Case Report

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Isolated Tonsillar Tuberculosis Masquerading as Malignancy: A Rare Extrapulmonary Presentation

Internal Medicine Section

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ABSTRACT

Tuberculosis (TB) is a bacterial infection caused by the bacilli, Mycobacterium Tuberculosis (MTB). While it primarily affects the lungs, various other organs like the lymph nodes, pleura, and peritoneum can be involved in Extrapulmonary Tuberculosis (EPTB). Involvement of the tonsils, however, is extremely rare, even in a TB-endemic country like India. Tonsillar TB may occur secondary to pulmonary infection through lymphatic or haematogenous dissemination, and its presentation often mimics malignancy (fever, loss of weight). This case report contains a case of a 56-year-old male patient who presented with progressive dysphagia, significant weight loss, low-grade fever, and cervical lymphadenopathy. Clinical examination revealed a unilateral tonsillar enlargement with firm neck nodes, initially raising a strong suspicion of malignancy. Routine blood investigations were normal, and a diagnostic tonsillectomy was performed, whose histopathological examination revealed granulomatous inflammation with caseous necrosis. The diagnosis was then confirmed by microbiological evidence of MTB. The novelty of this case report lies in the isolated tonsillar involvement without active pulmonary disease, its close clinical resemblance to malignancy, and the diagnostic challenge involved. Early recognition and accurate diagnosis are crucial for initiating appropriate therapy and preventing transmission.

Keywords: Extrapulmonary tuberculosis, Mycobacterium tuberculosis, Oropharyngeal tuberculosis, Rare infection

CASE REPORT

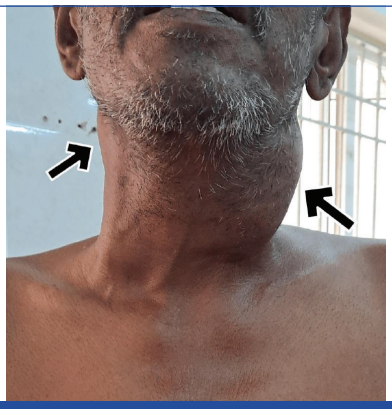
A 56-year-old male patient, a lorry driver of Indian/South Asian descent, presented with a three-month history of dysphagia, a foreign body sensation in the throat, evening rise of temperature, significant weight loss (14 kg over 2.5 months), and right-sided neck swelling, with a recent three-week history of left-sided neck swelling. The patient is also a reformed alcoholic and a known case of type 2 diabetes mellitus for 10 years. Patient is on regular medication, specifically 500 mg of metformin twice daily. He had no other history of medication use or allergies.

On examination, firm, non-tender, matted lymph nodes were seen on both sides of the neck [Table/Fig-1,2]. Oral examination revealed a growth in the right tonsillar fossa. Systemic examination of the respiratory, cardiovascular, and central nervous systems was unremarkable, and no organomegaly was detected on abdominal examination.

Laboratory tests showed decreased Red Blood Cell (RBC) and lymphocyte levels, lowered haemoglobin and haematocrit values, increased neutrophil and monocyte counts, and an elevated Erythrocyte Sedimentation Rate (ESR). Biochemical analysis revealed increased Alkaline Phosphatase (ALP), reduced albumin, and sodium levels [Table/Fig-1].

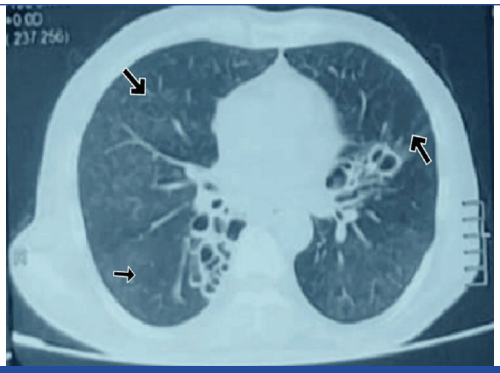
Investigation	Value	Reference range
RBC count (million cells/μL)	3.93	4.7-6.1
Haemoglobin (g/dL)	11.9	12-15.5
Haematocrit	34.70%	40-54%
Lymphocyte	8.50%	20-40%
Neutrophil	82.40%	40-70%
Monocyte	8.80%	2-10%
ESR (mm/hr)	17.03	0-15
ALP (IU/L)	283	30-120
Albumin (g/dL)	3	3.5-5
Sodium (mEq/L)	130	135-145
ALT (IU/L)	27	7-41

[Table/Fig-1]: Investigations and their results.
Abbreviations: RBC: Red blood cell; ESR: Erythrocyte sedimentation rate; ALP: Alkaline phosphatase; ALT: Alkaline transaminase

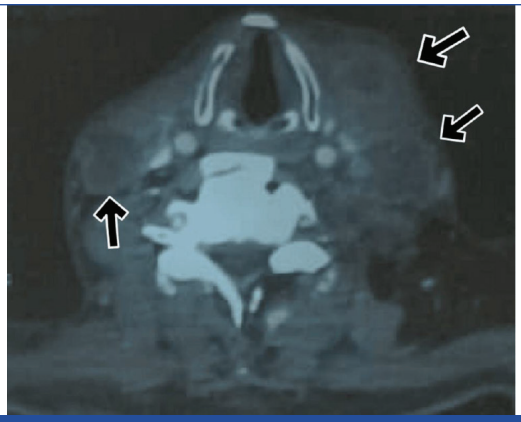


[Table/Fig-2]: Inspection of the patient revealing bilateral lymphadenopathy.

