Primary gingival tuberculosis: A rare clinical entity

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Abstract

Tuberculosis is a specific granulomatous infectious disease and a major cause of death in developing countries. Primary gingival tuberculosis is extremely rare and forgotten entity. Oral lesions usually appear as secondary to primary tuberculosis infection elsewhere. The lesion may take the form of nodules, ulcers, or elevated fissures. We report a case of primary tuberculosis of gingiva, manifesting as gingival enlargement with ulceration and discharge. Diagnosis was based on histopathologic examination, complete blood count, chest X-ray, and immunologic investigations with detection of antibodies against Mycobacterium tuberculosis. With the recent increase in the incidence of tuberculosis, this case report also emphasizes the need for clinicians to be aware of this possibility, consider tuberculosis in the differential diagnosis of gingival enlargement, and thus, play a role in the early detection of this disease.

Keywords: Caseating necrosis, chronic granulomatous infection, epithelioid cells, Langhans-type giant cells, tuberculosis

Introduction

Tuberculosis is a chronic granulomatous infectious disease caused by Mycobacterium tuberculosis and is a major health problem in most developing countries. It can affect any part of the body including the oral cavity, though extra pulmonary tuberculosis is rare, occurring in 10% to 15% of all cases. Oral tuberculosis can be primary or secondary. Primary oral tuberculous lesions are extremely rare and generally occur in young adults. It usually involves gingival and is associated with caseation of the dependent lymph nodes; the lesion itself remains painless in most cases. In contrast, secondary oral tuberculosis is common and is usually seen in older adults. The most commonly affected site is the tongue, followed by palate, lips, buccal mucosa, gingiva, and frenulum. Tuberculous lesions may present as superficial ulcers, patches, indurated soft tissue lesions, or even lesions within the jaw in form of osteomyelitis.

We report a case of primary tuberculous gingival enlargement, with no regional lymph node involvement and no evidence of systemic tuberculosis.

Case Report

A 36-year-old female reported to the department of periodontics, Subharti Dental College, Meerut, U.P., with progressive, non-painful swelling of the upper anterior gingiva for the past 1 year.

The patient had a history of rising temperature in the evening and weakness over the past 4-5 months, loss of appetite, and a weight loss of about 5.5 kg during the past 10 months. Her medical history revealed no systemic problems, no cough with expectoration, no known history of contact with a tuberculous patient, and no history of dental trauma or any surgery in the affected area.

On examination, she was of good build, pulse temperature, and respiration rates were normal. The chest was clinically clear. Extraoral examination revealed no significant cervical lymphadenopathy. Intraoral examination showed diffuse enlargement of palatal mucosa and labial maxillary gingiva extending from right to left canines [Figures 1 and 2]. The color of the gingiva was fiery red. The surface was irregular and pebbled with ulcerations and discharge on both labial and palatal aspects. On palpation, the swelling was slightly tender and had a tendency for spontaneous bleeding on provocation. The rest of the oral cavity was normal.

Complete hemogram and IOPA X-rays were advised. Results of a complete blood count were within normal limits, except for a marginal rise in leukocyte count and an elevated erythrocyte sedimentation rate (ESR). IOPA X-rays revealed slight crestal bone loss without any periodontal or periapical pathology [Figure 3].

The patient was then advised tuberculin test, chest X-ray,
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A tuberculin (Montoux) test was positive, suggesting tubercular infection. Chest radiography (posteroanterior view) revealed no abnormalities. Culture of sputum was negative for *M. tuberculosis*. An immunologic test to detect antibodies against *Mycobacterium* in the patient’s serum (ELISA) was positive.

An incisional biopsy from the maxillary labial gingiva adjacent to the central incisors was performed. Histopathologic examination revealed clusters of epithelioid cells, caseating necrosis, and numerous Langhans-type giant cells surrounded by a chronic inflammatory type of infiltrate [Figure 4]. In view of these findings, a working diagnosis of primary tuberculous gingival enlargement was made.

On consultation with a physician, antitubercular therapy was initiated with isoniazid (10 mg/kg body weight), rifampicin (10–20 mg/kg), pyrazinamide (20–35 mg/kg), and ethambutol (25 mg/kg) for 2 months followed by isoniazid (10 mg/kg) and rifampicin (10–20 mg/kg) for the following 4 months.

