



Disguised ulcer of lip and buccal mucosa – rare clinical manifestation of tuberculosis: a case report

Úlcera de mucosa labial e bucal – uma rara manifestação clínica de tuberculose: relato de caso clínico

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Abstract

Introduction: Oral tuberculosis is a chronic granulomatous disease caused by *Mycobacterium tuberculosis*. According to the World Health Organization (WHO), nearly 2 billion people are infected with tuberculosis. **Objective:** To report a rare case of oral tuberculosis with ulcers at two different sites. **Materials and methods:** In order to emphasize the need to consider tuberculosis in the differential diagnosis of non-healing ulcers of oral cavity and the role of oral physician in preventing the spread of such lesions, this article presents a case of oral ulcers at two different sites, diagnosed as tuberculosis ulcer. **Results:** Oral cavity, which is considered to be a mirror of systemic health, rarely manifests tuberculosis. With increasing number of tuberculosis cases and unusual form of the disease in the oral cavity, the cases are likely to be misdiagnosed. **Conclusion:** An oral clinician should have a thorough knowledge of tuberculosis and its oral manifestations.

Keywords: Tuberculosis. Oral ulcer.

Resumo

Introdução: A tuberculose oral é uma doença granulomatosa crônica causada pelo *Mycobacterium tuberculosis*. Segundo a Organização Mundial da Saúde (OMS), cerca de 2 bilhões de pessoas estão infectadas com tuberculose. **Objetivo:** Relatar um caso raro de tuberculose oral com úlceras em dois locais diferentes. **Materiais e**

métodos: Para realçar a necessidade de considerar a tuberculose sob o diagnóstico diferencial das úlceras não curadas da cavidade oral e o papel do dentista na prevenção da propagação de tais lesões, este artigo apresenta um caso de úlceras orais em dois locais diferentes, diagnosticados como úlcera de tuberculose. **Resultados:** A cavidade oral, considerada como um espelho da saúde sistêmica, raramente manifesta a tuberculose. Com um número cada vez maior de casos de tuberculose e a forma não usual da doença na cavidade oral, os casos são frequentemente diagnosticados erroneamente. **Conclusão:** O dentista clínico geral deve ter um conhecimento profundo da tuberculose e de suas manifestações orais.

Palavras-chave: Tuberculose. Úlcera oral

Introduction

Tuberculosis (TB), a chronic granulomatous disease, is most commonly caused by *Mycobacterium tuberculosis* and less frequently by the ingestion of unpasteurized cow's milk infected by *Mycobacterium bovis* (1).

Tuberculosis is a global burden as nearly 8 million people are being infected with the disease of which 3 million people are dying because of its potential complications (2). Tuberculosis scenario in India is overwhelming and it accounts for one fifth of the global burden (1). It is considered the disease of poverty and affects individuals at young age. Deaths in tuberculosis patients are mostly encountered in developing countries (3), which can be correlated with poverty and prevalence of AIDS (1).

Pathogenesis of tuberculosis infection occurs through the spread of droplet nuclei and latent tuberculosis infection. Signs and symptoms suggestive of active TB disease include a productive and persistent cough, bloody sputum, night sweats, weight loss, fever or anorexia or a combination of these (4). Depending on the organ system involved, tuberculosis is manifested as a pulmonary and an extrapulmonary disease. The extrapulmonary variety is rare and accounts for 10-15% of all cases. Extrapulmonary sites include intestines, meninges, bones, joints, lymph glands, skin and other tissues of the body (1). Oral tuberculosis lesions are infrequent and account for less than 2% of all cases, but are common in middle age (20-40 years), with a male to female ratio of 4:1 (5).

Case history

Recently, a 45-year-old man visited the department of oral medicine and radiology with a

complaint of ulcer in the mouth, which had been present for the last two months and increasing gradually. Medical history reveals that the patient has no systemic complaints and has never been on medication. He is a chronic smoker and has not given up the habit for the past 20 years.

Physical examination shows an extraoral swelling extending from the inferior ala-tragus line to 1 cm above the lower border of the mandible, mediolaterally extending from the midline, involving lower lip up to the angle and ramus of the mandible (Figure 1). Bilaterally, his submandibular lymph nodes are enlarged, mobile and tender.



Figure 1 - Extraoral swelling involving lower lip and right side of the face

Source: Research data.

