

Oral Tuberculosis: A Rare Clinical Presentation

Abstract:

Tuberculous lesions of the oral cavity are so infrequent that it has become virtually a forgotten disease entity and may pose a diagnostic problem. This case report highlights 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. The purpose of this report is also to review the more pertinent features of the condition.

Key-words: Tuberculosis, oral cavity, differential diagnosis, Mantoux test

Introduction:

Tuberculosis (TB) is a chronic granulomatous infectious disease caused by *Mycobacterium tuberculosis* (*Mtb*), *Mycobacterium bovis* and Atypical mycobacteria.[1] The most common form of the disease is pulmonary TB. But it can also affect the kidneys, bone, skin, oral cavity, lymph nodes, and meninges. Most of the times, the first contact with the disease is through inhalation of the bacilli through dust or droplets. The primary complex of tuberculosis is formed by the initial infection, which results in small parenchymatous lesions in the lungs, draining lymphatics, and lymph nodes.[2] Either fibrosis and calcification can heal the primary lesions in the lungs, or if the immune response is weak, the lesions may spread through the blood vessels or lymphatics and become disseminated, miliary TB which can become life threatening. However, even after clinical healing, the bacilli can remain dormant for several years and reactivate in future.[2,3]

Secondary TB is the other form of this illness, which can arise from an endogenous spread of the infection or from a healed primary focus. Secondary tuberculosis is typically chronic and can result in significant tissue damage, including fibrosis, cavity formation, and/or caseation.[3, 4]

Despite a decrease in the prevalence of TB cases worldwide, India bears a quarter of the world's TB burden. When making a differential diagnosis for oral lesions, oral TB is typically disregarded because it is regarded as a rare entity. Extra-pulmonary TB accounts for 25% of the cases with 10–35% detected in the head and neck region.[1,2] Oral TB prevalence ranges from 0.5% to 1% of all tubercular cases.[3]

Lesions in the oral cavity can result from primary or secondary tuberculosis. When oral lesions of tuberculosis are the only manifestations of the disease, the clinician may face a

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diagnostic challenge.[5,6] For early diagnosis and interception of primary TB, oral lesions play a crucial role. Dentists should include TB in the differential diagnosis of certain suspicious lesions to intercept the disease early.

Case Report:

A 44-year-old male patient reported in Department of Periodontology, RUHS College of Dental Sciences, Jaipur, on 2nd July 2022 with a 2 year history of soreness and a non-healing lesions in oral cavity. He also complained of episodic fever and slight weight loss along with decreased appetite in the last 4 months. He was not on any medications and had no history of any allergy. He was a chronic smoker since 23 years and was unable to give up the habit. No additional oral abnormalities were found during the physical examination. His left submandibular lymph nodes were not enlarged and non tender to palpation. His generalized clinical attachment loss and poor oral hygiene were assessed intraorally.

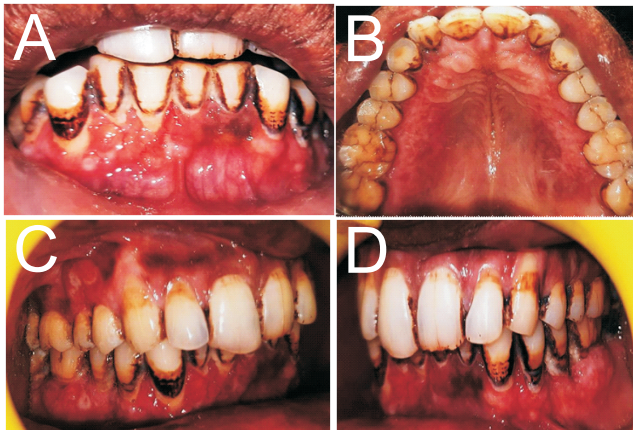


Figure 1: Intra-oral presentation of white lesions involving attached gingiva and alveolar mucosa along with several soft, indurated lesions with surrounding erythema a] front view, b] palatal view, c] right lateral view and d] left lateral view.

Oral hygiene instructions, analgesics, and orthopantomogram were advised to the patient and referred to general physician where he was undergone through blood investigations and chest X-ray. The eosinophil [300 cells /microliter of blood], monocyte count [1180 cells/ microliter of blood] and C-reactive protein (46.7 mg/L) were found to be very high in hematological investigations. There was no improvement clinically in the condition of the patient.

