CASE REPORT

Tuberculous Dactylitis: An Uncommon Presentation of Skeletal Tuberculosis

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ABSTRACT

BACKGROUND: ***Skeletal involvement accounts 1-5% of all cases of Tuberculosis. The vertebrae are more commonly affected. The bones of the hands are more affected than the bones of the feet. The term "spina ventosa" has been used to describe this disorder because of its radiographic features of cystic expansion of the involved short tubular bones. Tuberculous dactylitis mainly occurs through lympho-hematogenous spread. The lung is the primary focus in 75% of cases.***
CASE DETAILS: ***A 4 years old female child developed a painless swelling on her left index finger two months prior to her presentation. Following an unsuccessful treatment as a case of osteomyelitis with antibiotics, imaging showed an expansile lytic lesion with sclerosis, and fine needle aspiration confirmed tuberculous dactylitis. The child was initiated on anti-tubercular treatment with subsequent marked clinical and radiologic improvement.***
CONCLUSION: ***Presence of longstanding finger swelling and pain should alert a clinician to consider active disseminated tuberculosis. Furthermore, proper interpretation of imaging and use of fine needle aspiration has been highlighted.***
KEYWORDS: **Tuberculous dactylitis, Spina ventosa, Expansile lytic lesion, Tuberculosis**

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INTRODUCTION

Tuberculous dactylitis is an uncommon form of extra-pulmonary tuberculosis involving the small bones of the hand or the foot. It is mainly caused by hematogenous spread from the lungs. Tuberculous dactylitis is quite uncommon beyond 6 years of age after the formation of the epiphyseal centers. It often becomes symptomatic 1-3 years following the initial infection (1, 2).

The bones of the hands are more affected than the bones of the feet. The proximal phalanx of the index and middle fingers and the metacarpals of the middle and ring fingers are the commonest sites involved, manifesting by soft tissue swelling and periostitis. Children aged 6 years and below account for 85% of cases (1-3). In this age group, the hematopoietic marrow of tubular bones is favorable for hematogenous spread of tuberculosis to the marrow. The resulting expansile granulation tissue leads to a fusiform swelling of the bone with thinned cortex and a radiolucent marrow space. The eventual outcomes are cortical destruction and soft tissue swelling (3).

It usually presents as a painless swelling of a digit of a few months duration. It often follows a benign course without pyrexia and acute inflammatory signs as opposed to acute osteomyelitis. There may be a low grade fever and pain at the site involved. It may also be associated with sinus formation. Anorexia and weight loss are common clinical manifestation s (3).

The imaging modality of choice is a plain x-ray. Fusiform soft tissue swelling and periostiis are the most common radiographic findings. A cyst-like cavity due to the destruction of the underlying bone and ballooning out of the remaining bone gives the appearance termed

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"spina ventosa" ("wind-filled sail"). The absence of sequestration and the presence of diffuse osteopenia distinguish tuberculous infection from pyogenic infection. CT scan features include bony sclerosis and destruction. To evaluate early marrow and soft tissue involvement, MRI is the modality of choice (1, 5, and 7).

Cytopathology (FNAC and/or biopsy of bone or synovium) rules out other conditions. The gold standard for the diagnosis of osseous tuberculosis remains the positive culture of mycobacterium tuberculosis from bone tissue. Tubercular dactylitis responds well to anti-TB drugs. Current recommendations for the treatment of osteo-articular TB include a two- month initial phase of isoniazid, rifampin, pyrazinamide and ethambutol as followed by a ten-month regimen of isoniazid and rifampin. Few reports clearly define the optimal duration for the treatment of tuberculous dactylitis. Surgery has a limited role. Diaphyseal lesions show slow healing. In general, the bone heals by formation of new bone following slowly filling defects which can become sclerotic or trabeculated (7-9).

Here, a case of tuberculous dactylitis in a 4 year-old female child is reported.

CASE REPORT

The 4 year-old girl presented, via the Outpatient Department, with a progressively enlarging painless swelling on the left proximal index finger of 2 months duration. She also experienced profuse night sweating and an unquantified weight loss. She had no other complaints. For this complaint, she was treated as a case of chronic osteomyelitis for 2 months with oral cloxacillin but showed no improvement and was then referred to Tikur Anbessa Specialized Hospital.

On physical examination, her anthropometry was normal. The pulse rate was 90/min; the respiratory rate was 26/min, and the body temperature was 36.3^{o}C. There was a 3.5x2.5 cm spindle shaped swelling extending from the metacarpophalangeal joint to the proximal interphalangeal joint on the left index finger. The swelling was firm, mildly tender, with no erythema or discharge from the site and no limitation of movement (Fig 1). Laboratory studies revealed a hematocrit level of 39.6%, a white blood cell count of 10,200/mm^3 with neutrophils of 45% and a platelet count of 456,000/mm^3. Her ESR was 56 mm/hr. She was non-reactive for retroviral infection. A left hand x-ray showed soft tissue swelling and lytic lesions involving the whole of proximal phalanx of the 2nd phalanx with mild widening. The adjacent bones and joints as well as the articulate surface appeared normal (Fig 2).

