

Tuberculous osteomyelitis of mandibular condyle: A rare encounter

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ABSTRACT

Tuberculosis (TB), one of the oldest known microbial infectious diseases affecting humans has continued to burden our healthcare system over generations. Conventionally, primary TB usually manifests as a pulmonary infection. However, the last decade has witnessed increasing reports of extrapulmonary infections. It's often atypical clinical presentations require a high degree of clinical suspicion, especially in the developing countries with a high incidence of this infectious disease. In this report, we present one such case of tuberculous osteomyelitis of the mandibular condyle where the patient reported with the complaint of swelling on the left side of the face with no apparent systemic manifestation.

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INTRODUCTION

Tuberculosis (TB) is an infectious disease that has imposed a continued burden onto the health care system of nations worldwide. In 2009, WHO reported a global TB incidence of 9.1 million off which India alone accounts for 1.9 million cases annually. The reported incidence is higher in the Northern Indian States primarily in the urban areas.^[1] TB accounts for about 325,000 deaths annually. In addition, just about 1.2 million cases have reported a concomitant infection with human immunodeficiency virus (HIV). This scenario is further complicated by the development of the multi-drug resistant strains of *Mycobacterium*, which account for approximately 3% of the new cases reported annually and about 12% of the previously treated cases. Of major concern is the fact that TB predominantly affects the economically productive age group resulting in a huge socioeconomic impact.^[2]

TB is characterized by a clinical spectrum of presentations such as persistent cough, evening rise in temperature, weight loss, and lassitude as well as atypical presentations that require a high index of suspicion, especially in patients belonging to developing countries. In this article, we present one such case of extra pulmonary TB involving the condyle of the mandible that is a rare presentation of this infectious disease.

CASE REPORT

A 34-year-old male patient presented with a gradually enlarging swelling at the side of his face in front of the left ear of 15 days duration along with a long-standing difficulty in mouth opening [Figure 1].

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The patient's medical history was predominantly noncontributory except a history of trauma to the facial region following a fall during childhood. He could however not provide any details about the exact site or provide any prior medical records. General physical and systemic examination was unremarkable. The patient was moderately built and nourished, and afebrile at time of examination. All the vital signs were within the normal limits. The patient gave a history of areca nut and tobacco consumption that he chewed 5–6 times a day (T.I.D) since 8 years. In addition, it was noted that a dull pain was elicited in the left temporomandibular joint (TMJ) region during mouth opening.

Extraoral inspection revealed a unilateral solitary oval swelling in the left TMJ region measuring 0.5 cm × 1.0 cm in size with normal overlying skin. On palpation, the swelling was found to be firm, tender, and nonfluctuant. There was a noticeable local rise in temperature in the region of the swelling. Tenderness was elicited in the temporalis muscle of the same side with no obvious lymphadenopathy in the head and neck region. Intraorally, the buccal mucosa appeared blanched, occlusion was unaffected with no other significant findings. On palpation, thick fibrous bands were noted in the left buccal mucosa that gave a clinical impression of oral submucous fibrosis. This supposedly could be a contributing factor to the patient's reduced mouth opening apart from the possible hindrance caused by the swelling present in the TMJ region.

The patient was referred to an otolaryngologist for otoscopic examination that eliminated the possibility of a middle ear infection.

Radiographic findings

The digital panoramic radiograph exhibited an ill-defined radiolucent area in the region of the left condyle



Figure 1: Preoperative facial (front) view

[Figure 2]. The rarefaction in the left condylar region was suggestive of osteomyelitis.

Computed tomography findings

In the bone window, there was evidence of erosion with the trabecular destruction of the left mandibular condyle [Figure 3a-c]. Contrast computed tomography was suggestive of an abscess formation with peripheral enhancement surrounding the left condyle extending into the left masseter. There were few minimally enlarged left cervical lymph nodes along the jugular chain. The findings correlated with osteomyelitis of the left mandibular condyle with a surrounding abscess and cervical lymphadenopathy.

Diagnosis

Based on the clinical findings, radiographic presentation and a history of trauma, we arrived at provisional diagnosis of chronic suppurative osteomyelitis of the condyle. A routine blood workup revealed an increased erythrocyte sedimentation rate (ESR: 40 mm/h) and raised total leukocyte count (12,000/cumm) suggestive of an infection.

