

## Case Report

# Periodontal disease as the initial oral manifestation of abdominal tuberculosis

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## ABSTRACT

Tuberculosis is a chronic, specific granulomatous disease and a major cause of death in developing countries. We report a case of tuberculosis presenting first as periodontal loss of tooth support leading to loose teeth and gingival enlargement affecting a 17-year-old female patient without any pulmonary lesion. Diagnosis was based on histopathological examination and positive adenosine deaminase activity *Mycobacterium tuberculosis* test. The clinical presentation of tuberculosis may take many forms. However, with the decline in numbers, tuberculosis lesions of the oral cavity have become so rare that they are frequently overlooked in the differential diagnosis of oral lesions. Also, this case report emphasizes the need for dental clinicians to be aware of the possibility of tuberculosis presenting first in the oral cavity, and contribute in control of tuberculosis through early detection and referring the patients to physicians for proper treatment.

**Key Words:** Gingival enlargement, mycobacterium, periodontal disease, tuberculosis

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## INTRODUCTION

Tuberculosis is a chronic granulomatosis disease that affects various systems of the body. It remains a major health problem in most developing countries. India accounts for nearly one-third of the global burden of tuberculosis. Every year, approximately 2.2 million persons develop tuberculosis, of which about one million are new-smear positive highly infective cases and about five lakh people die of tuberculosis every year.<sup>[1,2]</sup> Although extrapulmonary tuberculosis is rare, occurring in 10-15% of all the cases, it can affect any part of the body, including the oral cavity.<sup>[3]</sup> Primary oral tuberculosis is extremely rare, and generally occurs in young adults. It usually involves the gingiva as a painless lesion.<sup>[4]</sup> Secondary oral tuberculosis, on

the other hand, is common and is usually seen in older adults, involving the tongue, palate, lips, buccal mucosa and gingiva.<sup>[5]</sup> But, as the incidence of tuberculosis in our country is quite high, all atypical manifestations of tuberculosis are likely to be seen occasionally. There are few recorded cases of gingival tuberculosis in the literature. The clinical presentation of tuberculosis may take many forms. Here, we report a case of tuberculosis presenting first as periodontal loss of tooth support leading to loose teeth and gingival enlargement without pulmonary involvement.

## BRIEF DESCRIPTION OF THE CASE

A female patient aged 17 years presented to the dental clinic with chief complaints of pain, loose back teeth in both arches since 6 months and space between upper and lower teeth. There was no history of injury or contact with a tuberculous patient. She was treated by local doctors with antibiotics and vitamins supplements. As there was no improvement, she presented to this clinic.

The patient had a history of mild intermittent increasing temperature over the last 3 months. She

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had generalized weight loss of 8-10 kg over a period of 8 months along with loss of appetite. Her medical history revealed no systemic involvement and no history of cough with expectoration. One of her younger brothers is asthmatic and under medication. She had dental history of extraction of the right third molar (48) under local anesthesia.

On examination, her general condition and vital signs were normal. Extraoral examination revealed no facial asymmetry. The submandibular lymph nodes were enlarged and firm on palpation.

Intraoral examination showed generalized inflammatory gingival enlargement and periodontal pockets with all posterior teeth in both the arches with moderate to severe mobility. The molars were tender on percussion. A red indurated soft swelling was present palatally in relation to the 24, 25 and 26 regions, extending near to the midpalatal suture [Figures 1 and 2]. The oral hygiene of the patient was fair. The lips were incompetent. The chest was clinically clear.

The patient was advised antibiotics and analgesics, chest X-ray, Orthopantomogram and Mantoux test.

The Mantoux test was negative. Chest X-ray showed no abnormality. OPG revealed moderate to severe bone loss in relation to the molars on both the arches and a palatal radiolucency in relation to the 24, 25 and 26 regions [Figure 3].

An incisional biopsy was performed on the labial gingiva in relation to the maxillary right molars. Histopathological examination showed papillomatous hyperplasia of the stratified squamous epithelium along with parakeratosis. In the sub-epithelial tissue, there were granulomas formed by epithelioid cells, Langerhans-type giant cells, lymphocytes and some caseous necrosis [Figure 4]. The granulomas were present in the upper part of the sub-epithelial tissue and even intra-epithelially. The features were suggestive of tuberculous granulomatous lesion. She reported after 2 days with a complaint of stomach fullness and unable



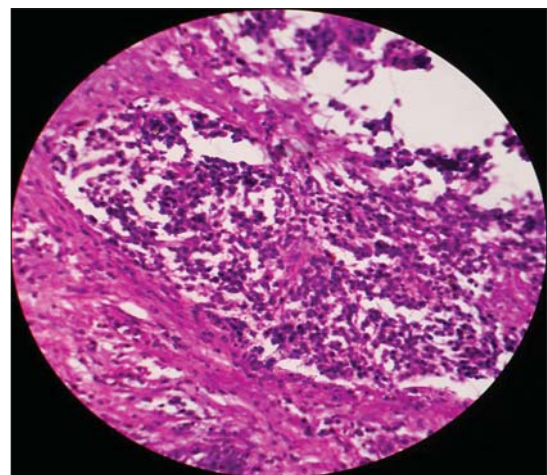
**Figure 1:** Buccal view of periodontal changes in relation to posterior teeth