Radiographic Examination:

Panoramic radiographs revealed moderate to severe bone loss in relation to the molars on both the arches with no other abnormality in maxillofacial region were detected [Fig 2]. No abnormality was detected on radiographic analysis of chest. [Fig 3]

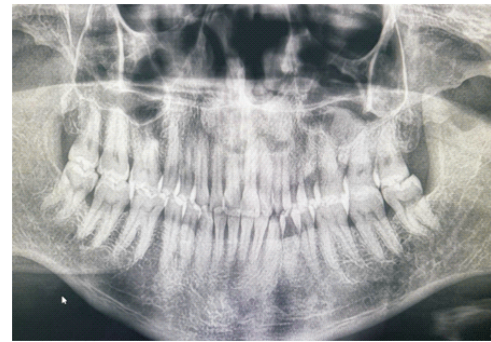


Figure 2: Panoramic view of the patient showing bone loss involving #26, #36 and #46 regions. No other findings were appeared.

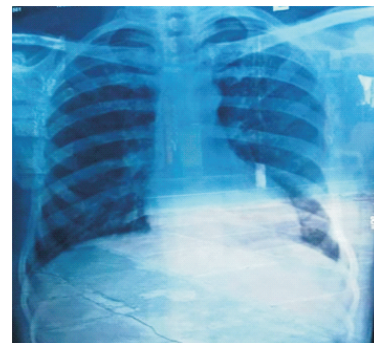


Figure 3: Chest X-ray of the patient showing no abnormality.

Histopathological Examination:

An incisional biopsy was performed on the palatal aspect in relation to #24 [Fig 4] and was stained according to the hematoxylin-Eosin (HE) and Ziehl-Neelsen (BAAR) protocols. The histopathological analysis showed hyperplasia of the stratified squamous epithelium with continuity break in few areas. The underlying connective tissue contained abundant chronic inflammatory cells mixed with many multinucleated giant cells [2-4 in number]. Necrotic areas extending to adipose tissue & muscle fibers were also seen along with few engorged blood vessels & haemorrhage [Fig 5 a, b and c]. These features were suggestive of chronic non-specific granulomatous lesion.

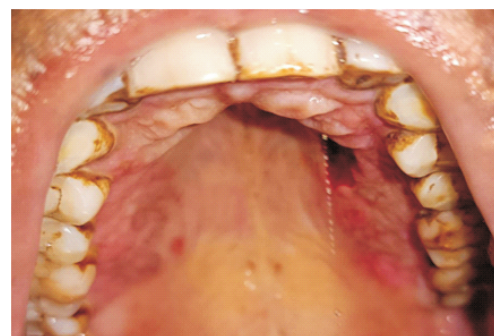


Figure 4: A 5 X 8mm size biopsy specimen was incised from palatal aspect of #24.

As the histo-pathological analysis of the incised biopsy specimen was inconclusive, patient was advised Mantoux assay for confirmation and to rule out Koch's etiology. The Mantoux test result was determined to be positive. Patient was referred to a pulmonologist for further examination and treatment based on the immunological reports. The patient was advised not to undergo any surgical procedure within the oral cavity and was warned of transmitting the disease to others during the period.

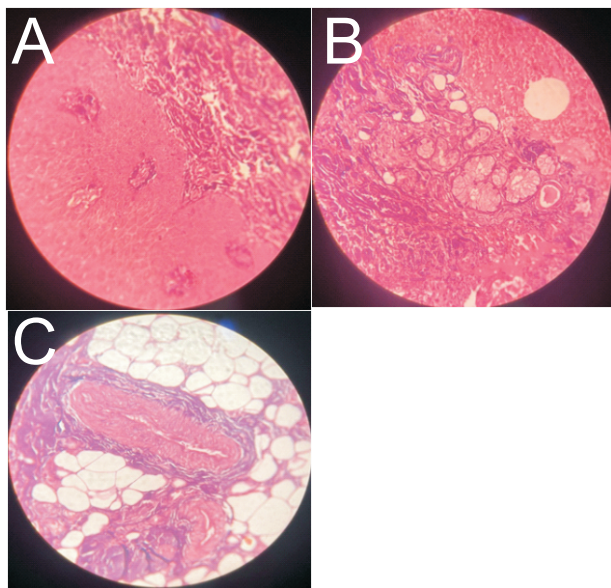


Figure 5: Histopathological view with H&E stain and Ziehl-Neelsen a) under 4X magnification, b) under 10X and c) under 40X magnification.

