

A buccal mucosa ulcer as the first sign of tuberculosis

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Abstract

Tuberculosis (TB) is an infectious disease caused mostly by *Mycobacterium tuberculosis*. Oral lesions caused by this disease are not common, and most of them represent secondary involvement of the initial pulmonary focus. Therefore, the discovery of lung tuberculosis because of the investigation of oral lesions is rare. This paper reports a case of a 61-year-old male patient who presented with a painfully ulcerated lesion in labial commissure and buccal mucosa, without any comorbidities or symptoms associated. An incisional biopsy was performed, and histopathology showed a chronic granulomatous lesion extending to involve the underlying muscle. Based on these findings, investigation for tuberculosis was suggested. Chest radiography displayed excavated macronodular lesions suggestive of an inflammatory-infectious/granulomatous process of bronchogenic dissemination. The search for acid-alcohol-resistant bacillus in sputum was positive. After using drug therapy for tuberculosis for 3 months, there was a total regression of the oral lesions, in addition to weight recovery in the period. Thus, in patients with isolated oral mucosa lesions, we must consider the possibility of oral manifestation of systemic diseases, even without typical clinical signs and symptoms.

Keywords: Buccal mucosa, granulomatous chronic disease, tuberculosis

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INTRODUCTION

Tuberculosis (TB) is a bacterial infectious disease characterized by granulomatous lesions caused by *Mycobacterium tuberculosis*.^[1,2] TB bacillus was discovered by Robert Koch in 1882, and it has been a global health problem for centuries. Although its prevalence reduced decades ago, most of the estimated number of cases in 2018 occurred in the South-East Asia Region (44%); smaller proportions of cases occurred in the region of the Americas (2.9%).^[3]

Although lungs are affected primarily, extrapulmonary lesions can also occur as they may spread to other sites through self-inoculation via infected sputum, blood

or lymphatic system.^[1,4] Oral TB lesions are rare and, probably because of that, they have largely become a forgotten diagnosis in the mouth.^[5] In general, oral manifestations of it emerge in immunosuppressed patients as a secondary expression of the disease, mainly appearing in HIV carriers or in patients that use immunosuppressive drugs for long periods.^[6] Clinically, those lesions are frequently seen as a chronic granulomatous ulcer, however, manifestations as patches, indurated soft-tissue lesions or even osteomyelitis and simple bony radiolucency can also occur.^[4]

Presently, we report a case in which the diagnosis of TB was achieved through the oral lesion.

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CASE REPORT

A 61-year-old black male patient presented to the Stomatology Clinic of a dental school reporting an ulcerated lesion on the buccal mucosa. The patient stated to be a smoker, and he did not have any underlying diseases. Extra-oral examination showed facial asymmetry caused by swelling of the right side of the face. In the intra-oral examination, an ulcerated, red lesion with yellowish areas, measuring approximately 4 cm was noted extending from the labial commissure to the right buccal mucosa [Figure 1]. According to the patient, the injury was symptomatic and had been present for 4 months.

Clinical findings were suggestive of infectious or neoplastic disease. Under local anesthesia, an incisional biopsy was performed. Histopathological findings showed fragments of mucosa lined by stratified, squamous, epithelia. In the lamina propria, numerous granulomatous formations, with several Langhans-like multinucleated giant cells and numerous blood vessels were noted [Figure 2]. Also, it was observed that the granulomatous arrangement extended to involve the underlying muscle [Figure 3]. PAS staining revealed *Candida* pseudo-hyphae on the surface of the epithelium, and the Ziehl–Neelsen histochemical reaction was negative. The final anatomopathological diagnosis was as a chronic granulomatous inflammatory process, and despite the negativity to Ziehl–Neelsen, further detailed investigations for tuberculosis were suggested.

Chest radiography depicted hollow macronodular lesions suggestive of an inflammatory-infectious/granulomatous process of bronchogenic dissemination [Figure 4]. Sputum alcohol-acid-resistant bacilli (BAAR) testing was positive.



Figure 1: Presence of ulcerated and red lesion with yellowish areas, measuring approximately 4 cm, in the right labial commissure and buccal mucosa. Also, it is observed poor oral hygiene

After 3 months of initiating drug therapy for TB, there was a total regression of the oral lesions, in addition to a recovery of 10% of body weight after finishing the treatment regimen.

