

Case Report

Laryngeal cancer presenting similarly as laryngeal tuberculosis: a near missed diagnosis

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ABSTRACT

Tuberculosis (TB) and malignancy are global threats and have claimed millions of lives worldwide. TB is a preventable and curable disease prevalent in developing countries. It is well known to be a diagnostic chameleon and often mimic malignancy. Laryngeal TB is an extremely rare form of TB and has many similarities to laryngeal carcinoma. This case report highlights the importance of diagnostic biopsy in a 57-year-old gentleman with characteristic presenting features of laryngeal TB that is persistent hoarseness and haemoptysis. He was investigated and treated for pulmonary TB however his laryngoscopy biopsy revealed to be laryngeal carcinoma. Based on this case report, it is shown that malignancy could have easily been missed had a presumptive diagnosis of laryngeal TB been made initially. Nevertheless, when evaluating dysphonia in a patient, while it is important to consider laryngeal carcinoma, laryngeal TB must also not be overlooked as possibility, especially in endemic areas.

Keywords: Carcinoma, Larynx, TB, Hoarseness

INTRODUCTION

Tuberculosis (TB) is the second leading infectious killer globally following COVID -19 infection based on the WHO statistics in year 2021. (1) However, laryngeal TB is an extremely rare presentation of TB. Notably, laryngeal TB can develop with or without the presence of pulmonary disease. It has many similarities to laryngeal carcinoma, which constitute 5% or less of all malignant diseases diagnosed annually worldwide. (2) The associated risk factors of laryngeal carcinoma are similar and concentrated in the same demographic background as that of TB, creating a diagnostic dilemma for most clinicians. In addition, on laryngoscopy and imaging, it often simulates laryngeal carcinoma, hence confirmation is always histological. We present a case of laryngeal carcinoma in a patient with pulmonary TB and aim to

give emphasis on the importance of laryngoscopy biopsy to facilitate a prompt diagnosis and treatment.

CASE REPORT

A 57 years old gentleman presented with a 6 months history of hoarseness and haemoptysis. He was an active smoker of 1 pack cigarettes daily for the past 3 decades. He denied prior exposure or contacts to tuberculosis (TB). Clinically, he was cachexic in built and had no obvious airway compromised or palpable neck nodes. Flexible laryngoscopy revealed an irregular mass involving mainly the left vocal cord and part of the right vocal cord (Figure 1). Mobility of vocal cords were normal and there was no involvement of the supraglottic or subglottic region. Our provisional diagnosis at the time was laryngeal carcinoma with a differential diagnosis of laryngeal TB. We arranged for a TB workup and CT

imaging prior to laryngoscopy biopsy under general anaesthesia. He was tested positive for sputum acid fast bacilli (AFB) with positive findings on chest x-ray imaging of upper lobe pulmonary consolidation (Figure 2) and was promptly started on anti-TB treatment. CT imaging reported soft tissue irregularities confined to the glottic region, suspicious of laryngeal carcinoma or TB. There was also upper lobe pulmonary opacities suggestive of TB infection. No reported distant metastasis. With the diagnostic dilemma in hand, we proceeded with laryngoscopy biopsy and his histopathological biopsy later came back as squamous cell carcinoma (SCC) and was negative for TB PCR testing. Based on the CT imaging, he was staged as T1bN0M0 glottic SCC and a referral to oncology team was made for radiotherapy commencement.

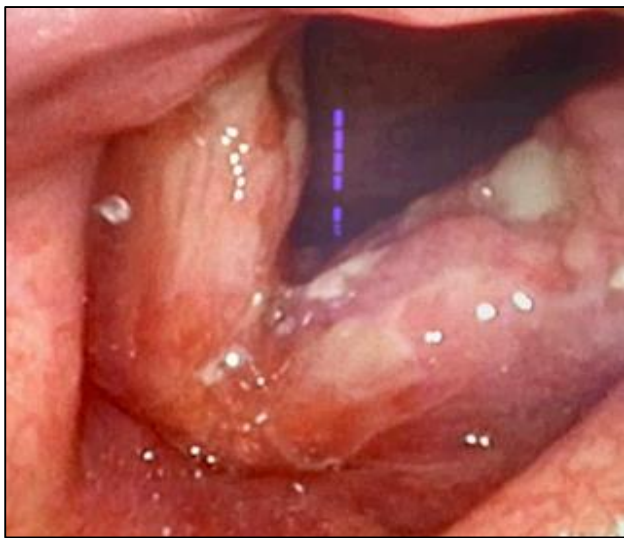


Figure 1: Videolaryngoscopy of ulcerative and hyperemic lesions seen at the bilateral vocal cords.

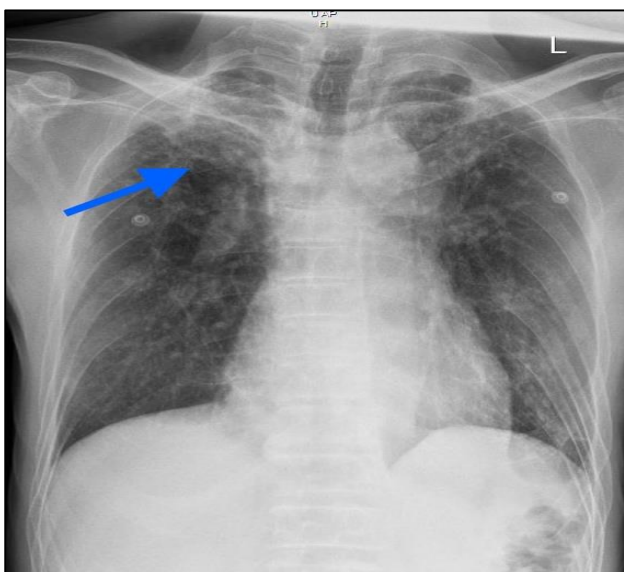


Figure 2: Chest X-ray imaging: upper lung lobe showed apical consolidative patches (blue arrow).

