ORIGINAL RESEARCH PAPER

Volume-8 | Issue-8 | August - 2019 | PRINT ISSN No. 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A RARE, UNUSUAL CASE OF ISOLATED TUBERCULOUS OSTEOMYELITIS OF THE CUNEIFORM BONE- A CASE REPORT

Orthopaedics

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ABSTRACT

Introduction: A mere 1 in 1000 cases of TB involve the bones of the foot. The diagnosis of tuberculosis involving bones of the foot continues to challenge doctors to arrive at timely conclusions especially when the condition presents as a single-bone disease, sparing the joint. The situation becomes more complex with lack of contributory clinical and haematological features that usually aid in diagnosing TB.

Case report: We report on a 36-year-old lady who presented with pain and a chronic non-healing ulcer over the dorso-medial aspect of the left foot of 4 months duration. Guided by initial radiographs and based on an MRI a diagnosis of osteomyelitis of the medial cuneiform, not specifically tuberculous, was made. Our patient underwent debridement, curettage and excision of the sinus. Bone tissue was sent for biopsy and vancomycin powder was placed in situ. The final diagnosis of tuberculous osteomyelitis was established post-operatively following histopathological examination of biopsy. The patient then received ATT for 12 months.

Discussion: Tuberculosis can mimic a wide spectrum of diseases and the condition is often misdiagnosed or the diagnosis delayed as seen in our case, due to their rarity and lack of clinician familiarity. Their recognition is of practical and economic importance. Tuberculous osteomyelitis must be considered when a patient presents with a chronic non-healing ulcer or sinus over the foot especially in an endemic country like India. It should also be kept in mind if there is a bony lesion with poorly defined edges and surrounding sclerosis. Early diagnoses and timely intervention can prevent complications and will allow most cases to be treated conservatively.

Conclusion: A high index of suspicion as well as awareness among orthopaedists and general practitioners is therefore warranted for early diagnosis and decreasing morbidity.

KEYWORDS

osteomyelitis, tuberculosis, cuneiform

INTRODUCTION

Tuberculosis has been termed as “the great masquerader” due to wide variation in the spectrum of its presentation. It can mimic conditions like chronic pyogenic osteomyelitis, mycotic osteomyelitis, Brodie's abscess, Madura mycosis and bone tumours [1]. Skeletal tuberculosis constitutes 1-3% of extra-pulmonary tuberculosis, furthermore, only under 10% of it involves the foot and ankle [2]. In other words, only 1 in 1000 cases of TB involve the bones of the foot. The early diagnosis of tuberculosis of the foot continues to pose a challenge more so when the disease is restricted to a single bone and remains to be extra-articular. We report a rare case of osteomyelitis of medial cuneiform bone of tuberculous etiology which presented as a chronic non-healing ulcer of the foot.

Case presentation

A 37-year-old lady hailing from Dakshina kannada district, Karnataka in south India presented with a non- healing wound over the dorso-medial aspect of left foot with associated pain and pus discharge of 3 months duration. The pain started insidiously 3 months back without any history of antecedent trauma. The pain was dull aching, localized to the medial aspect of left foot and present only during weight bearing. There was no radiation or referred pain. She took pain medications prescribed by a local allopathic doctor for 15 days but the pain did not subside. She then consulted a neurologist who prescribed analgesics and a crepe bandage for the ankle and foot. No x-rays were taken. Since the pain was unremitting, the patient consulted an Ayurvedic practitioner and was managed as an in-patient for 15 days with topical therapy. Subsequently, she developed a localized swelling which burst to form a wound with pus discharge. The pain gradually increased over the course of this period resulting in an inability to bear weight over the affected limb. The wound enlarged to 2x2cm which was the approximate size at presentation. The patient did not report any history of fever, loss of weight, loss of appetite, cough, hemoptysis or any contact or previous history of tuberculosis. There were no co-existing medical comorbidities and no history of previous surgeries.

On examination, the patient was moderately built and nourished, afebrile with stable vitals. A solitary 2 x 2 cm sinus with purulent discharge was noted on the dorsum of left foot on the dorsomedial aspect. The surrounding skin was hyper pigmented and puckered. No scars, dilated veins or any gross bony deformity was noted. Local warmth and tenderness was present around the sinus with induration of the surrounding skin. Full range of motion in the tibio-talar and subtalar joints was present but painful. Peripheral pulses were well felt and there were no features of distal neurovascular deficit. No enlargement of regional lymph nodes and no specific findings were observed in other orthopaedic and systemic examinations.

Plain foot radiographs in the anteroposterior and oblique planes showed a radiolucent lesion with surrounding sclerosis in the medial cuneiform with osteopenia of the tarsal bones (figure 1). The ESR was 48 and CRP was negative. All other routine lab parameters were within normal limits. The chest x-ray was normal. MRI of the foot with contrast (figure 2) showed PD FS hyper intensity in the medial cuneiform with cortical break and surrounding bone edema. It was reported as osteomyelitis of medial cuneiform with adjacent soft tissue inflammatory changes and sinus tracts extending up to skin.

Based on the clinical and radiographic parameters a diagnosis of osteomyelitis of the medial cuneiform was made, but not specifically tuberculous. The patient underwent debridement, curettage and excision of the sinus. Bone tissue was sent for biopsy and vancomycin powder was placed in situ.

