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Madura Foot - Early Presentation

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Abstract:

- ***Introduction and Significance:***

Mycetoma / Madura foot, is a chronic , progressive granulomatous condition affecting the skin , subcutaneous tissue and bones. It is primarily caused by fungi or anaerobic filamentous bacteria and is prevalent in tropical and subtropical regions, particularly among males aged 20-50 years who are exposed to outdoor environments, especially farmers.

- ***Case Presentation:***

We report the case of a 50 year old male patient with history of fieldwork with early presentation as swelling over right foot medial aspect with symptoms of minimal discharge from sinuses, fibrosis and induration.

- ***Clinical Discussion:***

Madura foot is one of the neglected tropical disease characterized by localized soft tissue injury with discharge grains containing infectious material. Fungal induced cases are termed eumycetomas, while bacterial forms caused by actinomycetes are referred to as actinomycetomas. Diagnosis typically relies on clinical evaluation, radiolographic findings and microscopic/histopathological examination.surgical excision of lesion combined with medical therapy is often the most effective treatment.

- ***Conclusion:***

Madura foot is long-standing infection commonly found in tropical and subtropical regions such as india .due to its varied presentation,diagnosis of madura foot can be challenging, however ,culture remains the gold standard diagnostic test , histopathology is crucial for the early diagnosis and definitive treatment of these cases . actinomycetoma can be cured with surgical debridement and appropriate antibiotic therapy while eumycetoma is only partially responsive to antifungal agents has high rate of recurrence and may require amputation.

Keywords: *Madura Foot, Mycetoma, Eumycetoma, Actinomycosis, Black Grains, Investigations, Management.*

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I. INTRODUCTION

Madura foot is first described by john gill in 1842 in madras, india. It is a localized chronic suppurative infection of subcutaneous tissue, commonly affecting the foot. Mycetoma is characterized by chronic induration, draining sinuses and discharge of granules. It is either actinomycotic or eumycotic in etiology. It is endemic in tropical and subtropical countries. It remains as a real cause of disability among population living in rural area because this infection is often neglected in the initial stage. Repeated trauma or implantation by thorn and splinters provide a portal entry for the organism. In about 40 % cases, fungi are responsible and in 60% cases cause by bacteria .the body's immune cells attempt to contain the infection, often leading to chronic inflammation. The disease starts as a minor, painless nodule under the skin. This nodule slowly gets larger, adheres to the tissue underneath and finally develops sinus tracts that leak pus with granules of various colour.

In our case 50 year old male patient have swelling over right foot with typical features of madura foot with history of bare foot working in farm a rural worker without any significant medical history. Swelling is slowly progressive and pain free. Patient also complain of discharge from swelling.

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Early diagnosis of madura foot is mandatory as it cause by two different etiology and treatment modality is completely different in both. So diagnosis with histopathological examination, microbiological examination and clinical history is important.

- *Case Report*

A 50 year male patient agricultural worker presents with swelling over right foot which was slowly progressive over time since 2 years and complain of pain while walking which was initially pain free. Patient also gave history of discharge coming out from nodular swelling. He was given unspecified topical ointment, however, there was no improvement. Patient have no complain of fever, weight loss and no difficulty in walking.

Following the general examination, indurated swelling with discharging sinus noted over right foot medial aspect which also extend to dorsum of foot.laboratory investigation including hemogram, ESR, CRP and serological test are within normal limits.patient was known case of Hbshg and on treatment . Radiological investigation was done including X-rays, ultrasonogram and MRI foot which suggest lesion in cutaneous and subcutaneous tissue with multiple nodules also extend into intramuscular plane. No bony involvement noted.

Histopathological examination including fine needle aspiration cytology (FNAC), gram staining, biopsy of lesion and KOH staining was done. FNAC shows lymphocytes and polymorphs.

The diagnosis of madura foot is made by color of grain as black grains are always due to fungi and red due to an actinomycete.

Fig 1 X-Ray of Right Foot.

Images showing swelling with draining sinuses along with radiological images show granulation tissues with multiple nodules and septa.

