

# Primary Tubercular Osteomyelitis of the Mandible – A Rare Case Report

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**Abstract:-** Primary tuberculosis occurring in the bones of the cranio-facial region is rare. Although there are various screening and prevention programs for tuberculosis, it is still an emerging disease worldwide, commonly in developing countries. Incidence of tubercular osteomyelitis in jaw bone is very low. Here we report a case of primary tuberculosis of the left side of the mandible in a 43 years old female who came to visit us with persisting pain for 1 week after tooth extraction. Patient was treated as acute osteomyelitis of mandible i.e curettage of bone done and bone sample was sent for biopsy, and it was confirmed, tubercular osteomyelitis. Patient had no history of any systemic sign, symptoms of tuberculosis.

**Keywords:-** Osteomyelitis, Mandible, Primary Tuberculosis, Tuberculous Osteomyelitis.

## I. INTRODUCTION

In developed countries, TB has become a rare disease, but in developing countries, a report says that every year, about 20 million prevalent cases and 8 million new cases are reported. WHO has documented that approximately 3 million people die annually of TB, and this is more common in developing countries.<sup>1</sup> As tubercular osteomyelitis is a rare medical condition, it occurs less than 3 % of all cases with oral presentation. It is considered as an extra pulmonary complication. It is often misdiagnosed. Tuberculosis of the flat bones of the skull is uncommon and that of the mandible is especially rare as it contains less cancellous bone.<sup>2</sup> Here we reported the diagnosis, treatment, and follow-up of a case, which is a classical presentation of primary tuberculous osteomyelitis of the mandible.

## II. CASE PRESENTATION

A 42 years old female hailed from Dhaka, had a history of third molar extraction on 19 th July, post-operative period was uneventful, then after 1 week pain started and she went to clinic, medicine was prescribed, but pain did not subside. She reported to the oral and maxillofacial dept. of Anwer Khan Modern Medical College and Hospital with pain and

swelling on the left side of the body of the mandible for 1 week. There was diffuse swelling on the left side submandibular region, it was firm to hard in consistency, non-fluctuant, mildly tender with normal overlying skin. On extraoral examination, pain on the body of the mandible during palpation, intraoral examination showed tooth mobility and few purulent exudates came out. Laboratory studies provided the following relevant results: hemoglobin 11.8g/dl, hematocrit 34.60%, and leukocytes  $7.00 \times 10^9$  the differential white blood cell count showed neutrophils 79%, lymphocytes 16%, monocytes 4%, eosinophils 1%, and platelets  $210 \times 10^9 /l$ , MCV80.50f/l, MCH 27pg/ml, MCHC 34.10g/dl. Cone beam computed tomography (cbct) irregular pattern of osteolytic lesion noted in the left side of the mandible. Lesion causes medullary bone destruction including the lingual cortex of the mandible, (fig 1)bone destruction noted around the mandibular left 2nd molar tooth with external root resorption of mesial root, unhealed extraction socket is seen in the left mandibular 3rd molar tooth.



Fig 1: CBCT shows both buccal and lingual bone destruction



Fig: 2: CBCT shows bone destruction around the left 2<sup>nd</sup> molar tooth and there is unhealed extraction socket , beside 2<sup>nd</sup> molar .

She was treated as osteomyelitis, under GA curettage and saucerization of bone done and granulation tissue and bony tissue sent for histopathological examination which reveals tubercular osteomyelitis( fig 3 a,b,c) and then she was put on antitubercular therapy for 1 year.

