Tuberculosis of Larynx Revisited: a Report on Clinical Characteristics in 10 Cases

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Abstract Tuberculosis is the most frequent granulomatous disease involving larynx. In most cases it is secondary to pulmonary tuberculosis. Incidence of tuberculosis is now on a rise due to increase in incidence of immune deficiency states. Here we present a report of clinical characteristic of laryngeal tuberculosis based on our experience of 10 cases. A detailed retrospective analysis of 10 patients of laryngeal tuberculosis was done at our tertiary care laryngology centre. Majority of patients had change of voice and dry cough. All the patients had hyperemia and edema of vocal cords. 80% patients had involvement of the arytenoids and ary-epiglottic folds. Frank granulomatous growth was seen in 70% of patients. In all patients histopathological report was consistent with tubercular granuloma. Two patients had associated pulmonary tuberculosis. Eight patients did not reveal any feature suggestive of previous or co-existent pulmonary tuberculosis. All patients responded to chemotherapy with complete resolution. Primary laryngeal tuberculosis is not as rare as generally considered. This series provides an insight towards clinical feature, growth pattern and management of tuberculosis of larynx.

Keywords Tuberculosis ·
Primary and secondary tuberculosis ·
Laryngeal tuberculosis chemotherapy

Introduction

Tuberculosis is a chronic bacterial infection caused by tubercular mycobacterium which by its cell mediated immunity forms characteristic granuloma in the affected tissue. Tuberculosis ranks high amongst the major health problems in developing countries like India. The most common organ to be affected is lung; however it can affect other organs too. Laryngeal tuberculosis is the most frequent laryngeal granulomatous disease and in most cases is secondary to pulmonary tuberculosis. It is also the most common ENT manifestation of tuberculosis [1]. Usually it spreads to the larynx from pulmonary lesion, though rarely can also reach larynx due to a primary affection from inhaled tubercle bacilli [2, 3]. In early 20th century, tubercular infection was fatal in almost 70% cases [4], but the numbers have gone down drastically as a result of improvement in public health care and development of effective anti-tuberculosis chemotherapy.

Incidence of tuberculosis is now on a rise due to increase in incidence of autoimmune deficiency syndrome and other immuno-suppressive states [5].

Though tubercular laryngitis is a known entity for long, its diagnosis and management has gone a change due to advent of newer treatment modality. In the present study, we report the clinical characteristics of laryngeal tuberculosis based on our experience of 10 cases that were managed at this tertiary care laryngeal centre.

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Method

A retrospective analysis of 10 patients of laryngeal tuberculosis treated at our tertiary care laryngeal center from Jan 2009 to June 2010. Details of history, clinical examination and fiber optic laryngoscopic findings in all the cases were reviewed. Laboratory investigations and results of imaging were analyzed. Each patient was thoroughly investigated for immune status and any primary source of tuberculosis. Interventions if any were analyzed along with the analysis of treatment given and outcome.

Results

10 diagnosed and treated cases of laryngeal tuberculosis were included in this series. Six patients were males and four were females. All the patients were adults, with an age group ranging from 27 to 57 years (mean 41.9 years). The duration of symptoms ranged from 2 weeks to 6 months. The majority of patients presented with the symptom of change of voice and dry cough. Symptoms were as described in Table 1.

General examination did not reveal any significant lymphadenopathy and had normal aural and nasal cavities. A fiber optic laryngoscopy was performed as a routine in all patients for a detailed endo-laryngeal evaluation for the change of voice.

Frank granulomatous growth was seen in seven of the ten (70%) patients. Two patients (20%) had irregular, thickened and congested vocal cords and one (10%) just had hyperemia and edema of false cord, arytenoids and ary-epiglottic fold. Edema was a constant feature all the ten patients.

Of the seven patients with granulomatous growth two patients had lesion involving the anterior glottis and five had that involving the posterior glottis. Two patients (20%) had lesion with sub glottic extension. Arytenoids and ary-epiglottic folds were involved in eight of the ten patients (80%). One patient had extensive growth involving the epiglottis arytenoids, ary-epiglottic fold glottis extending to sub glottis. Only glottis was involved in two patients. Both

the vocal cords were mobile in all the ten cases. Various types of lesion as seen amongst the present series of 10 patients are summarized as per Fig. 1. The site of larynx involved in our patients is shown as per Table 2.

In all patients microlaryngoscopy confirmed the findings of fiber-optic examination and facilitated collection of tissue for biopsy. Laser excision of the granuloma was done in two patients who had subglottic extension.

The histopathological report of all the patients was consistent with tubercular granuloma. During investigation one patient came with pulmonary tuberculosis with laryngeal extension and another patient was found to have pulmonary tuberculosis on investigation having positive AFB in sputum. The remaining eight of them did not reveal any feature suggestive of previous or co-existent pulmonary tuberculosis suggesting the laryngeal lesion to be the primary. None of these 10 patients were immunocompromised.