DISCUSSION

The World Health Organization (WHO) states that around 10 million people fall ill with TB each year, worldwide. Although the disease can affect anyone, most people who develop it (about 90%) are adults with a male: female ratio of 2:1. Globally, almost 2 billion people are infected and are, therefore, at risk of developing the disease. In 2018, Brazil showed a markedly lower incidence rate per capita of TB, however, it is still among the 30 high tuberculosis burden countries, accounting for 87% of all estimated incident cases on earth.^[3]

Mycobacterium tuberculosis infection of the human host often affects the lungs, and it is known as pulmonary TB. However, it can also manifest in other sites of the body, and then it is referred to as extrapulmonary.^[7] The extrapulmonary affection can vary between 5% and 50%,^[6,8] and regarding the head and neck, the prevalence ranges from 10% to 35%.^[7] Tuberculosis oral lesions have an unusual occurrence, with the incidence being less than 0.5%–1% amongst all the TB patients.^[9] The most common affected area in the mouth is the tongue, followed by the gums, buccal mucosa and lips.^[6]

Besides being uncommon, orofacial TB presents clinically in a variety of aspects. Thus, it can be misdiagnosed, especially whether the diagnosis of TB is unknown.^[10] In the case reported, the microorganisms could not be

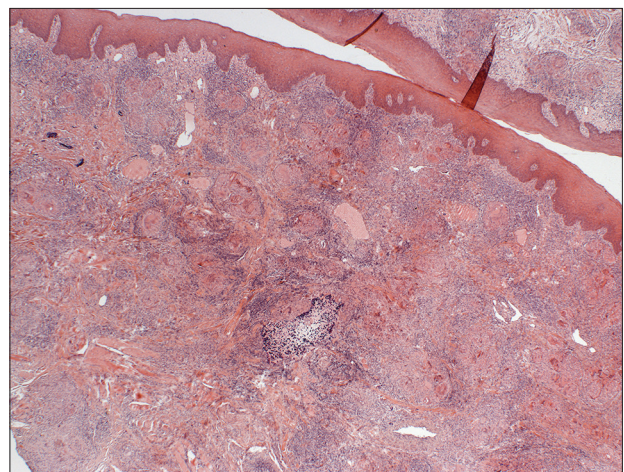


Figure 2: Histopathologic aspect of incisional biopsy from the mouth mucosa showing fragments of a stratified, squamous epithelia, and the lamina propria with numerous granulomatous formations. A chronic inflammatory process with numerous blood vessels was also observed (H&E, 25 × magnification)

visualized using Ziehl–Neelsen histochemical reaction although the morphology strongly suggested a TB infection. Moreover, interestingly, despite the radiographic examination of the patient’s chest being highly suggestive of TB, a sputum smear microscopy was not positive at

the first examination, only at the second. As presented by Kakisi *et al.*^[11] (2010) in a systematic review, negative sputum reactions can occur as they showed in 12/73 of their samples. They have also shown that there is a scarcity of mycobacteria, especially in oral lesions, probably due to the cleansing effect of saliva, the scarcity of lymphoid

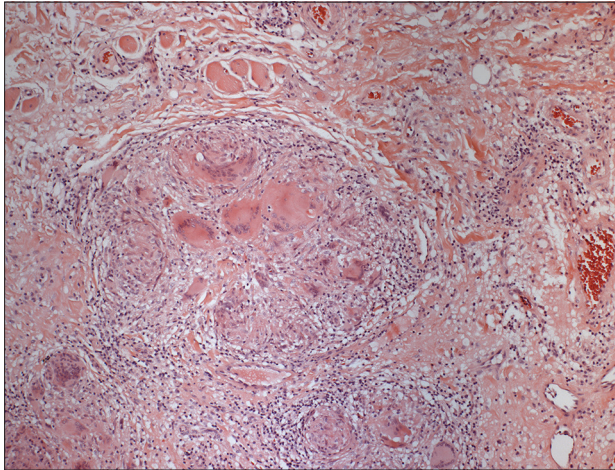


Figure 3: Biopsy specimen from the mouth mucosa where can be seen a granulomatous arrangement extended to the submucosa, intermingling the muscle tissue, contained several Langhans-like multinucleated giant cells (H&E, 100 × magnification)



Figure 4: Chest radiography showing the presence of excavated macronodular lesions suggestive of an inflammatory-infectious/granulomatous process of bronchogenic dissemination

Table 1: Previous reported cases of oral manifestation of Tuberculosis (TB)

