Tubercular Ulcer: Mimicking Squamous Cell Carcinoma of Buccal Mucosa

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Abstract Tuberculosis is a chronic granulomatous disease that rarely affects oral cavity. Tuberculous lesions of the oral cavity are frequently overlooked in the differential diagnosis of oral lesions. The oral clinical presentation of tuberculosis may take many forms as ulcers, nodules, tubercular fissure, tubercular papilloma and tuberculomas. Diagnosis is confirmed by histopathology.

Keywords Tuberculosis · Buccal mucosa · Squamous cell carcinoma

Introduction

Worldwide, total burden of tuberculosis (TB) is about 14 million and 9.4 million people develop new TB every year. Incidence of tuberculosis in India is 167/100000/year and prevalence is 250/100000/year; every year approximately 2 million people develop tuberculosis, accounting for one-fifth of the world's new tuberculosis cases [1]. However oral manifestation of tuberculosis is rare with an incidence

of 1.4% of total tuberculosis cases [2] with a male to female ratio of 4: 1 and in poor socio-economic classes [3].

Tuberculous lesions of the mouth may be either primary or secondary to pulmonary tuberculosis, latter being more common [4]. The typical oral lesions consist of a stellate ulcer, most commonly on the dorsum of the tongue site [5, 6] other sites being gingiva, floor of mouth, palate, lips and buccal mucosa [7].

The ulcer may have undermined edges and a granulating floor although the clinical picture is variable. Alternatively it may be ragged and indurated and is often painful [5, 6]. Carcinomas are found to co-exist in the same lesion site in 3% of patients [8].

The present communication describes a case of tuberculous ulcer at left buccal mucosa near angle of mouth that had asymptomatic pulmonary tuberculosis also, which was initially presumed as squamous cell carcinoma of buccal mucosa.

Case Report

A 55 years male reported to department of oral and maxillofacial surgery for treatment of non-healing, painless ulcer of buccal mucosa at left angle of mouth since 6 months (Fig. 1). He took several courses of antibiotics, anti-inflammatory and multivitamin drugs, but no response was observed. General examination of patient showed no obvious abnormality and medical history was also not contributory. There was no history of fever, weight loss, cough and expectoration. Routine blood examinations were within normal limit but erythrocyte sedimentation rate (ESR) was raised. Intra-oral examination showed poor oral hygiene and presence of a solitary shallow ulcer measuring 2 × 2 cm at left angle of the mouth with irregular margins.

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The floor contained yellowish granular tissue. On palpation ulcer was non tender, indurated with rolled margins. Cervical lymph nodes were palpable, but Fine Needle Aspiration Cytology (FNAC) showed no pathological lesion.

On the basis of clinical examination provisional diagnosis of malignancy was suspected. Incisional biopsy of the ulcer was done two times at the interval of 20 days that showed chronic non specific inflammation only but inconclusive diagnosis was formed. Third biopsy was done after 1 month of the second biopsy. Histopathological findings of third biopsy revealed fibrous connective tissue covered by hypertrophied squamous epithelium. The connective tissue showed numerous granulomas composed of epithelioid cells, Langhan's giant cells and lymphocytes. The surrounding stroma showed infiltration by chronic inflammatory cells with small foci of caseous necrosis. The covering squamous epithelium was irregularly hypertrophied and presented moderate keratosis, acanthosis and papillomatosis. The basement membrane of epithelium was intact. No carcinomatous tissue was seen in the biopsy which was suggestive of tubercular granulomatous mass with pseudoepitheliomatous hyperplasia (Fig. 2). Ziehl-Neelsen (ZN) staining for acid fast bacilli was positive.

On the basis of above findings diagnosis of tubercular ulcer was made. Chest X-ray showed bilateral patchy pulmonary infiltrates in both upper zones suggestive of pulmonary TB (Fig. 3). Sputum examination showed presence of acid fast bacilli and sputum culture was positive for *Mycobacterium tuberculosis*.

On the basis of above findings four drugs followed by three drugs anti tubercular therapy (ATT) was started and ulcerative lesion healed by fibrosis after completion of ATT (Fig. 4).