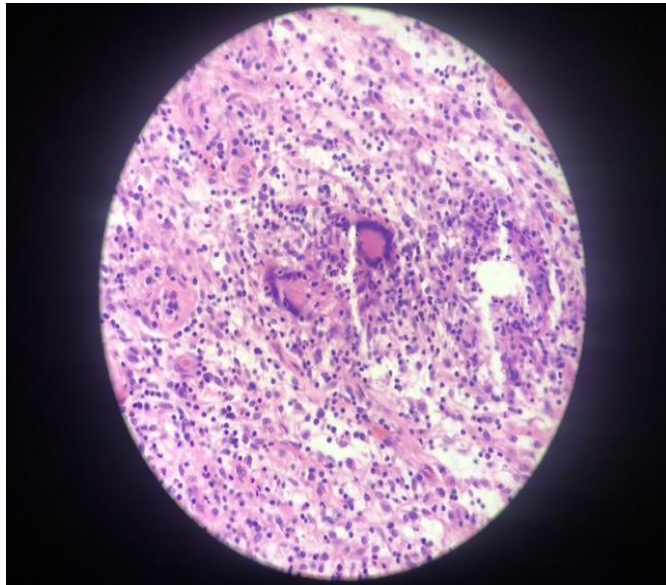


Fig: fig 3 a Section shows soft and bony tissue, stained by Hematoxylin-eosin stain These reveal infiltration of chronic inflammatory cells including plasma cells with epithelioid granulomas and Langerhans type giant cells. Necrosis noted.

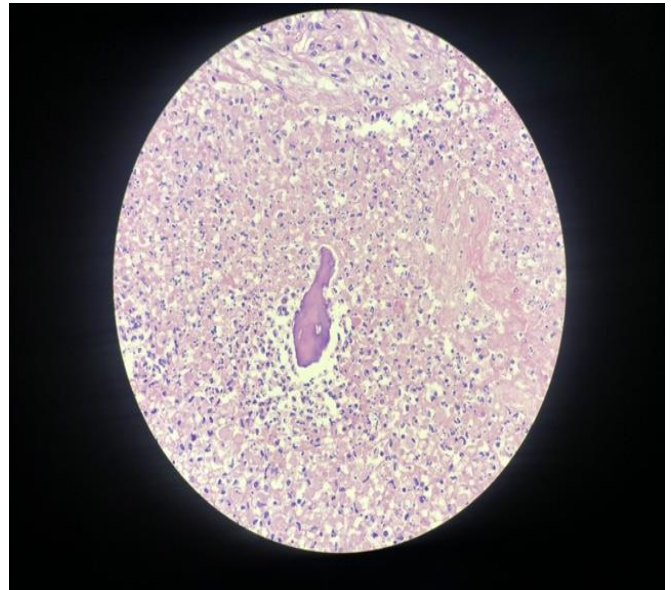


Fig: 3b Section shows soft and bony tissue, stained by Hematoxylin-eosin stain These reveal infiltration of chronic inflammatory cells including plasma cells with epithelioid granulomas and Langerhans type giant cells. Necrosis noted.

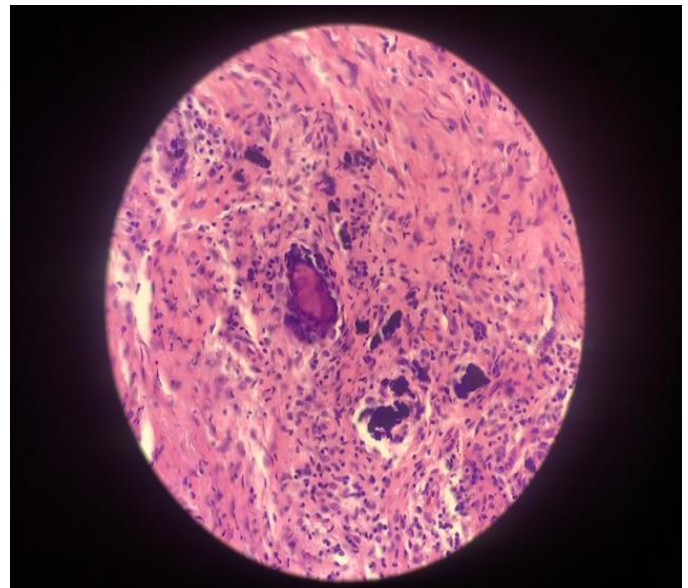


Fig: 3 c Section shows soft and bony tissue, stained by Hematoxylin-eosin stain These reveal infiltration of chronic inflammatory cells including plasma cells with epithelioid granulomas and Langerhans type giant cells. Necrosis noted.





Fig : 4 after 8 month , intraoral photograph.