Intraorally, there is a complete edentulousness of maxillary arch and partial edentulousness of the mandible in relation to anterior teeth. The remaining teeth presented some degree of attrition. His oral hygiene is poor. Soft tissue examination has revealed an ill-defined ulcer of approximately 2 × 3 cm

in the right buccal mucosa, around which there are several nodular swellings (Figure 2). On palpation, the ulcer is tender with indurated margins. There is also an ulcer on the lower lip of approximately 2 × 1 cm, which is 1 cm from the commissure on the right side. The base of this ulcer, being tender, is covered with slough and the margins are everted (Figure 3).



Figure 2 - Photograph of lesion after biopsy

Source: Research data.



Figure 3 - Ulcer on the lower lip

Source: Research data.

A complete examination reveals that there are no other contributory abnormalities. Correlating these features of chronic ulcer with a history of smoking involvement of sub mandibular lymph nodes, a provisional diagnosis of chronic non-healing ulcer has been reached. Differential diagnosis of traumatic,

malignant ulcer and ulcer due to infectious agents (fungal, viral and bacterial) has been established.

The diagnostic workshop with complete blood picture analysis is normal, except for low hemoglobin concentration (9.0 gm) elevated erythrocyte sedimentation rate (80 mm/h). Serum analysis for human immunodeficiency virus has turned out to be non-reactive. Incisional biopsy under local anesthesia has been performed on ulcerated areas of both lip and buccal mucosa. A single bit of tissue has been removed from each area. Histopathological examination of both tissue bits is stained with Hematoxylin and Eosin shows epithelium with ulceration in many areas and chronically inflamed granulation tissue. Areas of diffusely-arranged, well-formed granulomas are seen throughout the connective tissue (Figure 4).

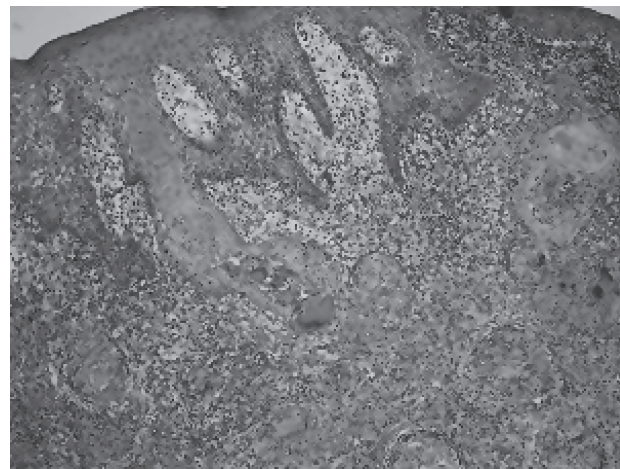


Figure 4 - Areas of granulomas diffusely arranged and invading in the underlying muscle of oral mucosa

Source: Research data.

Note: HE staining at 4× magnification.

Giant cells of Langhans type and of foreign body type are seen along with epithelioid cells, lymphocytes and plasma cells. Caseous necrosis is seen in one area (Figure 5) whereas muscle invasion by granulomas are evident in many areas. These features have suggested a chronic granulomatous lesion with a possible diagnosis of tuberculosis. Ziehl-Neelsen staining, which has been done, is positive for the acid fast bacilli (Figure 6). As per the biopsy report, mantoux test, chest radiograph has been advised. The chest radiograph has shown streaky opacities with infiltration on the upper zones, bilaterally suggestive of tuberculosis (Figure 7). Mantoux test has shown a positive reaction, with 18 mm (Figure 8).

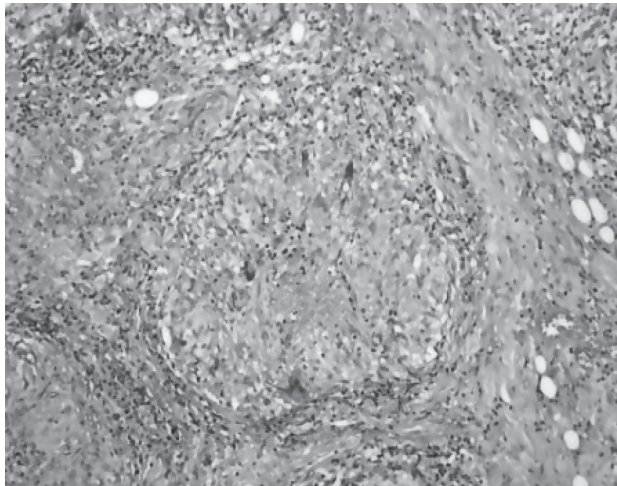


Figure 5 - Multinucleated giant cells of Langhan's type and foreign-body type along with epithelioid cells, lymphocytes and plasma cells with areas of caseation necrosis of oral mucosa

Source: Research data.

