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Tuberculous lesion of Oral Cavity: Review of a rare entity

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ABSTRACT

Tuberculosis is a chronic granulomatous type of systemic disease caused by mycobacterium tuberculi complex involving almost all organs of the body but primarily the lungs (80-90%). With variety of clinical presentations, pthisis (pulmonary) being most common, involvement of head and neck structures other then cold abscess is rare about 1% of all, but are vulnerable and still a diagnostic challenge. Head and neck involvement could be a secondary disseminated from lungs as miliary lesions or itself primary site of lesion, which should be considered a differential diagnosis as it could present as abscess or pus discharge as that in common masticatory space abscess. Involvement of fascial spaces and maxillofacial structures is a rare entity, although being uncommon and difficult to diagnose in this region. Here this paper presents rare cases of chronic granulomatous lesion of oral cavity and review of various literatures with various strategies of management.

Key words: Tuberculosis, oral cavity, pthisis, extra-pulmonary.

INTRODUCTION

The incidence of tuberculosis is increasing day by day along with an emerging global resistance to anti-tubercular drugs, which signifies the immediate need of an increased awareness of the involvement of Mycobacterium tuberculosis in atypical lesions in the oral cavity.[1]

This review entails bacterial infection of the oral cavity and cases found in the literature and analyzed the documented manifestations. Although, oral manifestations of tuberculosis has a rare occurrence, but it has been reported to account for 0.1-5% of all TB infections affecting all parts of the oral cavity like masticatory spaces, palate, tongue, uvula, buccal mucosa, gingival, lips, maxilla, and mandible by M. Tuberculosis with males being affected more than females. These lesions are usually secondarily inoculated with infected sputum or due to hematogenous spread.[2]

Nowadays, oral manifestations of TB are re-appearing alongside many forgotten extra-pulmonary infections as a consequence of the outbreak and emergence of drug-resistant TB and of the emergence of acquired immune-deficiency syndrome [3].

According the report of WHO (2013), nearly 8.6 million people around the world became infected with TB disease. There were around 1.3 million TB-related deaths worldwide.

The diagnosis of this pauci-bacillary lesion is another challenge which is often overlooked because of its variable mode of insidious presentation with no specific pathognomic signs.[4]Despite rare occurrence, the differential diagnosis of this tubercular granulomatous lesion must always lurk in the dental clinicians mind, as this spreads by way of airborne droplets. An early diagnosis with prompt treatment can prevent complications and potential contaminations.[5]

METHOD OF SEARCH

Data was collected from scientific articles published and available in reliable database such as PUBMED, MEDLINE and SCIENCE DIRECT. MeSH terms utilized in the query were Tuberculosis, extra-pulmonary, pthisis. The articles containing required and reliable data are used for the review purpose.

DESCRIPTION OF THE LESION AND ITS MORPHOLOGY

Oral lesions of TB are nonspecific in their clinical presentation and often are overlooked in differential diagnosis, especially when oral lesions are present before systemic symptoms become apparent. Tubercular lesion of the oral cavity presents as ulceration, swelling, discharge (with or without fistulae), nodules (tubercles), extraction socket involvement, granulomatous plaques, growths, indurations, diffuse inflammation, and Collision masses. Ulcers (55%) are found to be more commonly present as single, rather than multiple, with indurated, ill-defined margins and a hard necrotic base (58%) or covered with greyish or yellow slough (42%) [15.] Swellings were rarely associated with scales, scabs[8] or papules and the appearance of clefts[7] (9%) and were usually (92%) non-tender, warm, expansile, and fixed to the oral tissue. Nodular masses measuring from 1 mm to a few cm were found in 8% of patients. Diffuse lesions (4%) appeared as a granulomatous enlargement of the gingivae (two patients) [1, 9, 16, 17].

Primary gingival involvement is more common in children and adolescents than adults. It usually presents as a single painless indolent ulcer, which progressively extends from the gingival margin to the depths of the adjacent vestibule and is often associated with enlarged cervical lymph nodes.[6]

INVESTIGATIONS AND DIAGNOSIS

Mostly it difficult to differentiate oral TB from other conditions on the basis of clinical signs and symptoms alone and oral clinicians may find it some hindrance in proper diagnosis. While evaluating a chronic, indurated ulcer, clinicians should consider differential diagnosis of infectious process such as primary syphilis, deep fungal diseases and noninfectious processes such as chronic traumatic ulcer and squamous cell carcinoma. In absence of any systemic involvement, one should go for excisional biopsy for tissue diagnosis and bacteriologic examination with culture for a definitive diagnosis. Due to relative scarcity of tubercle bacilli in oral biopsies, efficacy of Ziehl- Neelsen staining for acid fast bacilli in histological specimens is low. According to various studies only a small percentage (7.8%) of histopathology specimens stain positive for acid fast bacilli. Therefore, a negative result does not rule out completely the possibility of TB. Another situation is the occurrence of mycobacterial infection as a part of AIDS with low counts of lymphocytes and atypical non-caseating epitheloid granuloma seen in the histology of lesions of immunocompromised patients. The difference comes as histologically, an immunocompromised patient may not show granuloma or caseation.[2]

The investigations include Tuberculin skin testing (Pure Protein Derivative, Heat or Tine Test), laboratory investigations like full blood counts and liver function tests; erythrocyte sedimentation rate (ESR), PCR (Polymerase Chain Reaction) and further confirmatory investigation with western blot to rule out AIDS should be performed. A radiological examination of chest and a Mantoux skin test are mandatory to rule out systemic TB. Fine-needle aspiration cytology is a highly specific and sensitive tool for identifying parotitis and/or TB in major salivary glands[18]. But the histological examination of the lesions is considered to be the gold standard.

