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Case Report

Atypical presentation of laryngeal tuberculosis – A rare case of primary tuberculosis of larynx

Sohil Gala[1*], Ruchi Shah[2], Pallavi Singh[3], Rachna Mehta[4], Sanjay Gala[5]

[1-3,5]Consultant, [4]Senior Resident, [1-5]Gala ENT Nursing home, Mumbai, Maharashtra, India

Abstract

Laryngeal Tuberculosis (TB) is a rare granulomatous infection affecting the larynx usually secondary to pulmonary TB, but can also occur primarily without pulmonary involvement. Increased incidence of immuno-compromised states, presence of drug resistance, atypical presentations, non specific radiological features and close differential diagnoses pose a challenge for management of cases. We discuss an atypical presentation of Primary Laryngeal TB which was managed by us.

Keywords: Tuberculous, Laryngitis, Atypical TB Larynx

Introduction

Laryngeal Tuberculosis is a granulomatous infection of the larynx caused by Mycobacterium tuberculosis. It is a rare type of extrapulmonary tuberculosis (TB) seen in clinical practice.[1] It constitutes less than 1% of all TB cases.[2,3] It is the most common granulomatous disease of the larynx.[4] The most common ENT manifestation of TB is laryngeal TB second only to Cervical Lymphadenitis.[5]

In spite of the expected rarity of the incidence of laryngeal tuberculosis, owing to the advance in the effective anti-tubercular drugs, there is a rise in the incidence of laryngeal tuberculosis and a changing trend noted in its clinical presentation owing to the increasing number of immunocompromised hosts and development of multi-drug-resistant cases of TB and also to the better diagnostic modalities.[6] Hence it is essential for the present day otolaryngologists to know the atypical manifestations of laryngeal tuberculosis to prevent mismanagement of such cases.[7]

Case Report

We had a 43 year male who presented to us with change of voice and throat discomfort since 2 months. He was not a smoker and not a known case of any other co-morbidities. On assessment he had a horse voice, with Maximum Phonation Time of 8 seconds. On Rigid Hopkins Laryngoscopic examination, the right true vocal fold appeared congested with irregular and ulcerated medial edge. The left true vocal fold appeared normal and bilateral true vocal folds were mobile. Rest of the Larynx appeared normal.

Fig. 1

Previously the patient was labeled as chronic laryngitis with laryngopharyngeal reflux and started on antireflux medications and vocal hygiene, but with no significant benefits. We advised the patient to undergo a microlaryngoscopic examination under anesthesia with tissue sampling. Apart from routine pre-operative investigations, the ESR was slightly raised to 38mm/hour at the end of one hour. The Chest X-ray was within normal limits. Induced Sputum Examination was negative for AFB. The patient was taken up for a microlaryngoscopic biopsy and the tissue was sent for histopathology which revealed caseating ganulomas with epetheloid and langhans giant cells. A final diagnosis of tuberculous laryngitis was made and the patient was started on multidrug antituberculous (ATT) regimen with intensive phase with four drugs for 2 months followed by three drugs in continuation phase for 4 months. The patient reported significant improvement in symptoms on initiation of ATT and was symptom free by the end of 2 months of treatment. On reassessment at 3 month post completion of ATT, the Maximum phonation Time had improved to 17 seconds and the Rigid Laryngoscopic examination was unremarkable.

*Corresponding Author: Sohil Gala, Kandpal ENT Hospital Shaktipuram, Nawabi Road Haldwani, Nainital, Uttarakhand, India
Email: sohilgala17@gmail.com

Fig. 2

Discussion

Tuberculosis is a granulomatous infectious disease caused by Mycobacterium tuberculosis. Tuberculosis is a major public health problem in developing and underdeveloped countries

This disease mainly affects lungs called as pulmonary tuberculosis but can also affect extrapulmonary site such as larynx. Laryngeal tuberculosis is an infrequent manifestation of

extrapulmonary tuberculosis. It occurs in only 1% of all cases.[2] Although a rare clinical condition, it is the most common granulomatous disease of the larynx.

Usually, it is seen as a complication of pulmonary tuberculosis, nevertheless, solitary laryngeal involvement is possible. Larynx may be affected by TB in three ways:[8]

1. The patient has advanced pulmonary disease usually fibrocavitary with larynx being inoculated by the infected sputum;
2. Hematogenous spread;
3. Lymphatic drainage seeds the larynx.

