

## CASE REPORT

# A case of oral tuberculous ulcer and literature review

Juan Tang<sup>1,2</sup>  | Jinhua Zuo<sup>1</sup> | Honghai Fu<sup>1</sup>

<sup>1</sup>Department of Oral and Maxillofacial Surgery, Binzhou Medical University Hospital, Binzhou, China

<sup>2</sup>School of Stomatology, Binzhou Medical University, Yantai, China

**Correspondence**

Honghai Fu, Department of Oral and Maxillofacial Surgery, Binzhou Medical University Hospital, No. 667, Huanghe 2 Road, Bincheng District, Binzhou City, Shandong Province, China.  
Email: [byfyfh@163.com](mailto:byfyfh@163.com)

**Funding information**

Natural Science Foundation of Shandong Province, Grant/Award Number: ZR2018PH023; Rongxiang Xu Regenerative Medicine Project of Binzhou Medical College, Grant/Award Number: BY2020XRX011

**Key Clinical Message**

Our purpose is to clearly diagnose the tongue and back tuberculosis ulcer through detailed medical history collection combined with examination, so as to provide certain experience for the diagnosis and treatment of oral tuberculosis.

**KEYWORDS**

oral lesion infectious disease, Oral surgery refractory, oral tuberculous

## 1 | INTRODUCTION

Tuberculosis is an infectious disease caused by tuberculosis bacillus. Because of its long treatment period and poor treatment effect, it has a great impact on human life and health.<sup>1</sup> In developing countries, especially economically backward areas, the incidence rate is increasing year by year, and the mortality rate is also increasing. The prevention and treatment of tuberculosis is also one of the important tasks in current medical activities.<sup>2,3</sup>

Tuberculosis occurs mostly in the lungs, followed by cervical lymph nodes, and oral mucosa tuberculosis is rarely reported. According to statistics, tuberculosis occurring in oral mucosa only accounts for 0.05%–5% of tuberculosis cases, and its incidence is low, difficult to distinguish from other mucosal diseases, and easy to misdiagnose and mistreat.<sup>4</sup>

This paper presents a case of tongue tuberculosis. Our purpose is to clearly diagnose the tongue and back tuberculosis ulcer through detailed medical history collection and clinical manifestations, combined with imaging examination and pathological examination, so as to provide certain experience for the diagnosis and treatment of oral tuberculosis. Our case was characterized by having more pathologic data.

## 2 | CASE HISTORY AND EXAMINATION

A 61-year-old male from Shandong Province, had a new ulcerative painful mass about the size of “sorghum grain” at the left lingual margin about 4 months ago, which burst about 2 weeks later. Oral anti-inflammatories, topical sprays,

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2023 The Authors. *Clinical Case Reports* published by John Wiley & Sons Ltd.

gargle with mouthwash (specific drug name and dosage unknown), self-reported effect is not good. Afterward, the mass increased to the size of “coin” at a constant rate, and the pain gradually worsened. The patient was previously physically healthy. The patient had smoked for 30 years, about 20 cigarettes per day, and had a habit of drinking. A thorough medical history was taken that did not reveal any evidence of weight loss, chills, night sweat, or cough.

Systemic physical examination showed no abnormalities.

## 2.1 | Specialist examination

A round mass with a diameter of about 2.0 cm was observed in the left tongue of the mouth. The center of the mass was ulcerated, and the surrounding mass was higher than the surface of the tongue. When palpated, the texture was hard, the boundary was not clear, and the pain was obvious, as shown in Figure 1. Center tongue extension, interaction degree can be. Enlarged lymph nodes can be palpable in the left submandibular region, about 1.5 × 1.0 cm in the larger one, with moderate motion and slight palpation pain.

Blood routine, erythrocyte sedimentation, infectious disease three were all negative. Chest CT showed diffuse mass, patchy and nodular density in both lungs, as shown in Figure 2. Diffuse patchy and nodular high density can be seen in both lungs, with local fusion and bronchial shadows visible in some areas. Dotted calcification can be seen in the lesion of the upper field of the right lung. Lung tuberculosis was considered according chest CT.

