

# Pulmonary tuberculosis presenting with oral aphthae

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## Abstract

Tuberculosis is caused by the *Mycobacterium tuberculosis* bacterium. Tuberculosis primarily affects the lungs. Patients mainly complain of cough, sputum, night sweating, weight loss, and fever. However, there may be cases of atypical presentations. Although aphthous mouth ulcers are mostly present in the oral cavity in primary tuberculosis patients, our literature search showed only one case report of pulmonary tuberculosis with oral aphthae. Here we report a case of a patient with pulmonary tuberculosis admitted to the hospital with the complaint of oral aphthae.

**Keywords:** Lung, *Mycobacterium tuberculosis*, oral ulcer

## Introduction

Tuberculosis is one of the oldest infectious diseases in the world and occurs in a respiratory tract infection with *Mycobacterium tuberculosis*.

*Mycobacterium tuberculosis* is a part of the *Mycobacterium* complex, which comprises four *Mycobacterium* strains that are tightly bound with each other genetically and cannot be distinguished using new bacteriological methods. *Mycobacterium tuberculosis*, *Mycobacterium bovis*, *Mycobacterium microti*, and *Mycobacterium africanum* are elements of this complex. These subtypes cannot be differentiated by routine microbiological examinations. Because the other strains rarely cause disease in humans, in case of the *Mycobacterium tuberculosis* complex as the etiological agent, it refers *Mycobacterium tuberculosis*. The resulting disease from a *Mycobacterium tuberculosis* infection is tuberculosis (1). The *Mycobacterium tuberculosis* complex mainly affects the lungs; however, there may be significant involvement of extrapulmonary organs. In general, the infection is located in the apices of the lungs and progresses with cavitations. Patients mainly complain of cough, sputum, night sweating, weight loss, and fever (2).

In Turkey, the registered tuberculosis patient rate in 2007 was 27.9 for all cases and 25.2 for new cases per 100,000 population (3).

Microbiological investigations are essential for a definitive diagnosis of tuberculosis. The gold standard in bacteriological diagnosis is the demonstration of growth of *Mycobacterium tuberculosis* in culture (4).

Although aphthous mouth ulcers are mostly present in the oral cavity in primary tuberculosis patients, our literature search showed only one case report of pulmonary tuberculosis with oral aphthae. The present case report emphasizes that oral aphthae are an initial symptom of pulmonary tuberculosis, which is quite rare.

## Case Presentation

A 37-year-old female patient was admitted to our rheumatology polyclinic with complaints of recurring oral aphthae for the previous 1 year and rash on her legs from the previous 2 days. The patient's aphthous mouth ulcers started 1 year previously, became frequent, and did not heal in the previous 6 months. The patient received various gargles and antibiotics in several health centers, but she did not benefit from those medications. She had lost 12 kg since her symptoms had begun; furthermore, she also developed non-productive cough in previous 5 months and sometimes, coughed yellow sputum. She developed a red, blistered rash on her legs in the previous 2 days.

Rheumatological interrogation revealed complaints of oral aphthae, dry mouth, and hair loss. The patient described no genital aphthae, dry eye, dry skin, frequent uveitis attacks, photosensitivity, malar rash, genital leak, alopecia, Raynaud phenomenon, or morning stiffness.



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**Table 1.** Laboratory values

Examination	Result	Normal Range
Hemoglobin	6.3 g/dL	11.7-15.5
Hematocrit	21.1%	37-44
MCV	57.2 fL	80.4-95.9
RDW	20.3 ratio	11.7-14.6
WBC	12.640 mkrL	3,800-10,000
Platelet	643.000 mkrL	150,000-350,000
Erythrocyte sedimentation rate	97 mm/h	0-20
Urea	11 mg/dL	13-43
Creatinine	0.72 mg/dL	0.7-1.3
AST	17 U/L	5-34
ALT	12 U/L	0-55
Total protein	6.3 g/dL	6.4-8.3
Albumin	2.6 g/dL	3.5-5
Calcium	8.4 mg/dL	8.4-10.2
ASO	120 IU/mL	0-200
C-reactive protein	132.78 mg/L	0-6
RF	1.66 IU/mL	0-18
C3	133.4 mg/dL	85-200
C4	25.8 mg/dL	20-50
c-ANCA	(-)	(-)
p-ANCA	(-)	(-)
CA-125	34.4 U/mL	0-35
CA-15-3	31.7 U/mL	0-31.3
Total urine	Normal	Normal

MCV: mean cell volume; RDW: red blood cell distribution width; WBC: white blood cell;

AST: aspartate transaminase; ALT: alanine transaminase; ASO: antistreptolysin O; RF: rheumatoid factor; p-ANCA: perinuclear anti-neutrophil cytoplasmic antibodies; c-ANCA: cytoplasmic antineutrophil cytoplasmic antibodies

She patient had a history of 20 package years of smoking. The history of coronary artery bypass surgery in the patient's father and diabetes mellitus, hypertension, and hyperlipidemia in the patient's mother were presented as family history.

