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原文作者姓名：	Andrade NN, Mhatre TS.
通訊作者學校：	Department of Oral and Maxillofacial Surgery, Nair Hospital and Dental College, Mumbai, India.
報告者姓名(組別)：	黃任慶 Intern J 組
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內文：

Purpose

Evaluate clinical signs and symptoms of orofacial TB, with an emphasis on the importance of histologic diagnosis. Based on an evaluation of 46 p'ts, Andrade's classification is presented with a novel 10-point protocol for the management of orofacial TB.

Introduction

1. Orofacial TB is an uncommon form and presents at different sites such as the mandible; head; face and neck LN; salivary glands; maxilla and maxillary antrum; and soft tissues such as the gingiva, tongue, muscles of mastication, and buccal mucosa.
2. The aim is to present results from a retrospective study and clinical evaluation of the clinical characteristics of orofacial TB that were correlated histopathologically and with other investigations as noted in a 10-point protocol. A new classification system of orofacial TB in different forms and locations based on 46 cases is presented (Table 1). A sequential diagnostic and therapeutic protocol is also described with this 10-point protocol for the management of orofacial TB. This was followed for the treatment of all 46 p'ts described in the present report.

Table 1. ANDRADE'S CLASSIFICATION FOR OROFACIAL TB

Type I	Lumpy jaw: p't presents with extraoral swelling without any intraoral or extraoral draining sinuses; the focus of infection involves the mandible or maxilla; in general, the patient's oral hygiene is good
Type II	1. A history of extraction 2. Nonhealing extraction sockets with/without intraoral or extraoral draining sinus/sinuses
Type III	1. No history of extraction 2. Intraoral or extraoral draining sinus/sinuses in the orofacial region 3. An osteomyelitic bony lesion
Type IV	Tuberculous lymphadenitis of the head face neck region without any features of type I, II, III, or V
Type V	Lesion of other sites in and around the oral cavity, eg, maxillary antrum, salivary glands, orofacial muscles gingiva, tongue, etc

Materials and Methods

46 p'ts were evaluated for orofacial TB over 16 years (1996~2011). All 46 p'ts were managed with a 10-point protocol for the care of orofacial TB.

1. Rule out active pulmonary TB or a family history of TB, rule out odontogenic sources of infection.
2. Chest radiographs, orthopantomograms, and CT scans.
3. Full-body scintigraphy was performed to rule out other skeletal foci of infection in other parts of the body.
4. Purified protein derivative (ie, Mantoux test) and erythrocyte sedimentation rate.

5. PCR for immunoglobulin G and immunoglobulin M antibodies for *M TB*.
6. Sputum samples (3 samples) were scrutinized for acid-fast bacilli (AFB).
7. For “lumpy jaw” (incision and drainage were not performed), aspiration was performed and the aspirate was assessed by histopathology (Ziehl-Neelsen stain) and culture using Bactec (Becton Dickinson Pvt Ltd, Haryana, India).
8. For extraoral or intraoral draining of sinuses and unhealed extraction sockets or deep-seated bony lesions, curettage or incisional biopsy was performed and assessed by histopathology (Ziehl-Neelsen stain) and culture with Bactec.
9. Only p'ts with a diagnosis positive for TB by histopathology with or without positive culture studies were started on anti-TB therapy under a directly observed treatment strategy (DOTS).
10. Long-term f/u.

Table 2. INVESTIGATION DATA OF 46 PATIENTS

Investigations	No. of Patients With Positive Results
Chest radiograph, PA view	Calcifications on radiographs of 3 patients
PPD (Mantoux test)	Mild reaction, 25; moderate reaction, 19; severe reaction, 3
PCR	Significant in 25 patients
IgG	Positive in 38 patients
IgM	Positive in 12 patients
Sputum samples positive for AFB	Nil
Acid-fast staining of affected tissue samples	Positive for all 46 patients
Bactec	Positive for all 46 patients

Abbreviations: AFB, acid-fast bacilli; IgG, immunoglobulin G; IgM, immunoglobulin M; PA, posteroanterior; PCR, polymerase chain reaction; PPD, purified protein derivative.

