



PRIMARY TUBERCULOSIS OF THE GINGIVA: A RARE CASE REPORT

Microbiology

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ABSTRACT

Tuberculosis (TB) is one of the world's deadliest communicable diseases. TB ranks the second leading cause of death from infectious diseases worldwide. India is the highest TB-burdened country, accounting for one-fifth of the global incidence. It may occur as primary or secondary TB. Primary TB affects most commonly the lungs. Oral manifestations are uncommon in primary TB.

KEYWORDS

Gingiva, granulomatous disease, tuberculosis, ulcer

INTRODUCTION

Tuberculosis (TB) remains a major health concern, affecting millions of people globally every year. Advances in the chemotherapeutic agents, better nutrition, and environmental improvement significantly reduced the incidence of TB.^[1] According to World Health Organization, TB is the second most common infectious agent causing death after human immunodeficiency virus (HIV) infection. Worldwide, 9 million new TB patients and 1.5 million TB deaths were reported in 2013.^[2] TB can affect any organ in the body, but most commonly involves the lungs. Involvement of mouth and pharynx is relatively rare.^[3] In the oral cavity, TB most commonly affects the tongue followed by gingiva, floor of the mouth, palate, lips, and buccal mucosa.^[4] The typical tuberculous ulcer is an irregular lesion with ragged undermined edges and minimal induration with a yellowish granular base. Gingival lesion may present as exuberant and granulating or as mucosal erosions and sometimes associated with marginal periodontitis.^[6] Here, we report a rare case of primary TB affecting the gingiva in the anterior maxilla region.

CASE REPORT

A 21-year-old female patient [Figure 1] reported to the Department of Oral Medicine and Radiology with the chief complaint of pus discharge in the upper front teeth region for 1 month. The history of present illness revealed erythematous areas over the left upper gums for 5 months, which gradually spread to form ulcerative areas. There was no associated pain, but pus discharge was present since 1 month. Family history revealed that her father was suffering with TB and was under medication. There was no abnormality detected on general physical examination, and the vital signs were found to be within the normal range. On extra-oral examination, the left submandibular lymph nodes were found to be palpable, mobile, firm in consistency, and nontender. On intra-oral examination, 3 ulcers were seen over the gingiva in relation to 21, 22, 23, and 24 regions [Figure 2].

On inspection, the ulcer in 21 region was measuring about 13 × 10 mm in size, extending anteroposteriorly from mesial third of 11 to the distal third of 21 and superio-inferiorly from marginal gingiva to the labial sulcus. The ulcer in 22 region was measuring about 10 × 9 mm in size, extending anteroposteriorly from middle third of 22 to the middle third of 23 and superio-inferiorly from marginal gingiva to the vestibular sulcus. The ulcer in 24 region was measuring about 9 × 8 mm in size, extending anteroposteriorly from distal third of 23 to the middle third of 24 and superio-inferiorly from marginal gingiva to the vestibular sulcus. All the three ulcers were oval and surrounded by irregular erythematous margins with yellowish slough covering the surface. On palpation, all the inspeactory findings were confirmed. The ulcerative areas were non tender and associated with bleeding. Based on history and clinical findings, a provisional diagnosis of chronic nonhealing gingival ulcers was made.

In the differential diagnosis, pemphigus vulgaris and ulcerative lichen planus were considered. Then, the patient was subjected to radiological and hematological investigations. There was no abnormality detected over the intra-oral radiograph. The patient's hematological investigations revealed raised erythrocyte sedimentation rate (60 mm/1st h Wintrobe). Her serum analysis was nonreactive for HIV, and venereal disease research laboratory test was

negative. Mantoux test was positive (≥ 20 mm after 48 h) [Figure 2] and chest X-ray was normal [Figure 3]. Histopathological examination revealed parakeratinized stratified squamous ulcerated epithelium with fibrino-purulent membrane and underlying cellular connective tissue stroma. Connective tissue stroma showed inflammatory infiltrate predominantly of lymphocytes and macrophages. Few Langerhans type of multinucleated giant cell and granulomatous areas were evident [Figure 2]. Sputum samples were sent for acid-fast *Bacilli* culture and turned positive for *Mycobacterium tuberculosis* [Figure 3]. Based on all the findings mentioned above, it is diagnosed as primary TB of the gingiva. The patient was then referred to the specialty center, where an anti-TB regimen was given. The patient was kept under observation and improvement was noticed in the gingival lesions [Figure 2] 1-month after starting the regimen.



