



Oral Tuberculous Lesion Of Gingiva- A Rare Clinical Entity

¹Dr. K.Malathi, ²Dr.K.Vijay Kumar, ³Dr. Sandhya Gnanasambandam

⁴Dr. Hima Bindu Reddy.C, ⁵Dr. S.Varshini

¹Professor and H.O.D, ^{2,3,4,5}Post-Graduate,

Department Of Periodontics

Tamilnadu Government Dental College And Hospital, Chennai- 600003

***Corresponding Author:**

Dr. Sandhya Gnanasambandam

Post-Graduate, Department Of Periodontics, Tamilnadu Government Dental College And Hospital,
Chennai- 600003

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Tuberculosis is a specific granulomatous disease that remains a major health problem in most of the developing countries. Generally oral lesions appear as secondary to primary tuberculosis and primary oral tuberculous lesions are extremely rare. We report a case of tuberculosis of gingiva, showing gingival enlargement as a manifestation in anteriors. Diagnosis was made with history, complete hemogram, x-ray, histopathology and immunological examinations. After getting advice from the physician the patient was under anti-tuberculous drugs and with consent after 4 months periodontal therapy was performed. A periodontist can contribute to early diagnosis and prompt treatment of such a highly prevalent and infectious disease as tuberculosis and by developing and implementing appropriate infection control program.

Keywords: Gingival enlargement, Primary tuberculosis, Polymerase chain reaction, Multinucleated giant cells, Local factors

Introduction

Gingival overgrowth or gingival enlargement is the clinical descriptive term for the enlargement of the gingiva due to increase in size of the gingiva. Hyperplasia is the histological term used to describe the increase in size of the organs due to an increase in the number of cells [1]. Gingival overgrowth represents an over-exuberant response to a variety of local and systemic conditions. The treatment option included Phase I therapy, substitution of the drug, surgical excision, maintenance or supportive therapy resulting in excellent clinical outcomes. Gingival overgrowth is one of the most important clinical features of gingival pathology with multifactorial etiologies and it is frequently associated with inflammatory changes in the gingiva, but other factors include familial, malignancy and adverse

effects associated with systemic effects of certain drugs.

Tuberculosis remains a major health problem in most developing countries with worldwide distribution. It is a chronic specific granulomatous disease and India accounts for nearly one-third of global burden of tuberculosis [2]. Oral lesions appear as secondary to primary tuberculosis [3]. Primary oral lesions often occur in younger individuals and its occurrence is extremely rare [4]. Primary oral tuberculous infections usually involve gingiva, tongue (dorsum, lateral borders, tip and base) and other sites associated are lip, cheek, floor of the mouth, soft palate, uvula, gingiva, anterior tonsillar pillar and alveolar mucosa [5]. The lesions appear in the form of patches, superficial ulcers [6], central jaw lesions termed tuberculous osteomyelitis [7] or as indurated soft tissue lesions and is associated with regional

lymphadenopathy. Hence, we present a case of gingival tuberculosis in a thirteen-year-old male.

Case Report

A thirteen-year-old male patient came to the Department of Periodontology, Tamil Nadu Government Dental College and Hospital, Chennai, with the chief complaint of swelling in the gums in the upper and lower front and upper back tooth region since past two months. Patient was not aware of this condition until two months but then he noticed slight ballooning like enlargement of the gums that gradually progressed to the present size covering almost entire front teeth [FIG 1]. It is not associated with bleeding from the gums and loosening of teeth. His past medical history was asked and it was non-contributory. The patient never visited a dentist before and had no history of dental trauma or any surgery. His personal history revealed that he used to clean his teeth once daily with toothbrush and toothpaste. His family history revealed that patient's father who experienced loss of weight, cough and weakness was treated for tuberculosis two years ago.

His general physical examination revealed that the patient was moderately built and his vital signs were within normal range. Patient presented with fever and cough. On extraoral examination, incompetent and protruded lips were seen. It revealed no significant cervical lymphadenopathy. On intraoral examination, marginal, interdental and attached gingival enlargement was appreciated covering almost three quarters of maxillary and mandibular anterior teeth. Gingiva was deep red in colour with erythematous area with smooth and shiny surface and uncommon in appearance. On palpation gingiva was soft and resilient in consistency. Hypertrophied areas were painless and did not bleed on touch. Poor oral hygiene status of the patient was assessed from the presence of local irritating factors contributing to the mild inflammatory component of gingival enlargement. The probing of gingival sulcus revealed presence of pseudo-pockets and elicited bleeding.

Investigations

Patient was subjected to complete hemogram, and all the parameters were found to be within normal range except for mild neutrophilia. HIV test was negative and there was an elevated level of ESR. OPG was advised and it revealed a complete set of dentition with no bone loss. Chest X-Ray revealed no

abnormalities. An incisional biopsy was done in the upper labial gingiva in relation to canine and sent for histopathological analysis [FIG 2]. Histopathology report revealed centrally placed multinucleated giant cells and macrophages surrounded by lymphocytes and plasma cells walled off by fibrous condensation [FIG 3]. The possibility of granulomatous infection including tuberculosis, sarcoidosis and a fungal infection were explored.

