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### RESEARCH ARTICLE

#### MULTIFOCAL TUBERCULOSIS OSTEOMYELITIS: A RARE PRESENTATION IN A 5-YEAR- OLD CHILD

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#### Abstract

Primary tuberculosis is rare. Skeletal lesions tend to be isolated to one anatomical site and multifocal tuberculosis with more than one osteo-articular lesion is very rare. We present here a new case of multifocal tuberculosis affected scapula, ribs, lung and vertebrae in 5 year-old boy. Tuberculosis was confirmed on histological examination and culture. The boy was successfully managed by anti-tubercular drugs.

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#### Introduction:-

Despite the decline in the incidence of tuberculosis (TB) during the last decades, the disease remains a significant public health problem in developing countries like morocco [1]. Musculoskeletal tuberculosis constitutes 1% - 3% of all tuberculosis cases, with multifocal involvement accounting for approximately 10% patients with skeletal tuberculosis [2]. We report a new case of multifocal tuberculosis with literature review.

#### Case Report:-

A 5-year-old boy of low socio economic status presented with 3 months history of swelling in his right scapula area, with back pain. There was a history of undocumented fever and chronic dry cough since 1 month. It's reported a history of his grandfather treated for lung tuberculosis 2 years ago. On physical examination, the boy was afebrile, with marker pallor, underweight with weight for -height Z -score between -1 and -2 SD. There was a warm, soft-tissue swelling on his right scapula area, measuring 3/2 cm in diameter, a back pain in palpation, aggravated with any applied movement. The erythrocyte sedimentation rate (ESR) was 50mm/1<sup>st</sup> hour, hemoglobin was 7,8g/dl, white cell count was 10.690/cm<sup>3</sup> (lymphocyte: 27,8%, neutrophile 59,6%), and a tuberculin skin test was positive (13/10mm) after 48 hours of test dose (The boy received BCG vaccination at birth). Chest radiography showed right upper lobar opacity, with aerial bronchogram (figure 1). Computed tomography showed a multiple lytic lesions involved the right scapula, fourth, sixth, ninth ribs, transverse left apophysis of the eighth and ninth dorsal vertebrae (figure 2 and 3). In view of the multiple bony lesions with lung opacity and significant pallor, a differential diagnosis of multi-system langerhans cell histiocytosis, metastatic lesions of malignancy tumor of scapula and multifocal tuberculosis was considered. Bone biopsy scapula showed granulomas with multinucleated giant cells and necrosis suggestive tuberculosis. Acid-fast bacilli staining using Ziel-Neelson method were negative, but culture of mycobacterium tuberculosis was positive. Serology of HIV was negative. With the diagnosis of multifocal tuberculosis, the patient was treated by antituberculous with four drugs (isoniazid, rifampicin, ethambutol and pyrazinamide) for two months, followed by two drugs (isoniazid and rifampicin) for 10 months. At 11 months follow-up, the patient was pain free, the swelling disappeared, and there was no sign of reactivation (figure 4).

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**Discussion:-**

Osteo-articular tuberculosis is defined by a set of pathological signs secondary to involvement of locomotor osteo-articular structures by Koch's bacillus [2]. It represents 1 to 3% of TB cases and about 15% of extra pulmonary cases [3]. Multifocal skeletal tuberculosis is an extremely rare condition, especially in immune-competent patients even in endemic areas, accounting less than 10% of skeletal tuberculosis [2, 4]. The multifocal tuberculosis is usually seen associated with pulmonary tuberculosis [5]. The presenting symptoms of multiskeletal tuberculosis are painful lesions, fever, weight loss and pulmonary symptoms and are not specific [6]. There are no specific radiographic features that are pathognomonic of tuberculosis of bones [5]. The radiographic features of osseous multifocal tuberculosis (sclerosis and osteolytic lesions) are present in conditions such as Langerhans cell histiocytosis, lymphoma, pyogenic osteomyelitis, as well as metastatic neuroblastoma, Ewing's sarcoma, and enchondromatosis [2, 4]. Inflammatory marker and leukocyte result are often normal, intradermal reaction is usually positive, but when negative, it does not rule out the underlying diagnosis [6, 7]. Methods for diagnosis of tuberculosis have improved in recent years [1]. Histologically, biopsy revealed caseating giant cell granulomas with epithelioid cells [5, 6]. Biologically, the gold standard for the diagnosis of osseous tuberculosis is culture of Mycobacterium tuberculosis from bone tissue [1, 8]. Ziel-Neelson staining for acid-fast bacilli requires at least 10000 acid-fast bacilli per milliliter of specimen and does not differentiate between tuberculous and non tuberculous Mycobacterium [8]. TB-PCR is now a rapid and sensitive method for the diagnosis of tuberculosis [9].

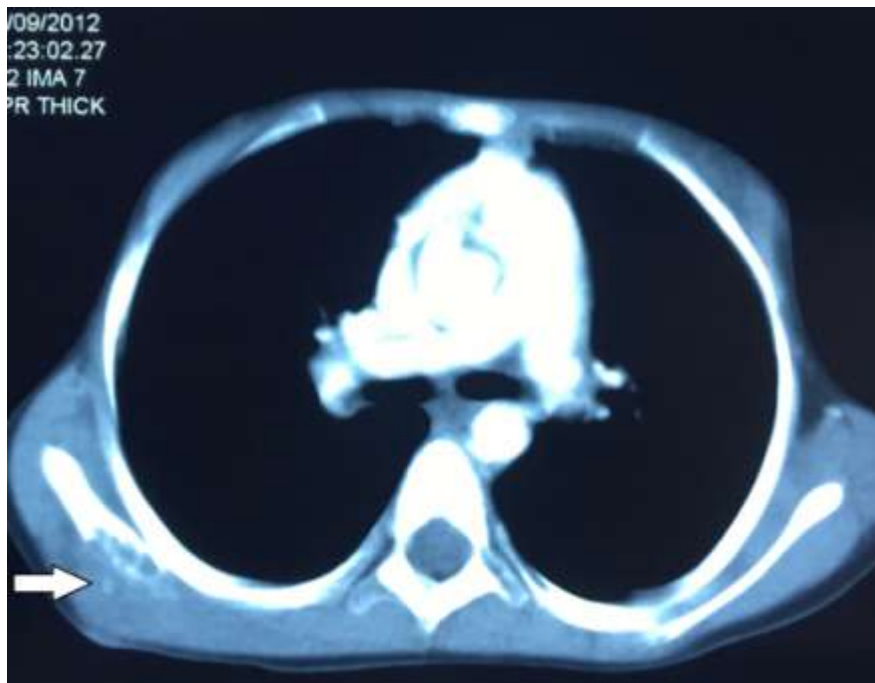
The treatment of multifocal tuberculosis is generally non-operative [6]. Antitubercular chemotherapy during 12 months (isoniazid, rifampicin, ethambutol and pyrazinamide for two months, then carried on by isoniazid and rifampicin for 10 months) is recommended by the majority of authors [1, 6].



**Figure 1:-** Chest radiography showed right upper lobar opacity, with arial bronchogram.



**Figure 2:-** Computed tomography showed a multiple lytic lesions involved posterior part of nine rib and transverse left apophysis of a ninth dorsal vertebrae.



**Figure 3:-** Computed tomography showed a multiple lytic lesions involved the right scapula with cortical erosion.



**Figure 4:-** Chest radiography after 6 month, showed marked improvement of lung lesion.

**Conflict of interest:**

No conflict of interest to declare

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