Fig:1

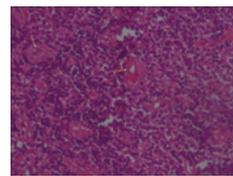


Fig:2



Fig:3

DISCUSSION:

TB is a chronic infectious granulomatous disease caused mainly by *M. tuberculosis*. It is an acid-fast bacillus that is transmitted primarily through the inhalation of infected air-borne droplets containing the *M. tuberculosis* bacillus. Occasionally, TB is caused by *Mycobacterium bovis* through ingestion of unpasteurized and infected cow milk or other atypical mycobacteria.^[6] TB involves any organ of the body, most commonly affects lungs, and rarely, manifestations are seen in the mouth and oropharynx.^[3]

Oral TB can be primary or secondary. Oral manifestations of primary TB are extremely rare and mostly seen in younger patients. These lesions are painless, associated with cervical lymphadenopathy. The secondary lesions are more common and are seen mostly in older persons.^[6] In oral TB, the most commonly affected site is the tongue; other sites include the lip, cheek, soft palate, uvula, gingiva, and alveolar mucosa.^[5] It may also present as parotitis, intra-osseous lesions, pre-auricular swelling, trismus, tracheitis, and laryngitis.^[4]

The pathogenesis of oral TB usually is self-inoculation with infected sputum, resulting from the constant coughing up of bacteria that seed themselves in the oral tissue along their line of discharge through the mouth. On direct inoculation, hematogenous spread of TB bacteria also has been reported. Squamous epithelium of the oral mucosa is believed to serve as a protective barrier for the penetration of TB *Bacilli*. This is due to the thickness of the protective epithelial covering in addition to the cleansing action of saliva, the presence of salivary enzymes, tissue antibodies and oral saprophytes.^[1] Small tears in the mucosa caused by chronic irritation or inflammation may be the favorable sites for the colonization of organisms even if the onset is by hematogenous spread, as injured or inflamed tissues tend to localize

blood-borne bacteria.^[3]

The TB lesion may occur in various forms, such as an ulcer, nodule, tuberculoma, and peri-apical granuloma.^[2] In oral cavity, TB most commonly manifests as an ulcerative lesion of the mucosa. The lesion may be preceded by an opalescent vesicle or nodule which may break down as a result of caseation necrosis to form an ulcer. The palatal lesions of TB may be seen as granulomas, ulcerations, and are usually more common in the hard palate than in the soft palate. The gingival lesion may present as exuberant and granulating or as mucosal erosions. Sometimes, these lesions may be seen simultaneously with marginal periodontitis.^[6] Differential diagnoses include traumatic ulcer, aphthous ulcer, Wegener's granulomatosis, malignancy, and syphilis.^[2]

Different investigations can be used to diagnose TB, which include medical imaging, microbiology tests, testing the patient's immune response (tuberculin skin testing and interferon gamma release assays), histopathology,^[3] and molecular testing including polymerase chain reaction, transcription amplification, ligase chain reaction, and strand displacement amplification. Management of TB includes mainly the four anti-microbial agents; rifampin, ethambutol, pyrazinamide, and isoniazid. Rifabutin can be substituted to minimize interactions of rifampin with protease inhibitors and non-nucleoside reverse transcriptase inhibitors used to treat HIV infection.^[4]

CONCLUSION

Tuberculous lesions of the oral cavity can assume a nonspecific clinical appearance. Clinically, the involvement of the oral mucosa may show a different presentation with that of the involvement of the jaw bones. It is essential to rule out TB in patients with chronic oral ulcers, especially in tropical countries. It is difficult to diagnose oral TB in asymptomatic patients, but it is necessary to identify and prevent further spread of the disease to other organs of the body, and other members of the community. An early diagnosis with prompt treatment will usually result in a complete cure.

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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Nil.

CONFLICTS OF INTEREST

There are no conflicts of interest.

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