A Tuberculin Montoux skin test was performed. The Tuberculin test turned out to be positive with a red, indurated area, suggestive of tubercular infection. In the view of this finding, referral for a complete medical examination was made. A polymerase chain reaction PCR test, which is highly sensitive and specific to the DNA was performed on the tissue sample which yielded a positive result confirming the diagnosis of primary tuberculosis presenting as a gingival enlargement.

On the basis of the patient's history, clinical features, ELISA and X-Ray findings the patient was confirmed as a case of gingival tuberculosis. The patient was sent to physician for opinion and management. On consultation with physician's opinion anti-tuberculous therapy was initiated. Initial procedure included oral hygiene education with reinforcement, scaling and root planing to eliminate local factors. A treatment cycle of chlorhexidine digluconate rinse (0.12%) twice daily was also continued throughout the treatment period. Patient was recalled after 4 weeks and re-evaluated. Following the treatment regimen, a marked reduction in the gingival overgrowth and gingival inflammation was observed with no significant bleeding on probing within a span of one month. To avoid transmitting the disease to others the patient was instructed not to undergo any surgical procedure in the oral cavity.

A written consent was obtained before the surgical phase. Under the physician's opinion, gingivectomy was performed for esthetic purpose on the basis of amount of tissue present after phase I therapy. The treatment of the patient was started with a non-surgical approach. The patient was subjected to phase I therapy including the planned session of scaling and root planing with minimal trauma to gingiva. Finally, surgical excision of gingival hypertrophic tissue was planned employing the technique of gingivectomy to restore the normal shape and contour of the gingiva [FIG 4-7]. Post operatively, there was

successful elimination of enlarged gingival tissue and restoration of physiological gingival contour giving the patient an esthetically pleasing appearance. The patient was followed up with the clinician and continued the medication. Healing was uneventful, and no recurrence of the enlargement during the six months follow-up period was observed [FIG 8,9].

Discussion

Occurrence of tuberculosis is well documented in the literature. Tuberculosis gingiva is a relatively rare entity and considered in the differential diagnosis. Because they appear as clinical manifestations of particular illnesses or disorders like tuberculosis, foreign body reaction or deep fungal infections, chronic granulomatous lesions of the oral cavity can be rather difficult to diagnose. These lesions may also be caused by one of the non-specific orofacial granulomatoses, such as Melkersson-Rosenthal syndrome, Sarcoidosis, Crohn's disease, or Miescher's cheilitis [8].

Gingival overgrowth represents an over-exuberant response to a variety of local and systemic conditions. Inflammatory hyperplasia due to plaque is the most common form of enlargement [9]. It can be generalized or localized, can be exaggerated by hormonal effects, as seen in pregnancy or puberty or by systemic medications. The treatment options include Phase I therapy, substitution of the drug, surgical excision and maintenance or supportive therapy resulting in excellent clinical outcomes.

Bokenkamp A and Bohnhorst 1994 classified gingival enlargement as

- Grade 0: No signs of gingival enlargement;
- Grade I: Enlargement confined to interdental papilla;
- Grade II: Enlargement involving interdental papilla and the marginal gingiva;
- Grade III: Enlargement covering three quarters or more of the crown.

According to Eguchi et al., the PCR technique is necessary for identifying *M. tuberculosis* in oral samples [10]. In that investigation, the detection rates using the culture method were 17.3%, 2.0%, 0%, and 0%, respectively, while the PCR positivity in samples from mixed saliva, dental plaque, caries lesions, and denture plaque acquired from tuberculosis patients

was 98.0%, 92.0%, 89.0%, and 100%. The detection of *M. tuberculosis* in tissue samples is also known to be less sensitive than in bodily secretions, where DNA amplification by PCR for *M. tuberculosis* in formalin-fixed, paraffin-embedded tissue samples would be necessary to detect a single organism's genome [11]. Thus, it wasn't until the PCR findings were available that the final diagnosis in this case could be made.

In a dental context, it is crucial to diagnose oral TB because oral health professionals are known to be susceptible to developing nosocomial infections from tubercule bacilli. Recent research has demonstrated that practically all tuberculosis patients have *M. tuberculosis* in their oral samples. Additionally, there are reports of live *M. tuberculosis* on alginate impressions. Furthermore, dental procedures that produce aerosols, such as ultrasonic scaling and the use of air-turbine handpieces, might result in the aerosol transmission of pathogens. It has been shown that under these circumstances, caregivers on the chairside can inhale infectious particles, and after prolonged exposure, organisms can enter deeply into the terminal parts of the lungs [12,13]. Reports suggest that although scaling and root planing effectively reduce the accompanying inflammation, surgical treatment is often required to manage gingival overgrowth.