Results:

46 cases with a positive diagnosis of orofacial TB were confirmed by histopathologic and other investigations specified in the 10-point protocol for the management of orofacial TB. The male:female ratio was 0.917, with no gender predilection. Most cases were seen in the 2nd and 3rd decades of life. A large number of p'ts (n=22) presented with a lesion in relation to the angle of the mandible.

Table 3. AGE DISTRIBUTION OF CASES POSITIVE FOR OROFACIAL TUBERCULOSIS

Age (yrs)	No. of Cases
1-10	4
11-20	14
21-30	14
31-40	8
41-50	3
51-60	1
61-70	1
71-80	1

Table 4. DISTRIBUTION OF CASES ACCORDING TO ANDRADE'S CLASSIFICATION OF OROFACIAL TUBERCULOSIS

Andrade's Classification of Orofacial Tuberculosis	No. of Cases
Type I	12
Type II	6
Type III	15
Type IV	3
Type V	10

- 1.3 p'ts also had radiographic evidence of tuberculous lesion in the lungs, so the primary focus of tuberculous infection was thought to be in the pulmonary system.
2. The scintigraphic studies showed active sites of infection in other parts of the skeletal system in only these 3 p'ts.
3. The other blood investigations, ie, PCR and immunoglobulin G and immunoglobulin M titers, showed variable results in different p'ts and added evidence for the diagnosis of tuberculous lesion (Table 2).

Table 5. DRUG REGIMENS FOR TREATMENT CATEGORIES I TO IV

Category	Characteristic of a TB Case	Treatment Regimen*	
		Intensive Phase	Continuation Phase
I	New sputum smear: positive, seriously ill; negative, seriously ill, extrapulmonary	2 (HRZE) ₃	4 (HR) ₃
II	Relapse failure treatment after default others	2 (SHRZE) ₃ followed by 1 (HRZE) ₃	5 (HRE) ₃
III	Sputum smear: negative not seriously ill, extrapulmonary	2 (HRZ) ₃	4 (HR) ₃
IV	For treatment of MDR-TB cases (and those with rifampicin resistance)	6 drugs: kanamycin, ofloxacin (levofloxacin), ethionamide, pyrazinamide, E, cycloserine during 6-9 mo of intensive phase	4 drugs: ofloxacin (levofloxacin), ethionamide, E, cycloserine during 18 mo of continuation phase

Note: Various definitions under the RNTCP may be found in annexure I.

Abbreviations: E, ethambutol; H, isoniazid; MDR-TB, multidrug-resistant tuberculosis; R, rifampicin; S, ??; Z, pyrazinamide. *A number prefix denotes the number of months and subscript 3 indicates 3 times per week.

Discussion

- 1.46 cases, 3 p'ts had an old calcification in the lungs as the possible source of reactivation. 2 p'ts had primary lesion of the hilar LN from previous contact with TB. 8 p'ts with gingivitis and gingival enlargement were not known. The remaining 33 p'ts were negative.
2. Predisposing local and systemic factors exist for the occurrence of oral lesions.
 - A. Local factors: poor oral hygiene, local trauma, leukoplakia, periapical granuloma, cysts, and abscesses, and periodontitis.
 - B. Systemic factor: altered host resistance from immunosuppression or nutritional deficiencies, increases infection.
3. Common sites for oral tuberculous lesions: gingiva, the alveolus through an extraction socket, the tongue, and mucobuccal folds. At the Nair Hospital and Dental College, tuberculous lesions were seen to involve mandibular ramus, body and symphysis, submandibular LN, gingiva, maxilla, zygoma.
4. The integrity of the oral epithelium and the inhibitory effect of saliva are considered the reasons for the relative resistance to infection by *M tuberculosis*. Any break in oral epithelium facilitates inoculation of the bacilli present in the sputum, which is brought into intimate contact during coughing or speech.
- 5.6 p'ts had a history of tooth/teeth extraction, and 5 of these presented with

