

Case Report

Tuberculous osteomyelitis of the mandible impersonating dentoalveolar abscess: a case report

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Abstract – Introduction: Tuberculosis (TB) affects 8 million new people every year, with developing countries under its strong clout. Although tuberculosis can affect any part of the body involving both soft and hard tissues; such an occurrence in the maxillofacial bones in the form of tuberculous osteomyelitis is relatively rare. Due to the rarity of the lesion and lack of sufficient documentation, its incidence can be expected to be more than what has been reported so far. **Observation:** So, here is a case of a 21-year-old male who presented with pain and swelling on the mandible, diagnosed as tuberculous osteomyelitis after an initial diagnosis of dentoalveolar abscess. **Conclusion:** As dentists and as oral medicine practitioners, it is of utmost importance for us to be aware about uncommon diseases affecting the jaws such as tuberculous osteomyelitis, which tend to mimic dental infections in some cases to prevent misdiagnosis and provide holistic care to the patient.

Introduction

Tuberculosis (TB) is largely believed to be a disease of the developing world. According to a report by World health organisation (WHO) in 2011, 8.7 million patients were affected by TB and the associated mortality was about 1.4 million [1]. Two forms of Tuberculosis are pulmonary and extrapulmonary, the former being more common. Extrapulmonary TB (EPTB) may affect pleura, lymph nodes, abdomen, genitourinary tract, skin, joints, bones, and meninges [2].

Involvement of bone manifests itself as osteomyelitis and may affect the femur, tibia, ulna, pelvis, skull, phalanx, jaws, and other small bones in variable measures [2]. In the maxillofacial region, patients often present with a swelling and draining sinus similar to a dentoalveolar abscess or a space infection and a diffuse radiolucency is seen in the affected region upon radiographic examination. This is a case of a 21-year-old male with tuberculous osteomyelitis of the mandible with pulmonary involvement.

Observation

A 21-year-old male patient who was a beedi smoker reported with the chief complaint of swelling and pain in the

right side of lower jaw for the past 20 days and pus discharge from the same region for 5 days. The swelling had occurred spontaneously and was associated with moderate to severe, continuous and localized pain. History revealed that he had been experiencing mild fever and weakness for 1 month. He had been prescribed a course of antibiotics by a dental practitioner but obtained no relief. Past medical history was not relevant. On clinical examination, a diffuse swelling of size 4.2 cm × 3.5 cm was seen in the right mandibular region. Two draining sinuses were present at its approximate center (Fig. 1). Extrusion of thick yellow pus was noted from these sinuses. The swelling was firm and tender on palpation with local rise in temperature. One right submandibular lymph node was enlarged, soft, mobile and tender. Intraorally, buccal vestibule was obliterated in the region of 46, 47, 48 while 47 was carious. Electric pulp testing showed delayed response with respect to 47. Based on the above findings, a diagnosis of dentoalveolar abscess with respect to 47 was made, however, the history of weight loss and fever raised suspicion for tuberculosis.

Orthopantomogram (OPG-sectional) showed a diffuse area of rarefaction extending mesiodistally from distal root of 46 till the right angle of mandible and superoinferiorly from periapical region of 46, 47 and 48 to the lower border of mandible (Fig. 2). Cone beam computed tomography (CBCT) views showed altered trabecular pattern in the region of 46 and 47 with erosion of buccal and lingual cortex (Fig. 3).

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Fig. 1. Image showing swelling and draining sinuses in the right mandibular body region.



Fig. 2. OPG showing a diffuse area of rarefaction in the mandible.

