

# Multifocal Tuberculous Osteomyelitis misdiagnosed for nine years – A Case Report

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## ABSTRACT

Multifocal skeletal tuberculosis is defined as osteoarticular lesions that occur simultaneously at two or more locations. A case of multifocal tuberculous osteomyelitis reported to our Institute. Multiple discharging lesions were found in the posterior aspect of both elbows and distal arm, dorsal aspect of left hand, dorsal aspect of right middle finger, posterior aspect of left heel, dorsal aspect of right foot and right knee swelling in a 22 year old male. Though the lesions started at the age of 14 years it was not diagnosed till his present admission to hospital. The lesions responded to antitubercular treatment. But recurrence of a few lesions indicate the possibility of drug resistant tuberculosis.

## INTRODUCTION

Multifocal skeletal tuberculosis is defined as an osteoarticular lesions that occur simultaneously at two or more locations. Disseminated bone involvement in tuberculosis is very uncommon but it may still occur in countries where tuberculosis is endemic. We have reported a case of a 22-year-old male, an immunocompetent individual who had tuberculous osteomyelitis of left carpal bones, phalanges of right middle finger, right and left elbow and humerus, right metatarsals and left calcaneum, without pulmonary involvement.

## Case Report

In the year 1998, a 14 years old male attended a private hospital with discharging ulcer on the dorsal aspect of the left hand over the II, III metacarpal and swelling of right middle finger of one year duration. The complaints started as a boil which later burst to become an ulcer and gradually increased in size with persistent discharge. There were no history of pain, fever, and cough, no loss of weight or loss of appetite. On local examination, the dorsal aspect of the left hand showed a swelling with an ulcer of 4x2cm discharging pus. The right middle finger showed a fusiform swelling which was non tender and there was a 2x2cm swelling on the posterior aspect of right elbow which was fluctuant. His ESR was 35mm/hr, WBC count 10600, Hae-

moglobin 12.4g/dl. HIV and HBSAg were negative. Pus culture grew Streptococcus species and Mantoux test was negative. X-Ray of the right and left hand showed well defined lytic areas in the II metacarpal in left hand and proximal phalanx of right middle finger. Curetted material from the lesions which was sent for histopathological examination was suggestive of chronic inflammatory lesion. The patient was diagnosed as suffering from chronic osteomyelitis and treated with antibiotics and analgesics. Following treatment discharge reduced, but ulcer did not heal.

In the year 1999 the patient developed another discharging ulcer on the left hand 3cms above the wrist joint lateral to left thumb with mild discharge persisting in the previous site. Investigations revealed an ESR of 8mm/hr and pus culture sensitivity showed growth of *Pseudomonas aeruginosa* which was sensitive to Gentamycin, Amikacin and Ciprofloxacin. The patient was treated with Amikacin for one week and Ciprofloxacin 500mg BID for one month. The discharge reduced, but ulcer did not heal.

In January 2001 the patient developed swelling of the right knee and discharging sinus in both distal arms. The pus culture from both elbows and finger discharge showed few gram negative bacilli and fungal hyphae seen in the KOH mount. The patient was diagnosed as suffering from fungal osteomyelitis and was treated with Itraconazole 100mg oral BID for two months. Both the ulcer and discharge did not heal.

In September 2001 synovial fluid analysis showed 1910cells/Cumm, protein: 5.3 gm/dl, negative for fungal filaments and no bacteria. Peripheral smear and bone marrow smear were normal. The repeated pus from discharge showed few gram negative bacilli and fungal hyphae seen in the KOH mount. The patient was treated with inj. Amphotericin B 0.5mg/kg as IV infusion for one week followed by Canditral BID given for one month. Both, the ulcer and discharge did not heal.

In the year 2003 the patient developed fresh swellings and discharging sinuses over the posterior aspect of left heel and dorsal aspect of right foot. The lesions were diagnosed as chronic osteomyelitis and treated with antibiotics and analgesics. The discharge reduced,

but ulcer did not heal.

The patient continued to take drugs prescribed by local medical practitioners and took treatment at various other hospitals for the past nine years.

In December 2006 the 22 year old male reported to our hospital with multiple deformities and discharging wounds. On examination there were multiple dis-

charging lesions found in the posterior aspect of both elbows and distal arm, dorsal aspect of left hand, dorsum of right middle finger, posterior aspect of left heel, dorsal aspect of right foot and right knee swelling. On admission investigations ruled out diabetes, pulmonary tuberculosis and immunocompromised status. Radiologically osteolytic lesions involving the carpal bones of left hand, phalanges of right middle finger, right and

### Clinical and Radiological features of Multifocal Tuberculous Osteomyelitis

in a 22 year old adult who reported to our hospital.



