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CLINICAL REPORT

Oral tuberculosis mimicking a traumatic denture ulcer

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ABSTRACT

Tuberculosis (TB) of the oral cavity may be overlooked in the differential diagnosis of oral lesions and can be misdiagnosed and managed incorrectly. A 66-year-old man with complete dentures presented with a nonhealing mucosal ulcer in the upper lip. Despite the treatments performed by a local medical clinic, the ulcerative lesion on the denture-bearing area had not improved over 5 months. A partial excisional biopsy was performed to investigate further. Histopathologic examination revealed granulomatous inflammation caused by TB, and a chest radiograph showed consolidation and cavitation of the upper lobes. The patient was diagnosed with pulmonary TB. This clinical report describes the management of oral TB mimicking a traumatic denture ulcer in a patient with long-term complete denture use. (J Prosthet Dent 2019;121:225-8)

Tuberculosis (TB) is a systemic disease with worldwide prevalence. Although the incidence of tuberculosis has decreased globally, one-quarter of the world's population is infected, and it is still one of the world's most deadly diseases.[1] TB may be caused by potential pathogens, usually *Mycobacterium tuberculosis*, as a result of weakening of the immune system or malnutrition.[2] TB commonly affects the lungs but may affect any extrapulmonary organ and, albeit rarely, cause oral lesions.[3,4] Oral TB may be either a primary or secondary disease. Primary oral tuberculosis is very rare and mainly occurs in young patients.[5-7] Secondary oral TB, however, is more common in older or hospitalized patients.[5-7] About 95% of people exposed to *M tuberculosis* are clinically asymptomatic. The remaining 5% of patients develop primary TB that usually affects the lungs. Secondary TB is caused by self-inoculation with pathogenic bacteria from the lungs which subsequently spread to other organs. Symptoms of oral tuberculosis include odynophagia, ulcers, cervical lymphadenopathy, swelling, and, rarely, fever or weight loss. Oral sites typically affected by TB lesions are the tongue base, vestibular mucosa, gingiva, mouth floor, palate, and lips.[8,9]

TB of the oral cavity may frequently be underestimated in the differential diagnosis of oral lesions.[10] However, if oral TB is not diagnosed and managed properly, it may result in serious complications.[11] Therefore, despite the absence of systemic illness, oral TB should be considered among the differential diagnoses for oral ulceration.

This clinical report describes the management of oral TB mimicking a traumatic denture ulcer in a patient with long-term complete denture use.

CLINICAL REPORT

A 66-year-old Asian man from South Korea presented at the Department of Oral and Maxillofacial Surgery, Kyungpook National University Dental Hospital, Daegu, Republic of Korea, with a nonhealing mucosal ulcer in the upper lip which was thought to have been caused by his complete denture. The patient had worn a complete denture in the maxilla for 10 years, and the maxillary anterior vestibule area had been inflamed for 5 months. The patient had no other symptoms. He was taking medication for hyperlipidemia and peptic ulcer. The

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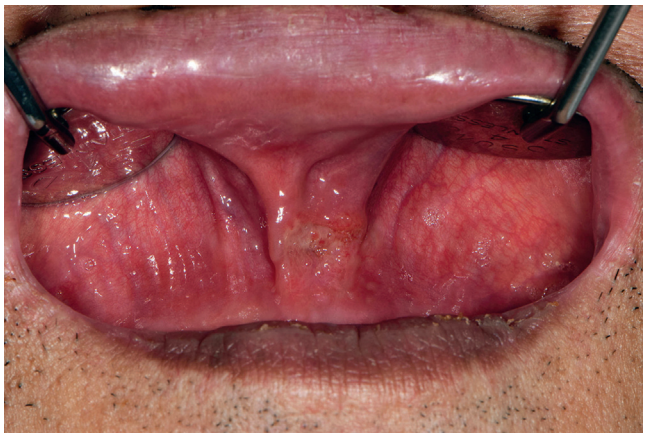

Figure 1. Well-defined ulcerative lesion in oral cavity.

