENTATION

A 33-year-old man who is driver and living in one of the villages of Behshahr-North of the Iran- has been injured in garage since three years prior to admission. After a long time, the first sign of disease revealed. Lesion was

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initially limited, but slowly changing form, swollen and enlargement, fistulae with pus and secretions were revealed (Figure-1). The patient's history showed that he was under several treatments without obvious progress.

In the examination of pus and secretions in the mycology department, small-white granules were observed. Lobolated granules with thickened wall were seen in direct mount made by KOH and pathologic sections (Figure-2). In the modified acid-fast stains of materials, thin, branched and semi acid-fast filaments were seen.

Some of the granules were washed in sterile normal saline and cultured on Sabouraud glucose agar (S) and Brain Heart Infusion agar (BHI) and incubated respectively at 25°C, 37°C both anaerobicaly and aerobically. After 7 days of incubation, white, glabrous, chalky, folded colonies rose in aerobic condition. We diagnosed *Nocardia asteroids* as the pathologic agent of disease by growth in 0.4% gelatin and urease, Starch, Xanthin, Hypoxanthine and Tyrosine hydrolysis (Figure-3). Following diagnosis, treatment initiated with simultaneous administration of streptomycin (14 mg/kg/day) and Co-trimoxazole (trimethoprim-sulphamethoxazloe 400/80, two tablets twice daily) for a month. According to obvious clinical improvement, the dose of streptomycin decreased to interval injections at the second month and ended thereafter. After six months, therapy was terminated.

Figure 1: Multiple nodules and draining sinuses with swelling

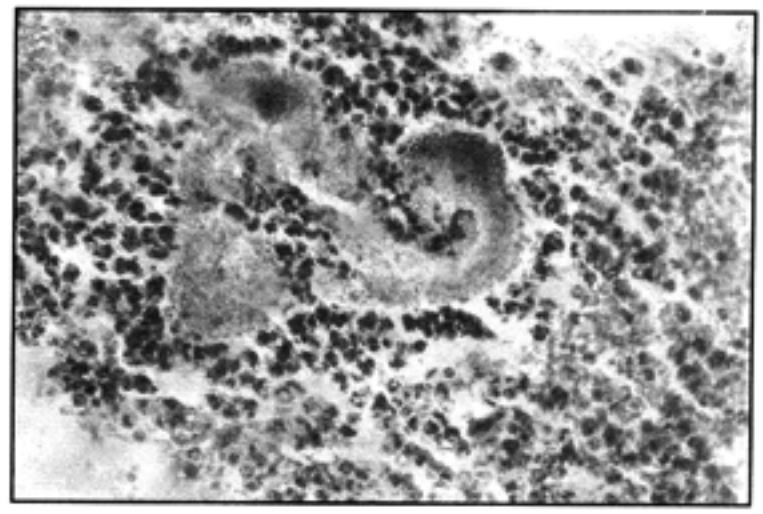

Figure 2: The irregular basophilic granule bordered by Splendor-Hoeppli material and embedded in mixed purulent and granulomatous lesion. (H&E, *100)

DISCUSSION

Mycetoma is a chronic disease process that causes considerable deformity and disability. Environmental condition such as the high temperature and humidity especially in the north of Iran are suitable for the growth of the causative agents of mycetoma. Although 50 percent of mycetoma cases are due to actinomyces and the rest to true fungi worldwide[1], but actinomycetoma is more prevalent in Iran.[3]

As the treatment varies with the type of mycetoma, it is essential to identify the etiologic agent responsible for infection prior to

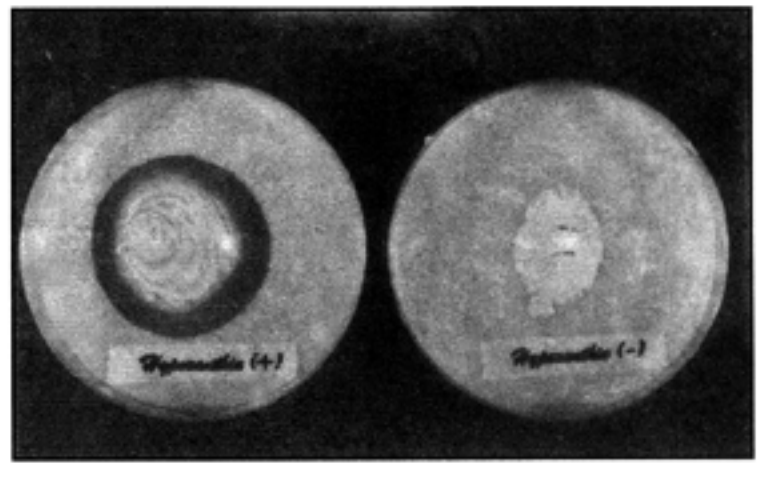

Figure 3: Amino acid hydrolysis test: bright hallow around colonies of positive control (left) indicating hydrolysis of hypoxanthine while Nocardia asteroids (right) unable to do so.

treatment. In spite of Eumycotic mycetoma, medical treatment has proved more effective in actinomycetoma (around 90% of cases) and surgery is restricted to exceptional cases where all medical regimens have failed, or to cases with extensive lesions for shortening the duration and cost of treatment and enable patients to use their limbs.[7,8]

Combination therapy is generally recommended because of the synergistic effects obtained and the tendency of this approach to decrease the likelihood of the resistance developing during prolonged treatment.

A reasonable regimen is to start treatment with a combination of dapsone and streptomycin sulfate. Dapsone is used initially because of its low price; however, co-trimoxazole is more effective, better tolerated and has fewer side effects than dapson.[7] Therefore, our patient treated with streptomycin and co-trimoxazole. Significant healing was observed after two months, which indicated that the lesions had been responded to medical treatments. Subsequently, the disease was completely eradicated following maintenance therapy with co-trimoxazole.

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