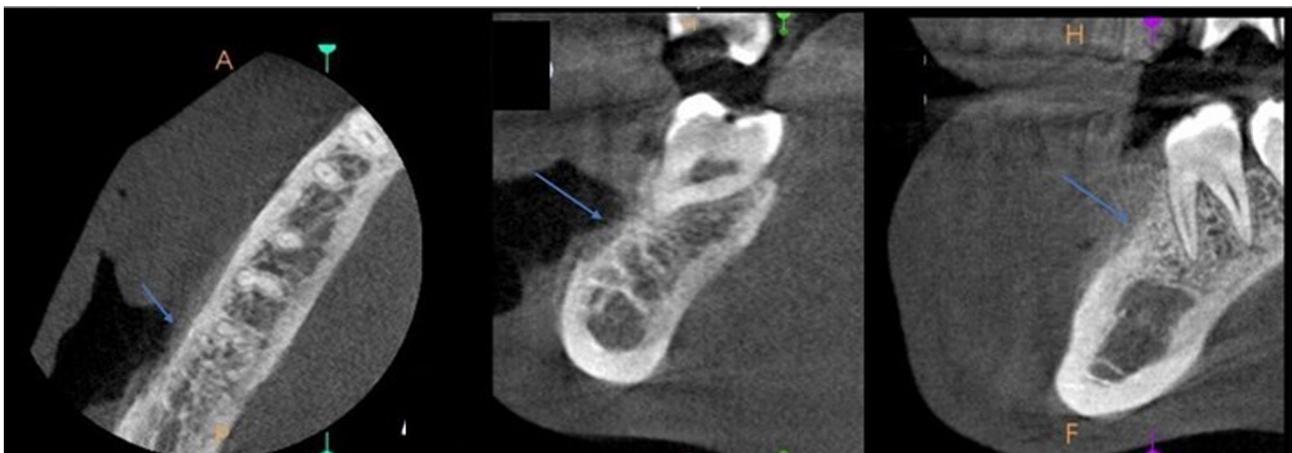


Fig. 3. Axial, coronal and sagittal sections of CBCT showing erosion of buccal and lingual cortex.

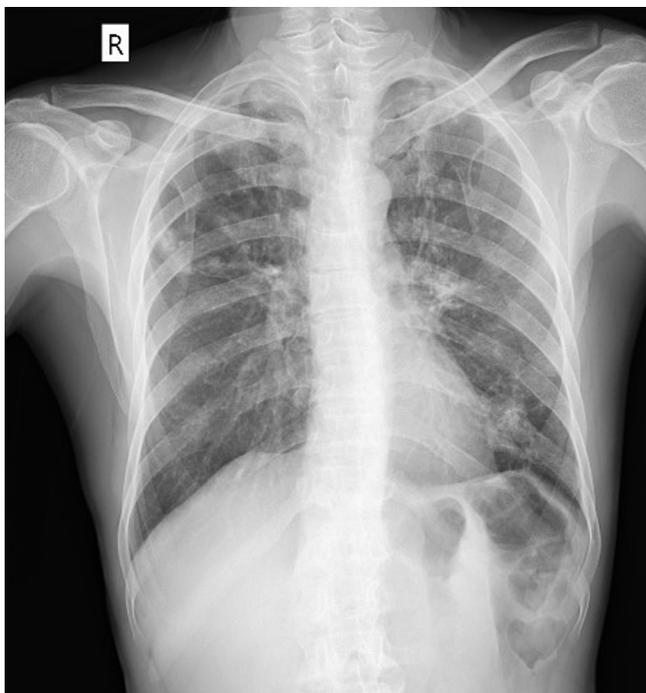


Fig. 4. Chest X ray showing areas of diffuse opacification.

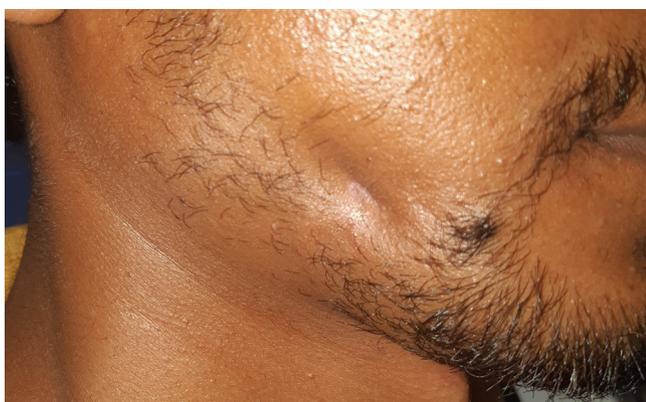


Fig. 5. Completely healed sinuses.

Cytological smear obtained from the discharging pus showed abundant inflammatory cells, epithelial cells and few giant cells suggesting areas of granuloma formation. AFB was negative.

