MULTIFOCAL TUBERCULOUS OSTEOMYELITIS - AN UNCOMMON PRESENTATION OF A COMMON DISEASE

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Abstract:
Multifocal osteomyelitis, a relatively rare manifestation of tuberculosis, is usually seen in immunocompromised individuals. It often presents with clinico-radiological features mimicking metastatic bone disease and hence must be considered as a differential diagnosis to facilitate an early institution of appropriate therapy. We report a case of multifocal tuberculous osteomyelitis in an immunocompetent host treated with standard first line antituberculous therapy.

Keyword: Multifocal osteomyelitis, tuberculosis

Introduction
Tuberculosis today, remains a significant global public health problem inspite of a century having elapsed since the identification of its contagion. The epidemiological ramifications of this disease have been further strengthened by the rampant emergence of a co-existent state between its causative organism and the human immunodeficiency virus. 25% of all tuberculous cases involve extra pulmonary sites\(^1\). Of these, skeletal tuberculosis accounts for 10% \(^2\) with the spine being the most common site involved [40-60% of all the cases of skeletal tuberculosis]\(^3\). Multi-focal tubercular osteomyelitis, a rare entity seen in less than 5% of cases with skeletal involvement and defined as osteo-articular lesions simultaneously involving two or more skeletal regions is commonly encountered in immunocompromised hosts\(^2\). It may often present as multiple destructive skeletal lesions similar to those seen in malignant bone disease and hence must be considered as a differential diagnosis in patients presenting as such\(^4\). We report a case of multifocal tuberculous osteomyelitis in an immunocompetent patient from North East India.

Case
The patient, a 20 year old student from Tripura was admitted to the medicine ward of the Christian Medical College, Vellore on 15 March, 2011. He presented with a history of multiple recurrent painless swellings, mainly located...
over the limbs and chest, each swelling progressively enlarging to an average size of 3-4 cm and spontaneously rupturing, resulting in a shallow slow healing ulcer or a persistently discharging sinus, over a two year cumulative period. The swellings were associated with low grade fever, a loss of weight and a loss of appetite. There was no history of trauma or intravenous drug abuse. His past history was not significant for tuberculosis. The patient was a cachectic individual with pallour and platynychia being noted on general examination. He was febrile (temperature, 100°F). In addition to the above findings, he also had a 7 x 5 cm fluctuant subcutaneous swelling, remarkably devoid of inflammatory signs over the posterolateral aspect of the right arm (Picture I) and multiple crusting skin lesions on the thorax and limbs. These lesions were ulcerative and contained discharging sinuses (Picture II) which in turn, were noted to be fixed to the underlying bone. His systemic examination was unremarkable.

**Cold abscess posterior aspect of right arm**

**Figure II : Discharging sinus anterior aspect right tibia**

Significant laboratory investigations included a normocytic anemia with a hemoglobin level of 6 g/dl (Total white cell count 10,300 / ccm and Platelets 33,000/cumm). His renal and liver function tests were within normal limits. He was noted to be seronegative for a HIV infection. The patient’s chest x-ray was normal. Radiographic imaging of the limbs however, showed multiple destructive lesions with areas of radiolucency surrounded by bone sclerosis, and periosteal areas of regeneration (Picture III). The lesions were most prominent over the metaphyses of the right tibia (Picture IV), humerus and ulna. Radiological screening of the spine was normal.
A bone scan was performed. Increased tracer activity was seen in vertebrae, ribs, right elbow, shaft of right ulna, left sacroiliac region proximal and distal end of right tibia suggesting a multifocal infection.

**Picture V : Multifocal increased tracer activity**

In view of a history of multiple chronic discharging sinuses fixed to the bone, associated with subcutaneous abscesses, in the setting of prolonged fever with significant weight loss and radiological evidence of a multifocal destructive inflammatory osseous disease process, a clinical diagnosis of chronic multifocal osteomyelitis was made. Possible infective causes considered included Tuberculosis, Meliodosis, Actinomycosis, Brucellosis and endemic mycoses while Langerhan’s histiocytosis, Lymphoma and metastatic bone disease were considered as non-infective etiological differential diagnoses. Curretage of the osteomyelitic focus on the right tibia and drainage of purulent material from the right arm abscess with an excision of dead bone were performed following admission. Histopathologic examination of the specimens showed necrotic bone surrounded by an inflammatory infiltrate made up of lymphocytes, plasmacytes, epithelioid cells, and giant cell granulomata. Three smears from different samples revealed acid fast bacilli. Stains and cultures for fungi were negative. Cultures of the above samples subsequently yielded colonies of Mycobacterium tuberculosis susceptible to first line anti-tuberculous agents. A diagnosis of multifocal tuberculous osteomyelitis was made. The patient was initiated on a weight based daily regimen consisting of first line antituberculous drugs for a planned duration of 18 months. On follow up six months later, all lesions were noted to have resolved and the ulcers healed by secondary intention. The patient reported a feeling of well being, a resolution of fever, an improvement in appetite and weight gain.

**Discussion**

A higher incidence of multifocal skeletal tuberculosis is seen amongst patients from geographical areas endemic to the disease. Immunosuppression predisposes to multifocal or disseminated tuberculosis. Multifocal
osteomyelitis in immunocompetent individuals therefore, is exceedingly rare\textsuperscript{6}. Tuberculous osteomyelitis is commonly considered to be secondary to lympho-hematogenous dissemination at the time of the initial pulmonary infection\textsuperscript{4}. A significant finding however, is the lack of demonstrable radiographic evidence of pulmonary involvement in about 50\% of patients\textsuperscript{7}. On radiographic imaging, tuberculous skeletal lesions are commonly osteolytic, though sclerotic foci may be seen\textsuperscript{8}. In a setting of multiple destructive bone lesions, the radiographic appearance of osteoarticular tuberculosis may mimic that of metastatic bone tumors or primary osseous diseases, such as eosinophilic granuloma\textsuperscript{9}.

Conventional radiography, a common first line imaging modality, may not detect osseous lesions early in the disease\textsuperscript{8}. In the visualisation of these silent lesions, computed tomographic scans (CT) or bone scintigraphy may be more sensitive. CT scans are especially helpful in detecting osteolytic lesions with contiguous soft tissue masses\textsuperscript{10}. Bone scans however, occasionally fail to differentiate between metastasis and tuberculosis due to the purely lytic and avascular nature of the lesions in the early phase of the disease\textsuperscript{8}. Unlike metastatic bone disease, tuberculous osteomyelitis is an imminently treatable condition with timely medical therapy averting neurological sequelae in cases of disease involving the spine. To prevent a delay in diagnosis, multifocal tuberculous osteomyelitis though rare, should be considered as a differential diagnosis of multiple destructive skeletal lesions, especially in patients from endemic areas. Antituberculous therapy, based on the sensitivity profile of the strain isolated is usually recommended for duration of one and a half years and tailored according to clinico-radiological response.

References
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