Fine-needle aspiration was done from the dependent part in between the center and the lower border of the swelling with the help of a syringe. Blood-tinged pus was obtained on aspiration that was sent for cytological examination. Meanwhile, the patient was prescribed capsule amoxicillin (with *Lactobacillus*) 500 mg 3 T.I.D, tablet metronidazole 400 mg T.I.D and tablet diclofenac sodium 50 mg as needed for 5 days. However, there was no relief in the signs and symptoms after 5 days. On microscopic examination, the pus smear showed granulomas with caseous necrosis and dense lymphocytic infiltration. Areas of fibrosis and granulation tissue were also noted. These findings were suggestive of a chronic granulomatous infection raising a strong suspicion of TB.

We then advised further investigations such as Mantoux test and culture and staining of acid-fast bacilli. These tests were subsequently found to be positive. The patient was referred to the general physician for a



Figure 2: Panoramic Radiograph showing an ill-defined radiolucent lesion over the left condyle

detailed general medical examination, and we arrived at final diagnosis of tuberculous osteomyelitis of the left mandibular condyle.

Management

The patient was advised anti-tubercular treatment (ATT) (INH 300 mg 1-0-0 and rifampicin 450 mg 1-0-0) for a 9 months duration and condylectomy.

The patient underwent left condylectomy under general anesthesia following strict aseptic condition. Hind's incision marking was placed followed by adrenaline saline infiltration done [Figure 4]. The skin incision was placed by BP blade number 15 and deepened to subcutaneous layer by electrocautery. Blunt dissection was carried out by the small curved artery, parotid gland was identified and reflected superiorly, masseter muscle identified and incised, periosteum reflected ramus and condyle exposed, osteotomy cut placed obliquely from sigmoid notch inferior-posteriorly

below the neck of the condyle. Osteotomized condyle was disarticulated by the reflection of lateral pterygoid muscle. Perforation was noted in excised condylar head [Figure 5].

Histopathological examination of the excised condyle revealed the presence of granulomas with foci of caseous necrosis, numerous epithelioid histiocytes and Langerhans' type of giant cells [Figure 6]. The histopathology report was compatible with our diagnosis of tuberculous osteomyelitis of the condyle.

The patient responded well to treatment and complete regression of the swelling was attained within 1 month [Figure 7].

Digital panoramic radiograph was advised after 4 months follow-up [Figure 8]. Despite a detailed medical examination no other systemic focus of infection was evident, and the patient was placed under long-term clinical follow-up.

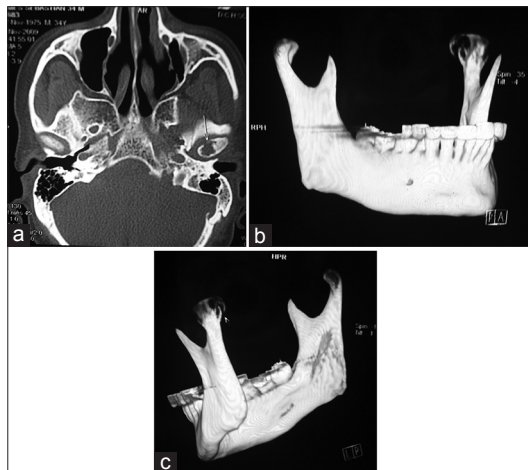


Figure 3: (a) Computed tomography mandible axial view showing trabecular destruction of the left mandibular condylar head. (b and c) Three-dimension computed tomography mandible showing erosion with trabecular destruction of the left mandibular condyle

DISCUSSION

TB is among the oldest known microbial infectious diseases affecting humans. The causative organism, *Mycobacterium tuberculosis* spreads across geographic



Figure 4: Pre-operative view of the lesion with the incision marking

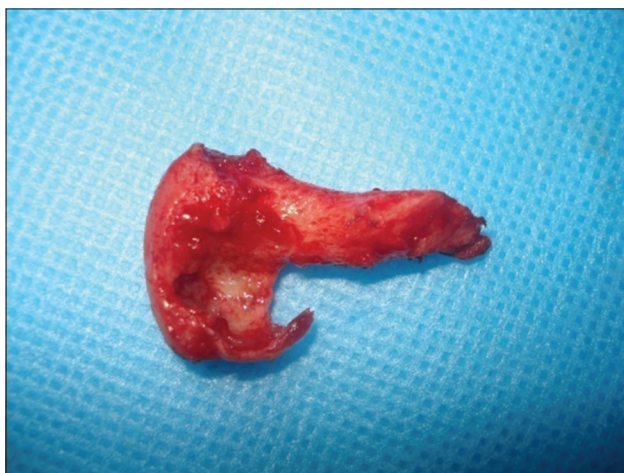


Figure 5: Excised condylectomy specimen

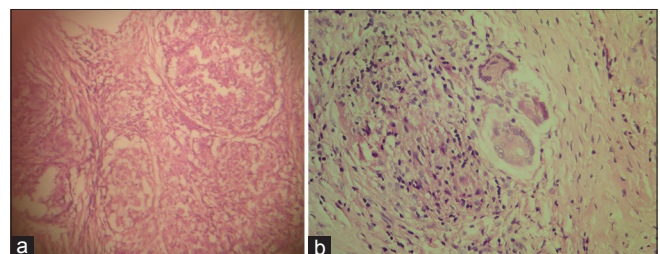


Figure 6: (a) Microscopic view showing granulomas. (b) High power microscopic view of giant cells (x60)



