



Original Article

A Study to Evaluate Clinicopathological Profile of Laryngeal Tuberculosis

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ARTICLE INFO

Received 06 Dec. 2014

Received in revised form 13 Dec. 2014

Accepted 22 Dec. 2014

Keywords:

Laryngeal Tuberculosis,
Hoarseness of voice,
Laryngoscopy.

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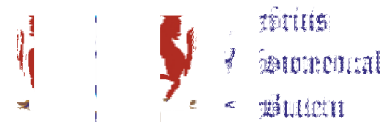
ABSTRACT

Objective: Laryngeal tuberculosis is a rare form of extra pulmonary TB. The present study was done to evaluate clinicopathological profile of laryngeal tuberculosis in cases of pulmonary tuberculosis associated with laryngeal symptoms.

Methods: It was a cross sectional observational study conducted for a period of three years. One hundred & seven patients of pulmonary tuberculosis associated with laryngeal symptoms were evaluated by history, clinical examination, laryngoscopy & histopathology. The results were statistically analysed.

Results: Laryngeal involvement was found in 11.21% cases of pulmonary TB presenting with laryngeal symptoms. Males within the age group of 31-40yrs. were predominantly affected. Commonest presenting symptom was hoarseness of voice (66.67% cases). 83.33% patients had sputum positive pulmonary TB. During laryngoscopy oedema & thickening of either vocal cord was found in 83.3% cases, moth eaten ulceration of mucous membrane overlying vocal cords or arytenoid cartilages was the next common findings (58.33%). Polypoid lesion was found in 16.67% of cases. Laryngeal swab was positive for AFB in 58.33% cases, histopathology was suggestive of tuberculosis in all of the 12 cases. One patient was found to be positive for HIV serology.

Conclusions: Laryngeal tuberculosis is common in India. Males between 31- 40yrs. are predominantly affected. Sputum positive patients of pulmonary TB presenting with hoarseness of voice, dysphonia or other laryngeal symptoms should be thoroughly evaluated for laryngeal TB. Oedema & thickening of either vocal cord is most common laryngoscopic findings. Patients should undergo HIV serology& histopathological examination to exclude malignancy.



Key Messages

Sputum positive patients of pulmonary TB presenting with hoarseness of voice, dysphonia or other laryngeal symptoms should be thoroughly evaluated for laryngeal TB. They should undergo HIV serology & histopathological examination to exclude malignancy.

Introduction

Among extra pulmonary tuberculosis, tuberculosis of larynx is rare and recent incidence of laryngeal tuberculosis is less than 1% of all tuberculosis cases^{1,2}. In a series of 843 tuberculosis cases, laryngeal involvement was present only in 1.3% of cases³. But India is an endemic zone for tuberculosis. A study from India involving 500 patients with pulmonary tuberculosis, 4% cases showed laryngeal involvement⁴. Laryngeal involvement in tuberculosis may be secondary to pulmonary tuberculosis or rarely primary^{5,6}. The present study was done to evaluate laryngeal involvement in cases of pulmonary tuberculosis.

Subjects and Methods

The present study was conducted on 107 patients of pulmonary tuberculosis associated with laryngeal symptoms such as persistent dry harassing cough, hoarseness of voice, dysphonia, pain in throat, pain in ear and dysphagia in a tertiary care hospital over a period of three years. Tuberculosis patients with other extra pulmonary symptoms were excluded. It was a cross sectional observational type of study. After taking informed consent each patient was evaluated with detailed history, general survey and systemic examination and indirect/ direct laryngoscopy with specimen collection – laryngeal swab for AFB stain and biopsy for histopathology.

Additional relevant investigation such as chest x-ray, sputum for AFB, Hb%, TC, DC ESR, Fasting blood sugar, Serum urea, creatinine, Liver function test, HIV serology etc. were done. The results obtained were statistically analyzed. There

was no ethical or financial controversy regarding this study.

