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IP Indian Journal of Immunology and Respiratory Medicine

Journal homepage: <https://www.ijirm.org/>

## Case Report

# A rare case of multi drug resistant vocal cord tuberculosis in a patient with systemic sarcoidosis

Anirban Ray<sup>1\*</sup>, Sushmita Roy Chowdhury<sup>1</sup>, Sivaresmi Unnithan<sup>1</sup>

<sup>1</sup>Dept. of Respiratory Medicine, Fortis Hospital, Anandapur, West Bengal, India



### ARTICLE INFO

#### Article history:

Received 18-07-2024

Accepted 23-09-2024

Available online 17-10-2024

#### Keywords:

Laryngeal tuberculosis  
Vocal cord multi drug resistant tuberculosis  
Hoarseness of voice

### ABSTRACT

Upper respiratory tract Tuberculosis is rare form of Extra Pulmonary Tuberculosis, since mycobacteria is not able to settle down there, due to the continuous airflow and the smooth mucosal lining, except for the entrapment areas, such as the larynx. Laryngeal Tuberculosis is often overlooked in patients with hoarseness of voice. The case report aims at early diagnosing and treatment of laryngeal Tuberculosis.

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## 1. Introduction

Tuberculosis is an infectious disease caused by Mycobacterium Tuberculosis, mainly affecting the lungs, but also other parts of the body, known as Extra Pulmonary or EPTB. May be asymptomatic, latent TB or showing active symptoms associated with the organ involved. Immunosuppressive state predisposed to higher incidence of TB. Vocal cord involvement, though rare, may occur in Tb. Symptoms are usually hoarseness of voice.

## 2. Case Study

Middle aged, non-smoking, known diabetic patient presented to Outdoor department with complaints of low grade fever since few weeks. CT thorax showed features consistent with sarcoid with elevated Serum Angiotensin Converting Enzyme (ACE) levels. Bronchoscopy guided Transbronchial ling biopsy was normal, with negative BAL culture report.

Patient was started on tapering course of steroids. Clinical symptoms resolved after few months.

Patient was also diagnosed to have ocular sarcoid during his examination for complaints of diminished vision and was put on relevant treatment.

After few months patient complained hoarseness of voice, was referred to ENT surgeon for evaluation. Fiber Optic Laryngoscopy (FOL) showed polypoid lesion in anterior 1/3<sup>rd</sup> of right vocal cord. Micro laryngeal surgery was performed with excision of right vocal cord polyp and left vocal cord nodule, with samples being sent for Histo Pathological Examination (HPE).

HPE was inconclusive and complaints persisted.

Patient underwent multiple repeat FOL in other setup, was kept on antibiotics, steam inhalation, steroids and other conservative treatment.

With persisting complaints, another repeat FOL revealed Cobble stoning with dense whitish plaques on both cords and underwent excision biopsy under General Anaesthesia.

HPE showed fragmented tissue bits lined by stratified squamous epithelium and stroma contains collection of histiocytes including some epithelioid morphology favoring epithelioid cell granuloma and areas of necrosis are seen—features suggestive of Koch's etiology. Gene Xpert detected Rifampicin resistant MTB. The tissue culture came positive for Acid Fast Bacilli Culture on 3<sup>rd</sup> week and was

\* Corresponding author.

E-mail address: [doc.anirbanray4u@gmail.com](mailto:doc.anirbanray4u@gmail.com) (A. Ray).

sent for drug sensitivity testing.

The patient was referred back to Pulmonology Department. Drug Sensitivity Testing(DST) on MGIT-960 showed resistance to isoniazid, pyrazinamide and rifampicin.

Patient was started on all oral longer Multi Drug Resistant Tb regimen including Bedaquilline under Revised National Tuberculosis Control Program (RNTCP).

Patient post discharge reviewed on OPD, with voice much improved and reduced complaints.



**Figure 1:** Cobblestoning of vocal cord with whitish plaques

### 2.1. Histopathology Report

1. Specimen—Vocal cord lesion
2. Gross—Multiple grayish white tissue pieces all together measuring 0.5x0.4x0.3cm-all
3. Microscopy- Examined sections shows fragmented tissue bits lined by stratified squamous epithelium and stroma contains collections of histiocytes including some of epitheloid morphology favouring epitheloid cell granuloma. Few areas of necrosis are seen.
4. Interpretation- Chronic necrotizing inflammatory process with occasional ill formed epitheloid granuloma. Consider Kochs etiology.

### 2.2. Genexpert report

Tissue specimen of vocal cords—

1. GeneXpert- MTB detected, Rifampicin resistance detected.
2. AFB Bactec culture

### 2.3. AFB Culture—Positive in 3<sup>rd</sup> week

1. Mycobacterium Tuberculosis Complex

### 2.4. Afb susceptibility test - MGIT960 (10DRUGS)

1. Isoniazid- Resistant
2. Rifampicin – Resistant
3. Pyrazinamide- Resistant
4. Pas – Sensitive
5. Ethionamide- Sensitive
6. Kanamycin- Sensitive
7. Ofloxacin- Sensitive
8. Levofloxacin- Sensitive
9. Linezolid- Sensitive
10. Clofazamin- Sensitive

## 3. Discussion

Constitutional symptoms are rare and often hoarseness is the only complaint in laryngeal tuberculosis, which may present even without active pulmonary TB.<sup>1,2</sup> Dysphonia can be caused by — organic (nodules/polyps/tumours/paresis of cords) or functional (functional dysphonia, laryngeal conversion disorder, paradoxical vocal folds motion) or systemic disorders like amyloidosis, sarcoidosis, Wegener's granulomatosis.<sup>3</sup> Mycobacterial infection primarily affected the posterior part of the larynx, which was thought due to pooling of the infected sputum in a recumbent patient.<sup>4</sup> Lymphatic and hematogenous spread associated with an oedematous, polypoid panlaryngitis which is not easily distinguished from chronic laryngitis.<sup>5,6</sup> Absence of pathognomonic symptoms of laryngeal TB and change in clinical pattern frequently leads to misdiagnosis and delay in the onset of treatment. If untreated, laryngeal TB may lead to widespread local tissue destruction with secondary laryngeal stenosis.<sup>7</sup> Long term steroids for treatment of sarcoidosis, leading to the complete resolution and regression of symptoms, may lead to tuberculosis reactivation or reinfection.<sup>8</sup> Smoking appears to be associated with the development of extensive Laryngeal tuberculosis.<sup>9</sup>

## 4. Conclusion

Persistent dysphonia should always raise a concern of laryngeal TB particularly in patients on immunosuppressive treatment, even without systemic symptoms. Commonly affected area by this disease are true vocal cord, followed by false vocal cord, epiglottis, arytenoids and posterior commissure. Laryngeal tuberculosis was considered a extra pulmonary manifestation and has almost always been associated with pulmonary infections. Currently reports of isolated laryngeal Tb is on the rise. Appropriate treatment of patients with laryngeal tuberculosis relies on suspicion, prompt diagnosis, and early initiation of appropriate antituberculous treatment.

## 5. Source of Funding

None.

## 6. Conflict of Interest

None.

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## Author biography

**Anirban Ray**, Senior Resident

**Sushmita Roy Chowdhury**, Head of the Department

**Sivaresmi Unnithan**, Senior Consultant

**Cite this article:** Ray A, Chowdhury SR, Unnithan S. A rare case of multi drug resistant vocal cord tuberculosis in a patient with systemic sarcoidosis. *IP Indian J Immunol Respir Med* 2024;9(3):114-116.