All the patients were started on ant tubercular therapy. The regime consisted of oral isoniazid, rifampicin, ethambutol and pyrazinamide for 4 months followed by isoniazid and rifampicin for 4–8 months depending upon clinical response and fibreoptic laryngoscopic evaluation. During follow up of the patients showed complete regression of endo-laryngeal lesions. Regressing of lesions varied for each patient however within average of 4 months most of them showed complete resolution of lesion. Figures 2

Fig. 1 Summary of type of lesion seen in laryngeal tuberculosis

Table 1 Symptoms of patients of laryngeal tuberculosis

Symptoms	Average duration	No. of patients
Change in voice	2 months	10
Dry cough	3 months	4
Dysphagia	1 months	1
Dyspnea (breathlessness)	2 weeks	2
Anorexia, weight loss	1 months	3

Table 2 Sites of larynx involved by tubercular growth

Site of larynx involved	No. of patients (out of 10)
Epiglottis	01
Arytenoids	08
Aryepiglottic folds	08
Anterior part of vocal cords	02
Posterior part of vocal cords	05
Subglottic extension	02
Growth limited to vocal cords	02

and 3 shows two cases of granulomatous growth in endolarynx that resolved completely with anti-tuberculosis treatment.

Discussion

In the modern era of chemotherapy laryngeal tuberculosis has become quite an uncommon entity. In majority of cases it represents an evolution of primary tuberculosis. The airborne theory of contamination, says that bacilli present in cough directly contaminates the laryngeal mucosa. Laryngeal involvement has been observed in 15–37% of the cases of pulmonary tuberculosis, but as a primary involvement it is seen only in 19% of the tuberculosis cases [6].

The natural history of laryngeal tuberculosis has changed over the time. The age group of patients being affected by this is on a rise from young adults earlier to elderly people. The incidence of tuberculosis of the larynx is reported to be more in the age group of 20–30 years with some studies showing a shift of the same to fourth and fifth decades [7]. In our series, the patients were between 27 and 57 years of age, with a mean age of 41.9 years. Previous reports have stressed that in majority of cases it is the posterior larynx more commonly involved, however certain

literature does mention equal involvement of anterior part of larynx along with epiglottis [8]. In our series, the lesions were disturbed in both posterior and anterior region of glottis. Tubercular granulomas were seen involving almost each part of endolarynx. Due to this, patient does pose a diagnostic dilemma to ENT surgeons as these often mimic laryngeal malignancies. The granulomas of laryngeal tuberculosis have been described to be of two types, the exudative and the ulcerative types [9]. These lesion needs to be differentiated from chronic laryngitis, scleroma, papilloma and carcinoma.

In our series of laryngeal tuberculosis eight patients (80%) did not show any of the primary foci of tubercular infection. Thus majority of our patients had primary laryngeal tuberculosis. The possible reason for more number of primary laryngeal tuberculosis being noted could be that ours is a tertiary care laryngology centre and so patient with laryngeal symptoms approach voice clinic to start with. It is quite possible that patients with pulmonary tuberculosis with synchronous laryngeal tuberculosis would be managed by chest physician with anti tubercular drugs, with complete recovery and so are not referred to specialized voice clinic. The diagnosis of laryngeal tuberculosis is made only by identification of caseative granuloma on histopathology. The response to anti-tuberculosis treatment is another important diagnostic criterion [1].

Fig. 2 Pre and post chemotherapy picture of laryngeal granuloma involving the epiglottis and aryepiglottic folds

Fig. 3 Pre and post chemotherapy picture of laryngeal granuloma involving the endolarynx

Laryngeal lesions respond very well to anti tubercular treatment with complete regression of the lesion and marked improvement in symptoms [10]. Our cases too responded to chemotherapy with complete resolution.

Conclusion

Primary laryngeal tuberculosis is not as rare as generally considered. Though this series is of small number it does provide some insight towards clinical feature and growth pattern and management of tuberculosis of larynx. Thus ENT specialists should be aware of the existence of primary laryngeal tuberculosis and the changing pattern of this disease.

Conflict of interest None.

References

1. Kulkarni NS, Gopal GS, Ghaisas SG, Gupta AN (2001) Epidemiological considerations and clinical features of ENT tuberculosis. *J Laryngol Otol* 115:555–558
2. Loehrl TA, Smith TL (2001) Inflammatory and granulomatous lesions of the larynx and pharynx. *Am J Med* 111:113–117
3. Rohwedder J (1974) Upper respiratory tract tuberculosis. *Ann Intern Med* 80:708–713
4. Zanaret M (2000) Tuberculose laryngea. In: Vercken S (ed) *Encyclopédie médico-chirurgicale*. Editions Scientifiques et Médicales Elsevier SAS, Paris
5. Kandilors DC, Nikopoulos TP, Ferekididis EA et al (1995) Laryngeal tuberculosis at the end of the 20th century. *J Laryngol Otol* 109:5–13
6. Harney M, Hone S, Timon C, Donnelly M (2000) Laryngeal tuberculosis: an important diagnosis. *J Laryngol Otol* 114: 878–880
7. Galli J, Nardi C, Contucci AM et al (2002) Atypical isolated epiglottic tuberculosis: a case report and a review of the literature. *Am J Otolaryngol* 23:237–240
8. Soda A, Rubio H, Salazar M, Ganem J, Beilanga D, Sanchez A (1989) Tuberculosis of the larynx: clinical aspects in 19 patients. *Laryngoscope* 99:1147–1150
9. Ballenger JJ (1971) *Diseases of the nose, throat and ear*, 11th edn. Lea and Febiger, Philadelphia, p 366
10. Mehndiratta A, Bhat P et al (1997) Primary tuberculosis of larynx. *Case Report Ind J Tub* 44:211–212