Results

Out of 107 cases of pulmonary tuberculosis associated with symptoms of laryngeal involvement, 11.21% (12 cases) patients were found to have laryngeal TB. Maximum no. of patients of laryngeal tuberculosis were between 31-40 years (41.67%). The male: female ratio was 3:1. Among male patients 77.77% were chronic smoker. Commonest presenting symptom was hoarseness of voice (66.67% cases), followed by dysphonia (50% cases) and dry harassing cough (50% cases). 83.33% patients with laryngeal tuberculosis have sputum positive pulmonary TB. Regarding laryngoscopy findings – oedema & thickening of either vocal cord was found in 83.3% cases, moth eaten ulceration of mucous membrane overlying vocal cords or arytenoid cartilages was the next common findings (58.33%). Polypoid lesion was found in 16.67% of cases. Laryngeal swab was positive for AFB in 58.33% cases. In all of the 12 cases, histopathological features was suggestive of tuberculosis. Incidentally one patient was found to be positive for HIV serology.

Discussion

Among extrapulmonary tuberculosis laryngeal tuberculosis is a rare form and recent incidence of laryngeal tuberculosis is less than 1% of all tuberculosis cases^{1,2}. In a series of 843 tuberculosis cases, only 11 cases showed laryngeal involvement (1.3%)³ (Rohwedder JJ, 1974). However a study of 500 patients with pulmonary tuberculosis

from India, an endemic zone for tuberculosis, laryngeal involvement was observed in 4% of them (Sode A *et al*, 1989)⁴. According to Prasad *et al* (2007) also, laryngeal involvement occurs in 14.5% of pulmonary TB cases⁷. In our study laryngeal TB was found in 11.21% of pulmonary TB cases—the increased percentage observed compared to other study may be due to the fact that cases of pulmonary TB with symptoms of laryngeal involvement were selected.

In this study maximum number (41.67%) of patients of laryngeal TB were between 31-40 years (table no.1). According to Galli J *et al* (2002) the commonest age group of laryngeal TB is 40 – 60 yrs⁸. However, Bhatia *et al* (2008)⁹ found out the mean age to be 31.5 yrs. & according to Kakar *et al* (1971)¹⁰, the commonest age is 20-40 yrs.

Male predominance is found in laryngeal tuberculosis i.e. 2-3:1(Galli J *et al*, 2002)⁸. In the present study the male: female ratio was 3:1(table no. 2). Among nine male patients, seven were chronic smoker (77.77%) which may be a contributory factor for male predominance¹¹. Study by Shin *et al* (2000)¹² & Ni Shiike *et al* (2002)¹³ have also showed the ratio was 2.14:1 & 2.75: 1 respectively.

Commonest presenting symptom in our study was hoarseness of voice (66.67% cases), followed by dysphonia (50% cases) and dry harassing cough (50% cases) (table no. 3). In their report of 11 laryngeal tuberculosis cases, Alonso *et al* (2002) found 'isolated dysphonia' or 'dysphonia with odynophagia' to be the most common presenting symptoms¹⁴, however Shin *et al* (2000)¹² found that commonest chief complaint was hoarseness of voice. Lim Jae -Yol *et al* (2006)¹⁵; Wang, Chen- Chi *et al* (2007)¹⁶ & Ni Shiike *et al* (2002)¹³ have also found that most common presenting

symptom was hoarseness of voice in 96.6% , 84.6% & 73.3% of cases respectively.

Most of the patients with laryngeal TB have active pulmonary TB. Sode A *et al* (1989) found that sputum positive rate was 90-95% in patients with laryngeal TB⁴. In our study 83.33% laryngeal TB patients have sputum positive pulmonary TB (table no. 4).

