

# Oral Manifestations Of Tuberculosis-A Review

Dr. R.Hariharan, Dr.N.Aravindh Babu, Dr.K.M.K.Masthan, Dr.R.Jayasri Krupaa,

*Post graduate student, Department of Oral pathology and Microbiology*

*Sree Balaji Dental College and Hospital*

*Bharath Institute of Higher Education and Research*

## **ABSTRACT-**

*Tuberculosis is a chronic infectious disease which affects many parts of the body including the oral cavity. The disease caused by mycobacterium can spread through the blood and may affect all parts of the body including the oral cavity affecting the maxilla and mandible. It affects the tongue and expressed as various lesions. Though their occurrence and manifestation in the oral cavity is rare a proper knowledge about these features and lesions is important for the diagnosis.*

*lesion*

**KEYWORDS:** *Tuberculosis , oral cavity ,*

## **INTRODUCTION**

Tuberculosis is a chronic granulomatous illness brought about by different strains of mycobacteria, typically *Mycobacterium Tuberculosis*<sup>[1]</sup>. The most common route of transmission is by the inhalation of droplets of *Mycobacterium tuberculosis*. Robert Koch, a German doctor, found the *Tuberculosis bacillus* in 1882<sup>[2]</sup>. TB has been a worldwide health problem for centuries. According to World Health Organization (WHO), 2 billion people, or one third of world's population, are infected with tuberculous bacilli, and the global tuberculosis incidence is growing at 1% a year<sup>[3]</sup>. In spite of the fact that the infection's predominance diminished many years back, it actually has incredibly high predominance in Asian nations. India represents almost 33% of worldwide weight of tuberculosis. It might take any frame clinically, yet with decrease in number, these tuberculosis lesions of oral cavity have become so uncommon that they are every now and again disregarded in the differential diagnosis of oral lesions<sup>[4,5]</sup>. The disease spreads by aerosol droplets expelled by people with the active disease of the lungs when they cough and sneeze, speak, kiss, or spit. These infectious droplets are 0.5 to 5 micrometer in diameter and about 40,000 can be produced by a single sneeze. The disease can also spread through the sharing of the unsterilized utensils of the infected person, in rare cases, it can spread from a pregnant woman with active TB to her foetus. The organism may involve any organ in the body, producing acute, latent and chronic forms of the disease. Tuberculosis commonly affects lungs but also affects the intestines, meninges, bones, joints, lymph glands, skin and other tissues of the body. The disease also affects animals like cattle and this is known as Bovine tuberculosis sometimes communicated to man. Males are affected more than females in India. The risk of infection, however, is much greater among people in lower socioeconomic groups and circumstances that favour contact with people who have the active form of disease, are the most 4-7 important determinants of prevalence. The oral cavity is a rare location of tuberculous infection. With the increasing prevalence of tuberculosis, unusual forms of the diseases in the oral cavity are more likely to occur and misdiagnosed. This article highlights the potential oral manifestations of tuberculosis. Although oral indications of tuberculosis has an uncommon occurrence, it has been considered to represent 0.1-5% of all TB contaminations. These lesions are generally optionally inoculated with tainted sputum or due to hematogenous spread. These days, oral signs of TB are re-showing up close by many overlooked extrapulmonary contaminations as a result of the flare-up and development of medication safe TB and of the rise of AIDS<sup>[5]</sup>. With the increasing prevalence of tuberculosis, unusual forms of the diseases in the oral cavity are more likely to occur and misdiagnosed. This article highlights the potential oral manifestations of tuberculosis

## **HISTORY:**

History of Tuberculosis runs to about 15,000 to 20,000 years back. It has been found in relics from antiquated Egypt, China and India. Archeologists have identified spinal tuberculosis as Pott's infection in Egyptian mummies. It was known as King's abhorrent. In the eighteenth century, as much as, 900 patients per 100,000 were infected and was named as white plague. After Robert Koch showed the causative life form in 1882, Edward Livingston Trudeau in 1884 began the idea of secluding these patients from the general public, treating them with rest and nourishment<sup>[6]</sup>. In the year 1904, National Tuberculosis Association (American Lung Association) appeared<sup>[6]</sup>. Afterward, Bacillus Calmette Guerin was imagined by Albert Calmette also, Camille Guerin in Lille, France in 1908. However, it was first utilized in people in 1921 it made a revolution and now this vaccine is counted in WHO's list of most essential medication for basic health system. In spite of the fact that, the incidence of tuberculosis is towards decrease in today's times, complete eradication of this disease seems difficult due to concomitant infections of HIV and developing extensively resistant strains causing Tuberculosis.