Oral hygiene maintenance, scaling, root planing and control of inflammatory factors seems to be the first step in reducing inflammation, but the procedures themselves do not lead to the reduction of gingiva to normal levels. Non-surgical periodontal therapy has been employed to treat patients who do not have significant fibrotic component, esthetics impairment or to control further enlargement. Surgical alternatives like conventional gingivectomy, gingivoplasty, periodontal flap and a combination approach may be required to achieve good results. The need for and time of any surgical intervention needs to be carefully assessed. Surgery is normally preferred for cosmetic or esthetic needs. The surgical approach has been the treatment of choice in the present case. In the present report the gingival overgrowth was not associated with true periodontal pocket and osseous defect, gingivectomy followed by gingivoplasty was carried out. The postoperative results were found to be extremely satisfactory both esthetically and functionally.

Conclusion

Incidence of smear-positive cases of tuberculosis in the Indian subcontinent is reported to be 84 per 100,000 people per year, with 460,000 deaths and one death per minute. These findings highlight the necessity to investigate the tubercle bacilli, the most prevalent cause of granulomatous inflammation, as an etiological factor in gingival granuloma. As a result, the dental clinician can help with early detection and fast treatment of such a widely spread illness as tuberculosis.

References

1. Triveni, M. G.; Rudrakshi, C.; Mehta, D. S.. Amlodipine-induced gingival overgrowth. *Journal of Indian Society of Periodontology*: Sep–Dec 2009 - Volume 13 - Issue 3 - p 160-163
2. Chakraborty AK. Epidemiology of tuberculosis: Current status in India. *Indian J Med Res* 2004; 120:248-276.
3. De Aguiar MC, Arrais MJ, Mato MJ. Tuberculosis of the oral cavity: a case report. *Quintessence Int* 1997; 28: 745-747.
4. Tyldesley WH. Oral tuberculosis: an unusual presentation. *Br Med J* 1978; 2:928
5. Rao TV, Satyanarayana CV, Sundareshwar B Reddy. Unusual form of tuberculosis of lips. *J Oral Surg* 1977; 35:595-596.
6. Rauch DM, Friedman E. Systemic tuberculosis initially seen as an oral ulceration: report of a case. *J Oral Surg* 1978; 36:387-389
7. Garber HT, Harrigan W. Tuberculous osteomyelitis of the mandible with pathologic fracture. *J Oral Surg* 1978; 36:144-146.
8. Sciubba JJ, Syed-Al-Naief N. Orofacial granulomatosis: Presentation, Pathology and management of 13 cases. *J Oral Pathol Med* 2003; 32:576-585.
9. Hirschfield, I (1932). "Hypertrophic gingivitis; its clinical aspect". *Journal of the American Dental Association* (19): 799.
10. Eguchi J, Ishihara K, Watanabe A, Fukumoto Y, Okuda K. PCR method is essential for detecting *Mycobacterium tuberculosis* in oral cavity samples. *Oral Microbial Immunol* 2003; 18:156-159.
11. Salian NV, Rish JA, Eisenach KD, Cave MD, Bates JH. Polymerase chain reaction to detect *Mycobacterium tuberculosis* in histologic specimens. *Am J Respir Crit Care Med* 1998; 158: 1150-1155.
12. Timbrell V, Eccles JD. The respirability of aerosols produced in dentistry. *J Dent* 1973; 2:21-31.
13. Barnes JB, Harrel SK, Rivera-Hidalgo F. Blood contamination of the aerosols produced by in vivo use of ultrasonic scalers. *J Periodontol* 1998; 69:434-438

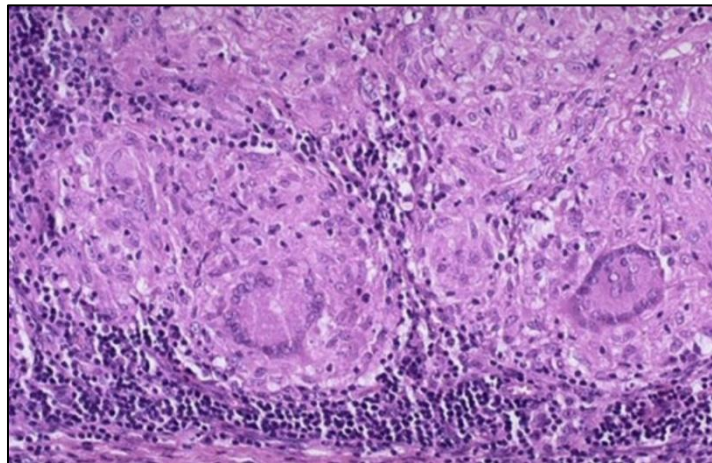
1) PRE-OPERATIVE PICTURE:



2) BIOPSY SPECIMEN:



3) HISTOPATHOLOGICAL PICTURE:



4) GINGIVECTOMY DONE IN MAXILLARY ANTERIORS



5) GINGIVECTOMY DONE IN MANDIBULAR ANTERIORS



6,7) PERIODONTAL DRESSING PLACED



8,9) POST-OPERATIVE PICTURE:

