

Ankle arthrodesis due to tuberculosis arthritis with 50 years follow up

A case report

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ABSTRACT

A 13 years old girl is presented with tuberculous arthritis on her left ankle. The patient had a free history and was complaining about pain of her left ankle for the last 12 months, aggravated in the last 3 months with a concomitant pain of the lower thoracic spine. The last two months conservative treatment was unsuccessful. The ankle joint was swollen and the movements were restricted and painful whereas there was susceptibility in the lower thoracic spine. X-rays showed regional osteoporosis, intraarticular space narrowing and erosion of the articular surfaces of the ankle joint. There were also radiological findings in thoracic spine with narrowing of intravertebral space between 11th and 12th thoracic vertebra. Mantoux test was positive without any other findings. Open biopsy of the ankle revealed tuberculous arthritis managed with ankle fusion and anti-tuberculous medication for 12 months. Bone consolidation of ankle fusion was achieved in a period of four months. At the latest follow up 50 years postoperatively the radiological and clinical results are satisfactory without recurrence or complications except a mild subtalar arthritis.

Keywords: ankle tuberculosis, arthrodesis.

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INTRODUCTION

Tuberculosis of musculoskeletal system is always secondary. *Mycobacterium tuberculosis* enters the body via the lung (droplet infection - human type) or the gut (swallowing infected milk products - bovine type) or skin. So the initial lesion is in the lung, pharynx gut or skin with lymphatic spread to regional lymph nodes causing agranulomatous reaction but if there is a low resistance to the initial infection widespread dissemination via the blood stream may occur giving rise to extrapulmonary foci. Many times the primary focus cannot be found. It is estimated that 10% of patients with pulmonary tuberculosis will develop extrapulmonary manifestations of disease and of these 10% (1% of all patients with pulmonary tuberculosis) will develop musculoskeletal manifestations¹. The most common locations in musculoskeletal system are the spine the knee and the hip joint but there are some other rare locations such as the great trochanter and its bursa². The incidence of the disease in Greece has been decreased over the last 30 years due to improved living standards, pasteurization of milk, massive vaccination of children and the discovery of new antituberculous drugs. Predisposing factors are malnutrition, poor living conditions, immunosuppression in AIDS patients, dialysis, corticosteroids and immunosuppressive drugs³⁻⁵.

CASE REPORT

A girl, 13 years old, came in our clinic complaining about oedema and pain in the left ankle joint, aggravated the last 3 months despite the conservative treatment (anti-inflammatory drugs and touch weight bearing) submitted to the last 2 months. The patient also reported pain in the lower thoracic spine area for the last three months. Clinical findings included swelling of ankle joint,

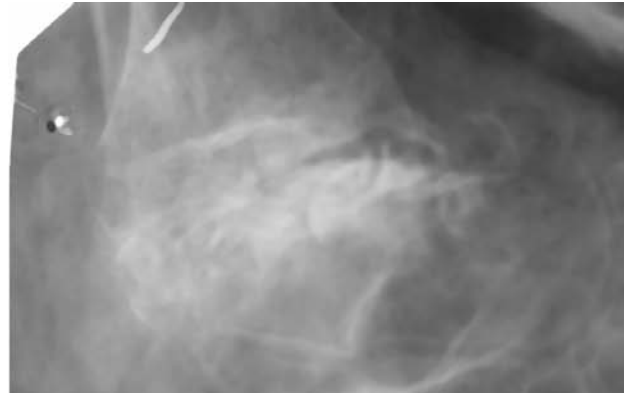


Figure 1. Anteroposterior and mediolateral X-rays of left ankle. We can observe the articular surfaces of the ankle, the use of iliac grafts and the mobilization with the leg cast.

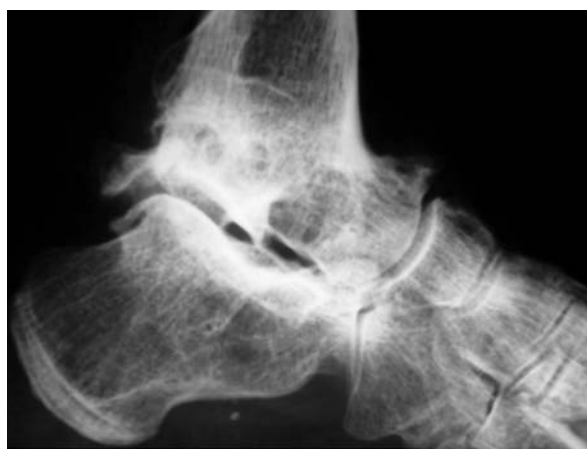


Figure 2. Bone consolidation of ankle fusion 4 months post-operatively.

with painful and restricted movements whereas there was sensitivity on pressure of the lower thoracic spine. The patient's history was free. The radiological findings included regional osteoporosis, narrowing of the intra-articular space, cysts of subchondral bone and erosion of articular surfaces of the ankle. There was also a narrowing of intravertebral space between 11th and 12th thoracic vertebrae. Mantoux test was positive without any other findings. Spine and ankle open biopsy showed pus and necrotic masses. Meticulous debridement was carried out and material for culture and histological examination was received. The acid-fast bacilli were identified and cultivation was positive for mycobacterium of tuberculosis. The histological findings showed granulomatous reaction with tissue necrosis and caseation. The patient was submitted to ankle arthrodesis with medial anterior incision, use of iliac grafts, and application of a long leg cast. The patient was advised to start touch weight bearing which was switched to full weight bearing after three months (figure 1). Triple antituberculous medication was administered for 12 months. Bone union of fusion was achieved within a period of 4 months (figure 2). At latest follow-up 50 years postoperatively, the patient is satisfied and both the radiological and clinical results are satisfactory without

complications or recurrence except for a mild subtalar arthritis (figure 3).

DISCUSSION

Tuberculous arthritis is usually monoarticular and rarely polyarticular, something very important in the differential diagnosis. Intraarticular injections of cortisone, microdrilling, an operation and immunosuppression are factors that can rekindle an outbreak of tuberculosis^{6,7}. Clinical diagnosis in early stages is difficult because the findings are similar to those of mild chronic tenosynovitis. The radiological diagnosis is also difficult because findings such as periarticular osteoporosis, intraarticular space narrowing and cartilage erosion are similar to those of osteoarthritis. Kissing sequestra is a rare but indicative manifestation of tuberculosis^{8,9}. Radiocintigraphy has high sensitivity but low specificity in the detection of skeletal tuberculosis. Scanning with Tc 99 has been described to be positive in 88,5% with Ga 67 in 92% whereas the combination of both in 96%¹⁰. MRI aids to detection and determination of the disease extent and the monitoring of the evolution of the disease during therapy¹¹. The final diagnosis documented either by aspirated synovial fluid culture (positive

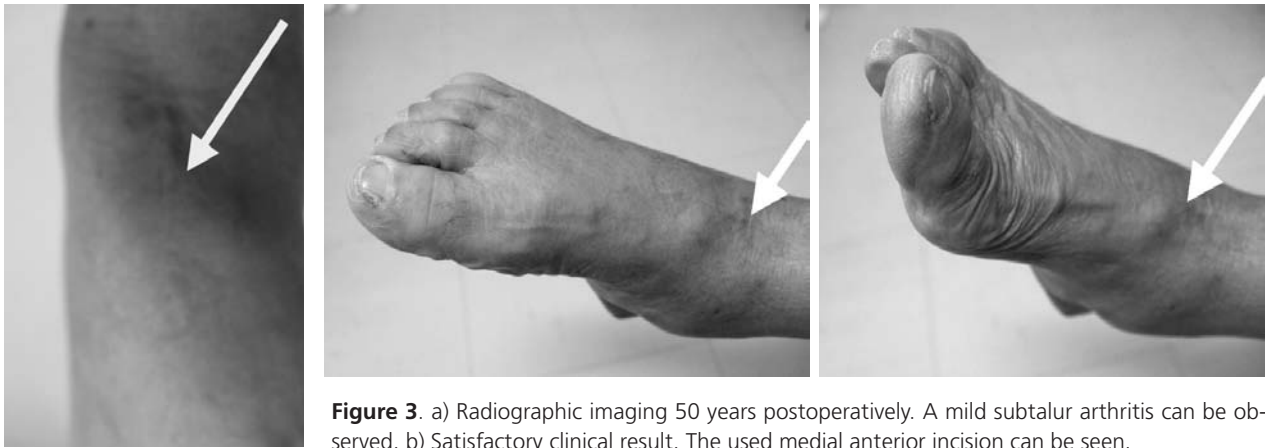


Figure 3. a) Radiographic imaging 50 years postoperatively. A mild subtalar arthritis can be observed. b) Satisfactory clinical result. The used medial anterior incision can be seen.

in 80%) or by synovial biopsy, culture and histopathological examination (positive in 90%)^{12,13,14}. Polymerase chain reaction for detection of *Mycobacterium tuberculosis* in synovial fluid, tissue samples and peripheral blood seems to be helpful because it is specific and sensitive to the 156,110 element of *Mycobacterium*^{15,16}. The differential diagnosis includes septic arthritis, rheumatoid arthritis, villonodular synovitis, amyloidosis and talar necrosis¹⁶. In early stages treatment of choice is antituberculous medication for 12 months associated with meticulous debridement and synovectomy with good results. In end stages in addition to antitubercular treatment ankle fusion is recommended^{17,18}. Arthroscopically assisted ankle fusion or the use of vascularized iliac bone graft have been described with satisfactory results^{19,20}.

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