Fig.1 Swollen Right knee

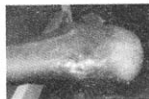


Fig.2 Left heel



Fig. 3 Right foot



Fig. 4 Left hand



Fig. 5 Affected patient



Fig. 6 X ray Left elbow with humerus

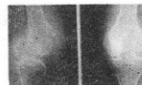


Fig. 7 X ray Right knee

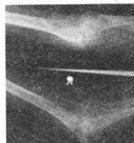


Fig. 8 X ray Right elbow with humerus

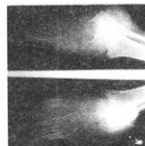


Fig. 9 X ray both feet oblique view



Fig.10 X ray both feet lateral view

Category I anti-tubercular drug showing healing of lesions,



Fig.11 Left hand



Fig. 12 Left hand

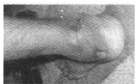


Fig.13 Left heel

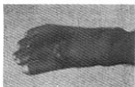


Fig.14 Right foot

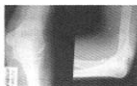


Fig. 15 X ray Left elbow with humerus



Fig. 16 X ray Right elbow with humerus



Fig.17 X ray feet AP view



Fig.18 X ray both feet lateral view



Fig.19 X ray both wrist with hand AP view



Fig. 20 X ray both wrist with hand oblique view

left elbow and humerus, right metatarsals and left calcanium were found. Curettage of the lesion was done from all the sites and was sent for histopathologic study individually. Histopathologically lesions were found to be tuberculous osteomyelitis. The patient was treated with category-I multi-drug anti-tubercular therapy. Complete healing of all the lesions was achieved within four months of anti-tubercular drugs.

Though the patient completed antitubercular treatment without default for six months, he developed discharging wounds in both distal arms one month after completion of anti-tubercular drugs. The patient was referred to the Regional Tuberculosis Research Centre, and

started on category-II multi-drug anti-tubercular therapy and the curetted material was sent for mycobacterial culture and drug susceptibility testing.

## DISCUSSION

Skeletal tuberculosis is thought to occur secondary to lymphohematogenous dissemination to the skeleton at the time of initial pulmonary infection.<sup>[1]</sup> There may be no radiographic evidence of pulmonary involvement in about 50% of patients.<sup>[2]</sup> Clinical and radiographic presentation of skeletal tuberculosis in patients from endemic areas differs from that of individuals from nonendemic areas.<sup>[3]</sup> Patients from endemic areas

present with a higher incidence of multifocal skeletal involvement. Radiographic features may present as periosteal reaction, bone sclerosis, and severe bone destruction. The profile from nonendemic areas is of an older patient, usually with a debilitating underlying disease; lesions are usually solitary, osteolytic, and involving the axial skeleton, thoracolumbar vertebral bodies, and hips.<sup>[2]</sup> The spine is the most common site of involvement, accounting for more than 40 to 60% of all cases of skeletal tuberculosis.<sup>[4]</sup> The radiographic appearance of osteoarticular tuberculosis can mimic metastatic tumors or some primary osseous lesions, such as eosinophilic granuloma, especially if multiple destructive lesions are present.<sup>[5]</sup> To prevent a delay in diagnosis, multifocal tuberculous osteomyelitis should be considered in the differential diagnosis of multiple destructive skeletal lesions, especially in patients from endemic areas.

Radiological imaging methods are essential in the diagnosis and follow-up of patients with tuberculous osteomyelitis. Conventional radiography should be the first diagnostic method employed. Radiographically, tuberculous lesions are mostly osteolytic, but sclerosis may also be seen. Patients may also present with pathologic fractures. Lesions may not be detected radiographically, particularly early in the process.<sup>[6,7]</sup> For these silent lesions, CT or bone scintigraphy could be helpful. Bone scans sometimes cannot differentiate between metastasis and tuberculosis due to the purely lytic and avascular nature of the lesions in the early phase of the disease.<sup>[6]</sup> Biopsy is mandatory in these cases.

The prevalence of drug resistant pulmonary tuberculosis is on rise worldwide.<sup>[7]</sup> In India, though reliable nation-wide data on drug resistant tuberculosis is not available, the rate of drug resistance found by various workers<sup>[8]</sup> has been significantly high. However, drug resistance in osteoarticular tuberculosis is rare as the number of tubercular bacilli in these lesions is less than that in pulmonary lesions. It is well known that tuberculous bacilli have spontaneous, predictable rates of chromosomally borne mutation that confer resistance to antimicrobial agents, and the resistance depends upon mycobacterial population load.

Delay in diagnosis and treatment exist because of equivocal and nonspecific clinical, radiographic, and laboratory findings. Bone pain that does not respond to analgesic medication is often due to infection or neoplasia. In the early stages plain radiographs are normal and magnetic resonance imaging (MRI) or computed tomography (CT) scan may help to localize le-

sions. On plain radiographs, more advanced lesions may mimic chronic pyogenic osteomyelitis, Brodie's abscess, tumours or granulomatous lesions.<sup>[1]</sup>

Osteomyelitis can present as an acute, subacute, or chronic orthopaedic concern. The definitive diagnosis requires histopathological confirmation of tuberculous granulomatous lesion in specimen from the lesion or isolation of mycobacteria or its DNA from the site. Tuberculin test may provide useful supportive evidence in difficult cases. Treatment is mostly by antitubercular chemotherapy, immobilization is not required, and operative intervention is often limited to the drainage of the large abscesses. A favourable response to chemotherapy may be obtained in up to 92% of the cases.<sup>[9]</sup>

## CONCLUSION

The lack of familiarity with the spectrum of bone lesions in tuberculosis can lead to delay in diagnosis. The clinical and radiological manifestations of tuberculosis appears to be changing. Destructive and infiltrative lesions are less commonly encountered. To avoid a delay in diagnosis, tuberculosis should be kept in mind, since tuberculosis can present in multiple sites, particularly in patients from regions where tuberculosis is endemic. In multifocal tuberculous osteomyelitis histopathological examination, mycobacterial culture and drug susceptibility testing are mandatory as drug resistance can occur in this type of infection.

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