

Primary oral tuberculosis - A case report

Abstract

Tuberculosis is a chronic granulomatous disease which affects the lungs in majority of the cases. Oral manifestations of tuberculosis (TB) are seen both in primary and secondary stages of the disease but are most commonly associated with secondary TB. Primary oral TB is a rare entity and thus may pose a diagnostic challenge. This case reports isolated primary TB of the lower lip associated with an intraoral long-standing nonhealing ulcer present in a 12-year-old child. The diagnosis was confirmed by histopathological, hematological, and radiographic investigations. The lesion resolved with anti-tubercular treatment regimen. The case highlights the importance of clinician awareness toward oral lesions, which may present themselves without any symptoms and/or signs of systemic disease.

Keywords: Children, oral ulcer, primary, tuberculosis

Introduction

Tuberculosis (TB) in childhood and adolescence is a major global health problem and is responsible for a considerable burden of the overall disease. In 2016, 6.9% of the reported 6.3 million new cases of TB were in children aged <15 years.^[1] India has one of the highest TB burdens globally. However, a very few studies have focused on TB in children.

TB oral lesions are a relatively rare occurrence. Studies vary, but the incidence has usually been reported as <1% of the TB population.^[2] The presentation of oral TB is not specific but most commonly occurs as an ulcer. Both primary and secondary types of TB can cause lesions in the oral cavity.^[3] Primary oral TB without pulmonary involvement is extremely rare since most oral lesions represent a secondary infection from initial pulmonary lesions.^[4] When oral lesions of TB are the sole manifestations of the disease, the clinician may face difficulty to arrive at the diagnosis.

Dentists are at the frontline to diagnose lesions affecting the oral cavity and hence can make an important contribution in the identification of TB in patients who are unaware of the disease. Early detection and

intervention are essential for the treatment of such fatal diseases. Furthermore, the identification serves as an important aid to reduce the potential source of infection among the community and the dental team itself.

This article presents a case of primary oral TB with an intraoral nonhealing ulcer present in a 12-year-old child without any systemic manifestations.

Case Report

A 12-year-old girl was referred to the dental department for the assessment of a long-standing nonhealing ulcer on the labial mucosa of the lower lip. The lesion was first observed by the patient 2 years ago; however, the lesion was brought to the notice of the parents 6 months back which prompted them to seek the treatment. The patient had no symptoms otherwise. The size of the ulcer has remained constant over the past 2 years. There was no history of cough, fever, hemoptysis, and weight loss. She did not have any systemic condition, had no history of allergy, and was not on any medications.

She had consulted two dental practitioners in her village and was treated conservatively with the help of topical medications over the past 6 months. The older prescriptions revealed the use of mucopain gel (benzocaine 1.P. 20%), zytee gel (benzalkonium chloride 0.02%, choline

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salicylate 9%), and candid mouth paint (clotrimazole 1%). However, there was no change (increase or decrease in the size of the ulcer) or improvement in her clinical condition for the past 6 months.

General physical examination revealed that she weighed 33 kg and was 150 cm tall. The calculated body mass index of 14.7 kg/m² indicated that she was underweight. Vital signs (heart rate – 82 beats/min, respiratory rate – 16 breaths/min, blood pressure – 120/80 mmHg, body temperature – 98.6°F) were within the normal range. Submandibular and submental groups of lymph nodes were examined and they were nonpalpable and nontender.

Oral examination revealed a round nonhealing ulcer on the labial mucosa of the lower lip on the left side measuring 4 cm × 4 cm. The ulcer was grayish-white in color with irregular borders. The edges were thin and undermined with slight induration at the base [Figure 1]. There was no tenderness on palpation. An incisional biopsy was performed under local anesthesia. The microscopy section from the lower lip showed the hyperplastic squamous epithelium, multiple granulomas composed of epithelioid cells and Langhan's giant cells, surrounded by lymphocytes and plasma cells [Figure 2]. No caseous necrosis was seen in the biopsy sample obtained. A preliminary diagnosis of TB/sarcoidosis was made.

Blood tests revealed a normal erythrocyte sedimentation rate (18 mm in the 1st h). The serum angiotensin-converting enzyme level was 58.2 U/L. Interferon-gamma release assay (IGRA) (Quantiferon-TB [QFT]) was positive (3.43 IU/mL). Results of Mantoux test interpreted 48 h after tuberculin injection (10 T.U) revealed erythema of 16 mm and induration of 18 mm. The chest radiograph revealed the absence of foci of infection indicating no pulmonary involvement. Thus, the diagnosis of primary TB was confirmed.

Treatment with anti-tubercular drugs was initiated. The patient was prescribed isoniazid 150 mg, rifampin 300 mg, pyrazinamide 750 mg, and ethambutol 400 mg daily for 2 months. The second phase of the treatment consisted of isoniazid 150 mg and rifampin 300 mg daily for 4 months. Lesion almost resolved within 3 weeks of initiation of the treatment [Figure 3].

