



Case report

Vaccine-induced tuberculous osteomyelitis.

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Abstract

Tuberculosis (TB) has an endemic evolution in Tunisia. Bacille Calmette-Guerin (BCG) vaccination is systematically provided to all children. The vaccination is exceptionally complicated by a dissemination beyond the injection site (0.018 case per 100000 vaccination). We report a case of induced osteomyelitis in one-year old child following BCG vaccination.

Keywords:

Tuberculosis; BCG vaccine; Osteomyelitis; Management.

Introduction

In Tunisia, vaccination calendar included BCG since 1979. The aim is to protect children against the spread of primary TB and its severe complications. TB infection can involve all organs. Tuberculous osteitis and osteomyelitis are rare [1]. The aim of this work is to highlight the diagnosis circumstances of BCG vaccine-induced osteomyelitis and the characteristics of its management.

Observation

We report a case of one-year-old child presented for distal left leg pain of 4 months duration. There was no history of local trauma or fever. Physical examination revealed edema and tenderness without any ankle motion limitation. X-ray showed an osteolytic lesion with lateral cortex disruption in distal left tibia and periosteal apposition (Figure 1a). White blood cells count was 19.5×10^3 el/mm³, erythrocyte sedimentation rate 25 mm/h, C-reactive protein 10.5 mg/L and hemoglobin 10.5 g/dl. MRI showed a distal metaphyseal lesion of the left tibia crossing the lateral cortex and extending to the distal leg posterior compartment soft tissues. The contrast sequences showed an intense and heterogeneous enhancement of the metaphyseal spongy bone with cortex disruption, soft tissue extension and liquid collection (Figure 1b). There was no involvement of the ankle joint. A surgical biopsy was indicated to rule out malignancies. The intra operative findings showed a metaphyseal cavity filled with yellowish gray tissue. The histological analysis confirmed the diagnosis of tibia tuberculous osteomyelitis. (Figure 2). The growth of Mycobacterium Bovis in the culture, the absence of immune deficiency and other location of tuberculosis, and the absence of familial history of TB infection were arguments to impute this infection to the BCG vaccine. Antitubercular treatment was provide for ten months. The follow up at 1 year noted no complaints with satisfactory radiological improvement (Figure 3).

Discussion

BCG vaccine is prepared from attenuated live bovine tuberculosis bacillus strain [2]. Bone infections are one of the rarest vaccine complications [3] BCG and TB osteomyelitis are sometimes indistinguishable entities [4]. Five criteria were proposed to establish the osteitis diagnosis after BCG vaccination: BCG vaccination in the neonatal period; a period of less than 4 years between vaccination and symptom onset; no contact between the child and any adults with TB; a consistent clinical profile; and TB suggestive histopathology [4,5]. Symptoms usually occur during a period ranging from a few months to 5 years post-vaccination [6]. The symptoms are non-specific, and the diagnosis is usually delayed. The histopathologic and bacteriological confirmation is mandatory before proceeding to a long term antitubercular agents therapy. This case report highlights the importance of considering the diagnosis of Mycobacterium Bovis BCG osteomyelitis for all osteolytic lesions in children under 5 years old.

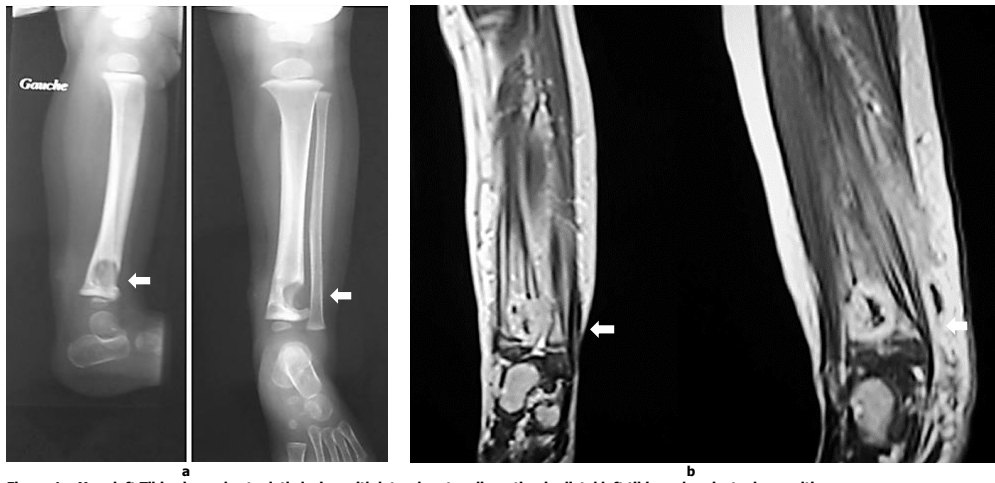


Figure 1a: Xray left Tibia showed osteolytic lesion with lateral cortex disruption in distal left tibia and periosteal apposition.
Figure 1b: MRI features of the lesion with soft tissues edema extension and liquid collection.

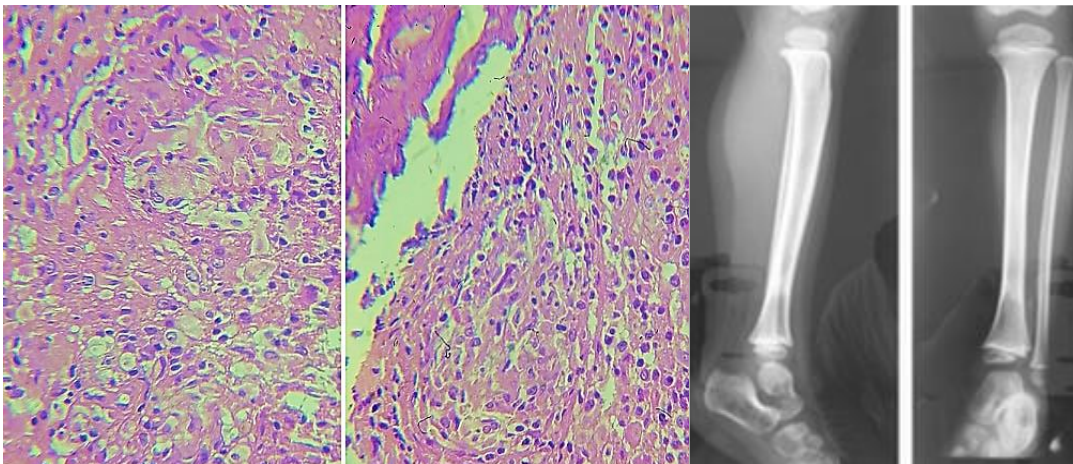


Figure 2: epithelioid and giant cells granuloma with caseous necrosis.

Figure 3: Xray follow up at 1 year.

Acknowledgment: This report does not contain any personal information that could lead to the identification of the patient. A written informed consent was obtained from the parents before the publication.

Conflict of Interest: None

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