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Case Report

Calcaneus Osteitis of the Child, A Rare Pediatric Case of Osteo-articular Tuberculosis

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Abstract

Bone and joint tuberculosis is an extremely rare manifestation of extra-pulmonary tuberculosis. It is dominated by spinal locations. Unusual locations often pose a problem of diagnostic because of their atypical and non-specific clinical and radiological aspect. We report the case of a child aged 22 months, who consulted for left heel pain and swelling. Tuberculin skin test was positive. An osteolytic lesion invading all of the calcaneus was showed by the standard radiography of the ankle. Histological examination of surgical biopsy of the calcaneus bone found giant cell granuloma centered by caseous necrosis providing then the certainty of tuberculous origin. Anti-tubercular treatment was initiated. Evolution was favorable. After one year of follow-up, the child walk without lameness with a good bone reconstruction noted at the radiological control. Bone and joint tuberculosis of children is rare mainly in endemic area and poses several differential diagnoses.

Keywords: Calcaneus; Osteitis; Tuberculosis; Children

Introduction

Bone and joint tuberculosis (BJT) represents 3-5% of all tuberculous lesions and approximately 15% of extra-pulmonary tuberculosis. The BJT is dominated by spinal locations that account for half of BJT cases. Peripheral BJT represents about 1 to 5% of all cases of tuberculosis [1,2]. Rare and unusual locations of the BJT often pose a problem of diagnostic because of their atypical and non-specific clinical and radiological aspect.

Observation

We present the case of a child aged 22 months, who consulted for left heel pain with functional impairment evolving for 9 months ago in a context of apyrexia. He was living in rural area, from economically deprived family. He received BCG vaccine and no contact patient with tuberculosis was identified. On admission, the child was eutrophic with conserved general state.

The physical examination noted a swelling of the heel. On the other hand, there is no signof other lesion. Tuberculin skin test was positive measuring 13 mm.

Standard laboratory tests were normal. Standard radiography of the left ankle showed an osteolytic lesion invading all of the calcaneus with sharp contours of sclerosis (Figure 1).

Osteolysis of the calcaneus surrounded by peripheral osteocondensation

Calcaneus tuberculosis was evoked. Standard radiograph of the chest was normal. *Mycobacterium tuberculosis* wasn't recovered from spits and urines samples.

Surgery was decided. It consisted in abscess excision, washing and biopsy of bone lesion (Figure 2).

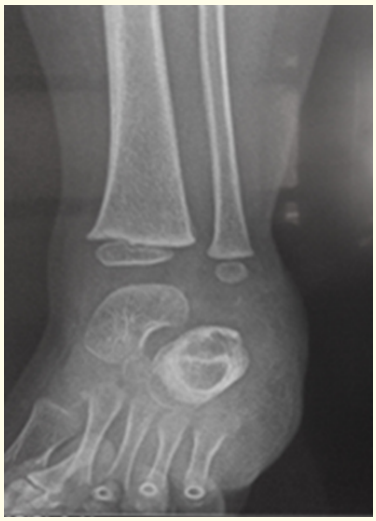

Figure 1: Standard radiography of the left ankle.

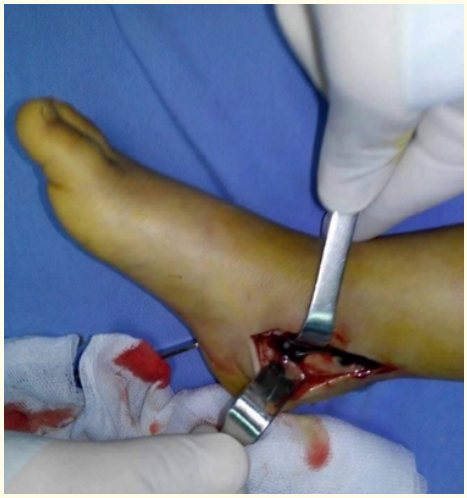

Figure 2: Surgical photo showed issue of pus through cortical trepanation of calcaneus.

Cytological study of drained liquid was hematic and rich in altered leucocytes but culture was negative. Histological examination of pathological samples found giant cell granuloma centered by caseous necrosis providing then the certainty of tuberculous origin.

Anti-tubercular treatment combining isoniazid, rifampicin, pyrazinamide and streptomycin was initiated for 2 months then it was followed by associating isoniazid and rifampicin for 9 months. The ankle was immobilized by a plaster splint at the beginning of treatment.

