

# Tuberculous Ulcer of Oral Cavity

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## ABSTRACT

**Introduction:** Tuberculosis (TB) is a chronic granulomatous infection caused primarily by *Mycobacterium tuberculosis*. Although the pulmonary system is most commonly affected, TB can be manifested in other regions (extrapulmonary) including oral cavity. Oral TB can be either a primary lesion; or secondary to the underlying pulmonary TB.

**Case report:** The present case describes secondary TB manifested as a large nonhealing ulcerative lesion in the posterior palatal region of a 46-year-old male patient. Clinical examination revealed palpable submandibular and cervical lymph nodes along with a history of smoking habit, thereby leading clinicians to suspect malignancy. Biopsy and histopathological examination of the oral lesion showed caseating granulomas. On referral for further investigations, pulmonary TB was diagnosed. The patient underwent antitubercular drug therapy for 6 months and the oral lesion subsided within 1 month of treatment.

**Conclusion:** Presentation of tuberculous lesions in the oral cavity is usually nonspecific and hence, they are often mistaken for other differential diagnoses. A detailed clinical examination followed by routine laboratory investigations has a prime role in early diagnosis.

**Keywords:** Extrapulmonary tuberculosis, Oral ulcer, Secondary tuberculosis.

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## INTRODUCTION

Tuberculosis (TB) is a chronic granulomatous infection caused primarily by *Mycobacterium tuberculosis*. Tubercle bacillus is an aerobic, acid-fast organism usually transmitted via droplet inhalation. Although the pulmonary system is most commonly affected, TB can be manifested

in other regions (extrapulmonary) including the oral cavity.<sup>1</sup> Based on the World Health Organization (WHO) 2016 reports, about 10.4 million new cases and 1.8 million deaths occur globally every year. India is among the six "high burden countries" that comprise 60% of total TB cases.<sup>2</sup> Oral TB is a rare entity accounting for only 1.4% of total cases.<sup>3</sup> But currently, tuberculous oral lesions are reemerging along with other extrapulmonary manifestations as an outcome of drug-resistant TB and acquired immunodeficiency syndrome.<sup>4</sup>

This article portrays secondary TB manifested as a large nonhealing ulcerative lesion in the posterior palatal region of a 46-year-old male patient.

## CASE REPORT

A 46-year-old male patient of a low socioeconomic status reported to the Oral Medicine Department of Royal Dental College with a chief complaint of pain in the upper gum region and difficulty in swallowing since past 2 months. No obvious abnormalities were detected on general examination, and medical history was noncontributory. Both submandibular and cervical lymph nodes were palpable and nontender. The patient was a smoker for 30 years. Intraoral examination revealed a nonhealing ulceroproliferative lesion measuring approximately 4 × 4 cm size in the posterior palatal region extending towards oropharynx, left alveolus, and adjacent buccal mucosa. The lesion showed irregular borders, indurated base with areas having necrotic slough and tenderness (Fig. 1). Based on clinical findings, a provisional diagnosis of malignancy was made.

