

Content available at: <https://www.ipinnovative.com/open-access-journals>

IP Archives of Cytology and Histopathology Research

Journal homepage: <https://www.achr.co.in/>

Case Report

Tuberculous osteomyelitis in body of mandible: A case report

Gaurav Gupta^{1,2,*}, D.K Gupta³, Priyanka Gupta⁴, Neeraj Chandra⁵,
Devanshi Sankhla⁶, Kuldeep Singh Rana⁷

¹Dept. of Paediatric and Preventive Dentistry, Jaipur Dental College, Jaipur, Rajasthan, India

²Private Practice at Wisdom Dental Clinics, Jaipur, Rajasthan, India

³Dept. of Oral and Maxillofacial Surgery, Wisdom Dental Clinics, Jaipur, Rajasthan, India

⁴Dept. of Pedodontics and Preventive Dentistry, RUHSCDS Govt. Dental College, Jaipur, Rajasthan, India

⁵Dept. of Periodontics, Institute of Dental Sciences, Bareilly, Uttar Pradesh, India

⁶Wisdom Dental Clinics, Jaipur, Rajasthan, India

⁷Dept. of Conservative Dentistry and Endodontics, Index Institute of Dental Sciences, Indore, Madhya Pradesh, India



ARTICLE INFO

Article history:

Received 01-11-2022

Accepted 10-02-2023

Available online 11-03-2023

Keywords:

Oral tuberculosis

Painless nodular swelling

Mandibular lingual mucosa

Oral ulcer

ABSTRACT

Tuberculosis is chronic infectious disease and major cause of morbidity and mortality worldwide. It can affect any part of body, including oral cavity. Oral lesions of tuberculosis, though uncommon, have been observed in both primary and secondary stages of disease. This article presents case of tuberculosis in oral mucosa and mandible in 45 years old female. Involvement of oral cavity in TB is quite rare. Oral lesions seem to occur as chronic ulcers, nodular or granular areas. Most extra-pulmonary lesions represent secondary infections of primary lung infectious focus; therefore, early and accurate diagnosis is required for planning of best treatment and strategies to control disease.

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

1. Introduction

Osteomyelitis is nothing but an inflammation of the bone marrow that has a tendency to progress. This differentiates the dentoalveolar abscess, “dry socket” and “osteitis,” seen in infected fractures from osteomyelitis. It usually involves adjacent cortical plates and often periosteal tissues. Osteomyelitis of the jaws is predominantly a disease of the mandible, whereas the maxilla by virtue of its vascularity and thin cortical plates is less frequently involved.

Diminished local and systemic host defences can contribute to emergence of disease as well its clinical course. Osteomyelitis has been found to have association with multiple systemic diseases including diabetes, malignancies, malnutrition, acquired immunodeficiency

syndrome etc. Medications like steroids, chemotherapeutic agents, and bisphosphonates alter vascular dynamics of bone and hence predispose to osteomyelitis. Local conditions adversely affecting blood supply can also predispose host to bony infection.¹

Oral tubercular lesions are either primary or secondary. Primary tubercular lesions are rare and younger patients are more often affected and are usually associated with cervical lymphadenopathy. In majority of cases, primary lesion remains painless. Secondary lesions, on contrary, are more common and seen mostly in older people. Lesions are superficial ulcers, patches, or destruction of jaw bones, that may be in form of tubercular osteomyelitis.²

Depending on clinical presentation, suppurative osteomyelitis may typically be acute or chronic. Acute osteomyelitis which is characterised by inflammation and

* Corresponding author.

E-mail address: dr.gauravgupta99@gmail.com (G. Gupta).

suppuration within the marrow space needs to be suspected when there is onset of paresthesia of inferior alveolar nerve, despite absence of radiological signs. This drifts into chronic phase when inadequately treated, or host defence attains partial control or when pus within marrow spaces finds its way out by cortical perforation and sinus tract formation.