**Figure 2:** Occlusal view of showing palatal swelling and periodontal changes buccally



**Figure 3:** OPG showing moderate to severe bone loss in relation to posterior teeth on both the arches and a palatal radiolucency



**Figure 4:** Histologic image showing papillomatous hyperplasia along with parakeratosis and granulomas formed by epithelioid cells, Langerhans-type giant cells, lymphocytes and some caseous necrosis

to take medicines and food, for which she was then referred to a gastroenterologist. The gastroenterologist advised abdominal ultrasonography and quantitative adenosine deaminase activity *Mycobacterium tuberculosis* (ADA MTB) test of serum, plasma and biological fluids. The report of ultrasonography revealed ascitis with mucosal thickening of the segment of small bowel and bilateral ovarian enlargement. The ADA MTB test revealed positive for abdominal Koch, with a total ADA value of 83.3U/L h. The report from the gastroenterologist suggested abdominal tuberculosis with bilateral ovarian enlargement. On the basis of the biopsy report, abdominal ultrasonography and ADA MTB test, the patient was diagnosed as a case of abdominal tuberculosis presenting first in the oral cavity as periodontal involvement.

On consultation with the physician, the patient was admitted in the hospital and 14 L of ascitis fluid was removed and anti-tubercular therapy was initiated with isoniazid (10 mg/kg of body weight), rifampicin (10-20 mg/kg of body weight) and pyrazinamide (10-20 mg/kg of body weight) for 2 months, followed by isoniazid and rifampicin for the following 4 months. During the period, the patient was instructed not to undergo any surgical procedure within the oral cavity and was warned of transmitting the disease to others

## DISCUSSION

Tuberculosis describes an infectious disease that has plagued humans since the Neolithic times. Physicians in ancient Greece called this illness “phthisis” to reflect its wasting character. Tuberculosis remains the leading cause of death worldwide. The vulnerability to tuberculosis in developing countries results from poverty, economic recession and malnutrition.<sup>[1,2]</sup> Extrapulmonary tuberculosis, like tuberculosis of periodontal tissue, is an uncommon condition. Even in our country where tuberculosis is very common, involvement of periodontal tissue with tuberculosis has probably been reported very rarely. Oral tuberculosis is usually post-primary and occurs in patients affected with advanced pulmonary tuberculosis. Oral tuberculous lesions appear in the form of nodules, ulcers or elevated fissures. The sites most frequently affected are the tongue, hard and soft palate, tonsils and pharynx. It may occur in the buccal mucosa, gingiva and at the commissures of the lips.<sup>[6,7]</sup>

The reason for its rare occurrence in the oral cavity may be intact squamous epithelium resisting direct

penetration by bacteria.<sup>[8]</sup> This resistance may also be attributed to the thickness of the oral epithelium and protective action of saliva.<sup>[9]</sup> Thus, it has been suggested that organisms enter the oral mucosa through a small breach on the surface or any local trauma.<sup>[10]</sup> The organism is likely to be carried to the oral tissue by the hematogenous route.<sup>[11]</sup>

The case documented here may be one of the first cases of oral tuberculosis to be presented as periodontal involvement instead of appearing as ulcer or any mass. In this case, the patient was unaware of the systemic involvement and the periodontal finding, and the follow-up of the patient suggested us to opt for further investigation. The patient was referred to a gastroenterologist for complaints of stomach fullness, for which various tests were advised. The diagnosis was supported by histopathological presentation of granulomatous lesion, radiographic finding, abdominal ultrasonography finding and ADA MTB positive test. The possibility of drug-induced enlargement was ruled out on medical history. Results of complete blood count were within normal limits, except for hemoglobin 9.6% and an elevated ESR of 46 mm/h, which ruled out leukemia-associated enlargement and raised the possibility of one of the more common causes of elevated ESR, suggesting tuberculosis infection. HIV test was negative.

We presume that due to the extraction of the lower right third molar (48), the patient might have developed breach in the epithelium or by hematogenous spread, favoring the entry of the organism.

## CLINICAL IMPLICATIONS AND CONCLUSION

Periodontal finding as an initial manifestation of tuberculosis is a relatively uncommon occurrence, and this case report emphasizes the need for the clinician to include tuberculosis in the differential diagnosis of various types of oral lesions. Dental clinicians need to be aware of this possibility and play a role in early detection and prompt treatment in the management of this highly infectious and communicable disease.

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