According imaging examination result, tongue biopsy of the mass was made. Pathological examination showed granulomatous inflammation on the back of the tongue, with caseous necrosis in the center of the lesion, acid-fast staining (+), PAS staining (–), and silver hexamine staining (–), as shown in Figures 3 and 4. Tuberculosis was considered according pathological examination.



FIGURE 1 Oral ulcer at initial diagnosis.

Preliminary diagnosis: tuberculous ulcer on the left dorsal tongue.

The patient was transferred to a tuberculosis specialist hospital for treatment.

## 3 | DISCUSSION

Tuberculosis infection can involve many organs of the body, mainly in the lungs.<sup>5</sup> The incidence of oral tuberculosis is low, often secondary to pulmonary tuberculosis, tongue is the most common site, other parts such as lip, gingiva, palate and so on have been reported.<sup>3</sup> Due to the low incidence and nonspecific clinical manifestations, there are some difficulties in the diagnosis of oral tuberculosis, and some oral tuberculosis may be ignored and misdiagnosed.

*Mycobacterium tuberculosis* is a kind of rod-shaped organism which is aerobic, non-capsular and does not form spores. Because oral squamous epithelium can resist the infiltration of tuberculosis, *Mycobacterium tuberculosis* cannot invade the complete oral mucosa.<sup>6,7</sup> Therefore, when the natural barrier is broken, it may provide a way for the entry of *Mycobacterium tuberculosis*.<sup>8</sup> In this case, The patient had a history of smoking for 30 years, about 20 cigarettes a day, and the patient also liked to drink. Many similar cases showed that most of the patients had a long history of drinking or smoking.<sup>9</sup> We all know that smoking and drinking have a strong destructive effect on the oral mucosal barrier, so we believe that smoking and drinking are the two major risk factors for oral tuberculosis ulcer. Therefore, in the prevention and treatment of oral tuberculosis, we should be highly vigilant about these two risk factors.

Oral tuberculosis can be characterized by ulcer, granuloma, nodular hyperplasia, etc. The typical manifestation of oral tuberculosis is rat erosive ulcer, which is often presented as a basal mulberry granuloma with a small margin, which is rat-like, and curled toward the center to form a burring ulcer without typical clinical features.<sup>10,11</sup> Some literature shows that oral tuberculosis is usually accompanied by pain, in our case, with the progress of the disease, the pain symptoms gradually worsened.<sup>12</sup>

There may be no granulomatous changes in the early stages of oral TB, and it is often difficult to confirm the presence of acid-fast bacilli in biopsy samples. Although the pathological results of this case showed acid-fast staining (+), according to previous data, only a few histopathological specimens were positive for acid-fast bacilli, so the negative results should not be used as the only basis for the diagnosis of tuberculosis. Tuberculosis pure protein derivative (PPD) test, chest imaging, immunology, bacteriology, and histopathology are helpful to the diagnosis. Pathological examination is the gold standard.<sup>5,13</sup> This

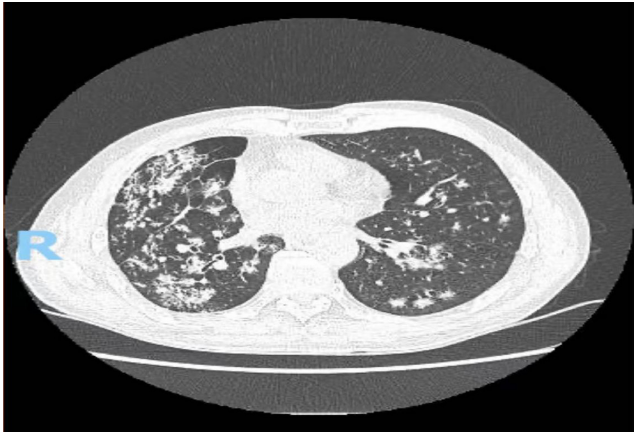


FIGURE 2 Chest CT.

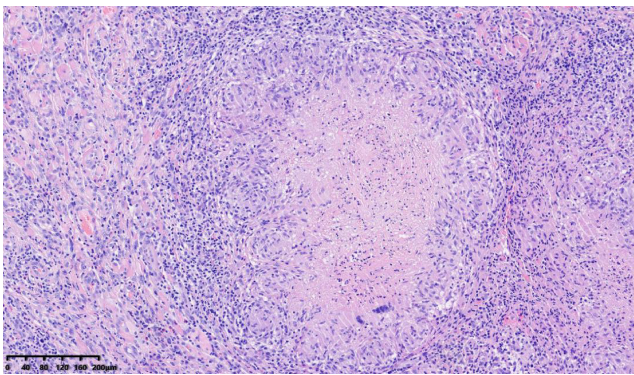


FIGURE 3 Histopathological examination.