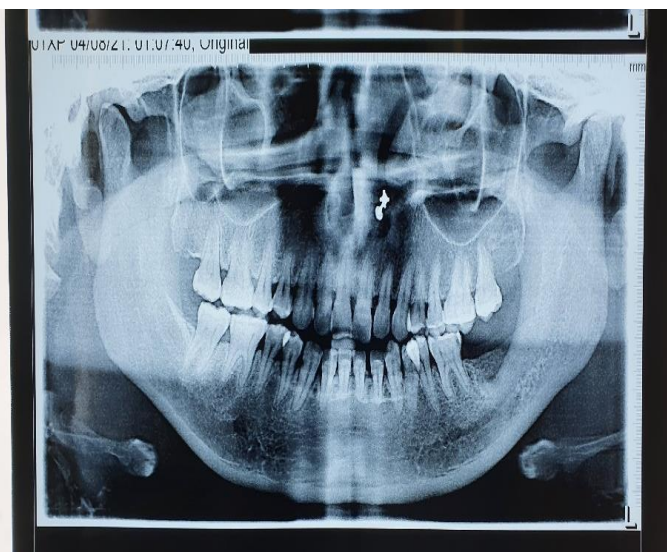


Fig 5: after 8 months, OPG reveals healed extraction socket.

### III. DISCUSSION

TB is a chronic granulomatous disease that can affect various systems of the body. In humans *Mycobacterium tuberculosis*, *Mycobacterium bovis* and atypical mycobacteria cause the disease.<sup>3</sup> As primary tuberculosis of the mandible is a rare condition, it is limited to a few case reports in literature.

Most common manifestations are ulcer, swelling, loosening of tooth buds. Salivary gland & temporomandibular joints may also be involved.<sup>4-5</sup> lesions remain as a painless swelling or cold abscess.

Tubercular infection of the oral tissues can be primary or secondary. Primary lesions develop when tuberculosis bacilli are directly inoculated into the oral tissues of a person who has not acquired immunity to the disease. These frequently involve gingiva, tooth extraction sockets and buccal folds.

Secondary infection of oral tissues can result from either hematogenous or lymphatic spread or from autoinoculation by infected sputum and direct extensions from neighboring structures. Most of the reported cases of mandibular tuberculosis are secondary as primary tuberculosis of the mandible is a rare occurrence<sup>6-8</sup>. In this case, the lesion was in the angle of mandible, which is the most common site of tubercular osteomyelitis, also the alveolus due to presence of cancellous bone. Infected sputum or infected milk can serve as a direct source of infection, to an extracted tooth socket or mucosal or gingival abrasions or perforation of an erupting tooth. Others routes are also suggested i.e extension from a nearby soft tissue lesion which involves the underlying bone and haematogenous seeding.<sup>9</sup> In this cases infection actually goes through extracted socket, as her complaints start after 1 week of extraction, swelling and pain did not subside after taking antibiotics and analgesic medicine. According to Chapotel, more than 60% of cases of tuberculous osteomyelitis of the mandible are seen in patients less than 15 years of age.<sup>10</sup> According to WHO Adults are more frequently affected, although cases in children have also been described.<sup>11</sup> TB osteomyelitis can occur in both sex , in this report 42 years female is affected without any systemic presentation, as we did not find any primary focus in lungs and patient is immunized with BCG( Bacillie calamatte Guerin) vaccine in childhood. BCG is used in many countries with a high prevalence of TB to prevent childhood meningitis and miliary disease.

Various presentations of TB of jaw ranges from atypical osteitis and periodontitis with horizontal bone loss.<sup>12</sup> Radiographically TB osteomyelitis resembles nonspecific osteomyelitis. At first changes start from a small radiolucent area due to decalcification of bone, lesion is clinically undetectable at this stage. As disease progresses, bone is destroyed, caseation appears, followed by softening and liquefaction, subperiosteal abscess form , presenting as painless soft swelling, this cold abscess may burst intra or extra orally. In our present case, radiographic examination reveals, presence of an ill-defined osteolytic lesion around the left 2<sup>nd</sup> molar tooth and there is an unhealed extraction socket.(fig 2 ) Patient is on antitubercular therapy of four conventional drugs in the form of rifampicin, isoniazid, pyrazinamide and ethambutol , for a period of 12 months. However, because of the paucibacillary nature of diseases, WHO recommends a short 6 months course. Patient is now on follow-up. ( fig 4 -5)

We should consider tuberculosis as a differential diagnosis of a mandibular swelling and jaw osteomyelitis.

#### IV. CONCLUSION

Though Tb osteomyelitis is a rare occurrence , Dental professionals must keep in mind it as a differential diagnosis.

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