Discussion

TB is an infectious disease caused by the bacillus *Mycobacterium tuberculosis*. It typically affects the lungs but can also affect other sites. *M. tuberculosis* can infect all parts of the mouth (soft and hard palate, uvula, buccal mucosa, gingivae, lips, tongue, maxilla, and mandible).^[5] Primary TB in the oral cavity without pulmonary involvement is rare, but it is more commonly found in children and adolescents.^[6] Various clinical presentations such as superficial ulcers, patches, indurated soft-tissue lesions, nodules, fissures, plaques, granulomas,



Figure 1: Clinical presentation of the lesion

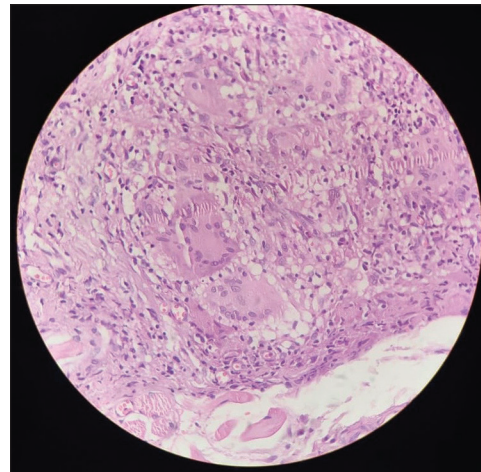


Figure 2: Photomicrograph of the lesion depicting the Langhan's giant cells and plasma cell infiltrate



Figure 3: Healed lesion

or verrucous proliferations may be seen.^[7] Majority (about 93%) of the oral lesions are ulcers and approximately half of which affect the tongue.^[8] Our case presented as an indurated ulcerative lesion on the lower labial mucosa. The integrity of the oral epithelium and the inhibitory effect of saliva are considered to be the reasons for the relative resistance to the tubercle bacilli in the mouth.^[9]

Primary TB in the pediatric age group is reported rarely. The published literature for cases reported in children is scarce. Ebenezer *et al.* reported oral TB in a 7-year-old

girl in the lower left gingiva accompanied with enlarged and tender left submandibular group of lymph nodes.^[10] Localized diffuse gingival enlargement which was confirmed as primary tuberculosis has been reported in an 11 year old Indian female patient.^[11] Isolated primary TB of the lip and uvula has also been reported in two children.^[6] Prasad and Bhardwaj reported isolated TB of tonsils in the absence of active pulmonary TB in a 10-year-old male patient.^[12] A relatively rare occurrence of primary TB presenting as a swelling of the cheek has been reported in a 4-year-old child.^[13]

Our patient did not have chest radiographic evidence of either active or prior pulmonary TB. Less than 50% of patients with extrapulmonary TB exhibit radiologic evidence of the pulmonary disease.^[14] Predisposing factors for primary oral TB include poor dental hygiene, dental extraction, periodontitis, and leukoplakia. It has been postulated that such infections are acquired by inhalation, with harboring of disease in Waldeyer's ring.^[12] The differential diagnosis of a tuberculous ulcer of the oral cavity includes infection (bacterial, fungal, and viral), large aphthous ulcer, traumatic ulcer, syphilitic ulcer, or malignancy including squamous cell carcinoma and lymphoma.^[2,4] In this case, the histopathological examination revealed a granulomatous lesion. TB and sarcoidosis were considered as a possible diagnosis. The definitive diagnosis of TB was confirmed by the tuberculin skin test (TST) (Mantoux test) and IGRA (QFT).

Being rapid and easy to apply, TST is usually used as an immunodiagnostic tool, but it suffers from poor specificity due to the cross-reaction of non-TB mycobacteria or *Bacillus Calmette–Guerin* (BCG) vaccination. IGRAs have emerged as a more specific alternative to TST for the detection of TB infection, as these tests are not confounded by prior BCG vaccination.^[15] However, the ability of either TST or IGRA alone is suboptimal to rule in or rule out active TB. Thus, in children with suspected active TB, every effort should be made to collect appropriate clinical specimens for microbiological and molecular testing, and IGRAs should be used with other clinical data (e.g., TST results, chest X-ray findings, and history of contact) to support a diagnosis of active TB.^[16]

Difficulty in diagnosis commences with the fact that childhood TB, unlike the disease in adults, is largely asymptomatic or may present with symptoms, which are not easily attributable to TB. The classical symptoms of fever, anorexia, malaise, weight loss, failure to thrive, cough, expectoration, and hemoptysis are frequently absent.^[17] Some of the factors responsible for delay in children include lack of suspicion on the part of clinicians, failure to enquire about the history of contact from family members, nonspecific symptoms, lack of a simple, definitive diagnostic test to diagnose TB in children, and lack of coordination between the pediatric medical fraternity.^[18]

Conclusion

As pediatric dentists, we find ourselves as the primary source of referral for any lesion affecting the oral mucosa in children. The main problem with the diagnosis of TB in children is thinking of it in the first place. In the absence of common suggestive factors, the diagnosis is often delayed and so is the appropriate treatment. Clinicians should be aware that rarely, oral lesions may present themselves without any symptoms and/or signs of systemic disease. It is important to consider TB in the differential diagnosis of persistent nonspecific oral lesions. Dental identification of such lesions may serve as an important aid in the diagnosis of TB.

It is important to add that TB is a contagious disease. It is imperative to maintain an effective and stringent infection control program in the dental office. The use of personal protective equipment and universal precautions must be strictly enforced.

Declaration of patient consent

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

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Conflicts of interest

There are no conflicts of interest.

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