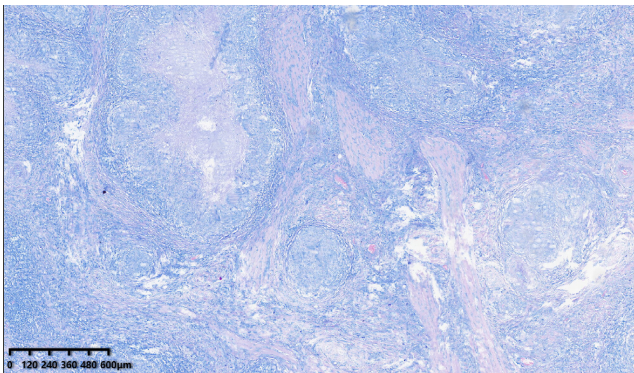


FIGURE 4 Acid-fast dyeing.

case report summarizes the collected literatures related to oral tuberculosis and case details<sup>13–15</sup>(Table 1).

The differential diagnosis of this case is as follows: SCC, immunosuppressive conditions (HIV, lymphoma), traumatic lesions, major aphtha, oral and facial granulomatosis, Wegener's granulomatosis, foreign body reaction, tertiary syphilis, deep fungal infection, oral Crohn's disease.<sup>11,16,17</sup>

TABLE 1 Summarized data of the cases of oral and maxillofacial tuberculosis.

Variable	n (%)
Age (n = 350)	
19–35	87 (24.86)
36–59	171 (48.85)
>60	92 (26.29)
Sex (n = 350)	
Male	222 (63.43)
Female	128 (36.57)
Intraoral location of the lesion (n = 350)	
Tongue	104 (29.71)
Gingiva	51 (14.57)
Lip	38 (10.86)
Palate	47 (13.43)
Buccal mucosa	47 (13.43)
Floor of the mouth	8 (2.29)
Jawbone	55 (15.71)
Clinical appearance (n = 277)	
Ulcer	160 (57.77)
Swelling	79 (28.52)
Nodule	27 (9.75)
Granulation tissue	6 (2.16)
Erythematous lesion	3 (1.08)
White plaque	2 (0.72)
Laboratory tests (n = 484)	
Granuloma	160 (33.06)
Giant cells	134 (27.69)
Epithelioid histiocyte cells	105 (21.69)
Chronic inflammation	85 (17.56)

Patients diagnosed with TB should be immediately referred to the infection department of a general hospital or tuberculosis prevention and control institution for systematic treatment, as long as complete systemic anti-TB treatment is performed, the lesions in the mouth will usually be cured. At the same time, the adverse irritation in the mouth of patients should be removed, oral hygiene should be strengthened, and local measures such as anti-inflammatory, analgesic and anti-corrosion can be adopted to relieve pain and prevent secondary infection. For tuberculosis of oral bone tissue accompanied by necrotic bone formation, necrotic bone extraction should be performed during the quiescent period. In addition, systemic support and nutritional treatment should be given to enhance body resistance and immunity.<sup>11</sup>

(1) Through the diagnosis and treatment of this case, we have gained the following experience: when receiving



medical treatment, the medical history should be asked in detail, including the incidence, development and changes of the disease, as well as concomitant symptoms. (2) The possibility of oral tuberculosis should be considered for the erosive lesions of oral mucosa that do not heal for a long time. (3) Most of oral tuberculosis is secondary to pulmonary tuberculosis. Attention should be paid to the relationship between oral local lesions and systemic diseases. General physical examination can provide a certain basis for the diagnosis of oral local lesions. (4) When conditions permit, biopsy is feasible to make a definite diagnosis.

## AUTHOR CONTRIBUTIONS

**Juan Tang:** Data curation; formal analysis; writing – original draft. **Jinhua Zuo:** Supervision; writing – review and editing. **Honghai Fu:** Funding acquisition; resources; supervision; writing – review and editing.

