

## **Whispering Tuberculosis**

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### **Abstract**

#### ***Presentation***

We describe a case of reactivation of latent pulmonary tuberculosis (TB) invading the larynx and causing dysphonia.

#### ***Diagnosis***

A previously healthy 30-year old woman was found to have bilateral pulmonary TB 5-months after being thoroughly investigated for hoarseness. Initial chest x-ray (CXR) and CT-neck were normal. Vocal cord biopsies were negative for granulomata.

#### ***Treatment***

The patient was commenced on standard four drug Anti-TB treatment (ATT) and completed a one-year course. Unfortunately, the development of a laryngeal web caused persistent dysphonia.

#### ***Discussion***

Patients with laryngeal TB are more likely to present to ENT surgeons, because of the initial symptom of hoarseness. Multiple tests must be completed before out-ruling TB. HRCT or sputum culture is recommended, as TB may not be evident on initial CXR. A collaborative approach between Respiratory and ENT teams is required. Prompt diagnosis is essential. Speech therapy input will be important in our patient's recovery.

### **Introduction**

Laryngeal tuberculosis (LTB) is a rare and highly infectious disease<sup>1</sup>. LTB can develop by direct spread of bacilli in bronchial secretions or haematogenous spread from a distant primary focus<sup>1</sup>. We describe a case of LTB that was labelled as idiopathic laryngitis, leading to a delayed diagnosis of TB.

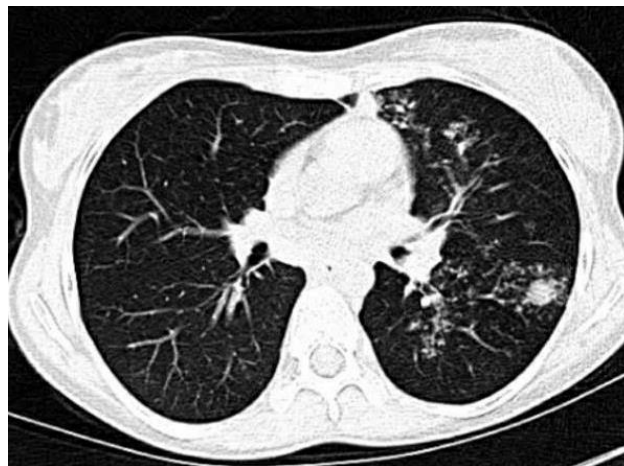
## Case Report

A 30-year old Asian woman presented with a 3-week history of a dry cough, low-grade fever and shortness of breath on exertion, on a background of only 5-month history of hoarseness.

She had been investigated by an ENT surgeon regarding this hoarseness that later progressed to dysphonia. At the time of ENT review, CXR and CT-neck revealed no abnormalities. Routine bloods and an autoimmune screen including-ANA, ANCA, anti-ENA, C3/C4, were normal. Nasopharyngolaryngoscopy (NPL) exams, showed congestion and later large amounts of tenacious material clinging to the vocal cords. Two vocal cord biopsies were undertaken showing non-specific inflammation. No granulomas were identified. Sputum was not sent for TB culture. She was initially treated for suspected laryngopharyngeal reflux and then Co-Amoxiclav (625mg TDS X 7/7) and Prednisolone (5mg OD x 5/7) were prescribed for Bacterial laryngitis.

The patient was a non-smoker with no significant past medical history. Bilateral wheeze and reduced air entry were noted on auscultation. Second CXR 4-months later, revealed hyperinflation and extensive bilateral pulmonary nodular densities most prominent in the left peri-hilar region. Admission bloods showed – white blood cell count of 8 with low lymphocyte count of 0.8 and CRP of 32.6. Renal and liver function tests were normal. She denied night sweats or weight loss despite having low BMI 18. There was no recent travel history. BCG scar was present. TB screening, for work purposes, two years earlier had been negative (CXR). HIV and Hepatitis screening was negative. High resolution computed tomography (HRCT) of the thorax demonstrated alveolar infiltrates suggestive of pulmonary TB.

Prior to starting ATT, bronchoscopy revealed white plaques on the larynx and the right main bronchus. Bronchoalveolar lavage (BAL) was positive for Acid-fast Bacilli. A fully sensitive Mycobacterium tuberculosis was isolated. The public health team was informed. She continued to be followed-up in the Respiratory and ENT clinics, as she had by then developed an anterior glottic web (AGW) that led to aphonia. The patient has completed a one-year course of ATT, two months of ethambutol and pyrazinamide and 12 months of rifampicin and isoniazid. She has had slow recovery of her voice after one year of anti TB treatment.



**Figure 1:** HRCT Thorax 5-months after initial presentation of hoarseness-Multiple nodules predominantly in the subpleural mid zones, mediastinal lymph nodes, several of the nodules had adjacent tree-in-bud type opacification.



**Figure 2:** Anterior glottic web and right vocal cord TB deposit.

## Discussion

Laryngeal TB is the most common granulomatous disease of the larynx and represents less than 2% of extra-pulmonary TB cases<sup>1</sup>. Among the risk factors identified are smoking, immunosuppression, immigration from high-risk areas and multi-drug resistant organisms<sup>2,3</sup>. The pattern of presentation has changed in recent years. Previously patients described odynophagia, weight loss and night sweats, but the most common complaint more recently is hoarseness. The nonspecific nature of presenting complaints and low incidence of LTB may lead to delayed diagnosis.<sup>5</sup>

Management involves ATT from 6-months to 1 year, longer in duration compared with pulmonary TB<sup>1</sup>. On average it takes 18-weeks for the larynx to return to its normal appearance<sup>4</sup>. Voice outcomes improve after ATT, but in a minority of patients vocal cord immobility is a permanent complication secondary to fibrosis and adhesions<sup>4</sup>. Two months after initiating ATT, the patient reported no improvement in aphonia. NPL exam showed an AGW, more common in patients with delayed treatment. Surgical intervention is not recommended until a patient completes 12 months treatment. She has minimal voice recovery 10-months post ATT and attends Speech and language therapy.

Patients with laryngeal TB are more likely to present to ENT surgeons because of the initial symptom of hoarseness, therefore multiple TB tests should be completed before diagnosing Idiopathic laryngitis. HRCT Thorax and sputum culture is recommended as part of the ENT workup. Multi-disciplinary management between ENT surgeons, respiratory physicians and speech and language therapists is essential once a diagnosis has been made to ensure the best outcome for the patient.

**Declaration of Conflicts of Interest:**

The authors have no conflict of interests to declare.

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