Tests to rule out tuberculosis were advised. Mantoux test resulted in an induration of 18 mm after 48 hours. Sputum Acid fast bacilli (AFB) was positive (3+) for both cultures. Diffuse areas of opacification were visible in the chest X ray suggesting active or previous granulomatous disease (Fig. 4). Cartridge based nucleic acid amplification test (CBNAAT) was performed for pus and sputum in which *Mycobacterium Tuberculosis* was detected while rifampicin resistance was not present.

Thus, a final diagnosis of tuberculous osteomyelitis of the mandible secondary to pulmonary involvement was made. Patient was referred to the department of respiratory medicine where antitubercular chemotherapy was started which



Fig. 6. Signs of normal bone formation in the sectional OPG.

consisted of daily doses of fixed dose combination (Isoniazid 300 mg, Pyridoxine 10 mg and Rifampicin 450 mg) with Ethambutol 100 mg OD and Pyrazinamide 750 mg. 1 month after initiation of ATT, the sinus had healed completely (Fig. 5). A sectional OPG obtained after 3 months showed signs of normal bone formation in the afflicted region (Fig. 6).

Discussion

Orofacial tuberculosis may be primary, or secondary to pulmonary tuberculosis. Secondary TB is more common in adults or geriatric cases, whereas primary oral TB generally affects younger patients [3]. Tuberculous osteomyelitis is uncommon and forms <2% of skeletal tuberculosis. Jaw involvement is even rarer [4].

Among the bones of maxillofacial region, tuberculous osteomyelitis may affect the mandibular body, angle, ramus, condyle and very rarely maxilla. It has a male predisposition with more than 60% cases occurring below the age of 15 [5]. Almost 10–50% of EPTB patients show pulmonary involvement [4], therefore, all cases of TB osteomyelitis should be screened for the same. Medical history should always comprise of history of tuberculosis (active or previous) or exposure to a known/suspected individual.

TB osteomyelitis generally presents as swelling, pain, loosening of teeth and draining sinuses like a tooth abscess. Radiographic features are similar to chronic suppurative osteomyelitis *i.e.*, diffuse radiolucency and altered trabecular pattern [1,3–5]. Other maxillofacial manifestations of TB include

an ulcer, granulomas, involvement of salivary glands and temporomandibular joint, and tuberculous lymphadenitis [6].

Diagnosing EPTB is challenging because the obtained samples are often paucibacillary. Mycobacterial stain and culture can be done but since the conventional smear microscopy has a low sensitivity with a range of 0–40%, a negative result cannot rule out TB entirely. Therefore, tissue should be obtained wherever possible. Biopsy, though the most effective method of diagnosing EPTB, is invasive and might not be feasible in all cases. Tuberculin skin test, IFN- γ releasing assay and Chest X rays are used as auxiliary methods, however they have very less potential to differentiate between active and latent disease. The most recent method being employed is nucleic acid amplification test. Xpert MTB/RIF assay is a new cartridge-based nucleic acid amplification test (CB-NAAT) that is considered useful for rapid diagnosis of EPTB. It has an overall sensitivity of 83.1% and a pooled specificity of 98.7% [7]. As per the policy of WHO updated in 2013, the diagnosis of TB using CB-NAAT could possibly replace microscopy and can be used for diagnosis of all suspected PTB and EPTB cases [8]. Besides, a Te 99 m-methylene diphosphonate bone scan may be performed in cases where multifocal skeletal TB is suspected *i.e.*, those complaining of bone pain [9].

In all the cases of TB osteomyelitis of the jaws, response to antitubercular treatment has been good with the duration of treatment ranging from 6 months to as long as 15 months [1,3–5].

Conclusion

Tuberculous osteomyelitis should be placed relatively higher in the list of differential diagnosis when dealing with a patient with a swelling and draining sinus such as in the above case. For this, more documentation is required so that such diseases find a bigger place in textbooks and therefore, in the minds of diagnosticians and clinicians.

Authors contributions

Harsha Popli: Conceptualization, Writing the original version; Ambika Gupta: Visualization, Supervision; Jatin Loyal: Investigation, editing; Aarti Singh: Reviewing and Editing

Conflict of interest

The authors declare no conflicts of interest in relation to this article.

Informed consent

Informed consent has been obtained from the patient.

Ethical committee approval

Not required.

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