The histopathological examination of the bone reported a granulomatous osteomyelitis suggestive of tuberculosis (figure 3 and 4). A diagnosis of tuberculous osteomyelitis of medial cuneiform was then established. Anti-tuberculosis treatment was initiated and the limb was immobilized in a below knee slab for a month. Within 6 months of therapy, the patient was pain free, the wound had healed and she was fully mobilized on the affected foot with normal gait. The ESR returned to within normal limits and the x-rays showed satisfactory healing without further bony destruction (figure 5). The patient continues to remain asymptomatic.

DISCUSSION

India suffers the highest burden of tuberculosis in the world with World Health Organisation(WHO) statistics for 2015 giving an estimated

incidence of 2.2 million cases out of a global incidence of 9 million [3]. The incidence of TB in individual bones of the foot is uncertain but only 1 in 1000 cases of TB involve the foot. Calcaneum is most commonly involved with the talus, first metatarsal, navicular and medial and intermediate cuneiforms being affected rarely. Tuberculosis of the foot may be synovial (rare), osseous (frequent), or articular (indicative of late stage disease). Once the intertarsal joint is involved, the tuberculous process spreads rapidly via multiple intercommunicating synovial channels or cavity of these joints [4].

The diagnosis of tuberculosis involving bones of the foot continues to challenge doctors to arrive at timely conclusions especially when the condition presents as a single-bone disease, sparing the joint. There lack sufficient clinical and haematological features to aid in the diagnosis of TB. Constitutional symptoms typical of TB are usually absent and signs of inflammation are often mild as seen in our patient. However, it must be kept in mind that since bone TB is almost always secondary and furthermore since TB is endemic in India, history of contact may not always be known to the patient. Only about one third of patients with musculoskeletal tuberculosis have pulmonary involvement, making chest X-ray screening less useful [5]. The chest x-ray in our patient did not yield any significant abnormality. Blood parameters like ESR and CRP lack specificity and therefore contribute negligibly to the diagnosis of TB. Osteoarticular TB if often pauci-bacillary, posing an additional challenge while isolating the organism in culture despite the endemic setting of India [2].

Imaging plays an imperative role in diagnosing TB of the bones and joints. The earliest signs to be detected on plain radiographic imaging include erosions along the peripheral margins of the joint [6,7]. Phemister's triad of periarticular osteoporosis, marginal erosions and narrowing of the joint space are among the radiological features of osteoarticular tuberculosis. Endarteritis of nutritional artery is a common phenomenon often presenting with cavitatory lesions and many would show a cavity with or without a typical coke-like sequestrum on x-ray [4]. The CT scan is preferred over an MRI in detecting cortical bone destruction and calcifications within soft tissue abscesses. The MRI scan can detect early joint effusions as well as soft tissue swelling.

As noted in our case, it took over 4 months and a histopathological examination to establish the final diagnosis. The patient was diagnosed with osteomyelitis of medial cuneiform, but not specifically of mycobacterial etiology. A high index of suspicion as well as awareness among orthopaedists and general practitioners is therefore warranted for early diagnosis and decreasing morbidity.

Conservative treatment with below knee plaster cast or a below knee orthosis with fixed ankle combined with anti-tubercular drugs is effective in the majority of patients. As the healing progresses, spontaneous bony fusion may occur in the involved joints especially in cases with superadded infection.

Surgical excision of a large isolated osseous lesion to prevent involvement of other joints, or debridement and curettage may be indicated in non-healing lesions. If surgical treatment is indicated in a joint involvement, the surgery should be combined with deliberate arthrodesis [4].

CONCLUSION

Tuberculous osteomyelitis must be considered when a patient presents with a chronic non-healing ulcer or sinus over the foot especially in an endemic country like India. It should also be kept in mind if there is a bony lesion with poorly defined edges and surrounding sclerosis. Early diagnoses and timely intervention can prevent complications and will allow most cases to be treated conservatively. Furthermore, it will also reduce the economic burden imposed by the ever-expanding fight against tuberculosis.

Illustrations and figures

Figure 1: Plain radiograph of left foot AP and oblique showing a radiolucent lesion with surrounding sclerosis in the medial cuneiform with osteopenia of the tarsal bones.

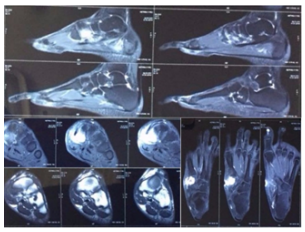

Figure 2: MRI of the left foot with contrast showing PD FS hyperintensity in the medial cuneiform with cortical break and surrounding bone edema

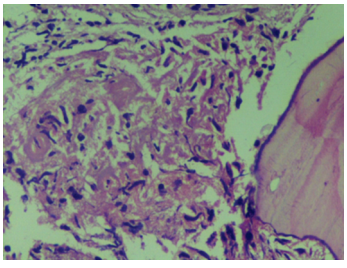

Figure 3: Histopathological microscopic section shows a circum scrib ed granulomatous lesion.

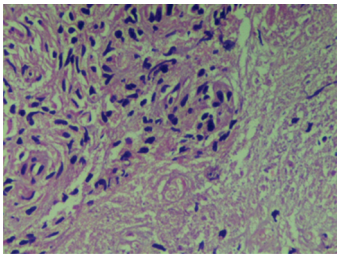

Figure 4: Histological microscopic section shows caseous necrosis on the bottom right bordering a granulomatous lesion.

Figure 5: Follow up Plain radiograph of left foot AP and oblique showing radiological healing and resolution

Funding/ Support/ Competing interests

The authors declare that they have no competing or conflict of interests.

Financial Disclosure

This study did not receive any financial support.

Acknowledgment

Dr. Urmila Khadilkar for intellectual input.

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