A physical examination revealed that her general condition was moderate, oriented, and cooperated. Systolic and diastolic blood pressures were 110/70 mm/Hg, heart rate was 78 beats/min, body temperature was 37.5°C, and respiratory rate was 22 breaths/min. A systemic examination revealed aphthous mouth ulcers that were disseminated about 1 cm in diameter. A respiratory system examination revealed that both hemithorax contributed breathing equally, respiratory sounds were rough through all zones, and bronchial respiratory sounds were present in the left lung lower zone. Clubbing was absent. A cardiovascular system examina-

tion revealed no abnormal signs or symptoms. The patient's abdomen was relaxed, and there was no defense or rebound. An integumentary system examination revealed red, demarcated blistered rash on the anterior tibial surfaces of both legs. There was no pretibial edema. Joint range of-motions were complete and painless. There were no signs of arthritis.

The patient's laboratory findings are presented in Table 1.

The pathergy test was negative. Electrocardiogram was within normal limits. Two-way chest radiography revealed consolidation area in the left lung middle zone and a cavitary lesion in the right and left lung upper zones. The left sinus was blunted (Figures 1, 2).

The chest radiography suggested tuberculosis, and a purified protein derivative test was per-

formed, resulting in a 22×15-mm induration. Besides acid-resistant bacteria in the sputum and tuberculosis culture was performed. Acid-resistant bacteria were 1+ in the sputum. The tuberculosis culture showed growth of the *Mycobacterium tuberculosis* complex. The current findings were sent to the department of chest diseases for consultation, and the patient was referred to the department of chest diseases for treatment and follow-up. Antituberculous therapy was administered for over 6 months, and at that time, oral aphthae regressed and then, disappeared. At the 1-year follow-up, no recurrence was observed.

## Discussion

Tuberculosis is a disease that has been threatening public health since ancient times. The excessive occurrence of tuberculosis among young people indicates that it has been spreading and is an epidemic. Occurrence among the elderly indicates past epidemics and recurrence of this disease; thus, it is not important for spreading and new epidemics. When the age distribution of tuberculosis patients in Turkey was determined, it was found that most of the patients are young. Case rates based on the age groups show two distinct peaks: the age group of 15-34 years and the elderly (3). Our patient was 37 years old and demonstrated the characteristics of a young patient with tuberculosis.

When the gender distribution among pulmonary and extrapulmonary tuberculosis patients is considered, it can be seen that 70% of pulmonary tuberculosis patients are male, whereas only 46% of extrapulmonary tuberculosis patients are male. This indicates that pulmonary tuberculosis is prevalent among men, whereas extrapulmonary tuberculosis is prevalent among women (3). Our patient was a woman and had with pulmonary tuberculosis.

The risk of tuberculosis development is related to several environmental factors. Many recent studies demonstrated that smoking increases the risk of active tuberculosis by 2-fold as an independent factor (5). The patient in the present report had a history of 20 package years of smoking. Therefore, we considered that smoking was involved in the development of tuberculosis.

Erythema nodosum is a common integumentary sign in daily practice in rheumatology clinics. It mostly occurs acutely on the extensor aspects of the lower extremities. Erythema nodosum may be occur in streptococcus infections, tuberculosis, leprosy, drug-associated hypersensitivity reactions, and malign disorders,



**Figure 1.** A-P chest x-ray image. Left: middle zone consolidation area, upper zone cavitary lesion, and closed sinus. Right: upper zone cavitary lesion



**Figure 2.** Lateral chest x-ray image

in addition to rheumatologic disorders such as sarcoidosis, Behçet's disease, ulcerative colitis, and Crohn's disease. In terms of sarcoidosis, our patient had systemic symptoms and pulmonary complaints, and erythema nodosum may initially mimic sarcoidosis; however, no signs of pulmonary and other system symptoms were observed on chest X-ray. In terms of Behçet's disease, the patient failed to meet the diagnostic criteria, except erythema nodosum and oral aphthae. There were no intestinal complaints; thus, inflammatory bowel diseases were excluded. In terms of streptococcal infections, there was no history of upper respiratory tract infection and Antistreptolysin O values were normal. Erythema nodosum may also occur in

drug-associated hypersensitivity reactions and malign disorders, but in our case, there was no drug that the patient had used and her tumor marker tests were normal. Erythema nodosum rarely occurs in adults with a tuberculosis infection (6). In 2012, Öz et al. (7) conducted a 5-year retrospective epidemiologic study and found the rate of tuberculosis-associated erythema nodosum to be 3%. Our patient is a rare case of a tuberculosis infection associated erythema nodosum.