TREATMENT MODALITIES

The treatment of oral tuberculosis lesions is same as the systemic tuberculosis. Currently, the combination therapy of four drugs (isoniazid, rifampicin, pyrazynamide, and ethambutol) administered daily for the first two months, followed by an additional four months with only two drugs (isoniazid and rifampicin), is most effective treatment available[2, 11].To resolve the complexity of this regimen World Health Organization (WHO) launched a new global strategy for TB control known as “directly observed therapy, short course” (DOTS) in 1997. However, this strategy also increases the cost of treatment and makes TB therapy more inconvenient. Control of Tuberculosis becomes troublesome because of two primary factors: persistence and resistance. Though various antibiotics are available, M. tuberculosis is highly persistent, possibly because the bacterium induces chronic inflammation that sequesters it within the tissues, protecting it against drug exposure[20]. Thus, drug treatment must be extended to fully destroy the bacterium and prevent relapse.

Genetic mutations lead to drug resistance that causes a heritable loss of drug susceptibility. This warrants the need for newer and more effective drugs that achieve multiple goals in improving TB control is imperative.[19]

There are two types of resistance usually observed in TB; MDR (multidrug resistant TB), XDR (Extensively drug resistant) where MDR-TB is defined as Mycobacterium tuberculosis (M. tuberculosis) resistant to the most potent first-line anti-TB medications, isoniazid and rifampicin, while XDR-TB has additional multi-drug resistance to the most active second-line agents, injectable drugs (aminoglycosides and/or cyclic polypeptides-capreomycin, kanamycin and amikacin) and fluoroquinolones. Hence, there is a huge need to expand the range of the treatment by either enhancing the application of existing agents or introducing new drugs.[2]

The main motive of the new agents should reduce treatment duration, have an acceptable tolerability profile, be active against MDR/XDR TB, be of use in HIV-infected patients with TB, and be active against latent TB. Numerous novel drugs have been introduced in the market which promise to be a better alternative like Nitroimadazoles group (PA 824, OPC 67683), Diarylquinolines (TMC 207 or Bedaquiline or J compound) [23], Oxazolidinones (PNU-100480 and AZD5847), SQ109, Phenothiazines (Thioridazine), LL3858 for effective treatment of TB.[21]

DISCUSSION

Tuberculosis is still a major health hazard in the developing world, while its incidence has recently started to escalate after decreasing for many years. Infection of orofacial tissues occur as a primary or secondary lesion with or without systemic infection, but it is extremely rare and generally occurs in younger patients [9]. The principle target organ of mycobacterium tuberculosis is the bronchopulmonary apparatus and the head and neck are usually secondary. Involvement of the gingival, muco-buccal folds and inflammatory foci adjacent to the teeth or extraction sites are the usual common sites for primary orofacial tuberculosis occurring more commonly in children and young ages[12]. Secondary oral TB can occur in all age groups but is most common in middle and older age groups. It occurs from a healed primary focus or due to endogenous spread of the infection. Secondary TB is usually chronic in nature and can cause considerable destruction of the involved tissue with caseation, cavity formation, and fibrosis [5, 13].

The diagnosis of these lesions usually becomes difficult as other lesions like apthous ulcer, traumatic ulcer, syphilitic ulcer or squamous cell carcinoma are expected in the first thought, in our differential diagnosis before inclusion of tuberculosis, leading to misdiagnosis[10]. Regardless of the fact that, laboratory investigations have the prime role which provide the certain evidence and confirms the disease, the confirmatory diagnosis of tuberculosis is the presence of Acid Fast bacilli in the specimen or can also be confirmed by culture of tuberculosis bacilli[14]. Mandatory steps should be followed to rule out systemic TB like a chest x-ray and a Mantoux skin test. Following standard anti tubercular therapy, with antibiotics such as isoniazide, rifampicin, pyrazinamide, and ethambutol for six months, is essential for the complete eradication of tubercular lesions.

CONCLUSION

Tuberculosis of the orofacial region is relatively rare and further complicated by the fact that it is a forgotten diagnosis of orofacial region. Any chronic infection in the maxillofacial region should be ruled out for TB. Surgeons might sometimes attempt for surgical excision of entire fibrosed or calcified mass, which can cause surgical morbidity to the patient. It should be mandatory to do an incisional biopsy, when in doubt about exact clinical and radiological diagnosis. The final diagnosis can be established only by histopathological confirmation and microbiological study of tissue specimen for a definitive diagnosis and appropriate treatment of tuberculosis and the clinicians must include tuberculosis in the differential diagnosis.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interests regarding the publication of this paper.

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