Note: HE staining at 4× magnification.

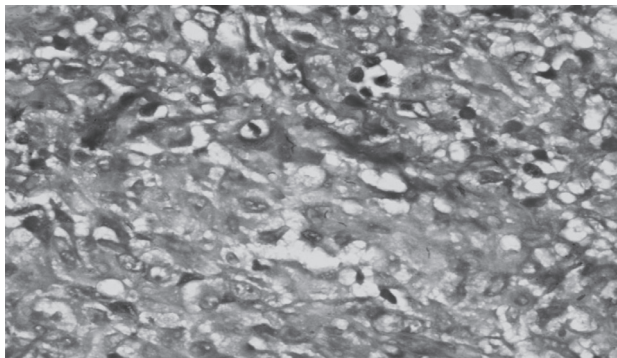


Figure 6 - Ziehl-Neelsen staining, which is positive with numerous acid fast bacilli

Source: Research data.

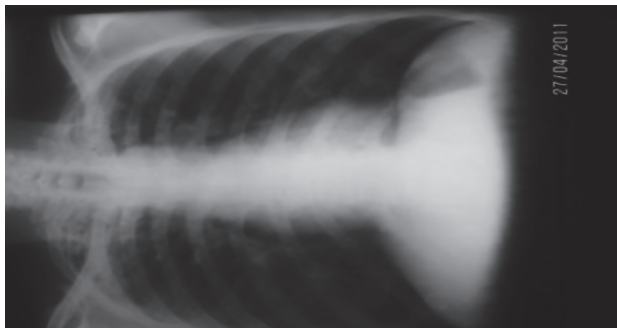


Figure 7 - Chest radiograph showing streaky opacities with infiltration on the upper zones bilaterally suggestive of tuberculosis

Source: Research data.



Figure 8 - Mantoux test read positive with 18 mm of induration

Source: Research data.

In connection with this, the patient has been referred to the physician. It has been identified as a case of pulmonary tuberculosis and advised normal regimen of antitubercular medication with a 300 mg tablet of isoniazid (isonicotinic acid hydrazide – INH), 450 mg of rifampicin, 800 mg of ethambutol and 1.5 g of pyranzinamide, daily, for two months, followed by 300 mg of INH and 450 mg of rifampicin, daily, for six months and follow-up. The lesions of the buccal mucosa and lip have been healed within first month of treatment (Figures 9 and 10), normal appearance of mucosa has been observed and the physical condition of the patient has gradually improved during the follow-up visits for six months. The patient is being monitored by a physician for improvement of general health.

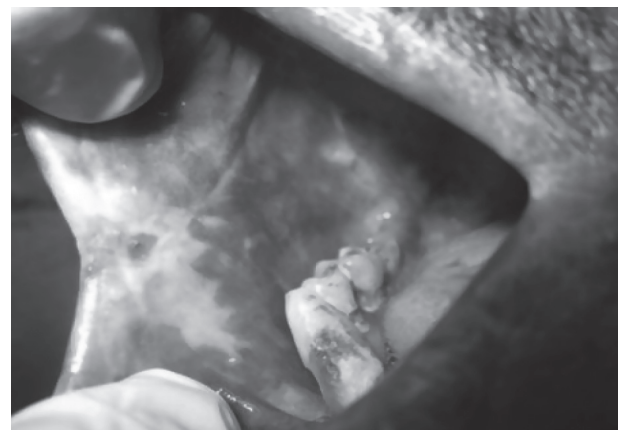


Figure 9 - Healed oral lesion

Source: Research data.



Figure 10 - Healed lesion on the lip

Source: Research data.

Discussion

Tuberculosis is a chronic communicable disease across the world. Though oral lesions are rare, they are well documented in literature and the prevalence of oral lesions is thought to be less than 1% of total cases (6).

The infrequency of oral lesions can be attributed to intact squamous epithelium of oral cavity, which resists direct penetration by bacilli. This resistance may be in turn credited to thickness of oral epithelium, cleansing action of saliva, local pH and antibodies in saliva, but the mode of entry may be through a break in the mucous membrane caused by local trauma (7). In the present case, the bacteria might have spread through local trauma or poor oral hygiene.

