LUPINE PUBLISHERS

Modern Approaches in Dentistry and Oral Health Care

DOI: 10.32474/MADOHC.2022.05.000206

ISSN: 2637-4692

Review Article

# Early Detection of Oral Tuberculosis Lesion in Preventing Disease Transmission: A Review Article

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**Received:** December 13, 2021 **Published:** January 04, 2022

## Abstract

**Background:** Oral tuberculosis lesions are rare cases. Primary oral tuberculosis without pulmonary manifestations is very rare, where most of the oral lesions are secondary TB infections that accompany pulmonary TB lesions. Tuberculosis is a high-risk case for dentists, so history taking, and proper treatment are very important to prevent transmission. The aim is to detect and identify a chronic oral ulcer due to tuberculosis early. Problem Statement: The inaccurate diagnosis of chronic oral ulcers due to tuberculosis can potentially be a source of spread of infection for both dentists and other patients.

**Discussion:** Oral tuberculosis lesions often have non-specific clinical features so that misdiagnosis often occurs, especially if the oral lesions precede the systemic symptoms of tuberculosis. Clinical dental practice has the potential to transmit various infections from patient to dentist, patient to patient, and dentist to patient due to the close distance between the patient's nasal and oral cavities.

**Conclusion:** Early identification and proper diagnosis are very important, and dentists are obliged to include tuberculosis in the differential diagnosis of suspicious oral lesions to avoid delay in treatment and high risk of transmission in the treatment of this disease.

**Keywords:** Tuberculosis; Oral Ulcer; Extrapulmonary TB; Early Diagnosis

## Introduction

Tuberculosis is a chronic infectious disease and is one of the leading causes of morbidity and mortality in the world. This disease is caused by the bacterium Mycobacterium tuberculosis, with the route of spreading through the air. Tuberculosis has various manifestations in various locations in the body, which are generally classified into pulmonary TB and extrapulmonary TB groups. The incidence of extrapulmonary TB is estimated to account for about 10-15% of total TB cases, which includes the lymphatic system, musculoskeletal system and central nervous system, skin, kidneys, and several other organs, including the oral cavity [1]. According to the 2015 WHO report, the number of TB cases in Indonesia is estimated to be 1 million new TB cases per year (399 per 100,000 population) with 100,000 deaths per year (41 per 100,000 population). An estimated 63,000 TB cases are HIV positive (25 per 100,000 population). The Case Notification Rate (CNR) of all cases was reported as 129 per 100,000 population. The total number of cases is 324,539 cases, of which 314,965 are new cases. Nationally, the estimated prevalence of HIV among TB patients is estimated at 6.2%. The number of cases of Drug Resistant TB (TB-RO) is estimated at 6700 cases originating from 1.9% of TB-RO cases from new TB cases and 12% of RO-TB cases from TB with re-treatment [2,3]. Oral tuberculosis lesions are rare cases. These ulcers are found in about 0.1-5% of all tuberculosis infections. These ulcers were found as either primary or secondary tuberculosis. Primary oral tuberculosis is more common in younger patients. Local factors that play a role in facilitating the invasion of the oral mucosa by tuberculosis include poor oral hygiene, leukoplakia, trauma and local irritation [3,4]. TB is known as an occupational risk for

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dentists, considering that dentists work in close proximity to the patient's oral cavity, where the potential for transmission through saliva during routine care procedures is very high. Accurate history of TB is needed to differentiate active cases with or without therapy or cases completed with treatment. Active cases without therapy pose a high risk for dental medical personnel so that basic preventive measures are needed in handling these cases. High-level disinfection and sterilization of equipment also needs to be carried out to prevent spread to other patients4. Aim of this study is to detect and identify early a chronic oral ulcer due to tuberculosis. Inaccurate determination of the diagnosis of chronic oral ulcers due to tuberculosis can potentially be a source of spread of infection for both dentists and other patients.