DISCUSSION

TB is an endemic disease in Malaysia and many literatures have regard TB as one of the leading causes of adult mortality in developing countries. Based on the Malaysia national case-based TB registry (MyTB), the TB incidence rate in year 2019 was reported to have an estimation of 92 cases per 100,000 population while the TB mortality rate was estimated at 4 cases per 100,000 population per year.³

It is estimated that 10% of the notified disease in Malaysia are extra-pulmonary TB and about 14% of pulmonary TB patients have extra pulmonary involvement.⁴ Laryngeal TB which is considered to be a rare sequela of pulmonary TB, occurs in about 1% of cases and closely resembles laryngeal carcinoma than any other laryngeal illness.⁵

On the other hand, the incidence of laryngeal carcinoma is seen to be rising especially amongst elderly men with strong history of smoking. Previous literatures have cited cigarette smoking as a well-established risk factor for the development of head and neck cancer.⁶ The global incidence of laryngeal carcinoma constitutes 5% or less of all malignant cases diagnosed annually.² Based on the Malaysian national cancer registry, a total of 938 cases of laryngeal cancer were recorded in the period of 2007 until 2011, which constitutes about 0.9% of the total new cancer cases diagnosed.⁶

In this case report, we illustrate the difficulties in distinguishing laryngeal carcinoma from laryngeal TB which would have led to a detrimental outcome if our patient was misdiagnosed. There are no pathognomonic clinical and endoscopic features of this disease and studies on laryngeal TB that can assist in its diagnostic characterization are lacking.

Clinical, laryngoscopic, and radiological findings of laryngeal TB tend to mimic laryngeal carcinoma, posing great challenges for otorhinolaryngologists.⁶ In this paper, we present a patient with laryngeal carcinoma who was almost treated as laryngeal TB following pulmonary TB. Even though laryngeal TB is a rarity, it may be the first presenting symptom of pulmonary TB and should always be considered among the differentials for dysphonia along with laryngeal cancer especially in disease endemic countries. We entertained the possibility of laryngeal TB in this case after obtaining a smear positive acid-fast bacilli (AFB) sputum alongside presence of pulmonary infiltrates seen in the chest x-ray and CT imaging.

The demographical similarities between these two diseases affects mainly those in the 4-6th decade age group. Notably, there is also a greater male gender predominance in both diseases. Risk factors such as cigarette smoking, alcohol abuse, poor nutrition,

workplace exposures, can be mutual as well, all leading to diagnostic difficulties.⁷

Laryngeal TB and carcinoma share many similar presentations with the commonest symptom of hoarseness reported in 80-100% of patients. With the changing trend of clinical manifestations of laryngeal TB, about 40% of the cases reported to have odynophagia, a contrast from decades ago whereby patient usually had pulmonary symptoms alongside constitutional symptoms. Odynophagia is considered an important discriminating symptom, as it is not common in laryngeal carcinoma.⁸ Other shared presenting symptoms include dysphagia, cough, stridor, haemoptysis, and cervical lymphadenopathy.⁹ Constitutional symptoms, such as weight loss, fever, malaise, night sweats, can be present in both cases.

Laryngoscope findings of TB may range from erythema to ulceration to polypoidal or fungative appearance. These similar lesions can be seen in laryngeal carcinoma, especially in exophytic and polypoidal lesions, making it difficult to distinguish between two laryngeal diseases.^{10,11} Classically when pulmonary involvement were often in the past, posterior parts of larynx were the commonest affected site in TB infection. Nowadays however, the anterior part of the larynx is more affected, with vocal cords being affected predominantly.¹⁰ Approximately 98% of laryngeal cancers arise in either the supraglottic or glottic regions; of which glottic cancers are found to be three times more common than supraglottic cancers, and subglottic cancers representing approximately 2% of all cases.¹² TB lesions are found to be bilateral in 75% of the cases while laryngeal carcinoma may be unilateral or bilateral.¹⁰

Chest radiography should be an inevitable diagnostic procedure when examining laryngeal lesions for patients from endemic areas with high clinical suspicion of laryngeal TB to evaluate for pulmonary involvement. In patients with TB, the chest x-ray is usually abnormal and often shows cavitations at the apical region with bilateral nodular infiltrates as seen in this case.¹³ Although the appearance on CT is not specific, the possibility of TB should be considered when a bilateral and diffuse laryngeal lesion is noted in patients with pulmonary TB. The characteristic sign of laryngeal TB is the preserved integrity of laryngeal cartilage with the absence of destruction or sclerosis, which can help clinicians to distinguish it from laryngeal cancer.¹⁴

In order to come to a definite diagnosis and to distinguish carcinoma and TB of larynx, histopathological analysis of the biopsied laryngeal lesion is mandatory. Demonstration of acid-fast bacilli or *M. tuberculosis* on polymerase chain reaction in the biopsied specimen are the main modalities of diagnosis. However, the presence of culture growing *M. Tuberculosis* remains as the gold standard diagnostic modality. It should be kept in mind

that both tuberculosis and malignancy may coexist in the same patient.⁶

CONCLUSION

Laryngeal TB should be considered as a differential diagnosis in any laryngeal disease and in particular in the case of a laryngeal carcinoma or patients from endemic regions. As seen, the clinical and laryngoscopy findings closely resemble laryngeal carcinoma, creating diagnostic dilemma for even the most experienced clinicians. A high level of clinical suspicion is warranted for laryngeal biopsy to facilitate a prompt diagnosis.

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