

Multifocal Osseous Tuberculosis Involving Hand and Feet

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ABSTRACT

A rare case of multifocal cystic tuberculosis of hands and feet is presented in an adolescent female. The presence of multiple lytic areas mimicked secondary metastases and biopsy remained the mainstay for final diagnosis.

Key words: Multifocal skeletal tuberculosis. Metatarsals. Phalanx. Lytic lesion. Bone scan.

INTRODUCTION

The multifocal form of skeletal tuberculosis is exceptional even in endemic countries. It constitutes less than 5% of all osseous tuberculosis.¹ Skeletal Tuberculosis (TB) is less common than the pulmonary form. Involvement of the metacarpals and phalanges of the hands is infrequent.²

CASE REPORT

An 18 years old female presented with pain in the left index finger and wrist joint for 4 months. There was also pain in right foot for the same duration. There was no history of cough, fever, weight loss, night sweats or any other systemic symptom or known neoplastic disease. There was no family history of pulmonary tuberculosis. On examination, her proximal phalanx of left 2nd digit was tender with mild swelling. Her wrist joint and 5th metatarsal of right foot were also tender. Her X-rays of both hands and feet were taken. Three lytic areas were seen in the bones of the left hand. Proximal phalanx of 2nd digit was completely involved by a lytic lesion with destruction of medullary pattern. No periosteal reaction was seen and no pathological fracture was seen. In addition, lytic lesions were also seen in the hamate and ulnar styloid. No soft-tissue swelling was seen in these areas. Her foot X-ray revealed focal lytic lesions in the heads of the 5th metatarsal bilaterally without any associated soft tissue swelling (Figure 1). Her



Figure 1: X-ray left hand shows multiple areas of lytic destruction involving proximal phalanx of 2nd finger, hamate and distal ulna (arrows). X-ray right foot showing lytic destruction in the head of 5th metatarsal (arrowhead).

ultrasound of abdomen and pelvis were normal. To find other occult osseous lesions, her ^{99m}Tc-MDP three-phase skeletal scintigraphy was advised to confirm active bone pathology. Bone scan was performed with 20 mCi of ^{99m}Tc-MDP intravenously. Dynamic flow and blood pool study of the ankle region was acquired anteriorly. Multiple anterior and

posterior static images were acquired 2 hours postinjection followed by SPECT. It revealed areas of increased radiotracer activity in the proximal phalanx of left hand, carpal bones and heads of 5th metatarsal bilaterally corresponding to lytic lesion seen on plain X-ray. Increased radiotracer activity was also seen in tarsal bones (Figure 2). Tracer uptake in the rest of the skeleton was uniform. Her X-ray chest was normal. Biopsy of her osseous lesion involving left 2nd proximal phalanx was carried out. It revealed granulomatous infection with presence of epithelioid giant cells and caseous necrosis. Thus, a diagnosis of multifocal

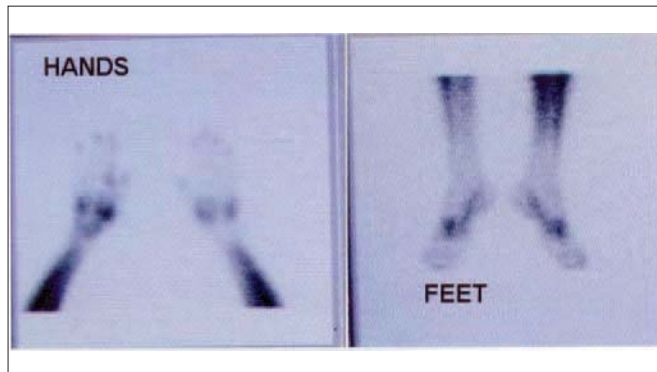


Figure 2: Nuclear bone scan. Increased radiotracer activity is seen in the bones of left hand and both feet.

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skeletal tuberculosis was made. The patient was started antituberculous therapy after confirmation by biopsy. On follow-up, the patient was doing well.

DISCUSSION

Multifocal skeletal tuberculosis is defined as osteoarticular lesions that occur simultaneously at two or more locations. Differential diagnoses of such lesions, based on different radiologic modalities, can include metastatic disease, eosinophilic granuloma, or lymphoma.³ The incidence of Skeletal Tuberculosis (TB), which once accounted for a majority of cases of extrapulmonary tuberculosis, has fallen significantly in recent years with the advent of effective drug therapy. Disseminated bone involvement in TB is very uncommon but it may still occur in countries where TB is endemic.⁴

Tuberculous dactylitis involves the short tubular bones of the hands and feet in children. At radiography, these lesions demonstrate soft-tissue swelling and periostitis. These findings are followed by gradual bone destruction and sequestrum formation. Expansion of the bone with cystic changes is known as spina ventosa.⁵ Tuberculosis should be considered in patients with unusual soft-tissue or skeletal lesions, especially when an immunosuppressive condition is present. Ziehl-Neelsen staining and culture of tissue, obtained via surgical biopsy, offer the most direct approach to diagnosis.⁶ The case also highlights the contribution of nuclear bone scanning for the assessment of osseous tuberculosis in typical and atypical presentations. The presence of multiple TB sites can mimic secondary metastases and biopsy remains the mainstay for final diagnosis. Nuclear bone scanning should be kept in mind when assessing spinal pain in patients at high risk of TB infection or reactivation.⁷

Extrapulmonary M. tuberculosis is reportedly on the rise, and may manifest itself at a number of sites in the body, including the peripheral skeleton. It is important to recognize peripheral tuberculosis osteomyelitis early because early treatment can effectively eliminate long

term morbidity.⁸ Pulmonary or systemic tuberculosis is not a prerequisite for skeletal tuberculosis. Skeletal tuberculosis should be among the differential diagnoses when there is a positive bone scan in patients without malignancy in an endemic region.⁹ Naoki *et al.* reported a case of skeletal tuberculosis of right hand with tuberculous abscesses of spleen.¹⁰

With a rising incidence of all forms of TB, all clinicians should be alert to the possibility of skeletal TB, if adverse outcomes are to be avoided.

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