## Discussion

The mode of transmission of Tuberculosis (TB) is through inhalation of air containing sputum droplets of smear positive TB patients (65%), negative smear TB with positive culture results (26%), while TB patients with negative culture results and positive chest X-ray (17%). One cough can produce about 3000 sputum sprinkling. Which contains germs as much as 0-3500 M. tuberculosis. Meanwhile, if you sneeze, you can release as much as 4500-1,000,000 M. tuberculosis. The natural journey of TB in humans goes through 4 stages, namely exposure, infection, illness, and death [5]. The increased risk associated with exposure is influenced by the number of infectious cases in the community, the opportunity for contact, the degree of transmittance of sputum, the intensity of coughing, the source of transmission, proximity of contact, length of contact, and the concentration of germs in the air (ventilation, ultraviolet light, and filtering). The immune reaction occurs 6-14 weeks after infection. The reaction that is formed can be a local immune reaction (germs entering the alveoli are captured by macrophages, then an antigen-antibody reaction takes place), or a general immune reaction (delayed hypersensitivity which causes a positive tuberculin test result). Generally, kesi can recover completely, but the germs can be dormant and can be active again. Spread through the bloodstream or lymph may occur before the lesion has healed [6]. Oral lesions of tuberculosis often have non-specific clinical features and are often misdiagnosed, especially if the oral lesions precede the systemic symptoms of tuberculosis.Oral tuberculosis was found as both primary and secondary tuberculosis. Primary oral tuberculosis without pulmonary manifestations is very rare, and most oral lesions are secondary TB infections that accompany pulmonary TB lesions. Oral tuberculosis lesions can be ulcers, nodules, tuberculomas, or periapical granulomas. The manifestation of the primary lesion is often a single, painless ulcer with regional lymph node enlargement. Meanwhile, secondary lesions are more common, often manifesting as a single painful ulcer, irregular in shape, indurated covered by an inflammatory exudate [7]. Oral tuberculosis can occur at any location on the oral mucosa, with a higher predilection for the tongue. Other locations include the palate, lips, buccal mucosa, gingiva, palatine tonsils, and floor of the mouth. Primary tuberculosis is often found in the gingiva, mucobuccal fold, and at the extraction site. Meanwhile, secondary oral tuberculosis is often found on the tongue, lips, buccal mucosa, and rarely on the palate, gingival mucosa and frenulum of the tongue [1,8].

Although it is rare, doctors and dentists need to recognize tuberculosis oral lesions and consider them as a differential diagnosis in cases of suspicious oral ulcers. Tuberculosis in the oral cavity often resembles cancerous lesions and several other ulcers such as traumatic ulcers, aphthous ulcers, actinomycosis, syphilitic ulcers and so on. Excavation of the history of the previous disease and the onset of ulcers as well as a careful physical examination are very important in establishing the diagnosis of the cause of oral ulcers [9,10]. Clinical dental practice has the potential to transmit various infections from patient to dentist, patient to patient, and dentist to patient due to the close distance between the patient's nasal and oral cavities. Therefore, a barrier is needed to prevent infection transmission and to make clinical procedures safe from the threat of cross infection. Accurate history of TB is needed to differentiate active cases with or without therapy or cases completed with treatment [11,12]. Dental care in patients with active tuberculosis should be limited to urgent and essential procedures. Because many dangerous diseases are transmitted by air and blood or by contact with other body fluids, and it is difficult to identify exactly which patient is infected, it is important to avoid direct contact with blood, body fluids and mucous membranes. High standard operating disinfection and good instrument sterilization have a vital role in preventing the spread of infection [12,13].

## Conclusion

Although the incidence of tuberculosis oral lesions is quite low, early identification of this diagnosis is very important because it spreads so easily that any persistent and atypical oral lesions require careful examination to prevent and cut the chain of transmission from the start. Early identification also reduces patient morbidity and mortality due to this condition so that dentists have an important role to include tuberculosis in the differential diagnosis of suspicious oral lesions to avoid treatment delays and high risk of transmission in the treatment of this disease.

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**DOI:** 10.32474/MADOHC.2022.05.000206

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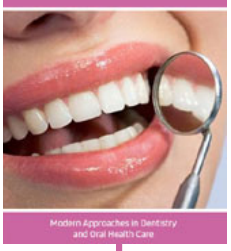

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