Treatment adherence and tolerance was good. Favorable evolution was noted with regression of pain and skin healing. After one year of follow-up, the child walk without lameness and radiological control of the ankle noted a good bone reconstruction and growth of the calcaneus (Figure 3).

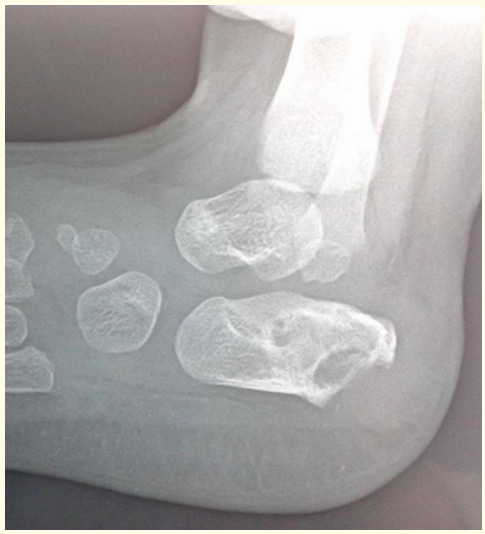

Figure 3: Standard Radiography of the ankle after treatment.

Regression of the osteolysis and good bon growth of the calcaneus.

Discussion

Tuberculosis remains a major problem of public health particularly in underdeveloped countries. In his bone and joint locations, peripheral tuberculosis is usually monofocal with osteomyelitis in 35% of cases [3,4]. It is more common in children than in adults [5,6].

It usually results from the hematogenous spread of *Mycobacterium tuberculosis* from a primary visceral home, usually pulmo-

nary, to a secondary site; in our case it was osteo-articular. The extension of tuberculous granuloma outside the bone causes abscess and fistula [4].

The promotion of BCG vaccination and the improvement of socio-economic level are the main factors declining BJT rate in the developed countries. Factors favoring the occurrence of the BJT include antecedent of tuberculosis, immunosuppression and absence of BCG vaccination [2,7]. If tuberculous osteomyelitis of long bones metaphysis is the most common, the affection of the flat and small bones of the hand and feet is rare [8]. In the foot, the calcaneus location is the most common [9].

General symptoms are often mentioned as fever, night sweats, asthenia, anorexia and weight loss. Pain and swelling are the major symptoms of BJT [10,11]. The evolution is insidious and complicated by abscess and fistula with risk of surinfection by banal germs in case of delayed diagnosis.

Standard laboratory test didn't show frequently inflammatory syndrome [10]. Erythrocyte sedimentation rate is raised in the majority of cases but can be normal [11-13]. Tuberculin skin test is usually positive but its negativity doesn't exclude the diagnosis [12,14].

Bacteriological diagnosis is based on identification of *Mycobacterium tuberculosis* in the site by puncturing the abscess or biopsy. But bacteriological proof is rarely positive. The presence giant cell granuloma centered by caseous necrosis in the histological samples confirms the diagnostic. PCR appears interesting in BJT for its sensitivity, specificity and rapid result [15].

At the early stage, radiological aspect is often normal. The lesions reported are non-specific with osteolysis and peripheral sclerosis [36]. In children, lesions are less sclerotic [6]. We can observe an acceleration of the ossification of the epiphyseal nuclei and especially an aspect of migration through the phases of the metaphyseal lesions considered as a highly evocative aspect of BJT of the child [17].

CT-scan allows a better analysis of bone lesions and can detect cold abscess or suggestive calcifications. But MRI finds its place in the evaluation of intra-osseous extension, cortical bone status and extra-bone extension. Technicum scintigraphy must be used when asymptomatic multifocal involvement is suspected [9,16,18].

BJT management of the child is especially medical based on anti-tuberculous therapy. Duration of six months of the Antibiotic treatment is sufficient to obtain the recovery of an extra-spinal BJT of the child and to prevent its relapse or recurrence according to the WHO. This treatment can be extended, but must be less than 12 months in some situations [19].

It is necessary to associate surgical treatment. It includes a drainage of osteo-articular lesions, a reduction of dislocation, arthrodesis if extensive joint destruction, corrective osteotomy if deformation, external fixation, curettage of a bone lesion, abscess drainage or removal of sequester [13,14].

In children, the cure is complete with clinical and radiological recovery ad-integrum in case of early treatment. The sequelae are the prerogative of a diagnostic delay [12].

Conclusion

Tuberculosis of children is still common in endemic countries. Its clinical and radiological features are non-specific when location is rare posing several differential diagnoses. Bone and joint tuberculosis should be considered facing to any osteo-articular pain and swelling of the children with insidious evolution especially in endemic countries.

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