

Case Report

Actinomycotic Fungal Infection of Foot – A Case Report

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Abstract

Actinomycotic fungal infection is a rare mycotic infection involving bone, it occurs mainly in tropical and subtropical areas. It is a chronic granulomatous disease caused by actinomycetes which is characterised by progressive local necrosis and abscess formation with intermittent discharge through fistulous tracts which are later replaced by granulation and fibrous tissue. Culture sensitivity and histopathological reports are necessary for confirmation of diagnosis.

Here with we are presenting a case of actinomycotic infection with extensive involvement of right calcaneum and soft tissue of right foot which was treated with surgical debridement and antibiotic bead insertion supplemented with systemic antibiotics as per culture sensitivity report.

Keywords: Actinomycetes, calcaneum

1. Introduction

Von Langenbeck noted the first case of human actinomycosis in 1845, and attributed it to a fungus. The word Actinomyces means “ray fungus,” and reflects the general belief at the time that the organism was a fungus. The organism was first isolated from humans in 1891, when Wolff and Israel reported culturing it anaerobically and growing only at body temperature. Actinomycosis is a Greek word comprising of “Aktino” meaning radiating appearance of sulfur granules and “mykos” which labels the condition as mycotic disease.

It is characterized by contiguous spread, suppurative and granulomatous inflammation, and formation of multiple abscesses and sinus tracts that may discharge sulfur granules.¹ Osseous involvement occurs only in 15% of cases.²

It is an endemic in tropical and subtropical countries. It may occur in all age groups. The causative agent gets implanted into the body from soil or plants through traumatic injuries or superficial lesions³ After the minor injury, a silent period takes place when the lesion grows slowly and extends to the skin, where skin sinuses form, with the drainage of the grain and in later stages can cause fracture and osteomyelitis.

Although it is not an opportunistic infectious disease, it has been associated with the use of corticosteroids, leukemia and children with congenital immunodeficiencies and HIV infection.⁴ Hand and foot are the rare sites of involvement and it is reported in other sites also, in various studies.

2. Case report

A 30 year male patient presenting with chief complaints of pain, swelling and multiple discharging sinuses over the medial, lateral and dorsal aspect of right foot over a duration of 3 years. The patient initially noticed a small painless papule

over medial part of right foot which became painful slowly, after which he gradually developed multiple sinuses over medial, lateral and dorsum of right foot which used to heal and recur after few months, patient consulted many hospitals but symptoms did not subside.

Local examination of right foot revealed diffuse club shaped swelling with multiple discharging sinuses with non foul smelling purulent discharge with blackish discoloration of skin and sinuses .On palpation tenderness present all over the right foot. The x-ray of right foot showed destruction of calcaneum with lytic lesions.

Surgical debridement was done antibiotic bead was inserted in calcaneum by making window from inferior surface of calcaneum and multiple beads are inserted in discharging sinuses of right foot and tissue was sent for histopathological report.

Histopathological report showed stratified squamous epithelium. Subepithelium showed central actinomycotic fungal colonies with radiating filaments surrounded by dense inflammatory infiltrate comprised of lymphocytes, neutrophils and langerhans type gaint cells. Also proliferating capillaries seen. Periodic acid Schiff(PAS) and Zheil Nelson (ZN) stains were positive for fungal filaments and ZN stain negative for Acid Fast Bacilli (AFB).

Culure sensitivity reports showed actinomycotic mycetoma which was sensitive to amphotericin B, cotrimoxazole, itraconazole, and ketoconazole along with this staphylococcus aureus was isolated which was sensitive to gentamycin,erythromycin,tetracycline, amoxyclav, ciprofloxacin and azithromycin.

Patient was treated post operatively with Tab ketaconazole 200mg BD for 6 weeks Tab Tetracycline 500mg TID for 6 weeks, Tab Septran-DS(Trimethoprim 160mg+Sulfamethoxazole 800mg) BD for 6 weeks. Alternate day dressing was done, at the end of 6 weeks all discharging sinuses were healed , repeat x ray was done there was still evidence of infection present, Tab ketaconazole 200mg BD continued for 6 more weeks. Treatment was monitored with regular CBC,Liver function test,Serum creatinine and x ray at the time of follow up. Antibiotic beads were removed at the end of 6 weeks.

After 9 months of follow up there were no recurrence , no discharging sinus and patient is able to walk with full weight bearing.

Fig 1: Pre operative x ray photograph



Fig 2: Immediate post operative x ray photograph



Fig 3 : X ray photograph after removal of antibiotic beads



Fig 4: X ray photograph after 9 months of follow up



Fig 5: Post operative clinical photographs**Fig 6: Post operative clinical photograph after 9 months of follow up**

3. Discussion

Mycetoma is chronic progressive granulomatous exogenous infection primarily of subcutaneous tissue which may spread continuously to adjoining skin, muscle, bones, joints or tendons.

Actinomyces are branching (except *A. meyeri*), filamentous, gram positive rods that are normal commensals of the mouth and tonsillar crypts. Primary actinomycosis of the extremities⁵ are rare, because of the exclusively endogenous habitat of the aetiological organism. Since actinomycosis is usually, if not always, polymicrobial in nature involving mixed bacteria and the cultures are positive in only 24% of cases⁶ the diagnosis is often based on histopathological findings.

Vundeveld has reported actinomycosis of the lower leg in a young man for whom amputation below the knee was done.⁷ But in our study we did surgical debridement and systemic antibiotics with bead insertion thereby we avoided amputation of right foot. Now patient is walking with full weight bearing.

In a study by Smith et al (2005), the actinomyces species appeared to be susceptible to a wide range of betalactam agents and these, when combined with beta-lactamase inhibitors, should be regarded as agents of first choice. There are a number of species which are different in their susceptibility profiles, which may have an impact on clinical outcome.⁸

The chronic and indolent course of actinomycosis resembles tuberculosis, fungal infections and malignancy. Because actinomycosis is often difficult to diagnosis, it has been referred to as a forgotten or a misdiagnosed disease. So, a heightened awareness among the clinicians and clinical microbiologists will help in the early diagnosis of the disease and the initiation of early and proper treatment.

Osteomyelitis due to actinomyces has been reported infrequently in adults. Bone involvement occurred in 1-15% of those series reviewed by Lewis and associates.⁹ Haematogenous spread of actinomyces with intra osseous granuloma formation and minimal sub periosteal bone reaction has been reported by Gholamreza R et al.¹⁰

The diagnosis of actinomycotic osteomyelitis often is overlooked because of this entity's ability to mimic other conditions.

Surgical treatment is also recommended in actinomycotic osteomyelitis cases in order to achieve two goals: removal of necrotic tissue and penetration of antibiotics into the colony of microorganisms which is inaccessible otherwise, either because of fibrous tissue or surrounding edematous tissue.

4. Conclusion

The author recommend surgical debridement with antibiotic bead insertion in both bone and discharging sinuses supplemented with systemic antimycotics for fungus and antibacterials for superadded bacterial infection by this we can avoid unnecessary amputation of limb.

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