Fig. 2 Histopathology showing Langhan's giant cells

Fig. 3 X-ray chest showing bilateral patchy pulmonary infiltrates in both upper zones

Fig. 1 Lesion before treatment

Fig. 4 Post treatment photograph of the lesion

Discussion

TB is caused by the bacterium *Mycobacterium tuberculosis*, which is an aerobic, non-motile, non-capsulated, non-spore forming and rod shaped organism [9]. Tuberculous lesions of the oral cavity may be primary or secondary. The primary tuberculosis of the oral cavity is very rare but the secondary type occurs in those having pulmonary tuberculosis, affecting 0.05–0.5% of tuberculosis patients [6]. In primary oral tuberculosis the organisms are directly inoculated on the oral mucosa of a person who has not been previously infected. The role of trauma is controversial, as the stratified squamous epithelium of the oral cavity normally resists direct penetration by tubercle bacilli. In the secondary type, oral tuberculosis usually coexists with pulmonary disease. Self inoculation may take place from infected sputum or hematogenous seeding [10]. In our case patient might have self inoculated due to poor oral hygiene.

Primary oral TB is observed more commonly in children and adolescents. It usually involves the gingiva, mucobuccal folds or extraction sites, and is often associated with enlarged cervical lymph nodes [11]. Secondary oral TB usually coexists with pulmonary disease, may occur in all age groups; however, middle-aged and older people are more likely involved. The most frequently occurring lesion is a painful ulcer, characterized by irregular edges with minimal induration [10]. The base of an ulcer may be granular or covered with a pseudo membrane. The dorsal surface of the tongue is affected most commonly [10] followed by the palate, buccal mucosa and lips. The salivary glands, tonsils and uvula are also involved frequently [11].

The oral lesions may present in a variety of forms, such as ulcers, nodules, tubercular fissure, tubercular papilloma, tuberculomas and peri-apical granulomas [12, 13]. The typical presentation is that of a single indurated painful ulcer with irregular borders covered by inflammatory exudates, but atypical cases with multiple lesions or asymptomatic ulcers have also been described [12]. Dimitrakopoulos et al. [14] reported two cases of primary oral tuberculosis that presented with painless ulceration of long duration and enlargement of the regional lymph nodes. In the present case, patient presented with painless ulcer having rolled edges and indurated white base at the mucosa of corner of mouth extending towards cheek.

However, *M. tuberculosis* cannot invade the intact mucosa of oral cavity. The squamous epithelium is resistant to invasion to tubercle penetration. This has been attributed to the cleansing action of saliva; the presence of salivary enzymes, tissue antibodies, and oral saprophytes; and the thickness of the protective epithelial covering. Any break or loss of this natural barrier, which may be the result of trauma, chronic irritation or inflammation, leukoplakia, tooth extraction, or poor oral hygiene, may provide a route

of entry for the organism [15, 16]. The ulcer is usually formed by breakdown of tubercles and usually has an undermined edge [17]. Many times presentation may mimic malignancy as being nodular [18] and ulcers not typical of tuberculosis. Tubercular ulcers are usually more irregular than punched out lesions of carcinoma [13]. In our case ulcer had rolled margins with induration mimicking squamous cell carcinoma of buccal mucosa.

The differential diagnosis of a tubercular ulcer of the oral cavity includes aphthous ulcers, traumatic ulcers, syphilitic ulcers and malignancy, including primary squamous cell carcinoma, lymphoma and metastases. As reported here, the most likely clinical diagnosis is that of a squamous cell carcinoma, in which case biopsy is mandatory. It is most likely that tuberculosis is only considered when the histological specimen reveals a granulomatous lesion. Other mimics of granulomatous inflammatory conditions in oral cavity are sarcoid, Crohn's disease, the deep mycoses, cat-scratch disease, foreign-body reactions, tertiary syphilis and Melkersson-Rosenthal syndrome [19].

The diagnosis of tuberculosis is confirmed by histopathological examination, presence of acid-fast bacilli in tissue section, or by culture of tubercular bacilli. In majority of the cases, a single biopsy may not suffice because the granulomatous changes may not be evident in early lesions. The lesion is eventually disclosed by a repeat biopsy [9] as was observed in our case. However biopsy taken from superficial site or inappropriate site may be negative for granulomatous changes.

Conclusion

Oral tubercular lesions are rare, difficult to diagnose and pose a potential infectious hazard to dental personnel engaged in treatment. An oral ulcer mimicking squamous cell carcinoma of buccal mucosa must be considered for being tubercular if biopsy of the lesion does not show a definitive evidence of malignancy.

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