Other forms of non-suppurative osteomyelitis include osteoradionecrosis (ORN), bisphosphonate related osteonecrosis of the jaws (BRONJ), Garre's osteomyelitis, chronic recurrent multifocal osteomyelitis of children, and chronic sclerosing osteomyelitis.³

Tubercular osteomyelitis of mandible is rare as compared to flat bones, it is always suspicious especially when positive history of systemic infection or medical treatment is denied. So, diagnosis can be based on histological findings.⁴

In clinical practice of oral and maxillofacial surgery it presents as an enigma for clinician in terms of diagnosis and treatment. Delay in recognition of infection may result in a protracted course of treatment and increased surgical morbidity.¹

This case emphasizes consideration of tuberculosis in differential diagnosis of intraoral mandibular swelling and osteomyelitis of jaw. In present case we have discussed 45-year-old woman with tuberculous osteomyelitis, its diagnosis, management and its manifestation in maxillofacial region. We used Cone Beam Computed tomography (CBCT) to explore dimensions of lesion to diagnose destructive extent of lesion.

2. Case Report

A young 45-year-old female reported to our clinic with complaint of mobile teeth. On examination, poor oral hygiene detected for which treatment of extraction is undertaken.

After a year she visited back to clinic with complain of swelling and pus draining from lower labial vestibule in relation to lower right region for past 20 days and pus discharge from same region since 5 days. Swelling 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.

On clinical examination, diffuse swelling was seen in right mandibular region. Swelling was abrupt in onset and had not changed much in overall dimensions. There was no associated toothache, pain, fever or swelling anywhere else in body. She had no prior medical and family history of treatment for any chronic infective disease. Intraoral pus drainage and swelling. No extraoral swelling and pus drainage. Patient was vitally and systemically stable. Apart from that, there was no other complaint. She had missing 47,46,36. Moderate periodontal bone loss w.r.t mandibular teeth.

Orthopantomogram (OPG-sectional) and Cone beam computed tomography (CBCT) views showed Irregular mixed osteolytic lesion with permeative border infiltrating the medullary portion of bone in right para-symphysis and body region extending from mesial portion of 43 to 47 region with maximum dimensions of 41.9mm x 7.9 mm M-D and B-L respectively. Superiorly the Lesion is extending from crestal bone level in 45-46 region and inferiorly up to superior border of mandibular canal in 45-47 region with discontinuity of cortical outline of mandibular canal at multiple sites in that region. Lesion involves crestal and middle portion of alveolar bone with involvement of IAN (inferior alveolar nerve) in 45- 47 region. Multiple sparse areas of bony trabeculae noted within the lesion separated from surrounding bone. Thinning and destruction of buccal and lingual cortical plate also noted. No evident root resorption noted w.r.t involved teeth. Separate focal periapical hypodense area involving periapex also noted w.r.t 43. Single root which bifurcates into two: buccal and lingual involving apical root portion noted. Separate focal periapical hypodense area suggestive of periapical lesion seen w.r.t 42. Single root with single canal which bifurcates into two in middle root portion and fuses together in apical root portion to exit through a single apical foramen (1-2-1 canal configuration). Separate focal periapical hypodense area involving periapex also noted w.r.t 31. Single root with single canal observed w.r.t 31. Extraction socket with destruction of buccal cortical plate involving crestal third portion of alveolar bone noted w.r.t 36. according to the CT scan findings it was provisional diagnosis of osteomyelitis.

The patient was operated under local anaesthesia and affected area lesion was excised. Curettage of the necrotic tissue performed in the right condylar region and suture were placed.

The excised tissue was sent for histopathologic examination, which showed soft tissue of soft tissue showing ill-defined epithelioid granulomas with Langhans giant cells with necrotic material [Figure 3]. Histopathologic report confirmed the diagnosis of TB. GeneXpert TB test and culture test were advised. Mycobacterium tuberculosis complex was detected in GeneXpert TB and culture test.

Final diagnosis was confirmed. Physician for Anti Tubercular Treatment (ATT) regimen {Rifampicin (600 mg) Isoniazid (300 mg), Ethambutol(800mg), Pyrazinamide(750mg), Vitamin B6, D, calcium supplements} and was kept on periodic follow up. On 3 months postoperative follow up, the intra oral lesion got resolved. [Figure 4 A-DFigure 5]

1 year follow- up radiograph was done which shows adequate bone formation in the region of the lesion. [Figure 6]

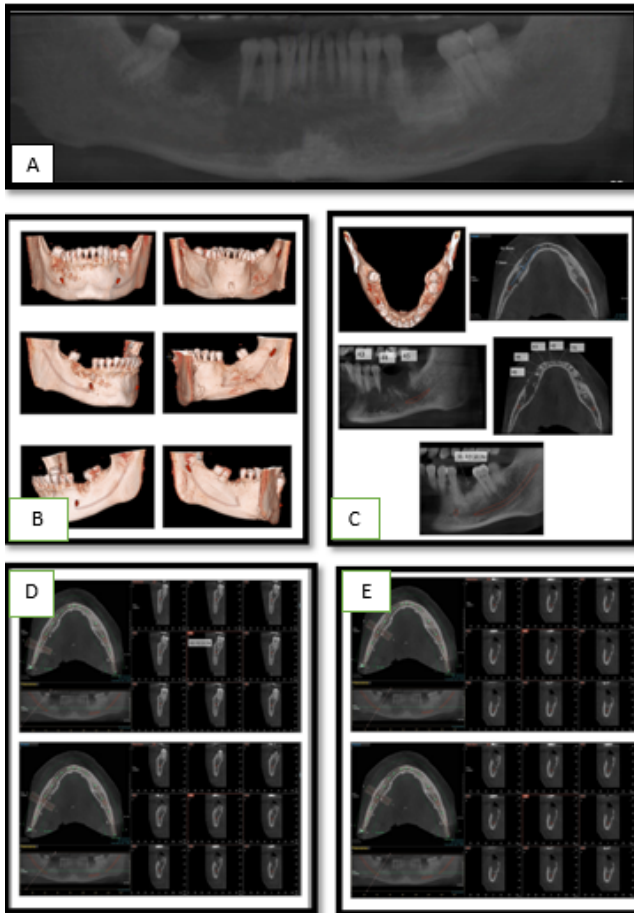


Fig. 1: A - E: Orthopantomogram (OPG-sectional) and Cone beam computed tomography (CBCT)



Fig. 2: Surgery site showing excision of affected lesion.

HISTOPATHOLOGY REPORT	
SLIDE NO	A-91036
SPECIMEN:	BIOPSY - OSTEOLYTIC LESION RIGHT BODY OF MANDIBLE
DETAILS:	P/D : osteomyelitis / ? tuberculosis
GROSS:	The specimen comprises of single grey white soft tissue piece measuring 1x1x0.8 cm. Entire taken for embedding.
MICROSCOPIC:	Biopsy comprises of soft tissues showing illdefined epitheloid granulomas with langhans giant cells with necrotic material.
IMPRESSION:	Histomorphology is suggestive of tuberculosis. Advised ancillary tests.

Fig. 3: Biopsy report



Fig. 4: A-D: Post-treatment picture showing complete healing.



Fig. 5: OPG after 3 months



Fig. 6: One year follow up OPG

3. Discussion

TB is caused by bacteria mycobacterium tuberculosis, which is an aerobic, non-motile, non-capsulated, non-spore forming and rod-shaped organism.⁵ Tuberculous lesions may be primary or secondary. Primary tuberculosis of oral cavity is very rare.⁶ In primary oral tuberculosis organisms are directly inoculated on oral mucosa of a person who has not been previously infected. Role of trauma is controversial, as stratified squamous epithelium of oral cavity normally resists direct penetration by tubercle bacilli. In secondary oral tuberculosis coexists with pulmonary disease. Self-inoculation take place from infected sputum or hematogenous seeding.⁷

Primary tuberculosis is commonly observed in children and adolescents. Usually involves gingiva, mucobuccal folds or extraction sites, and often associated with enlarged cervical lymph nodes.⁸ Secondary tuberculosis coexists with pulmonary disease in all age groups specially occur in middle-aged and older people. Most frequently occurring lesion is painful ulcer, characterized by irregular edges with minimal induration.⁹ Ulcer base may be granular or covered with pseudo membrane. The dorsal surface of tongue is affected most commonly followed by palate, buccal mucosa and lips followed by salivary glands, tonsils and uvula.

Tubercular osteomyelitis of maxilla is very rare. Tubercular osteomyelitis of mandible is more common than maxilla, as it contains lesser amount of cancellous bone. Diagnosis is confirmed by histopathological examination, presence of acid-fast bacilli in tissue section, or by culture of tubercular bacilli. In majority of cases, single biopsy may not suffice because granulomatous changes may not be evident in early lesions.¹⁰

In present case we discussed here illustrative case of tuberculous osteomyelitis, its diagnosis, management and its manifestation in maxillofacial region, here Cone Beam Computed tomography (CBCT) was used to explore third dimension of the lesion to diagnose the destructive extent of the lesion.

4. Conclusion

Tuberculosis infection of the gingival is relatively rare; oral lesions would most commonly be secondary to pulmonary tuberculosis. Clinicians' awareness will help in early diagnosis and prevent complications considering tuberculosis in the differential diagnosis of gingival enlargement. Hence, awareness of rare form of oral tuberculosis makes early diagnosis and prevents further spread of disease.

5. Conflict of Interest

None.

6. Source of Funding

None.

References

1. Koorbusch GF, Deatherage JR, Curé JK. How Can We Diagnose and Treat Osteomyelitis of the Jaws as Early as Possible? *Oral Maxillofac Surg Clin North Am.* 2011;23(4):557–67.
2. Eng HL, Lu SY, Yang CH, Chen WJ, Jaconson J, Van Dis M. Oral tuberculosis. *Oral Surg, Oral Med, Oral Pathol. Oral Radiol Endod.* 1996;81(4):415–20.
3. Balkawade R, Gandevala A, Asnani U. Tuberculous osteomyelitis of the mandible: an unusual clinical presentation. *Int J Sci Healthcare Res.* 2020;5(4):20–5.
4. Mishra R, Mall BB, Kandel L, Kandel S. Tuberculous Osteomyelitis of Mandible: A Rare Case Report. *J Univ Coll Med Sci.* 2017;5(1):59. doi:10.3126/juems.v5i1.19058.
5. Aguiar MC, Arrais MJ, Mato MJ, Dearauja V. Tuberculosis of the oral cavity: a case report. *Quintessence Int.* 1997;28(11):745–7.
6. Iype EM, Ramdas K, Pandey M, Thomas G, Sebastian P, Nair MK, et al. Primary tuberculosis of tongue: report of three cases. *Br J Oral Maxillofac Surg.* 2001;39(5):402–3. doi:10.1054/bjom.2000.0663.
7. Das P, Suri V, Arora R, Kulkarni K, Kumar K. Primary lingual tuberculosis mimicking malignancy: a report of two cases and review of literature. *Internet J Pathol.* 2007;6(2):102525. doi:10.1016/j.amsu.2021.102525.
8. Gupta A, Shinde KJ, Bhardwaj I. Primary lingual tuberculosis: a case report. *J Laryngol Otol.* 1998;112(1):86–7. doi:10.1017/s0022215100139982.
9. Hathiram BT, Grewal DS, Irani DK, Tankwal PM, Patankar M. Tuberculoma of the cheek: a case report. *J Laryngol Otol.* 1997;111(9):872–3. doi:10.1017/S002221510013885X.
10. Gupta R, Garg M, Gupta AK, Anand C. Tuberculous osteomyelitis of the maxilla: A rarest of rare case report. *Natl J Maxillofac Surg.* 2014;5(2):188.

Author biography

Gaurav Gupta, Professor  <https://orcid.org/0000-0003-3895-059X>

D.K Gupta, Senior Consultant

Priyanka Gupta, Senior Demonstrator

Neeraj Chandra, Senior Lecturer

Devanshi Sankhla, Associate Dentist

Kuldeep Singh Rana, Assistant Professor

Cite this article: Gupta G, Gupta DK, Gupta P, Chandra N, Sankhla D, Rana KS. Tuberculous osteomyelitis in body of mandible: A case report. *IP Arch Cytol Histopathology Res* 2023;8(1):66-69.