### **ORAL LESIONS:**

Primary pulmonary tuberculosis is generally found in kids yet, may occur in adults also. In most of the cases, it is asymptomatic. It might present as a challenge during diagnosis for the clinician. Papular nodules, which often ulcerate, are seen on the skin especially on the face of children or grown-ups and is persistent. Primary TB includes different destinations of oral cavity - gingiva, muco buccal folds and inflammatory foci on adjoining teeth or extraction site<sup>[7,8]</sup>. Secondary tuberculosis is more common among older patients and is generally a complexity of pulmonary ailment. In secondary tuberculosis, the oral signs may accompany with lesions in lungs, lymph nodes or in some other portions of body and can be identified by systematic assessment. Lesions of secondary tuberculosis may happen at any site on the oral mucosa however the tongue and gingiva are the most widely recognized locales of disease followed by that of tooth socket, soft palate, floor of mouth, lips, frenum also, buccal mucosa.<sup>[7,8,9]</sup> Tuberculous lesions of the oral cavity do happen, yet are generally unprecedented. They are seen in both, primary and secondary phases of tuberculosis. Primary oral tuberculous sores are uncommon, as early determination and treatment of TB somewhere else in the body might be the explanation for its uncommon presentation. There is a common notion that lesions of the oral cavity are seldom primary rather a secondary response to pulmonary disease. The micro-organisms can be carried through sputum and enter the oral cavity through a break in the surface. The microbes can also be deposited in the oral mucosa through the haematogenous route and may proliferate and ulcerate the overlying mucosa. The lowered resistance of the individual and the virulence of the bacteria play an important role as the systemic pre disposing factors. The local pre disposing factors include poor oral hygiene, local trauma, , the presence of existing lesions like leukoplakia, periapical granuloma, dental cyst, dental abscess, jaw fracture and periodontitis<sup>[8,9]</sup>. The most commonly occurring oral lesion in tuberculosis is the oral ulcer. The usual presentation of the ulcer is slow growing irregular, superficial / deep, single / multiple, ragged/ undermined edges, painful / painless, well circumscribed with surrounding erythema with minimal induration and yellowish granular base. Satellite lesions are commonly found in the mouth. The lesion may be preceded by an opalescent vesicle or nodule which may break down as a result of caseation necrosis to form an ulcer. Tiny single or multiple nodules called 'sentinel tubercles' may surround the ulcer. The ulcer is frequently found in areas of trauma and may be mistaken clinically for a simple traumatic ulcer<sup>[10]</sup>. The lateral border, tip, anterior dorsum and ventral surface are the common areas of occurrence in tongue. The lesions are usually painful, greyish-yellow, firm and well demarcated. The gingival lesions may be present as exuberant and granulating or as mucosal erosions. Sometimes these lesions may be seen simultaneously with marginal periodontitis<sup>[8,10]</sup>. The differential diagnosis for the ulcers caused due to tuberculosis are aphthous ulcers, traumatic ulcers, syphilitic ulcers and malignancy, including squamous cell carcinoma, lymphoma and metastasis. Then with the histological features the ulcer may be considered as tuberculous lesion. The differential diagnosis based on histological features will be sarcoidosis, crohn's disease, deep mycoses, cat-scratch disease, foreign-body reactions, tertiary syphilis and melkerson-rosenthal syndrome<sup>[7,11]</sup>. The oral lesions in TB can also present as nodules, fissures, plaques, vesicles, tuberculomas or granulomas. Primary tuberculosis presents on the gingiva as fiery red, irregular, papillary proliferation with pebbled or granular appearance. These lesions are very painful and start to bleed spontaneously on touch.<sup>[7,10,11]</sup> Both the maxilla and mandible may be affected by tuberculosis. The micro organisms may also enter the blood stream through the periapical inflammation that may occur in the pulp. The microbes may enter the periapical tissue through the root canal from the open cavity in the teeth. The lesion produced is essentially a 'tuberculous periapical

granuloma' or 'tuberculoma'. If the haematogenous spread is severe the maxilla and mandible may be affected leading to even extraction of teeth. Tuberculous osteomyelitis frequently occurs in the later stages of the disease and has an unfavourable prognosis. The mandible shows a greater predisposition to the infection than maxilla.<sup>[9,10,11]</sup>

### **ROLE OF AN ORAL PATHOLOGIST :**

Clinicians think that its hard to separate oral TB from different conditions based on clinical signs and indications alone. While assessing a chronic, indurated ulcer, clinicians ought to think about differential diagnosis like primary syphilis, profound parasitic infections and noninfectious cycles, for example, persistent horrendous ulcer and squamous cell carcinoma. In the event that there is no systemic involvement one ought to go for excisional biopsy for tissue diagnosis furthermore, bacteriologic assessment with culture for a complete conclusion. As indicated by different examinations just a small rate (7.8%) of histopathology examples stain positive for acid fast bacilli. In this manner, a negative outcome doesn't preclude totally the probability of TB. Another worry is the occurrence of tuberculosis as a part of AIDS. The low count of lymphocytes and atypical non-caseating epithelioid granuloma found in the histology of this case showed an immunocompromised state. Histologically, an immunocompromised patient may not show granuloma or caseation. This represents a likely issue in diagnosing tuberculosis. A radiological assessment of chest and a Mantoux skin test are obligatory to preclude foundational TB. A biopsy of an oral lesion is confirmatory however in majority of the cases, a solitary biopsy may not do the trick in light of the fact that the granulomatous changes may not be apparent in early sores. The injury is in the long run revealed by repeat biopsies. The differential diagnosis is made with the identification of a caseating granuloma with related epithelioid cells and giant cells of the Langerhans type during histological assessment of biopsied tissue. More profound biopsies are continuously upheld for ulcers of the tongue; a shallow biopsy may not uncover the etiology because of epithelial hyperplasia. Fine-needle aspirate cytology is a profoundly explicit and delicate instrument for recognizing parotitis or potentially TB in major salivary organs<sup>[12]</sup>. The set of experiences detailed by the patient and the clinical and radiological assessment have a significant impact in the conclusion of TB. In any case, research facility affirmation and careful histopathological assessment is generally fundamental for the conclusion, with culture of microorganisms taken as irrefutably the verification of the sickness.