Author/year	Country	Gender	Age	Site of Involvement	Baseline disease	Form of TB
Present case	Brazil	Male	61	Buccal mucosa	None	Secondary
Razem <i>et al.</i> (2021)	Marocco	Female	36	Tongue	None	Primary
Kechaou <i>et al.</i> (2021)	Tunisia	Female	30	Palate	Arthritis and Systemic Lupus	Primary
Sachdeva <i>et al.</i> (2020)	India	Female	12	Lip	None	Primary
Hamid <i>et al.</i> (2020)	India	Female	37	Gingiva	None	Primary
Hamid <i>et al.</i> (2020)	India	Female	45	Palate	None	Primary
Hamid <i>et al.</i> (2020)	India	Female	23	Gingiva	None	Primary
Hamid <i>et al.</i> (2020)	India	Male	49	Tongue	None	Primary
Fragoso <i>et al.</i> (2020)	Portugal	Male	44	Tongue	Not informed	Not informed
Kim <i>et al.</i> (2019)	South Korea	Male	57	Tongue	None	Secondary
Esteves <i>et al.</i> (2019)	Brazil	Female	61	The floor of the mouth and gingiva	Rheumatoid arthritis and osteoporosis	Primary
Esteves <i>et al.</i> (2019)	Brazil	Female	67	Lower lip	Pulmonary emphysema	Secondary
Nico <i>et al.</i> (2018)	Brazil	Male	22	Lip	Not informed	Not informed
Nico <i>et al.</i> (2018)	Brazil	Male	39	Lip	Not informed	Not informed
Nico <i>et al.</i> (2018)	Brazil	Male	42	Tongue	Psoriatic arthritis	Not informed
Vineetha <i>et al.</i> (2018)	India	Female	65	Gingiva	Not informed	Secondary
Trawinski <i>et al.</i> (2018)	Germany	Female	29	Buccal mucosa	Crohn’s disease	Secondary
Zhang <i>et al.</i> (2017)	China	Male	52	Gingiva and palate	None	Not informed
Bhatia <i>et al.</i> (2017)	India	Male	29	Upper lip and palate	Immunocompetent	Secondary
Parajuli R; Maharjan S (2017)	Nepal	Male	78	Tongue	Hypertension	Not informed
Boras <i>et al.</i> (2017)	Croatia	Male	68	Tongue	None	Secondary
De Souza <i>et al.</i> (2016)	Brazil	Male	61	Upper lip and buccal mucosa	Diabetes	Secondary
Gupta <i>et al.</i> (2014)	India	Male	24	Lip	None	Primary
Nagaraj <i>et al.</i> (2013)	India	Male	43	Tongue	Not informed	Secondary
Gill <i>et al.</i> (2010)	India	Female	32	Gingiva	Not informed	Primary
Kumar <i>et al.</i> (2010)	India	Male	38	Tongue	None	Primary
Ebenezer <i>et al.</i> (2006)	India	Male	40	Buccal mucosa	None	Primary
Ebenezer <i>et al.</i> (2006)	India	Female	7	Gingiva	Not informed	Not informed
Sezer <i>et al.</i> (2004)	Turkey	Male	46	Buccal and alveolar mucosa extending to the oropharynx	None	Secondary

Table 1 shows demographic and clinical data of previous reported cases of oral tuberculosis manifestation.

tissue in the tongue, and the antagonist oral commensals microorganisms. Also, material collected from lesions in sites such as the soft palate and lips are more likely to be negative for mycobacterium. According to McKee *et al.* (2012), occasionally, the diagnosis of tuberculosis is sometimes a hard task, and the identification of the bacillus and consequent definition of the diagnosis must be confirmed by other tests, such as sputum culture or yet by a therapeutic trial of antituberculosis drugs.^[12]

It is well elucidated that immunosuppressed patients with certain comorbidities (such as diabetes, alcoholism, neoplasms, human immunodeficiency virus (HIV) and those on long-term steroid therapy) may be considered at risk for developing the infection.^[6] Tobacco habits, oral trauma and poor oral hygiene are also considered risk factors.^[13] In the literature, the majority of cases of TB oral manifestation are mostly seen in elderly patients, whereas primary infection appears to be limited to younger individuals [Table 1].^[4,6,14-32] The patient of our study only declared to be a smoker, not reporting any systemic comorbidities or use of corticosteroids. As our patient did not state any baseline disease, fever or use of medications, added to the fact that he was an elderly man and a smoker, the clinician suspected that the lesion could be a carcinoma. Kakisi *et al.*^[11] (2010) noted that most of the patients (94%) were unaware of their TB infection. Therefore, they recommend an immediate investigation for TB in those cases where ulcers are typically showing necrosis, irregular borders and unresponsiveness to antibiotic treatment or to corticosteroids. According to Bansal *et al.*^[10] (2015), TB may present clinically as a single or multiple, superficial or deep, painful or painless ulcers with an irregular border, which tends to increase slowly in size.

CONCLUSION

Thus, in patients with isolated oral mucosa lesion, dentists must be aware of the possibility of an oral manifestation of a systemic disease.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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