



# Tubercular Laryngitis: A Rebirth?

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## ABSTRACT

**Objective:** The aim of this study is to highlight the changing clinical patterns of laryngeal tuberculosis (TB) and to increase the awareness of this uncommon manifestation of extrapulmonary TB which will help the clinician in early diagnosis and appropriate management of this condition.

**Materials and methods:** A retrospective analysis was done of 34 suspected cases of tubercular laryngitis who presented to our institution from January 2009 to December 2011. All of these patients were subjected to hematological tests, sputum microscopy, and radiological investigations.

**Results:** Out of these 34 patients, hematological profile, sputum testing, and radiological profile was positive for TB in 13 patients who were started on antitubercular treatment. Out of 13, 1 patient had resolution of cough but persistent hoarseness and was diagnosed as having severe epithelial dysplasia. Twenty-one patients were tested negative for TB and were diagnosed as chronic laryngitis (11), histoplasmosis (1), amyloidosis (2), sarcoidosis (1), and invasive squamous cell carcinoma (4). Primary laryngeal TB was diagnosed in two cases.

**Conclusion:** Laryngeal TB, though rare, is increasingly presenting to the otolaryngologists nowadays due to increase in the number of immunocompromised hosts and development of resistant microorganisms. It presents with nonspecific symptoms and can often be missed leading to delay in diagnosis and treatment. Starting empirical steroids without diagnosis may flare up the TB. It often mimics and occasionally may coexist with laryngeal malignancy. Thus the clinician should be vigilant and should always consider laryngeal TB as an important differential for laryngeal lesions.

**Keywords:** Hoarseness, Larynx, Tuberculosis.

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## INTRODUCTION

Laryngeal tuberculosis (TB) is a rare form of extrapulmonary TB. With the increasing number of immunocompromised hosts and development of multi-drug-resistant cases of TB, today otolaryngologists are seeing increasing number of laryngeal TB cases. The classic presentation of the past no longer holds true today and a changing trend in its pattern of presentation is observed. Unless a high index of suspicion is maintained, these cases often get misdiagnosed as nonspecific laryngitis. This article highlights the changing trend in the presentation of laryngeal TB, which will guide the clinicians in the early diagnosis and management of this disease entity.

## MATERIALS AND METHODS

We retrospectively analyzed data of 34 patients of suspected tuberculous laryngitis who had presented to our department over a period of 3 years, from January 2009 to December 2011. These patients had complaints of change in voice, odynophagia, foreign body sensation in throat, and cough for more than 2 weeks. A rigid laryngoscopic examination revealed the following findings (Tables 1 and 2). The lesion was bilateral in 73% cases with symmetrical involvement in 2 (13.5%) cases and asymmetrical involvement in 9 (60%) cases (Fig. 1). Out of 15 cases, 4 (27%) cases showed unilateral involvement (Fig. 2).

Based on these symptoms and laryngoscopic findings, a high index of suspicion was kept so as to rule out a tuberculous laryngitis. All these patients underwent a hematological study which included total and differential white blood cell count and erythrocyte sedimentation rate (ESR), sputum testing for acid-fast bacilli (AFB), and a high-resolution computed tomography (CT) scan of the chest to rule out TB. Out of these 34 patients,

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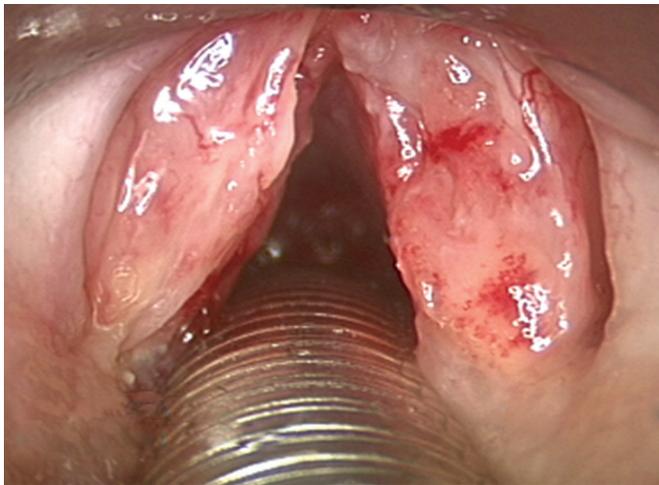
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**Table 1:** Type of lesion

