Madura foot (Mycetoma), an Unusual Fungal Infection in Puerto Rico

Case Presentation

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INTRODUCTION

Mycetoma is a chronic progressive granulomatous infection of the skin and underlying tissue caused by fungi (eumycetomas) and bacteria (actinomycetomas). Madurella mycetomatis is the most common cause. It was first recognized as a disease entity in Madura (India). Other endemic areas include Africa, Mexico, Central and South America, and the Middle or Far East between latitudes 15°S and 30°N. Few cases has been reported in Puerto Rico1. It is important to include this entity as a differential diagnosis when a patient presents with the classic triad of painless soft tissue swelling, draining sinus tracts, and extrusion of grains. Because disease progression and antimicrobial therapy is different for fungal or bacterial etiology, the diagnosis and identification of the causative agent should not be delayed.

CASE REPORT

We present the case of a 42-year-old fisherman native from the Dominican Republic who presented a left foot mass, with three years of evolution, which was treated with oral antibiotics with no success. Two years after he noticed the mass, he observed dark granules draining from the skin of the dorsum of the foot. The lesion began to expand rapidly and he was unable to walk (Figure 1). A biopsy revealed a granulomatous inflammation associated with abundant brown foreign-like material (Figure 3) which led to a diagnosis of foreign body granulomatous reaction, but later, Grocott and PAS stains were found positive for fungi consistent with Madurella mycetomatis (Figures 4, 5 and 6). Microbiological cultures confirmed the diagnosis of fungal Mycetoma. After debulking and debridement of the lesion (Figure 1), the patient was started on intravenous Itraconazole. One month later the mass decreased in size significantly and the patient was able to walk (Figure 2).

DISCUSSION

Few cases of Madura foot have been reported in Puerto Rico1. It is important to include this entity as a differential diagnosis when a patient presents with the classic triad of painless soft tissue swelling, draining sinus tracts, and extrusion of grains. Because disease progression and antimicrobial therapy is different for fungal or bacterial etiology, the diagnosis and identification of the causative agent should not be delayed. A delayed diagnosis may require extensive debulking and excision, sometimes requiring amputation, especially in the management of fungal disease. Diagnosis can be made by microscopic observation and culture of a grain. Since cultures can take four weeks or more for isolating the fungal organism, biopsy with histopathology evaluation may help to choose adequate treatment2. After inoculation, these normally nonpathogenic organisms grow and survive through the production of grains (also called granules or sclerotia), structures composed of masses of mycelial fungi and a matrix component. A painless subcutaneous nodule may form, slowly increasing in size, and developing sinus tracts draining purulent material with grains. Time of progression is variable, and it can eventually extend to the bone. It can be associated with significant morbidity in terms of gradual enlargement and deformity of the infected site.

BIBLIOGRAPHY


Figure 1: Left: Foot mass with draining sinuses exposing black granules. Right: Debubling and debridement (note container with black granular material obtained from the lesion).

Figure 2: Four weeks post operative, after completing one month of Itraconazole, the mass decreased in size significantly and the patient was able to walk.

Figure 3: Granule formed by mass of mycelial fungi enveloped by neutrophils adhered to the periphery (hematoxylin and eosin stain X100).

Figure 4: Grocott stain positive in fungi (X100).

Figure 5: Hypha (red arrow) with conidium (blue arrow) (Grocott stain X1000).

Figure 6: Several conidia (Grocott stain X1000).