Primary oral TB lesions are extremely rare because of early diagnosis and treatment of tuberculosis (TB) elsewhere in the body (8). Primary lesions frequently involve gingiva (8). The secondary TB lesions are more frequent and involve the tongue, followed by the palate, the lip, the buccal mucosa, the gingiva and the frenula (1). This case is extremely rare because of simultaneous presentation of two ulcers at different sites (buccal mucosa and lip).

Oral manifestations of tuberculosis may present as ulcerated, indurated lesions or even as *osteomyelitis*, of which the ulcerative form is the most common, as reported in this case (1). Factors which favour oral lesions can be either local or systemic and include poor hygiene, local trauma, dental extraction, leukoplakia, jaw fracture, cyst and abscess (4).

The systemic factors that favour the chances of oral infection in tuberculosis include lowered host resistance and increased virulence of organisms (3).

Common form of oral tuberculosis lesion is ulcer preceded by vesicle or nodule, which ulcerates due to caseation. Tiny single or multiple nodules 'sentinel tubercles' may surround the ulcer and are present in this case. On the tongue, the common sites include the lateral border, tip, anterior dorsum and ventral surface (3).

This case is rare in its presentation, due to simultaneous occurrence of two ulcers at different sites, i.e., buccal mucosa and lip in the oral cavity, simultaneously. Cases reported in literature with oral lesions are mostly solitary (1, 2, 5, 6). Even though these ulcers are secondary in nature, they pave the way for diagnosis of pulmonary tuberculosis of the patient. So clinicians should be aware of the fact that when diagnosing such lesions with a non-healing tendency, tuberculosis should be considered in the differential diagnosis. It is vital for the clinicians to conduct a complete physical examination, and look for signs and symptoms of pulmonary TB, with various diagnostic tests, like biopsy and special staining procedures (6).

A histopathological study is needed to exclude carcinomatous changes and to confirm the diagnosis of TB. In this case, the most likely differential diagnosis has a primary squamous cell carcinoma because of presence of a non-healing oral ulcer associated with risk factors of smoking and palpable lymph nodes. But the presence of a granulomatous inflammation with Langhan's giant cells and focal caseous necrosis in the histological specimen is typical of TB. Other orofacial granulomatous conditions, such as sarcoidosis, syphilis, deep mycotic infection, cat scratch disease, foreign body reactions and Wegener's granulomatosis also give a similar granulomatous reaction. We have confirmed the diagnosis of TB by doing a sputum examination (smear microscopy), mantoux test and chest radiography (4).

If oral TB is diagnosed, it is important to attempt to locate a primary site of the disease before the former can be considered primary. This is important in order to assess the extent of disease activity as well as monitor for complications in involved organs (8).

Tuberculosis may pose an occupational risk for dentists, who may contact infection while examining patients with active tuberculosis. As *Mycobacterium tuberculosis* is universally present, viable acid-fast microorganisms may be recovered from swabs or

washings of oral cavities of a tuberculosis patient. Furthermost, aerosol transmission of bacteria may most likely take place during dental treatment such as ultrasonic scaling and use of air-turbine handpieces. Thus, the diagnosis of oral tuberculosis is imperative in a dental set-up (9).

A dental setting's TB infection control program should be based on a three-level hierarchy of TB infection control measures: administrative and environmental controls, in addition to respiratory protection (RP) controls. TB infection control policies and protocols for implementing these control measures should be included in the setting's overall TB infection control program and should be reviewed periodically, preferably no less than annually (10).

Conclusion

Tuberculosis of the oral cavity is relatively rare and has largely become a forgotten diagnosis of oral lesions. Dental practitioners need to be aware that tuberculosis lesions may occur in the oral cavity and that it should be considered in the differential diagnosis of any ulcerated, indurated, non-healing lesion of the oral cavity, especially in the lower socioeconomic groups. Although the risk of transmission of *M. Tuberculosis* in dental settings is low, it is important for dental health care personnel to include protocols for TB infection control in their offices.

A major concern for dentists and other health care workers, in the light of re-emergence of the disease, is the risk of transmission of tuberculosis in the dental setting. Dentists are to be involved in the effort to control tuberculosis through early detection and referral of patients to physicians for proper treatment and by developing and implementing appropriate infection control programs.

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Received: 07/14/2012

Recebido: 14/07/2012

Accepted: 11/25/2012

Aceito: 25/12/2012