Laryngeal Tuberculosis presenting as Laryngeal Carcinoma

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Abstract

Tuberculosis (TB) accounts for the highest number of mortalities among infectious diseases worldwide. Laryngeal TB is an extremely rare presentation of TB. It has many similarities to laryngeal carcinoma, one of the three most common cancers among males in the city, with an age standardized rate of 8.6. The associated risk factors of laryngeal carcinoma i.e. smoking, paan, betel nut usage and alcohol use also tend to be concentrated in the same demographic background as that of TB, creating a diagnostic dilemma.

We present a case of granulomatous laryngeal TB, in a 40 year old male, with characteristic presenting features of laryngeal carcinoma i.e. persistent hoarseness and weight loss. He had no associated symptoms of fever, night sweats, cough or dysphagia, nor did he have any history of tobacco or irritant use. There was no history of tuberculosis (TB) contact. He was initially worked up for laryngeal carcinoma; however laryngoscopic biopsy revealed laryngeal TB.

We present this case to emphasize the point that although primary laryngeal tuberculosis is a rarity, it must not be overlooked as a possibility when evaluating dysphonia and/or considering laryngeal carcinoma.

Keywords: Tuberculosis, Laryngeal carcinoma, Smoking, Paan, Betel nut.

Introduction

Studies regard tuberculosis (TB) as the second leading cause of adult mortality in low socioeconomic areas of Karachi, Pakistan.[1] The picture that comes to mind when one refers to TB is of its most common form pulmonary TB; however the organism is known for its innovative presentations, proving to be a challenge for clinicians. Laryngeal TB is considered to be a rare sequelae of pulmonary TB; occurring in about 1% of cases,[2,3] it has many similarities to laryngeal carcinoma (LCa).[4]

Of interest to note here is that the Karachi Cancer Registry reported LCa as the 3rd most common cancer among males in the city.[5] Laryngeal TB is a diagnostic dilemma because it tends to be concentrated in the same demographic/socioeconomic background as that of TB and has similar associations e.g. paan, smoking and betel nut chewing.

Highlighting the aforementioned dilemma we present this case to emphasize the point that although primary laryngeal tuberculosis is a rarity, it must be considered among the differentials when evaluating dysphonia and/or considering laryngeal carcinoma in our population.

Case Report:

A 40-year-old male presented to our Otolaryngology clinic with a two-month history of persistent hoarseness. He did not have any history of tobacco or irritant use. On further questioning he revealed that he had noticed weight loss during this period. However, he gave no history of fever, night sweats, and/or dysphagia. His previous history was unremarkable with no history of cough or chest pain. There was no history of tuberculosis (TB) contact. He had significant hoarseness of voice. On examination no cervical lymphadenopathy was noted.

Fiberoptic laryngoscopy revealed oedema and decreased mobility of the right true vocal cord, along with characteristic granulomatous roughness of true vocal cords bilaterally, raising suspicions of carcinoma of the larynx. Diffuse enlargement of the arytenoids was noted.

He was worked up as per protocol and antero-posterior chest radiography showed consolidation of the right upper lung zone with multiple cavitary lesions in the right infra hilar region. Multiple granulomas were also noted in the left mid lung zone indicating pulmonary TB. His complete blood count and electrolytes were within normal limits. A sputum sample was not analyzed initially as the patient did not have any symptoms of cough or sputum production.

The laryngeal lesion was clinically staged as a T2 N0 Mx laryngeal carcinoma. It was decided to hold off on the computed tomography (CT) scan and proceed with a laryngoscopic biopsy concurrently managing the pulmonary TB.

Histopathological examination of the excised tissue however revealed necrotising granulomatous inflammation without signs of malignancy. Ziehl-Neelsen staining of the tissue revealed acid-fast bacilli. Sputum sample was then

collected which also revealed acid fast bacilli on Ziehl-Neelsen staining and grew Mycobacterium tuberculosis on culture. The patient was referred to the infectious diseases department for further treatment and started on a four drug anti tuberculous therapy (ATT). Repeated chest radiograph 2 months after the commencement of ATT showed partial resolution of the consolidation. On 5 month follow up the patient reported feeling better and clinical improvement had been noted in his symptoms.

Discussion

Tuberculosis (TB) accounts for the highest number of mortalities among infectious diseases worldwide, with most of the disease concentrated in low income groups of the South Asian and Eastern Mediterranean Regions (EMR).[1] Pakistan accounts for 44% of cases in the EMR ranking as number 8 on the list of countries with high estimated prevalence.[1]

Laryngeal TB represents the most frequent laryngeal granulomatous disease with a tendency to mimic laryngeal cancer in clinical, laryngoscopic and radiological findings. However primary laryngeal disease is rare and there is almost always associated active or resolving/subacute pulmonary TB.[6]

Laryngeal disease usually occurs due to haematogenous dissemination or direct extension of a previous pulmonary TB infection. Isolated laryngeal TB has also been reported in acquired immunodeficiency syndrome (AIDS) and hence patients presenting with isolated disease in the absence of any active/previous pulmonary involvement should ideally be screened for human immunodeficiency virus.[7] Other factors found to have an association with laryngeal TB include the absence of Bacillus Calmette-Guérin (BCG) vaccination, malnutrition, immunosuppression, promiscuous behavior, and tobacco use.

It is usually seen in adults, between 40 and 50 years of age, with presenting complaints including dysphonia usually accompanied by odinophagia or dyspnoea. However in the same age bracket the same symptoms raise suspicious of laryngeal carcinoma. On laryngoscopic examination, findings of TB are variable ranging from a mass to an ulcerative lesion with an inconsistent location. The vocal cords represent the most frequent site, followed by the ventricular strip, epiglottis, sub-glottic region and posterior commissure.[3,8]

Radiological findings depend on the extent of the lesion and an association has been demonstrated between radiological and histological findings.[9] Focal thickening is noted in the early infiltrative stage followed by an ulcerative stage. However the ulceration is shallow and rarely reaches the paraglottic spaces and cartilage. In advanced stage, the disease is characterized by sclerosis.[4] Other radiological findings described in laryngeal TB include oedema, isolated swelling of the ary-epiglottic folds and tuberculomas.[4]

As seen, the findings closely resemble laryngeal carcinoma, creating problems for even the most experienced clinicians. Adding to the woes is the fact that risk factors for both diseases are concentrated in the same regional and socio-economic strata. Demonstration of acid-fast bacilli or identification of M. Tuberculosis on polymerase chain reaction in the biopsy specimen are the main modalities of diagnosis. The gold standard however remains a culture growing M. Tuberculosis.[10]

Awaiting results of the latter to begin therapy may put the patient in jeopardy, as any unwarranted delay in treatment may result in subglottic stenosis or vocal cord paralysis due to invasion of the recurrent laryngeal nerve or vocal apparatus.[8] Therefore the demonstration of either of the former signs is considered sufficient to begin anti tuberculous therapy.

Conclusion

Even though laryngeal tuberculosis is a rarity, it may be the first presenting symptom of pulmonary tuberculosis and should always be considered among the differentials for dysphonia along with laryngeal cancer especially in our area of the world.

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