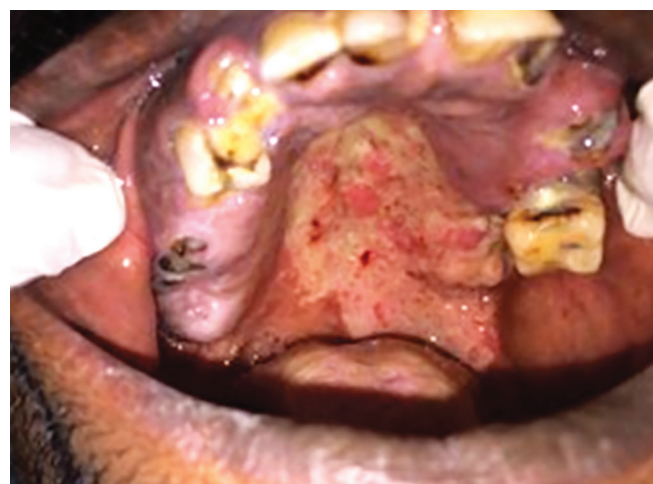


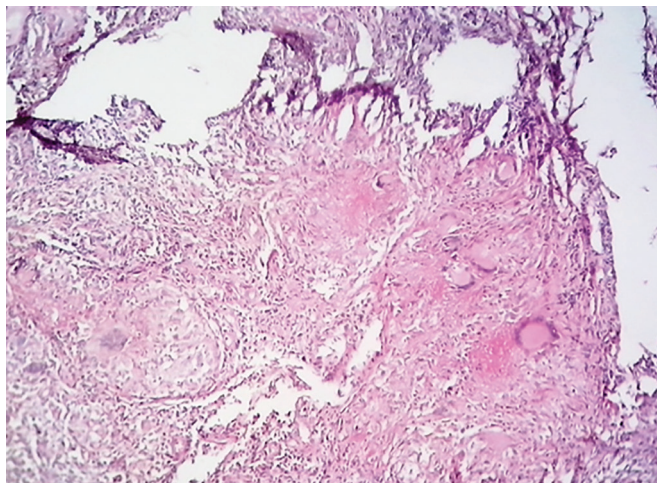
Fig. 1: Ulceroproliferative lesion in the posterior palatal region

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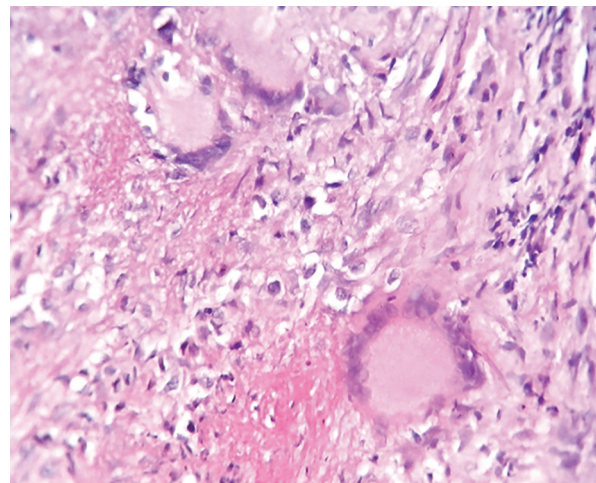
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**Fig. 2:** Photomicrograph showing granulomatous connective tissue stroma (hematoxylin and eosin, 100×)



**Fig. 3:** Granulomas composed of epithelioid cells, Langhans' giant cells, and small foci of caseous necrosis (hematoxylin and eosin 400×)

A punch biopsy was taken from the palatal region. Histopathological examination revealed ulcerated hyperplastic surface epithelium with granulomatous connective tissue stroma (Fig. 2). The connective tissue showed numerous granulomas composed of epithelioid cells, multinucleated Langhans' giant cells, and few small foci of caseous necrosis (Fig. 3). The surrounding stroma exhibited chronic inflammatory cells comprising predominantly of lymphocytes. Ziehl–Neelsen staining of tissue section for acid-fast bacilli was negative.

The patient was referred to a medical center for further investigations and treatment. Chest radiograph revealed multiple shadows on both lobes. Sputum culture showed positivity for acid-fast bacilli. Fine needle aspiration cytology of cervical lymph nodes also demonstrated granulomatous changes. The Tridot test for human immunodeficiency virus was negative. Based on these results, pulmonary TB was confirmed. The patient underwent Revised National Tuberculosis Control Programs (RNTCP) Category-1 Directly Observed Therapy, Short course (DOTS) for 6 months and the oral lesion subsided within 1 month of treatment.