## ACKNOWLEDGMENTS

Not applicable.

## FUNDING INFORMATION

This work was supported by the Natural Science Foundation of Shandong Province, China (No. ZR2018PH023 to Honghai Fu), Rongxiang Xu Regenerative Medicine Project of Binzhou Medical College (No. BY2020XR011 to Honghai Fu).

## CONFLICT OF INTEREST STATEMENT

The authors declare that they have no competing interests.

## DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

## CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

## ORCID

Juan Tang  <https://orcid.org/0000-0003-0270-5824>

## REFERENCES

- Salazar-Austin N, Dowdy DW, Chaisson RE, Golub JE. Seventy years of tuberculosis prevention: efficacy, effectiveness, toxicity, durability, and duration. *Am J Epidemiol*. 2019;188(12):2078-2085.
- Schito M, Migliori GB, Fletcher HA, et al. Perspectives on advances in tuberculosis diagnostics, drugs, and vaccines. *Clin Infect Dis*. 2015. 61Suppl;3(Suppl 3):S102-S118.
- Popescu MR, Pleșea IE, Olaru M, et al. Morphological aspects in tuberculosis of oral cavity - our experience and a review of the literature attempt. *Rom J Morphol Embryol*. 2015;56(3):967-987.
- de Souza BC, de Lemos VM, Munerato MC. Oral manifestation of tuberculosis: a case-report. *Braz J Infect Dis*. 2016;20(2):210-213.
- Kakisi OK, Kechagia AS, Kakisis IK, Rafailidis PI, Falagas ME. Tuberculosis of the oral cavity: a systematic review. *Eur J Oral Sci*. 2010;118(2):103-109.
- de Aguiar MC, Arrais MJ, Mato MJ, de Araújo VC. Tuberculosis of the oral cavity: a case report. *Quintessence Int*. 1997;28(11):745-747.
- Singhaniya SB, Barpande SR, Bhavthankar JD. Oral tuberculosis in an asymptomatic pulmonary tuberculosis. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2011;111(3):e8-e10.
- Ram H, Kumar S, Mehrotra S, Mohommad S. Tubercular ulcer: mimicking squamous cell carcinoma of buccal mucosa. *J Maxillofac Oral Surg*. 2012;11(1):105-108.
- Saini M, Brizuela M. *Bacterial Infections of the Oral Mucosa*. StatPearls Publishing; 2023.
- Sachdeva P, Singh S, Bhagat N. Primary oral tuberculosis - a case report. *Contemp Clin Dent*. 2020;11(1):79-82.
- Lee ST, Jang SB, Kwon TG, Choi SY. Oral tuberculosis mimicking a traumatic denture ulcer. *J Prosthet Dent*. 2019;121(2):225-228.
- Jain P, Jain I. Oral manifestations of tuberculosis: step towards early diagnosis. *J Clin Diagn Res*. 2014;8(12):ZE18-21.
- de Farias GA, Kirschnick LB, Sô BB, et al. Oral and maxillofacial tuberculosis: a systematic review. *Oral Dis*. 2022;134:e226.
- Tandon S, Bhandari V, Kaur Lamba A, Faraz F, Makker K, Aggarwal K. Literature review of oral tuberculosis and report of a case with unique histological presentation. *Indian J Tuberc*. 2020;67(2):238-244.
- Mignogna MD, Muzio LLO, Favia G, et al. Oral tuberculosis: a clinical evaluation of 42 cases. *Oral Dis*. 2000;6(1):25-30.
- Hussaini J, Mutusamy S, Omar R, Rajagopalan R, Narayanan P. Base of tongue tuberculosis: a case report. *Acta Med Iran*. 2012;50(2):151-152.
- Reynaert V, Grosber M, Tache A, et al. Oral tuberculosis in a patient with Crohn's disease on TNF-alpha blockers. *J Eur Acad Dermatol Venereol*. 2021;35(3):e236-e237.

**How to cite this article:** Tang J, Zuo J, Fu H. A case of oral tuberculous ulcer and literature review. *Clin Case Rep*. 2023;11:e8216. doi:[10.1002/ccr3.8216](https://doi.org/10.1002/ccr3.8216)