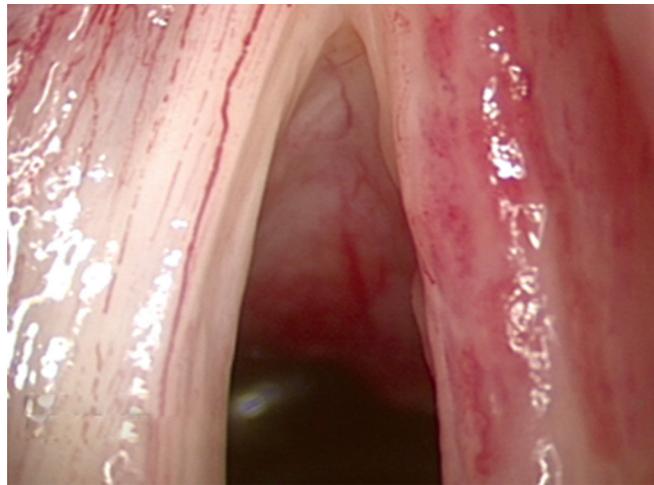
Ulcerative	5 (34%)
Exophytic	6 (40%)
Unilateral	4 (27%)

**Table 2:** Site of lesion

True and false vocal fold	8 (53.3%)
True vocal fold	4 (27%)
False vocal fold	2 (13.3%)
Epiglottis	1 (7%)



**Fig. 1:** Bilateral involvement in a case of laryngeal TB



**Fig. 2:** Unilateral involvement in a case of laryngeal TB

hematological profile, sputum testing, and radiological profile was positive for TB in 13 patients. These patients were started on category I of DOTS (directly observed treatment, short-course) and treated according to the Revised National Tuberculosis Control Programme (RN-TCP) guidelines on category I treatment<sup>1</sup> with four drug-intensive phase for 2 months with Isoniazid, Rifampicin, Pyrazinamide, and Ethambutol followed by 4 months of continuation phase with Isoniazid and Rifampicin. Twelve out of 13 patients showed complete resolution of symptoms at the end of 6 months. One patient had complete resolution of cough but not hoarseness following 6 months of treatment. He underwent a microlaryngeal excision of the lesion, histopathology of which revealed a severe dysplasia. Out of the 34 patients, 21 patients had a normal hematological profile, normal sputum study and normal radiological finding. These patients were conservatively managed for chronic laryngitis by dietary and lifestyle modification and a course of proton pump inhibitors. Out of 21 cases, 11 patients showed complete resolution of symptoms in about 2 weeks. Ten patients had symptoms persistent for more than 2 weeks, and hence they were subjected to microlaryngoscopic excision. The final histopathological biopsy of these patients was as follows: Histoplasmosis (1 patient), amyloidosis (2 patients), sarcoidosis (1 patient), and invasive squamous cell carcinoma (4 patients). In 2 patients, the histopathology was suggestive of TB. Thus primary laryngeal TB was detected in 2 patients.