- nonhealing extraction sockets and 1 with a nonhealing extraction socket and an extraoral draining sinus. On inquiry these 6 p'ts provided a history for an extraoral swelling before the extractions. Pre-extraction radiographs showed no pathology involving the teeth that had been extracted. It was obvious that the tuberculous lesion progressed from lumpy jaw to nonhealing extraction sockets with and without draining sinuses.
6. The spread to the jaw bones and cervical LN can be explained only by a hematogenous or lymphatic route in these p'ts. In this respect, it is important to consider the blood supply to mandibular ramus for the spread of TB to this region. The mandibular ramus and the attached musculature were seen to be affected more often. The posterior mandible was more commonly involved, possibly the result of hematogenous spread. This was further substantiated by the fact that the CT scans, the clinical presentation during surgery and biopsy.
 7. These 32 p'ts had a healthy dentition with no odontogenic source of infection or any break in mucosal continuity. This substantiates a hematogenous or lymphatic spread of TB to the mandibular ramus. A tentative diagnosis of orofacial TB was established for them, and these p'ts were managed successfully with the present 10-point treatment protocol for the management of orofacial TB.
 8. It is very important to document a p't's thorough history and clinical and radiologic examinations for a correct diagnosis. The final diagnosis is established only by a histopathologic confirmation and microbiological study of the tissue specimen. DNA probes and PCR for TB are very sensitive to technique and, hence, not very reliable.
 9. Primary orofacial TB is observed more widely in children and young adults/adolescents. 17 p'ts were younger than 20 years. They did not present with pulmonary TB, and orofacial TB was the primary lesion seen in these p'ts.
 10. In p'ts negative for the HIV, isolated cervical lymphadenitis is most often seen in about 2/3 of p'ts. Although p'ts positive or negative for HIV, cervical LN were most commonly affected.
 11. The Tx. for extrapulmonary TB, antiTB treatment remains the mainstay in their management. The RNTCP and other national TB programs worldwide follow the World Health Organization guidelines, ie, DOTS, which advocates short-course intermittent chemotherapy for p'ts with extrapulmonary TB.
 12. According to DOTS guidelines, 24 p'ts with less severe forms of extrapulmonary TB are categorized under Tx. category III, and those with a severe form of extrapulmonary TB are categorized under Tx. category I. Although the 6-month treatment may be sufficient for many p'ts, each p't has to be assessed individually and, where relevant, treatment duration be extended. All the present p'ts were referred to a DOTS center close to their respective residences after establishing the diagnosis of TB. These p't were followed on a rigid regimen of short-course chemotherapy as advocated by the DOTS authority.
 13. Although the rarity of orofacial TB is undisputable, it is imperative that a high index of suspicion be considered when dealing with lesions without a specific etiology. This is especially important in the present times, because the low incidence of orofacial TB (0.05% to 5% of all TB cases) can increase rapidly, if the lesion remains undiagnosed.
 14. The authors' experience with orofacial TB has involved predominantly the mandibular angle and ramus. Most of these p'ts had fair to healthy oral hygiene, and the involved region had no source of an odontogenic infection or breach in the continuity of oral mucosa, thus supporting the theory of spread of tuberculous

infection by a hematogenous or lymphatic route. Involvement of the masseter and medial pterygoid m. in addition to the adjacent bone proves that the infection progressed from the attached muscles to mandibular angle. This typical pattern of destruction seen on CT scans of the present p'ts raises the suspicion of tuberculous infection, prompting an investigation for TB and management with the described 10-point protocol for orofacial TB.

Conclusions

In a TB-prevalent country such as India, it is very important to be aware of tubercular lesions involving the orofacial region. Andrade's classification of orofacial TB helped classify different forms of tubercular lesions that may involve the orofacial region. The 10-point protocol formulated and applied to all 46 cases proved successful in the management of these cases.

題號	題目
1	Where is the most common extrapulmonary sites in the head and neck? (A) Larynx (B) Nasal cavity (C) Oral cavity (D) Parotid gland
答案 (A)	出處：Oral and Maxillofacial PATHOLOGY, 3ed, p196
題號	題目
2	What place does primary oral TB usually involve? (A) Gingiva (B) Tongue (C) Palate (D) Lip
答案 (A)	出處：Oral and Maxillofacial PATHOLOGY, 3ed, p196