Figure 7: Postoperative facial view after 1 month showing completely regressed swelling and no disturbance in occlusion

confines to involve most nations of the world. Often known to run an initial insidious course, it has the potential to debilitate the affected individual and left untreated, it may prove fatal within 5 years in over half the cases. Its early diagnosis and timely institution of appropriate therapy are thus essential.^[3] A marked decrease in the incidence of this disease was noted in the early 1980s owing to the advances in chemotherapy, inoculation with *Bacillus Calmette–Guérin* vaccine and improvement in public health and nutritional status. Developing nations, however, continue their struggle to limit this illness that has amplified owing to factors such as population explosion, increase in HIV positive cases, and development of multiple drug resistance.^[3,4]

Primary TB usually occurs as a pulmonary infection however over the last decade, extrapulmonary infections have shown a steady rise in incidence. Such extrapulmonary infections notably involve the musculoskeletal system more commonly than the respiratory system. A literature search revealed that most cases of TB of the jaw have in fact been primary lesions. Rarely, secondary oral manifestations associated with pulmonary infection are seen, which can appear as lesions on the gingiva, palate, lips, tongue, buccal mucosa, frenulum, and in the jaw bones.^[5]

This case deserves attention since tuberculous osteomyelitis is uncommon and accounts for <2% of skeletal TB. Within this small sect, tuberculous osteomyelitis of the jaw is rare with a notable predilection for the older population.^[3] Only a handful of cases of tuberculous involvement of the condyle has been reported in literature that emphasizes the rarity of this case. From the nonspecific clinical presentation and atypical history of this case, it is evident how the diagnosis of this entity can prove particularly challenging.



Figure 8: Panoramic radiograph after 4 months showing absence of left condyle

The diagnostic workup of such cases involves a multidisciplinary approach supplementing a thorough clinical examination and a detailed account of relevant history. Radiographic, histopathologic, and microbiologic examinations are key to arriving at definitive diagnosis. The site-specific tissue or fluid aspirate must be submitted for smear, culture, and histological examination as were done in this case. The histopathologic presentation is essentially one of a granulomatous disease comprising caseating or noncaseating granulomas with giant cells. These granulomas usually referred to as tubercles are a manifestation of cell-mediated hypersensitivity reaction and are characterized by the presence of Langerhans' type of giant cells.^[6]

Microbiological examination proves imperative, especially in cases with atypical clinical and radiographic findings. Ziehl–Neelsen staining or the more specific fluorescent staining techniques are employed for the detection of acid-fast bacilli in the sputum sample, throat swab as well as the biopsied tissue. The recent advent of advanced diagnostic investigations such as polymerase chain reaction offers more definitive diagnostic aids; however, such investigations are expensive for a large sect of our population and hence have been utilized sparingly.^[7]

Cytological examination in cases presenting with associated cervical lymphadenitis may be of limited diagnostic importance since the absence of demonstrable acid-fast bacilli cannot rule out the possibility of TB.^[8] However, other associated findings such as caseous necrosis, giant cells (specially the Langerhans' type), epithelioid cells should be adequate to raise a strong suspicion of a tuberculous infection.

A literature search revealed that medical treatment alone is effective in some cases however, advanced cases such as ours with considerable involvement of bone require

an aggressive debridement with adjunct ATT for a better outcome.^[9,10]

The Revised National TB Control Program (RNTCP), first launched in India in 1997 is involved with the detection and treatment of TB in addition to maintaining a record of all reported cases for epidemiological evaluation. The RNTCP set algorithm for diagnostic workup as well as the treatment guidelines have formed a model unit in our healthcare system that is burdened with the high reported incidence of TB in India.^[2]

CONCLUSION

Tuberculous osteomyelitis of the condyle may present atypical clinical findings akin to TMJ arthritis or middle ear infections. A detailed clinical and radiographic examination aided by a histopathologic and a microbiological diagnostic workup is key to timely detection and administration of appropriate therapeutic regimen. A high degree of clinical suspicion is thus advocated in patients with such atypical presentations.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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