## DISCUSSION

Tuberculosis is an infectious disease caused by the bacillus *Mycobacterium TB*. Tuberculosis remains a major global health problem. Tuberculosis most commonly affects the lungs with pulmonary TB accounting to 80% of the cases,<sup>2</sup>

but it can also affect any other organ of the body. Laryngeal TB is a rare form of extrapulmonary TB and constitutes less than 1% of all TB cases.<sup>3,4</sup> It is the most common granulomatous disease of the larynx.<sup>5</sup> The most common ENT manifestation of TB is laryngeal TB excluding cervical lymphadenitis.<sup>6</sup>

Most commonly the larynx is involved secondarily. Larynx may be affected by TB in three ways: (1) The patient has advanced pulmonary disease usually fibrocavitary with larynx being inoculated by the infected sputum; (2) hematogenous spread; and (3) lymphatic drainage seeds the larynx.<sup>7</sup> Primary TB of larynx is rare and is caused by direct invasion of inhaled bacilli.<sup>8</sup>

In the past, laryngeal TB most commonly affected the younger age group with advanced pulmonary TB. Symptoms like cough, hemoptysis, fever, weight loss, and night sweats were common.<sup>9</sup> The classic presentation was that of multiple ulcers involving the posterior part of the larynx due to pooling of secretions in recumbent patients.<sup>10</sup> But today variable clinical patterns are emerging. The most common symptom is hoarseness.<sup>10</sup> Other symptoms includes odynophagia, dysphagia, referred otalgia, cough, and stridor.<sup>4</sup> Any site of the laryngeal framework may be involved including the vocal folds, vocal cords, epiglottis, aryepiglottic folds, arytenoids, and the subglottis.<sup>11</sup> Grossly the lesions may appear as ulcerative, ulcerofungative, nonspecific inflammatory or polypoid.<sup>10</sup> Starting empirical steroids in such cases can lead to flare up of underlying TB.

The diagnosis of TB is mainly based on a positive mycobacterial smear of AFB and culture or the histopathological demonstration of chronic caseating granuloma. Sputum microscopy is positive in 20% of the cases of laryngeal TB, and most of the patients have chest radiograph findings consistent with pulmonary TB.<sup>4,10,12</sup> The CT scan findings of laryngeal TB described are bilateral

involvement, lobulated thickening of the free epiglottic margin, and an absence of extra or paralaryngeal fat space infiltration.<sup>13</sup> However, CT scan findings can sometimes be nonspecific and even misleading.<sup>14</sup>

In our study, over a period of 3 years, 13 out of 34 patients had TB as suggested by positive microbiology, abnormal hematological, and abnormal radiological features. At the same time, two patients had isolated, primary laryngeal TB which was proved on histopathology.

An important differential of laryngeal TB is laryngeal carcinoma. Both the conditions have similar clinical, laryngoscopic and radiological features, but majority of cases of laryngeal TB will be associated with pulmonary TB.<sup>4,15</sup> Therefore, an abnormal chest X-ray, if not compatible with pulmonary metastasis, should alert the clinician to the possibility of TB, especially when former chest X-rays were normal.<sup>9</sup>

Laryngeal TB should also be differentiated from other chronic infections, such as syphilis, fungal infections, and granulomatous conditions like Wegener's granulomatosis and sarcoidosis. As in our series, eight cases which were suspected to have TB finally were diagnosed as having histoplasmosis (1), amyloidosis (2), sarcoidosis (1), and invasive squamous cell carcinoma (4). Thus, TB can closely mimic these diseases.

There is an increased risk of otorhinolaryngeal TB in patients with HIV, but none of our patients of tuberculous laryngitis had HIV infection.<sup>16</sup>

Patients with laryngeal TB respond well to antitubercular treatment. A 6-month course is sufficient and gives remarkable results.<sup>17</sup> 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.<sup>18,19</sup> 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.<sup>20</sup>

## CONCLUSION

Laryngeal TB, though rare, is increasingly presenting to the otolaryngologists due to increase in the number of immunocompromised hosts and development of resistant microorganisms. It presents with nonspecific symptoms and can often be missed leading to delay in diagnosis and treatment. It often mimics and occasionally may coexist with laryngeal malignancy. Thus the clinician should be vigilant and should always consider laryngeal TB as an important differential for laryngeal lesions.

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