During this period, the patient was instructed not to undergo any surgical procedure within the oral cavity and was warned of transmitting the disease to others via salivary contamination. Further, conservative periodontal therapy, which included scaling and root planning, was carried out with minimal trauma to gingival and after consulting the physician in-charge. This resulted in significant regression of the enlarged gingivae both labially and palatally.

**Discussion**

Tuberculosis remains the leading cause of death worldwide. The vulnerability to tuberculosis in developing countries results from poverty, economic recession and malnutrition.

Extrapulmonary tuberculosis like tuberculosis of gingiva is an uncommon condition. The reason for its rare occurrence may be that the intact squamous epithelium of the oral cavity resists direct penetration by bacilli. This resistance may also be attributed to the thickness of the oral epithelium, the cleansing action of saliva, local pH, and antibodies in saliva. The mode of entry of the organism...
may be through a break in the mucous membrane caused by local trauma.\textsuperscript{[8]}

Histopathologic examination revealing a granulomatous lesion and identification of the bacilli using special stains lead to presumption of a diagnosis of tuberculosis. But there is a need for rapid and sensitive detection of \textit{M. tuberculosis} in tissue specimens, as culture techniques lack sensitivity, present technical difficulties, and require a wait of 4–6 weeks for results.\textsuperscript{[9]}

The differential diagnosis of our case included enlargement and ulceration due to infection (bacterial, fungal, and viral) and hematologic malignancy, such as leukemia. Results of a complete blood count were within normal limits, except for a marginal rise in leukocyte count and an elevated ESR, which ruled out leukemia-associated enlargement and raised the possibility of one of the more common causes of high ESR—tuberculosis. Microscopic examination raised the possibility of chronic granulomatous infection, including \textit{M. tuberculosis}, fungal etiology, or sarcoid granuloma. Sections stained with periodic acid-Schiff and Grocott-Gomori stains for bacteria and fungi were negative. Levels of serum calcium and angiotensin-converting enzyme were not elevated, which ruled out sarcoidosis.

For many years, tuberculosis has been recognized as an occupational risk for health care workers, especially the dentists. The possibility that dentists may contact an infection by contact with living tubercle bacilli in the mouths of patients who have oral tuberculosis or pulmonary tuberculosis is a problem of great clinical significance.

**Conclusion**

Tuberculous oral lesions are relatively rare and are usually post-primary and occur in patients affected with advanced pulmonary tuberculosis. Clinicians especially periodontists need to be aware of this possibility and consider tuberculosis in the differential diagnosis of gingival enlargement and, thus, can contribute in control of tuberculosis through early detection and referral of patients to physicians for proper treatment.

**References**

1. Memon GA, Khushk IA. Primary tuberculosis of tongue. J Coll Physicians Surg Pak 2003;13:604-5.
2. Nwoku LA, Kekere-Ekun TA, Sawyer DR, Olude OO. Primary tuberculous osteomyelitis of the mandible. J Maxillofac Surg 1983;11:46-8.
3. Weaver RA. Tuberculosis of tongue. JAMA 1976;235:2418.
4. de Aquiar MC, Arrais MJ, Mato MJ. Tuberculosis of the oral cavity; a case report. Quintessence Int 1997;28:745-7.
5. Prabhu SR, Daftary DK, Dholakia HM. Tuberculosis ulcer of the tongue: Report of a case. J Oral Surg 1978;36:384-6.
6. Fujibayashi T, Takahashi Y, Yoneda T, Tagami Y, Kusama M. Tuberculosis of tongue: A case report with immunological study. Oral Surg Oral Med Oral Pathol 1979;47:427-35.
7. Garber HT, Harringan W. Tuberculous osteomyelitis of the mandible with pathologic fracture. J Oral Surg 1978;36:144-6.13
8. Mani NJ. Tuberculosis initially diagnosed by asymptomatic oral lesions. Report of three cases. J Oral Med 1985;40:39-42.
9. Neville B, Damm D, Allen C. Soft tissue tumors. In: Neville B, Damm D, Allen C, Bouquot J, editors. Oral and maxillofacial pathology. 2\textsuperscript{nd} ed. Philadelphia: W.B. Saunders; 2002. p. 458-61.

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