Aphthous mouth ulcers are clinical signs that frequently occur in rheumatologic disorders. Recurrent oral aphthae may sometimes accompany other chronic diseases such as tuberculosis. When the immune system is weak, oral aphthae occur frequently. In addition, fever and weight loss occur in rheumatologic disorders. The patient in the present report had aphthous mouth ulcers, weight loss, and fever. Malignancy, human immunodeficiency virus infection, and tuberculosis are among the causes of oral aphthae, in addition to rheumatologic disorders such as systemic lupus erythematosus, reactive arthritis, Behçet's disease, and vasculitis. Laboratory findings in the present case revealed that the antinuclear antibody, antibodies to double-stranded deoxyribonucleic acid, cytoplasmic antineutrophil cytoplasmic antibodies, perinuclear antineutrophil cytoplasmic antibodies, and tumor markers were negative. In the literature, oral aphthae and ulcers may be seen in the oral cavity of primary tuberculosis patients. However, there was only one case report of pulmonary tuberculosis with oral aphthae. In that article, which was published in 2012, a 42-year-old female patient with chronic oral aphthae was reported to be unresponsive to antibiotics. Biopsy and further investigations confirmed the diagnosis of pulmonary tuberculosis. Aphthae resolved by isoniazid and rifampin therapy for 8 months (8). In our patient, development of oral aphthae was the first sign of pulmonary tuberculosis. A 1-year gargle and antibiotic therapy provided no benefit, and during the previous 6 months, these complaints continued.

Bacterial culture is the gold-standard for diagnosing tuberculosis (9, 10). A definitive diagnosis can be made by observing the growth of a microorganism in the sputum. In the present case, the sputum culture showed growth of the *M. tuberculosis* complex, which confirmed the diagnosis.

Our country is under moderate risk of tuberculosis. However, increase in the number of elderly population and the use of immuno-

suppressive agents seem to augment the risk of tuberculosis daily. In rheumatology clinics, patients with oral aphthae and erythema nodosum should be investigated in more detail and tuberculosis should be considered in the differential diagnosis.

**Ethics Committee Approval:** N/A.

**Informed Consent:** Informed consent was obtained from patient who participated in this study.

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## References

1. Iseman MD. Tuberculosis guide for clinicians. Translated by: Ozkara Ş. İstanbul Nobel Book Stores, 2002.
2. Fishman JA. Mycobacterial Infections. In: Fishman AP, Elias JA, Fishman JA, Grippi MA, Kaiser LR, Senior RM, editors. Fishman's Manual Pulmonary Diseases and Disorders. Newyork: Mc Graw-Hill; 2002. p. 763-819.
3. Department of the Ministry of Health Tuberculosis, Tuberculosis Control 2009 Report in Turkey, Three Printing House, Ankara, 2009.
4. Blumberg HM, Burman WJ, Chaisson RE, Daley CL, Etkind SC, Friedman LN, et al. American Thoracic Society/Centers for Disease Control and Prevention/Infectious Diseases Society of America: treatment of tuberculosis. *Am J Respir Crit Care Med* 2003; 167: 603-62. [\[CrossRef\]](#)
5. Lin HH, Ezzati M, Chang HY, Murray M. Association between tobacco smoking and active tuberculosis in Taiwan: prospective cohort study. *Am J Respir Crit Care Med* 2009; 180: 475-80. [\[CrossRef\]](#)
6. Chen S, Chen J, Chen L, Zhang Q, Luo X, Zhang W. Mycobacterium tuberculosis infection is associated with the development of erythema nodosum and nodular vasculitis. *PLoS One* 2013; 8: e62653. [\[CrossRef\]](#)
7. Öz A, Aydoğan K, Adım Ş B, İzol B, Sarıcaoğlu H, Başkan EB, et al. Epidemiology of erythema nodosum: Five-Year Retrospective Study. *Turk J Dermatol* 2012; 6: 87-90. [\[CrossRef\]](#)
8. Peck MT, Stephen LX, Marnewick J, Majeed A. Palatal ulceration as the first sign of pulmonary tuberculosis: a case report. *Trop Doct* 2012; 42: 52-3. [\[CrossRef\]](#)
9. Ozkara Ş, Aktaş Z, Ozkan S. For the Control of Tuberculosis in Turkey Reference Manual. Ankara: T.C.Ministry of Health, Department of Tuberculosis 2003.
10. Treatment Of Tuberculosis: Guidelines For National Programmes World Health Organization, Geneva 2003; 5-113 (WHO/CDS/Tb/2003.313).