Discussion:

TB is an essentially airborne disease whose transmission depends on prolonged contact with an infected patient and is still among the most life-threatening infectious diseases, resulting in high mortality in adults.[7] The efficiency of transmission is a function of the patient's contagious potential [which is associated with *M. tuberculosis* load], the intensity and frequency of cough, and presence of lung cavitation [based on radiographic examination]. In addition, the intensity and duration of contacts with a TB patient also are important to bring about the possibility of TB diagnosis, but Mantoux test remains the standard test.[4,8]

A significant proportion of patients (15-25%) exist in whom the active TB infection is manifested in an extrapulmonary site.[3,4,9] The oral lesions may present in a variety of forms, such as ulcers, nodules, tuberculomas, and periapical granulomas, and are often overlooked in the differential diagnosis of other oral lesions as oral TB lesions account for approximately 0.1% to 5% of the infections caused by *M. tuberculosis*. [10,11]

Farber et al indicated that less than 0.1% of tuberculosis patients whom they examined exhibited oral lesions.[12] According to **Tiecke**, the prevalence of oral manifestations in patients with pulmonary tuberculosis ranges from 0.8% - 3.5%.[13]

Oral lesions may be categorized into primary, which are a result of the autoinoculation of oral tissues and are rare, or secondary, which is more prevalent in elderly patients occur due to hematogenous or lymphatic dissemination and extensions of nearby structures. [14] They may be single or multiple, painful or painless and usually appear as irregular, well-circumscribed ulcer with surrounding erythema without induration and satellite lesions are commonly found. [10,14] Primary lesions present as single painless ulcer with regional lymph node enlargement while secondary lesions are often associated with pulmonary disease, usually present as single, indurated, irregular, painful ulcer covered by inflammatory exudates.[3,14]

The identification of a TB lesion in any location in the mouth is an unusual finding and its discovery is usually indicative of underlying pulmonary disease. Therefore, in all cases of oral cavity TB, search for primary site of the disease should always be considered even in the absence of any signs and symptoms.[7,8]

If there is no systemic involvement, one should go for excisional biopsy for tissue diagnosis and bacteriologic examination with culture for a definitive diagnosis. Due to the comparatively low count of microorganisms in the tissues analyzed the efficiency of demonstration of acid fast bacilli in histological specimens is quite low.[9,10] Therefore, a negative result does not completely rule out the possibility of TB. A chest x-ray and a Mantoux skin test are mandatory for confirming systemic TB. The definitive diagnosis of TB was confirmed by the tuberculin skin test (TST) (Mantoux test) and IGRA (QFT).[11]

Being rapid and easy to apply, TST is usually used as an immunodiagnostic tool, but it suffers from poor specificity due to the cross-reaction of non-TB mycobacteria or *Bacillus Calmette-Guérin* (BCG) vaccination. IGRAs have emerged as a more specific alternative to TST for the detection of TB infection, as these tests are not confounded by prior BCG vaccination. [11,15]

In patients who have asymptomatic oral lesions and are unaware of the disease, the dentist should realize the importance of his role in detection of TB. However, the mere diagnosis of such lesions is not sufficient and a persistent

follow-up is of equal importance. Since the patient may be a potential source of infection transmission, TB identification is important not only for the patient but also for the dental team that interacts with him and the community at large.[15]

Conclusion:

This case is rare as the painful oral lesions made the patient to seek the professional dental care that led to the diagnosis of tuberculosis.

Many a times, unusual form of oral lesions without any systemic involvement are likely to occur and be misdiagnosed. Given that TB can mimic a number of other conditions, this is particularly crucial in light of the challenging clinical diagnosis. Because TB is becoming more common, dentists should be aware of its oral manifestations and take them into account when making a differential diagnosis for any granulated erythematous lesions, ulcerated lesions, or single or multiple indurated lesions of the oral cavity.

A pulmonary or infectious disease specialist should be consulted if tuberculosis is suspected in order to confirm the final diagnosis and course of treatment.

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