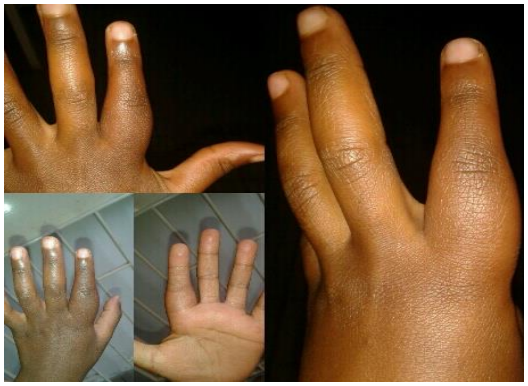

Figure 1*: Swelling on the left proximal index finger*

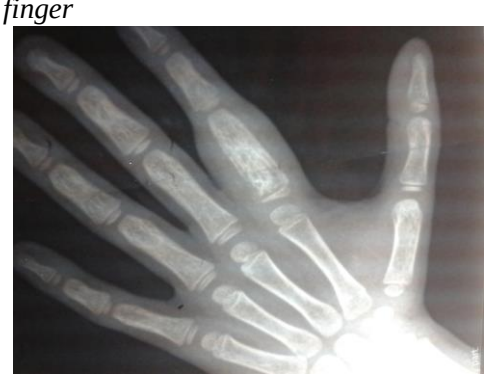

Figure 2*: Expansile Lytic lesion with sclerosis. Mild cortical distruction with a soft tissue swelling*

A fine needle aspirate showed sheets of degenerating cells and epitheloid cell clusters in a hemorrhagic background suggesting a granulomatous inflammation consistent with tuberculous dactylitis. The chest x-ray revealed no lung parenchymal pathologies bilaterally. Anti-TB treatment (isoniazid, rifampicin, pyrazinamide and ethambutol) was initiated. While the patient was on follow-up after 5 weeks of treatment, the swelling had decreased in size to around 3 x 2 cm. The repeat ESR showed a result of 4 mm/hr. The swelling further decreased in size to margins of 2 x 1.5 cm after 2 months of anti-TB were completed.

DISCUSSION

Tuberculous dactylitis causes a subacute to chronic painless swelling of the digits as observed in this case. It can lead to destruction of the involved bone with shortening. Diagnosis is confirmed by imaging and cytopathology.

In this case, the x-ray of the child showed a lytic lesion with sclerotic components, a common imaging feature of the illness. FNA cytopathology confirmed a tuberculous granulomatous inflammation. The chest x-ray was normal. As is usually seen, this case of Tuberculous dactylitis was mistaken as a bacterial osteomyelitis. However, its benign course and the absence of fever differentiate it from acute osteomyelitis. Advanced imaging studies like MRI were not conducted. This patient showed a marked clinical and radiologic improvement with anti-tubercular treatment (Fig 3 and 4).

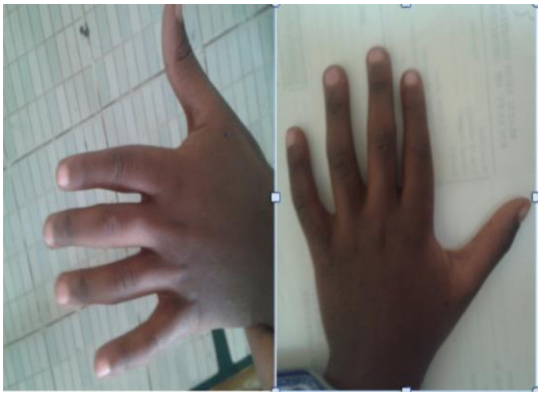

Figure 3*: Swelling subsided completely (Picture taken at 6 and half months after anti- tuberculosis)*

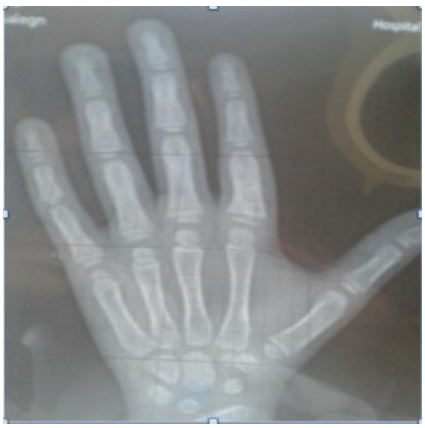

Figure 4*: Minimal sclerosis with neither lytic lesion nor cortical distruction. No soft tissue swelling*

In conclusion, tuberculosis should be considered as one of the differential diagnosis for children presenting with longstanding finger swelling and pain. High index of suspicion is crucial, especially in areas like Ethiopia where Tubercuosis is endemic.

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