CASE REPORT

Tuberculous Osteomyelitis of Mandible: A Case Report

Pallavi Wadhawan[1], Mumtaz Sharif[2], Amit Saxena[3], Amit Vatkar[4], Divyani Dhole[5]

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Abstract

Tuberculosis (TB), caused by *Mycobacterium tuberculosis*, is a chronic granulomatous disease that can affect all systems of the body. Osteoarticular TB is a rare entity that can involve any bone or joint. We are reporting a 6-year-old female child with tubercular osteomyelitis of the mandible who presented in our hospital with swelling in the right cheek for 1 month. She was started on anti-tubercular therapy and showed response on follow-up. By reporting this case, we attempt to familiarize practitioners with the various atypical presentations of TB, which if overlooked can lead to unnecessary investigations and erroneous management.

Keywords: Mandibular osteomyelitis, Tuberculosis, Xpert MTB-Rif.

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Introduction

Tuberculosis (TB), caused by *Mycobacterium tuberculosis*, is a chronic granulomatous disease that can affect all systems of the body. It is still the most common infectious cause of morbidity and mortality in the developing world, mainly due to malnutrition, poor sanitation, lack of sunshine, and fresh air. The WHO estimates that 7.5 million new cases of TB occur annually worldwide of which 650,000 cases are seen in children.[1] Pulmonary disease is common in all ages, extrapulmonary TB (EPTB) is seen more often in children and accounts for 15–20% of all cases of TB.[2,3] Affection of flat bones of skull and mandible is extremely rare (2% of skeletal TB cases).[2] A clinical suspicion is of utmost importance for timely diagnosis and intervention. We are reporting a 6-year-old female child with tubercular osteomyelitis of mandible who presented in our hospital with swelling in the right cheek for 1 month.

Case Description

A 6-year-old first-order female child, born of non-consanguineous marriage presented with swelling in the right cheek for 1 month. The swelling was acute in onset, painful measuring 2 × 1 cm, and gradually increased in size to 4 × 3 cm. There was no prior history of fever, cough, cold, Koch's or Koch's contact. Birth and development history was normal. The child was fully immunized with a BCG scar mark present.

On examination, the child was afebrile, averagely built and nourished, heart rate of 74/minute, respiratory rate of 16/minute, blood pressure of 110/70 mm Hg in right arm supine position with an oxygen saturation of 100% on room air. On local examination, the swelling was seen in the right pre-auricular region, hard in consistency, non-tender, non-fluctuant, non-translucent, fixed to the underlying bone with normal overlying skin with no signs of inflammation or any visible sinus/fistula. No bleeding or pus discharge was present intra- or extraorally. There was a slight restriction in the mouth opening. A differential diagnosis of sialadenitis, lymphoma and tubercular osteomyelitis was considered (Figs 1 and 2).

On investigations, complete blood count was suggestive of microcytic hypochromic anemia (hemoglobin–9.7 mg/dL) with a raised erythrocyte sedimentation rate (ESR) of 50, normal renal, liver function tests, and amylase (52.4 U/L) levels. Mantoux test was positive showing an induration of 16 × 15 mm. X-ray chest was normal. USG local swelling was suggestive of mandibular osteomyelitis with abscess formation. CT scan was suggestive of destructive process involving the right mandible with subluxation of right temporomandibular joint (TMJ).

Bearing in mind the high prevalence of TB in our country along with the initial workup suggestive of Koch's (positive ESR and Mantoux test), USG-guided FNAC was performed from the swelling. Histopathology was suggestive of caseation necrosis and the XPERT MTB-RIF Assay reported positive for *M. tuberculosis* with no resistance to rifampicin. Hence, a diagnosis of mandibular tubercular osteomyelitis was made and the patient was started on Category 1 AKT regimen for 6 months. After 1 month of treatment, the swelling had reduced and the child was doing well.

Discussion

Osteoarticular TB is a rare entity that can involve any bone or joint in the body. The dorsal and lumbar vertebrae and epiphysis and diaphysis of long bones are the most common sites involved. Mandibular TB is considered a rare phenomenon as it is a less cancellous bone in comparison to the more commonly affected long bones.[2] Involvement of both sexes with a positive male preponderance has been noted in the literature; however, our patient was a female.[2]

Infection of a joint or bone with *M. tuberculosis* is due to hematogenous dissemination from a primary focus in the lymphatic glands, lungs, or mesentery. There may be a prior history of trauma leading to vascular stasis. This hematoma forms a nidus for the

[1–5]Department of Pediatrics, Dr DY Patil School of Medicine, Navi Mumbai, Maharashtra, India

Corresponding Author: Pallavi Wadhawan, Department of Pediatrics, Dr DY Patil School of Medicine, Navi Mumbai, Maharashtra, India, Phone: +91 8698108590, e-mail: pallavi.wadhawan@gmail.com

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Fig. 1: Photograph showing frontal view of right TMJ swelling

Fig. 2: Photograph showing lateral view of right TMJ swelling

tubercle bacilli resulting in a follicle with caseation, epithelioid cells, and giant cells.[4] *Mycobacterium* can also reach the bone *via* an infected tooth, mucosal abrasion, or gingival perforation.[5] If left undiagnosed, the TB of the jaw would lead to slow necrosis creating a soft painless swelling due to trabecular granulation tissue replacing the bone. The so-formed cold abscess could burst spontaneously forming multiple intra- and extraoral sinuses ultimately leading to a pathological fracture of the mandible.[2] We promptly diagnosed our case before the development of the above-mentioned complications.

By reporting this case, we attempt to familiarize practitioners with the various atypical presentations of TB, which if overlooked can lead to unnecessary investigations and erroneous management. The only manifestation in our case was a localized swelling of the jaw. Initially sialadenitis, lymphoma was suspected but as ESR was raised, Mantoux test positive, and additional radiological investigations non-specific, TB was considered as a differential diagnosis. USG-guided FNAC was performed and TB bacilli identified.

There are no signs or symptoms which are pathognomic of a mandibular tubercular infection. A high index of suspicion is required for prompt diagnosis and treatment, thus leading to a significant reduction in complications. Also, MTB yield at the site of involvement is low. Hence, Xpert MTB-Rif automated molecular assay help in rapid diagnosis of TB with an increased sensitivity ranging from 25 to 96.6%.[3]

Conclusion

With this, we would like to conclude that primary mandibular tuberculous osteomyelitis though rare should always be considered as a differential diagnosis of jaw swelling as early detection and treatment can break the destructive process and lead to the reversal of all bony changes. If left undetected, there is an increased chance of morbidity and mortality. Also, the use of newer assay techniques as adjuncts can help in faster and more reliable identification of bacilli and should be considered a step forward in the timely and accurate diagnosis of osteoarticular TB.

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