### **DISCUSSION:**

A large number of dentists and consultants in otolaryngology in India have limited experience with the tuberculosis of the upper aero digestive tract since its oral lesions are non-specific in its clinical presentation and are often ignored in the differential diagnosis. This is very common in cases where oral lesions are present before the systemic symptoms become apparent. The oral tuberculous lesion can be either primary, secondary to pulmonary tuberculosis. The tongue, gingiva, palate are the most commonly affected areas in the oral cavity. The dorsum of the tongue is the most commonly affected area. The diagnosis of these lesions become challenging as they resemble the aphthous ulcers, traumatic ulcer as the differential diagnosis are many. Even the histologic examinations may be misleading as the granulomatous lesion resembles closely with Crohn's disease, cat scratch disease and tertiary syphilis. Confirmatory diagnosis of tuberculosis is the presence of Acid Fast bacilli in the specimen or can also be confirmed by culture of tuberculosis bacilli<sup>[13]</sup>. Sputum culture and radiographic evidence are other supportive modes of confirmatory diagnosis. A protocol of taking multiple deeper biopsies can also eventually make the job easier. Mandatory steps should be followed to rule out systemic TB like a chest x-ray and a Mantoux skin test. Administration of standard antitubercular therapy, with antibiotics such as isoniazid, rifampicin, pyrazinamide, and ethambutol for six months, is essential for the complete eradication of tubercular lesion

### **CONCLUSION:**

The incidence of oral lesions in tuberculosis cases is very less, so each and every persistent and atypical oral lesion must be examined carefully to intercept and prevent the disease early. Intercepting the disease early will increase the morbidity and mortality of the patients. So it becomes the duty of the dentist to include tuberculosis in differential diagnosis of suspicious oral lesions to avoid the needless delay in the treatment of this disease.

**REFERENCES:**

1. Zoulounis L Lairidis N, et al. Primary tuberculosis of the oral cavity. *Oral Surg Oral Med Oral Pathol.* 1991;72:712-15.
2. Gregory and Guptha RB. Incidence of oral manifestations in Tuberculosis. *Journal of Oral Maxillofacial Surgery.* 1980;53(2):1334-40.
3. Bahar Sezer, Mert Zeytinoglu, Umit Tuncay And Taha Unal- Oral Mucosal Ulceration: A Manifestation Of Previously Undiagnosed Pulmonary Tuberculosis –*Journal of American Dental Association* 2004,135, 336-340
4. Raviglione MC, Sunder P. and Rieder HL. Secular trends of Tuberculosis in western Europe. *Bull WHO.* 1993;71:297-306.
5. Styblok. Overview and Epidemiologic assessment of the current global Tuberculosis situation with an emphasis on control in developing countries. *Review of infectious disease.* 1989;(11):5338-46.
6. Ananya Mandal MD. History of Tuberculosis. *News Medical.net* 2014.
7. Gupta A, Shinde H, Bhardwaj I. Primary lingual tuberculosis: A Case Report. *Journal of Laryngol Otol* 1998;112:86-7
8. Greenberg M, Glick M, Ship J - *Burket's Oral Medicine -11th Edition, Publisher- B. C. Decker Hamilton.*
9. Bahar Sezer, Mert Zeytinoglu, Umit Tuncay And Taha Unal- Oral Mucosal Ulceration: A Manifestation Of Previously Undiagnosed Pulmonary Tuberculosis –*Journal of American Dental Association* 2004,135, 336-340
10. Shafer, Hine, Levi - *Shafer's Textbook Of Oral Pathology -5th Edition, Publisher- Elsevier publications*
11. Prem Gupta, Sanjay Fotedar, Dipti Agrawal, Pradeep Sansanwal-Primary Tuberculous Glossitis in an immuno-competent patient –Case Report. *Hong Kong Med J* Vol 13 No.4 330-1, August 2007
12. Erkan AN, Cakmak O, Kayaselcuk F, Koksall F, Ozlu glu L. Bilateral parotid gland tuberculosis: *Eur Arch Otorhinolaringol.* 2006;263:487-89
13. Bahar S, Zeytinoglu M, Tuncay U, Unal T. Oral mucosal ulceration- a manifestation of previously undiagnosed pulmonary tuberculosis. *JADA.* 2004;135:336-40
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