Primary TB of larynx is rare and is caused by direct invasion of inhaled bacilli.[9]

The most common symptom is hoarseness, Other symptoms includes odynophagia, dysphagia, referred otalgia, cough, and rarely stridor[10,11]

Any site of the laryngeal framework may be involved including the vocal folds, epiglottis, aryepiglottic folds, arytenoids, and the subglottis.[12]

The characteristic lesions of laryngeal tuberculosis include monocorditis, laryngeal perichondritis, interarytenoid mamillations, turban epiglottis, posterior glottic ulcers (mouse nibbled vocal cord ulcers), granulations, edema and thickening of aryepiglottic folds.[13,14] But with the advent of anti-tubercular drugs, the clinical manifestations of laryngeal tuberculosis is showing a changing trend with atypical presentations

This change in presentation can be attributed to various causes such as[15,16]:

In pre antibiotic era, laryngeal infections were seen mostly in sputum positive patients. Since most of the treatment was given on inpatient basis, the recumbent position caused pooling of mycobacterium rich sputum along the posterior airway and a direct spread of infection to posterior larynx. Hence posterior part of larynx was most commonly affected.

Currently sputum negative cases have been reported with laryngeal tuberculosis, indicating the rise in hematogenous/lymphatic spread of infection to larynx and anterior laryngeal involvement is increasing because of the advent of outpatient based treatment.

Hematogenous spread also changed the appearance of the lesion to be more exophytic than ulcerative, which was due to direct spread.

The diagnosis of TB is mainly based on a positive mycobacterial smear of AFB and culture or the histopathological demonstration of caseating granulomas, epetheloid and langhans giant cells, and cellular infiltrate.[10] Samples for AFB Smear & Culture can be obtained from Sputum or laryngeal/bronchial washings/lavage. Tissue Samples and biopsies can be used for culture and histopathological testing. Supportive investigation may include ESR, Chest Xray, and few other investigations.

Computed tomogram findings of laryngeal tuberculosis are varied and non-specific, and often non-conclusive and misleading. Certain features can differentiate TB from laryngeal carcinoma. There may be regions with low attenuation areas which may be suggestive of caseous necrosis. The major differentiating feature from laryngeal malignancy is the intact laryngeal cartilaginous framework, despite the diffuse nature of the lesion and involvement of paraglottic space in few cases.[6]

With the increase in incidence of HIV and other immune-compromised states, the incidence of various forms of TB is on a rise too. One must thoroughly investigate a patient with tuberculosis for presence of any immune-compromised conditions.[17]

Laryngeal TB should be differentiated from non specific chronic laryngitis, other chronic infections, such as syphilis, actinomycosis, fungal infections, and granulomatous/autoimmune conditions like Wegener's granulomatosis, sarcoidosis lupus, recurrent polychondritis, rheumatoid arthritis, and amyloidosis. Laryngeal malignancies form one of the most common differential diagnoses for TB.[18]

Patients with laryngeal TB respond well to antitubercular Treatment (ATT). A 6-month course is sufficient and gives remarkable results.[19] Treatment can be monitored using clinical, laryngoscopic and radiological response and culture studies wherever indicated. Treatment is usually given for atleast a period of 6 months, but various regimens are in place for the type and duration of therapy and may differ as per institutional protocols and the clinical, laboratory and radiological parameters. Drug resistance may warrant longer courses of treatment and need for second line drugs.

The treatment is as a rule ATT, whereas surgery is only reserved in certain situations where is compromising the laryngeal airway by its granulomatous growth.[20] In cases where a conclusive diagnosis has not been made surgical aid may be needed for an excisional biospsy. Surgery could be

attempted in rare cases where medical therapy fails to control the disease.

If not treated early, laryngeal TB can result in glottic stenosis, subglottic stenosis, muscular involvement, and vocal cord paralysis due to invasion of cricoarytenoid joint or recurrent laryngeal nerve.[21,22] It can also lead to fibrosis in the layers of the lamina propria of the vocal folds causing irreversible changes in the quality of the voice.[30]

Conclusion

Laryngeal TB though rare, must be considered as an important differential diagnosis with atypical laryngeal presentations especially in endemic countries. Early diagnosis and prompt treatment with ATT is the cornerstone of management with good results without sequelae. Underlying immune-compromise, development of drug resistance, co-existing malignancies may complicate prognosis.

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Conflict of Interest

None.

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