## DISCUSSION

Oral TB can be either primary or secondary in origin. Primary infections are contracted by direct entry of bacilli into oral tissues, whereas secondary lesions possibly develop through autoinoculation from sputum or other body fluids.<sup>5</sup> In general, oral mucosa resists microbial entry through the thick epithelial barrier, cleansing action of saliva, salivary enzymes, antibodies, and oral saprophytes. However, any interference in the immune barrier, such as injuries, poor oral hygiene, hyperkeratotic lesions, tooth extraction, periodontal diseases, or inflammation may result in tubercular infection.<sup>6</sup> Systemic factors like

immunosuppression, malnutrition, alcoholism, drug abuse, diabetes mellitus, and tobacco smoke can influence the susceptibility to disease progression. Moreover, subjects within low socioeconomic status and health care sectors have greater risk of TB exposure.<sup>7</sup>

Primary tubercular ulcers are very rare, affecting children and young individuals. These ulcers are usually painless, may either be superficial or deep with tender lymph nodes. On the contrary, secondary lesions are seen in older age groups manifested as extremely painful ulcers with irregular undermined margins, indurated base, and slough formation. Subjects may often complain of difficulty in mastication, speech, and deglutition. Lymph nodes are palpable but usually nontender.<sup>1</sup>

Within the oral cavity, the tongue is the frequently affected site followed by gingiva, palate, buccal mucosa, lips, salivary glands, palatine tonsils, maxilla, and mandible.<sup>8</sup> Oral lesions can vary in their presentation, such as nodules, patches, ulcers, tuberculomas, periapical granulomas, or even osteomyelitis of jaws. Among these, oral ulcers are most common and due to nonspecificity of such lesions, clinical diagnosis of TB is often overlooked.<sup>4</sup>

Differential diagnosis of oral tubercular ulcers includes traumatic ulcer, aphthous ulcers, deep mycotic infections, syphilitic ulcers, and malignancies. As oral cancer is primarily suspected, biopsy remains mandatory. Histologically, other granulomatous conditions like sarcoidosis, fungal infections, actinomycosis, Wegener's granulomatosis, tertiary syphilis, Crohn's disease, foreign body reaction, Cat scratch disease, and Melkersson–Rosenthal syndrome have to be ruled out. Mostly, a single biopsy is not adequate as early lesions may not show granulomatous changes. Rather, repeat biopsies from multiple sites of a lesion are recommended for detection.<sup>9–11</sup> Nevertheless, the histopathological

examination may only provide a presumptive diagnosis of TB, as stained bacilli were visualized only in 27 to 60% of cases. Bacterial culture is considered as gold standard; here samples are obtained from sputum and surface of the lesion, but results require 10 weeks time. A chest radiograph is compulsory to detect underlying pulmonary involvement. Nowadays, interferon gamma assay is preferred over Mantoux test due to high specificity and sensitivity.<sup>1,12</sup>

Treatment modalities for both oral and pulmonary TB remain the same. As per WHO global strategy 1997, effective TB control measures are initiated through DOTS. In India, RNTCP have categorized subjects for drug regimen based on disease characteristics. Currently, most effective drug combinations include isoniazid, rifampicin, pyrazinamide, and ethambutol and along with antibiotics are essential for the complete annihilation of the disease. Additionally, local application of anti-inflammatory agents and antibiotics along with oral hygiene improvement are adjuvant for curing oral lesions.<sup>1,4</sup>

## CONCLUSION

In general, TB is a highly contagious chronic infection. Consequently, dental health care professionals and patients face a greater threat of disease transmission. Therefore, strict preventive measures including personal protection and instrument sterilization have to be maintained.

Presentation of tuberculous lesions in the oral cavity is usually nonspecific and hence, they are often mistaken for other differential diagnoses. A detailed clinical examination followed by routine laboratory investigations has a prime role in early diagnosis. Multiple biopsies of

large nonhealing lesions would increase the possibility of detecting granulomatous changes. Furthermore, it is mandatory to assess systemic involvement through chest radiograph and immunoassays.

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