Fig 2 Clinical Picture of Madura Foot

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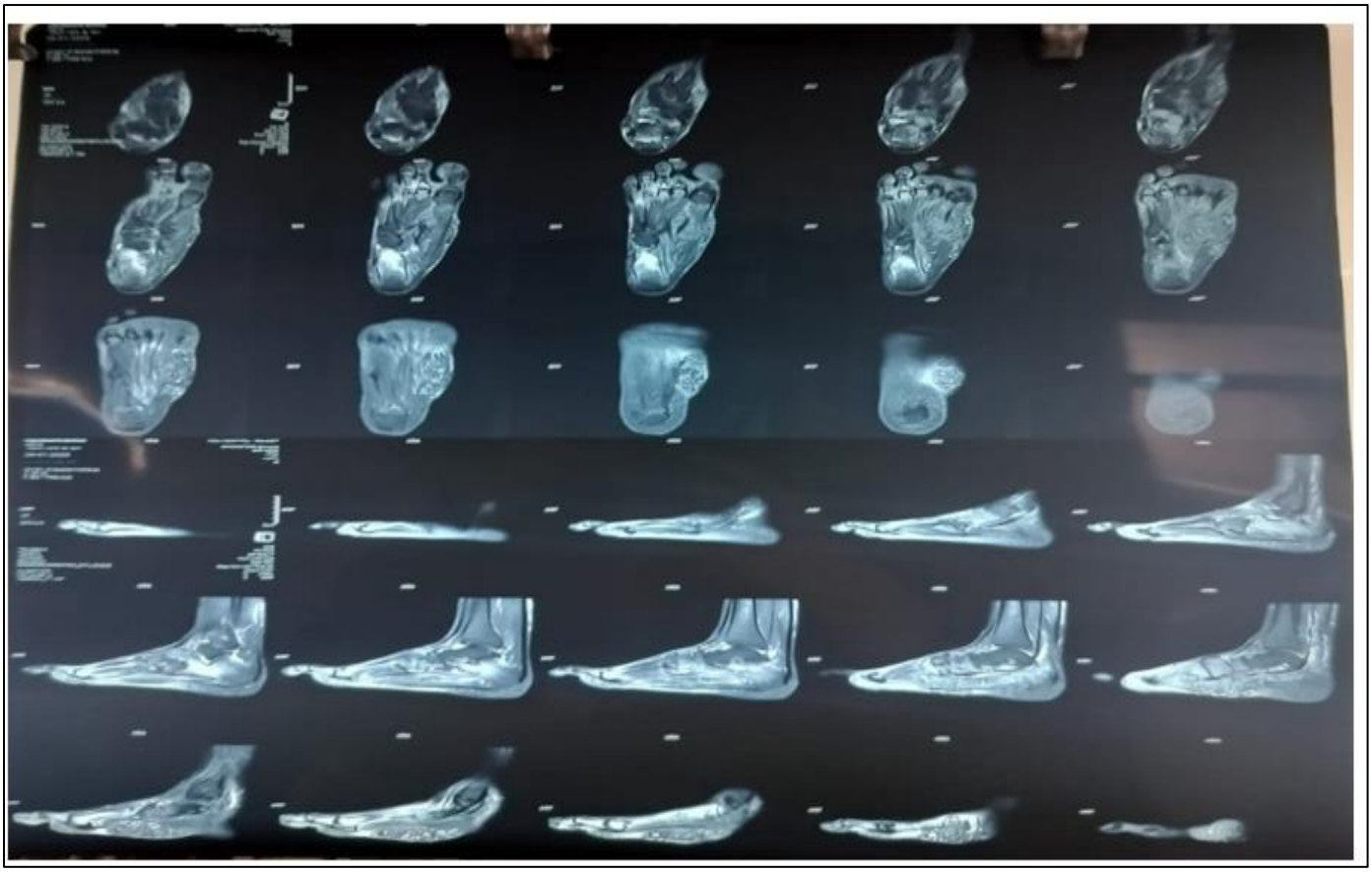

Fig 3 MRI of Right Foot

II. DISCUSSION

Mycetoma Is predominantly found in dry tropics and affects agricultural workers and people who walk barefooted. Frequently observed in age 30-50 year, predominantly in developing countries with limited economic resources where access to healthcare is often limited. Consequently, they typically present at advanced stages of disease characterized by notable local swelling, sinus formation, discharge of distinctive grains and varying degree of pain. Progressive development of granulation and scar tissue that can cause deformity.

In this case report patient came after two year of developing swelling and typical characteristics of madura foot. After introducing through skin, infection begins in skin and subcutaneous tissue causing local popular or nodular swelling which grows and ruptures forming discharging sinus tracts exuding characteristic coloured grains . the granules vary in size , colour and consistency depends on the etiological species. These grains are hallmark of mycetoma . some sinuses heal with scarring with simultaneous bone destruction occurs.Actinomycotic mycetoma is caused by aerobic species of actinomycetes belonging to the genera nocardia, streptomyces and actinomadura. Eumycotic mycetoma is associated with a variety of fungi , the most common being madurella mycetomatis , pseudoallescheria boydii and acremonium species. The incubation period varies from several weeks to months. Sinuses develop after 6-12 months.

In more progressed cases , imaging studies like x – ray s often reveal lobulated soft tissue swelling along with moth eaten patterns of bone destruction, , periosteal reaction , cortical thinning , joint estruction , osteopenia and bone resorption.. In our case these changes are not present. However, the findings observed on ultrasound and MRI can help to narrow the diagnosisto madura foot. Ultrasound frequently show a ‘dot -in-circle ‘ sign, rounded , high-intensity lesions with a central dot indicating fibrous septa and embedded grains, which is considered a characteristic marker of mycetoma.

Differentiating Madura foot from other differentials should be based on clinical laboratory and imageing assessments. Examples are pyogenic osteomyelitis, tubercular osteomyelitis, blast mycosis, coccidioidomycosis, sporotrichosis, neoplastic pathologies.

Commencement of treatment at an early stage is necessary to prevent complication. Combined medical and surgical treatment is the standard to follow in mycetoma. The medical treatment consist of antibiotic therapy (cotrimoxazole, amikacin or minocycline) for actinomyctes or antifungal therapy (ketoconazole or itraconazole) for eumycetoma. In resistant cases of eumycetoma, various antifungals (terbinafine , posaconazole , voriconazole, caspofungin) are indicated.

Surgery is indicated in mycetoma for resistance to medical treatment. The surgical options range from local excisions to amputations. Amputation is indicated in

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advanced mycetoma not responding to medical treatment with severe secondary bacterial infection.

III. CONCLUSION

Madura foot is chronic disease and most probably underestimated by people. Early and acurate diagnosis is essential. Medical and surgical measures could be of great benefit for these patients, a delayed diagnosis leading to functional and cosmetic impairments, especially in cases of mycetomas where the causative organisms cannot be isolated due to tissue impairment.in such cases histopathological evaluation may assist in diagnosis.

Registration of research studies: N/A.

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