A chest X-ray was taken, but no significant abnormality was found. A chest CT was then taken, which demonstrated miliary nodules with random distribution in both lung fields [Table/Fig-3]. Enlarged lymph nodes were also confirmed in the CECT [Table/Fig-4]. A chest X-ray was taken, but no significant abnormality was found.



[Table/Fig-3]: Computed tomography of the chest showing bilateral bronchiectasis with bilateral miliary nodules.



[Table/Fig-4]: Enlarged lymph nodes seen in the Contrast Enhanced Computed Tomography (CECT).

An Ultrasonography (USG)-guided Fine Needle Aspiration Cytology (FNAC) from the left lymphadenopathy confirmed the presence of MTB, and histopathological examination of the right tonsillar growth post-tonsillectomy revealed caseating granulomas composed of epithelioid histiocytes, Langhans-type giant cells, and lymphocytic infiltration. The caseating granulomas are characteristic of TB bacilli. The confirmation of the same was done by detecting the acid-fast bacilli in the Ziehl-Neelsen staining.

The standard HRZE regimen was initiated for the patient after no rifampin resistance was detected, owing to the National Tuberculosis Elimination Programme (NTEP) guidelines. However, the patient showed signs of hepatotoxicity and intolerance towards this regimen. Therefore, an alternative regimen called the HLE regimen, which consisted of 300 mg of isoniazid once daily, 1200 mg of levofloxacin once daily, and 1200 mg of ethambutol once daily, was prescribed for the patient for nine months. The regimen deliberately avoided pyrazinamide and rifampicin due to their higher hepatotoxic potential. There is no standardised guideline that explicitly recommends this regimen- its rationale is simply supported by the pathophysiology of EPTB, and expert clinical judgment.

After a year, the patient returned for a follow-up. The swelling on both sides had reduced significantly, and the patient was completely asymptomatic. Vitals, general and systemic examination were all normal. No symptoms or side effects were reported by the patient.

DISCUSSION

TB is an infection caused by MTB bacilli. It primarily affects the lungs but can spread to other organs, in a disease termed EPTB. The common sites for spread are the lymph nodes, pleural, and peritoneal cavity. Rarely, breast, intestinal, male genital, and skeletal TB have also been documented [1]. In India, TB remains a significant public health issue, with the country accounting for a large proportion of the global TB burden [2]. As a frontrunner of national burden in India, these atypical forms seem to accentuate it. Socioeconomic factors, overcrowding, malnutrition, and delayed healthcare access are all social determinants in this setting.

Tonsillar TB is also a rare form of EPTB, mainly due to the unique anatomical and immunological characteristics of the tonsils [3]. As tonsils are a secondary lymphoid organ, they are often a common site for bacterial antigens that enter through the oral cavity. Despite all the exposure, the disease is uncommon in the tonsils. One of the primary reasons is the fact that the bactericidal properties of saliva, consisting of antimicrobial peptides such as lysozyme, lactoferrin, and secretory immunoglobulin A, actively prevent this [4]. The stratified squamous epithelium lining the tonsils also serves as a physical barrier, further worsening the chances for the bacilli [5].

The epidemiology of TB explains why such rare occurrences are still plausible. In endemic countries like India, exposure to MTB is continuous and widespread, explaining why physicians come across such presentations [6]. The presence of underlying immunosuppressive conditions increases the risk of such individuals to disseminated TB, which can potentially involve uncommon sites like the tonsils [7].

As tonsillar TB can mimic malignancies of the neck, it must be carefully considered in the differential diagnosis, via microbiological and histopathological evaluation for accurate diagnosis. Other differentials also include sarcoidosis, Wegener's granulomatosis, syphilis, and Kimura disease.

In our current patient, the dominant features were dysphagia with tonsillar involvement plus co-existing pulmonary TB in the setting of diabetes- a pattern that points to secondary tonsillar inoculation from an active lung focus.

Several case reports describe the same constellation: persistent sore throat or difficulty swallowing together with radiological or microbiological evidence of pulmonary TB, supporting the idea that tonsillar disease often occurs secondarily in patients with active pulmonary infection. A retrospective study conducted in a teaching hospital in Ethiopia reported no cases of tonsillar TB among 965 patients with EPTB, further proving the rarity of the present case report [1]. A paediatric patient with tonsillar TB has been described in the literature, who presented with recurrent episodes of upper respiratory tract infections [3]. This report contrasts with the current case, where the patient presented with dysphagia. In another reported case, the patient with recurrent tonsillitis but notably with co-existing pulmonary TB, differing from our case where pulmonary involvement was not observed [8]. Further, a case has been documented in which the patient exhibited both dysphagia and upper respiratory symptoms [9]. Interestingly, a report has also described tonsillar TB in a patient with no evidence of immunosuppression [10], whereas our patient was diabetic, an immunocompromised state predisposing to infection.

The present case report's limitations need to be addressed. The histopathological slide images of the granulomatous lesions were not collected during the pathological examination. Any images during the follow-up were also not taken.

CONCLUSION(S)

Tonsillar TB is a rare form of EPTB. The present case report emphasises the importance of maintaining high suspicion for TB even in unusual oropharyngeal presentations, especially in endemic areas. Diagnosis can be made using histopathological and microbiological confirmation, as clinical and radiological findings alone can be misleading. Early detection and appropriate treatment can prevent disease progression and provide a better prognosis. Awareness among clinicians and pathologists is essential for the same. The present case report contributes to the existing literature on isolated tonsillar TB while enforcing the requirement of having a rare differential in the back of the mind while diagnosing a similar case.

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