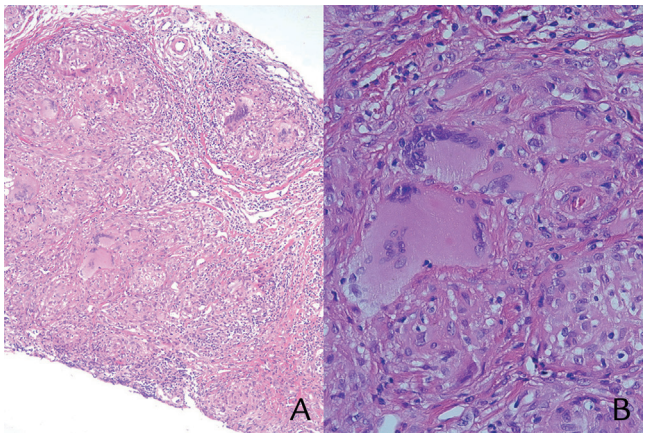

Figure 2. Histopathological photomicrographs showing granuloma formation with multinucleate giant cells, epithelioid histiocytes, and lymphocytes (hematoxylin and eosin staining, original magnification: A, ×100 magnification; B, ×400 magnification).

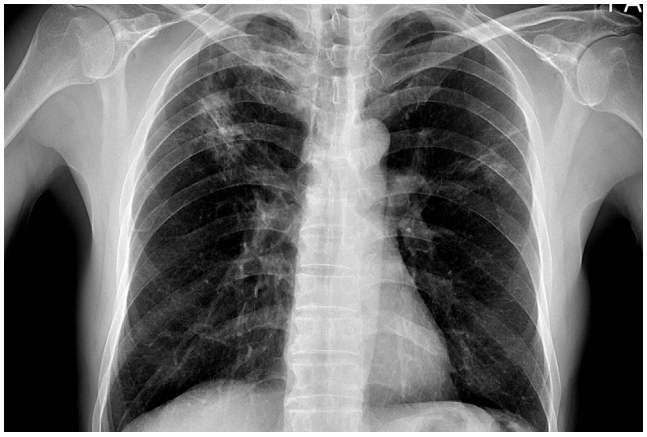

Figure 3. Chest radiograph demonstrates multiple nodules at both upper lobes and focal cavitary consolidation at right upper lobe, compatible with active pulmonary tuberculosis.

patient was referred to the department of otorhinolaryngology and prescribed medication for his ulcerative lesion. However, the symptoms did not improve over 2 months, leading to his referral to the department of oral and maxillofacial surgery.

An ulcerative lesion approximately 1 cm in diameter with a well-defined border was observed on the right side of the patient's maxillary anterior vestibule (Fig. 1). A partial excisional biopsy was performed to assist diagnosis. Histopathological examination revealed granulomatous inflammation caused by TB in the lesion. The granuloma formation comprised multinucleate giant cells, epithelioid histiocytes, and lymphocytes (Fig. 2). Based on the results of clinical and histopathological findings, a chest radiograph was ordered, which revealed multiple nodules and consolidations at both upper lobes. These were findings compatible with active pulmonary TB (Fig. 3). The patient was admitted to the respiratory medicine clinic of another local hospital, where tuberculosis was confirmed, and a 6-month treatment with an antituberculous agent was initiated. The treatment regimen for TB consisted of a 2-month initial intensive phase (isoniazid, rifampin, ethambutol, pyrazinamide), followed by a 4-month maintenance phase (isoniazid, rifampin, ethambutol). After 3 months of treatment with antituberculous agents, the intraoral ulcerative lesion was completely healed.