According to Shin *et al* (2000)⁽¹²⁾, the macroscopic findings of laryngeal tuberculosis may be divided into four groups: (a) whitish ulcerative lesions (40.9%), (b) nonspecific inflammatory lesions (27.3%), (c) polypoid lesions (22.7%), and (d) ulcerofungative mass lesions (9.1%). In the present study oedema & thickening of either vocal cord was found in 83.33% cases, moth eaten ulceration of mucous membrane overlying vocal cords or arytenoid cartilages was the next common findings (58.33%). Polypoid lesion was found in 16.67% of cases (table no. 5). Oedema was frequent in one study reported by Beg and Marfani (1985)¹⁷ however they could not find any ulcerative lesion. Contrarily, ulcerations were common in a study reported by Rupa and Bhanu (1989)¹⁸ from India but oedema was an insignificant finding. The ulceration stimulates hypertrophy of the epithelium as well as the sub-epithelial fibrous tissue associated with metaplastic changes which ultimately give rise to the "thickened" areas¹⁸. In our study areas of oedema & thickening was the most significant observation.

In this study vocal cord palsy was found in 41.67% of cases (table no. 5). According to Cleary KR & Batsakis JG(1995), the vocal cords are the most commonly affected sites(50-70%) which are followed by false cords(40-50%), epiglottis, aryepiglottic folds, arytenoid, posterior commissure and sub-glottis (10-15%)¹⁹. The reasons of vocal cord immobility could be recurrent laryngeal nerve involvement,

secondary to muscular infiltration or fixation of cricoarytenoid joint. The presence of vocal cord palsy signifies advanced stage of the disease¹⁷⁻²¹.

Histopathological findings like epithelioid granuloma with Langhans type giant cell, granulomatous inflammation and caseating granuloma formation²¹ were present in all 12 cases. It should be kept in mind that tuberculosis and malignancy of larynx may co-exist⁶. So, biopsy not only diagnoses tuberculosis, but also excludes malignancy as early as possible.

One patient was found to be positive for HIV serology in our study. Now the incidence of tuberculosis is increasing because of co-existing HIV infection & tuberculosis in head and neck region is commonly associated with HIV infection. So, in any HIV positive patient with head and neck lesion, tubercular infection must be excluded²².

Seven cases were treated with category I Anti Tubercular drugs - a combination of isoniazid, rifampicin, pyrazinamide, and ethambutol for two months followed by isoniazid and rifampicin for further four months, and the remaining five patients were treated with category II Anti Tubercular drugs - a combination of isoniazid, rifampicin, pyrazinamide, streptomycin and ethambutol for two months, isoniazid, rifampicin, pyrazinamide, and ethambutol for one month, followed by isoniazid, rifampicin & ethambutol for further five months as per RNTCP guideline.

In summary Laryngeal tuberculosis is a rare form of extrapulmonary TB, though in India, an endemic zone for TB, it is not so uncommon. Males within the age group of 31-40yrs. are predominantly affected. Patients of pulmonary TB presenting with hoarseness of voice, dysphonia or other laryngeal symptoms should be thoroughly evaluated for laryngeal TB. Most of the

patients have sputum positive pulmonary tuberculosis. Common laryngoscopic findings are – oedema & thickening of either vocal cord, moth eaten ulceration of mucous membrane overlying vocal cords or arytenoid cartilages, vocal cord palsy and polypoid mass. All the cases should undergo histopathological examination to exclude malignancy and HIV serology as tuberculosis in head and neck region is commonly associated with HIV infection.

Conflict of interest

NONE

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Table 1: Distribution of patients in different age group

Age in years	No. of patient	Percentage
<20	1	8.33
21-30	1	8.33
31-40	5	41.67
41-50	3	25
>50	2	16.67

Table 2: Distribution of sex

Sex	No. of patients	Percentage
Male	9	75
Female	3	25

Table 3: Distribution of symptoms

Symptoms	No. of patients	Percentage
Dry harassing cough	6	50
Hoarseness of voice	8	66.67
Dysphonia	6	50
Pain in throat	4	33.33
Pain in ear	1	8.33
Dysphagia	3	25

Table 4: Sputum status among patients of laryngeal TB

Sputum status	No. of patients	Percentage
Positive	10	83.33
Negative	2	16.67

Table 5: Laryngoscopy findings

Findings	No. of patients	Percentage
Oedema & thickening	10	83.33
Ulceration	7	58.33
Vocal cord palsy	5	41.67
Polypoid lesion	2	16.67