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Amphotericin mixed Biocomposite bone cement along with surgical debridement in treatment of Fungal osteomyelitis of Calcaneum

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Abstract: *Fungal osteomyelitis generally develops slowly and diagnosis and treatment may be delayed. Fungal osteomyelitis can be a challenging entity to treat. A review of published data revealed few reported cases of fungal osteomyelitis localized to the foot. In the present report we describe a rare case of fungal osteomyelitis localized to calcaneum treated with surgical debridement and amphotericin mixed biocomposite bone cement. The case we are reporting is a case of fungal osteomyelitis of Calcaneum treated with curettage of the lesion filling the defect with Biocomposite bone cement mixed with amphotericin.*

Keywords: *fungal osteomyelitis calcaneum, amphotericin , surgical debridement, biocomposite bone cement*

I. Introduction

Calcaneal osteomyelitis caused by fungus is a rare entity. It is usually seen in immune compromised patients,iv drug abusers, and in inadvertent use of broad spectrum antibiotics.

Pulmonary infections are more commonly caused by inhalation. Extra pulmonary or disseminated infections are rare and seen in fewer patients. Bone involvement usually involves axial skeleton and less commonly appendicular skeleton and rarely calcaneum. Clinically it is slow growing usually asymptomatic with no accompanying general and local signs of inflammation although clinical picture may vary.

Diagnosis may be delayed because it depends on specific stains and cultures. Treatment plans may vary from systemic antifungals alone to surgical debridement and systemic antifungals. Newer modality of treatment used to deliver antifungal locally so as to decrease systemic complications and repeat surgical procedures.

II. Case Report

A 26 year old male came with complaints of pain and chronic ulceration with puckered scar on lateral aspect of hind foot on right side since 6 months "Fig.1". Patient had habit of barefoot walking. There is no history of trauma, no systemic manifestations, but there is history of low grade fever .

On examination an ulcer of size 1x1 cm size with chronic puckered scar and blackish discolouration is seen with black granulations covering the ulcer. Tenderness is present. Patient had history of use of antibiotics for few months. Radiograph of right ankle shows calcaneum with lytic lesion with well defined borders"Fig.2" . Culture of the discharge showed no bacterial growth. Diagnosis made with specific stains and fungal culture showed fungal infection.

Treatment: The patient is assessed for his general condition. As the lesion is long standing with imminent collapse of the bone, a debridement along with defect filling is planned. Surgical debridement of right calcaneum was done. Intra operative black spores are identified from the lesion confirming the diagnosis. The intra operative curetted tissues are again collected for Histopathological examination. The cavity was filled with amphotericin mixed biocomposite bone cement. The infective focus was not there after the surgery and post operative period was uneventful. Patient was immobilized with below knee slab and non weight bearing until 6 weeks post surgery.

Follow up: the patients is advised absolute limb elevation, and active toe movements till the post operative pain has subsided. The wound showed serous discharge for five days and wound started showing creeping granulations that has spread and filled the entire defect after surgery. The patient has been advised monthly reviews and found to have no extension of the lytic area into any newer planes on subsequent radiographs "Fig. 3 &4". The patient is advised active non weight bearing movements at the end of third post operative month and partial weight bearing at the end of fifth post operative month as the wounds have totally healed "Fig. 5 &6".The Histopathology examination has revealed Chromoblatomycosis "Fig.7".

III. Discussion

Calcaneal osteomyelitis is a well described pathological entity in infections of foot.Fungal osteolmyelitis is relatively uncommon and diagnosis is based on special stains and culture. The degree and duration of the symptoms depend on virulence of the organisms, the presence of underlying diseases and the immune status of the host and presence of secondary bacterial infection.

Differential diagnosis include bacterial osteomyelitis, benign lesion of calcaneum. The signs of chronic bacterial osteomyelitis of calcaneum and fungal osteomyelitis are clinically indistinguishable. Specific stain and culture and isolation of spores are helpful in differentiating from bacterial osteomyelitis. Benign lesion of calcaneum is differentiated by clinical,radiological appearance and microbiology .

The main treatment is surgical debridement along with local delivery of amphotericin using biocomposite bone cement preventing systemic complications. The use of biodegradable bone cement prevents the second surgery and formation of new bone at the lesion.

IV. Figures And Tables

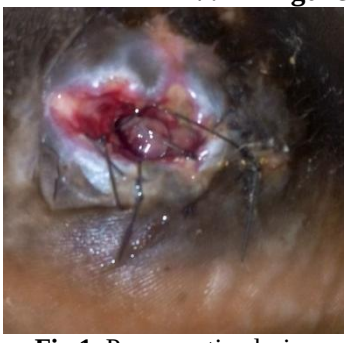


Fig.1 Pre operative lesion

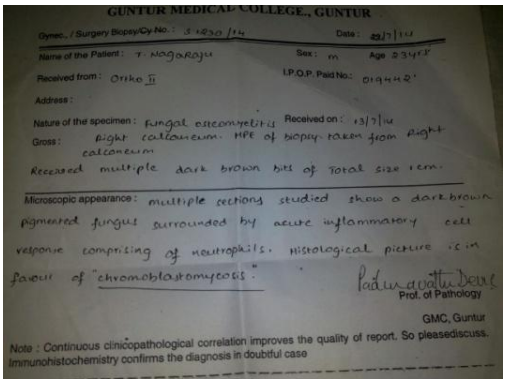
Fig. 2 Pre operative Radiograph

Fig.3 Post operative Radiograph after two moths

Fig.4 Post operative Radiograph after 4 months

Fig. 5 Post operative clinical picture after 4 moths

Fig. 6 Post operative clinical picture after 5 moths.


GUNTUR MEDICAL COLLEGE, GUNTUR

Gynec. / Surgery Biopsy/Cy No.: S-1830/14 Date: 29/7/14

Name of the Patient: T. NAGARAJU Sex: m Age 23 Yrs

Received from: Ortho II I.P.O.P. Paid No.: 0194442

Address:

Nature of the specimen: fungal osteomyelitis Received on: 13/7/14

Gross: Right calcaneum. HPE of biopsy taken from Right calcaneum

Received multiple dark brown bits of total size 1 cm.

Microscopic appearance: multiple sections studied show a dark brown pigmented fungus surrounded by acute inflammatory cell response comprising of neutrophils. Histological picture is in favour of "chromoblastomycosis".

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Note: Continuous clinicopathological correlation improves the quality of report. So pleasediscuss. Immunohistochemistry confirms the diagnosis in doubtful case

Fig. 7 Histopathology examination.

V. Conclusion

A fungal infection involving the bone will resemble bacterial osteomyelitis in its clinical presentation. The tumors may also mimic the fungal infections with their low grade aggressiveness[1]. The treatment of these chronic conditions require more than one treatment modality to decrease the morbidity[2]. In this case the debridement and curettage of the lesion is augmented with amphotericin mixed biocomposite bone cement to prevent collapse of the bone and local delivery of higher concentrations of the drug. The recurrence rates of the chronic infections become less with local high concentration delivery of the drugs[3].The substitutes of bone give better hold for the leeching of the drug for a long time till the cure is achieved[4].

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