DISCUSSION

The TB mortality rate has declined by 37% worldwide since 2000, and TB incidence is decreasing at about 2% per year. As the disease becomes less common, clinicians may overlook the possibility of oral TB. However, among infectious diseases, TB is still the leading cause of death. Therefore, misdiagnosis may delay appropriate treatment, negatively impacting outcome.[12,13]

Oral TB is extremely rare and is most often associated with pulmonary TB. Between 0.05% and 1.5% of all TB patients exhibit oral lesions. Oral TB affects all parts of the oral cavity, more often in men than in women, and usually appears in the form of ulcerative lesions. Of those with oral TB, 58% (54%, pulmonary; 4%, extrapulmonary) have it as a secondary infection and 42% as a primary infection. Demographic localization showed that 44% are from Asia (most commonly from India and secondly from Turkey), 27% from Europe (most commonly the United Kingdom), 12% from North America, 3% from South America, 6% from Japan, 3% from Africa, and 5% from unknown locations.[2,14]

Oral TB is mainly caused by self-inoculation with pathogenic bacteria from sputum. However, an intact oral mucosa and the saliva provide innate immunity against oral TB infection. Small defects in the mucosa

resulting from chronic inflammation, trauma, leukoplakia, or poor oral hygiene may provide sites for these pathogens to reside.[15] The patient in this clinical report was later confirmed to have primary pulmonary TB and secondary oral TB. There may have been chronic inflammation in the maxillary anterior vestibule caused by the use of an ill-fitting complete denture worn for 10 years. As a result, traumatic ulceration due to the denture may have resulted in a secondary TB infection of the oral cavity. The authors are unaware of reports of secondary oral TB in patients with traumatic ulceration caused by dentures.

The management of TB is challenging. Although there have been improvements in antibiotics, *M. tuberculosis* remains highly resistant to most antibiotics and is therefore likely to cause chronic inflammation causing protective isolation of pathogens from antibiotics. Therefore, meticulous physical examination plays an essential role in the prevention of oral TB and other possible diseases. Doctors in various department may diagnose and treat oral diseases, including dentists, prosthodontists, oral surgeons, general physicians, nurses, otolaryngologists, and dermatologists. However, a thorough examination of the oral cavity may be difficult. Therefore, the multidisciplinary team should be educated as to possible oral lesions and infections and oral examination. In this case, various health-care providers evaluated the patient but failed to properly diagnose and manage the condition. The most effective means of examining the oral cavity are visual inspection aided by a source of illumination, the use of a tongue depressor, and palpation. Dentures must be removed to enable examination of the denture-bearing area, as well as the denture itself. Long-term denture users may need to undergo regular oral mucous membrane examinations and examinations of their dentures. Ill-fitting dentures should be corrected and not worn for long periods of time. Tissue biopsy is essential for an ulcerative lesion that persists despite treatment.[16-18]

The patient presented here had oral tuberculosis in the form of an ulcerous lesion. In such patients, a differential diagnosis should be performed to distinguish the lesions from other ulcerative diseases such as aphthous ulcers, traumatic ulcers, syphilitic ulcers, or malignant lesions. Biopsy is necessary to distinguish among the possible causes of oral ulceration.[19] TB often produces granulomatous features in pathologic specimens. In those lesions, because TB has features similar to other conditions such as sarcoidosis, Crohn's disease, deep mycoses, cat-scratch disease, foreign-body reactions, tertiary syphilis, and Melkersson–Rosenthal syndrome, additional special tests including histopathology or microbial culture are required. TB is diagnosed by acid-fast bacilli staining in the specimen or more likely by tuberculous bacilli culture. As oral TB usually presents as secondary tuberculosis, sputum culture is necessary.[20]

Oral secondary tuberculosis was diagnosed in this patient, who exhibited good results after precise diagnosis and therapy. Although oral tuberculosis is uncommon, accurate diagnosis and management are important. Dentists should conduct careful visual examinations and be alert to nonhealing traumatic ulcerations.

SUMMARY

This clinical report of oral TB mimicking a chronic traumatic denture ulcer in an elderly person who had worn complete dentures for 10 years shows how oral tuberculosis can be misdiagnosed. This report also illustrates the importance of careful clinical examination by the dentist, who must directly and systematically inspect all areas of the oral cavity. Clinicians should consider TB in a differential diagnosis when encountering clinical presentations of nonhealing chronic ulcerative lesions. As diagnosis based on clinical features can be difficult, histopathological and microbiological investigations are often needed to confirm a diagnosis of oral TB, and chest radiographs should be obtained to determine whether pulmonary TB is present.[18]

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