

Laryngeal Tuberculosis: A Report Of Three Cases

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Abstract

Laryngeal tuberculosis has recently regained attention due to its resurgence worldwide and changing clinical patterns. Since it is highly contagious, prompt diagnosis is critical. The successful management of laryngeal tuberculosis relies on clinical suspicion; thorough consideration of predisposing factors and medical history; and laryngeal, chest, and sputum examinations. The varied nature of laryngeal tuberculosis is demonstrated in three recent cases that presented to our hospital. This study underlines the importance of considering laryngeal tuberculosis in the differential diagnosis of laryngeal lesions.

INTRODUCTION

Laryngeal tuberculosis (TB) is an uncommon disease usually associated with pulmonary TB. It has been estimated that laryngeal TB accounts for less than 1% of all TB cases [1]. Since the World Health Organization declared tuberculosis as a global emergency in 1993, the incidence of laryngeal TB has been on the rise worldwide. This has been largely attributed to the AIDS epidemic, increased poverty and drug addiction, lack of tuberculosis chemotherapy, development of resistant strains, immigration from TB-affected areas, and decreased immunization coverage [2,3]. Laryngeal TB has gained interest not only because of its rising incidence but also because of its changing clinical manifestations. Due to uncommon clinical presentations and lack of clinical suspicion, laryngeal TB is frequently confused with other laryngeal diseases such as chronic laryngitis and laryngeal carcinoma [4,5]. Laryngeal TB is highly contagious and misdiagnosis can pose a serious risk to the public health [6]. Health care staff and other patients are at a particularly high risk of exposure [7]. Recently published studies report that a conventional multiple-drug anti-tuberculosis regimen is an effective therapy for most cases of laryngeal TB. This leads to the conclusion that the successful management of laryngeal TB rests upon prompt diagnosis. Three cases of laryngeal TB with coincident pulmonary TB are presented here. The aim of this study is to contribute to raising the awareness and prompt diagnosis of laryngeal TB.

CASE REPORTS

CASE 1

A 54-year-old male was admitted to the otolaryngology

department in March 2003 with progressive hoarseness, cough, and breathlessness. He was referred to our unit by the emergency department with the diagnosis of laryngeal tumor. On admission, the patient looked thin and distressed by persistent cough and hoarseness. The patient was not febrile. His previous medical history was unremarkable. His family history was unremarkable for signs of a hereditary condition. The patient was an electrician and unemployed at the time of admission. He denied a history of alcohol abuse but reported a regular social drinking. He reported smoking two packs of cigarettes daily for the last 30 years. In addition, the patient had lost 26 pounds in weight in the previous three months. Indirect laryngoscopy revealed a diffuse laryngeal swelling as well as thickening of the epiglottis. The mobility of the right side of the larynx was limited. The thru and false cords on the right side were hyperemic. Yellowish nodular lesions with irregular edges were also seen on the right ventricle. The thru and false cords on the left side were normal and mobile. No laryngeal cartilage was involved. Chest radiograph showed diffuse micronodular infiltrations extending over both lungs, chiefly on the left side. Patchy infiltrates in the left mid and right upper lobe as well as the pleura involvement in the right upper lobe were also visible. Laboratory tests showed the erythrocyte sedimentation rate (ESR) was 94 mm/h, red blood cell count (RBC) 3.72 10¹²/L, hemoglobin (HB) 10.3 g/dL, platelet count (PLT) 442 10⁹/L, and alkaline phosphatase (ALP) 108 IU/L. A sputum culture on Lowenstein-Jensen medium did not grow *Mycobacterium tuberculosis*. The results of two sputum examinations showed numerous acid-fast bacilli. The diagnosis was then changed to tuberculosis of the larynx with pulmonary

tuberculosis. Since the patient reported abdominal pain episodes, an abdominal ultrasound was performed. The only irregularity showed by the test was a slightly enlarged liver. The patient then received a conventional antituberculosis regimen consisting of isoniazid, rifampin, pyrazinamide, ethambutol, and streptomycin. The patient responded well and promptly to the antituberculous therapy. At the two-month follow up, his symptoms had almost completely subsided and he regained all weight loss. The laryngoscopy revealed almost a complete resolution of laryngeal swellings and lesions with only mild hyperemia left in the right ventricular region.

CASE 2

A 44-year-old woman was admitted to the otolaryngology department in March 2003 with dysphagia and difficulty in breathing. On admission, the patient was emaciated and reported weight loss of more than 22 pounds in the previous year. The patient was not febrile and denied having chills and night sweats. She denied use of alcohol. She reported using 20 cigarettes daily for the last 20 years. The patient was working as a nurse in the pulmonary unit of our hospital. The patient's medical history was remarkable for exudative pleuritis at 39 years of age. In addition, the patient was also allergic to penicillin. The family history was unremarkable. Indirect laryngoscopy revealed epiglottic edema and a growth and edema in both aryepiglottic folds. The examination did not reveal any laryngeal cartilage involvement. All vocal cords were normal and mobile. Chest radiograph revealed reticulonodular shadowing in both upper lobes with the largest nodular diameter of 1 cm. The infiltrations were more pronounced in the right upper lobe. On laboratory testing, ESR was 61 mm/h, lymphocytes 17.2%, and mean platelet volume (MPV) 6.1 fL. Two sputum samples were tested for acid-fast bacilli and both tests were positive. A diagnosis of tuberculosis of the larynx with pulmonary tuberculosis was made and the patient was started on a regimen of isoniazid, rifampin, pyrazinamide, ethambutol, and streptomycin. The antituberculous therapy resulted in prompt relief of throat discomfort. A follow-up examination, 2 months after admission, showed a complete resolution of all symptoms. The patient regained all weight loss. The laryngoscopy revealed essentially complete resolution of edema and growth seen in the larynx.

CASE 3

A 46-year-old man was referred to our unit by the emergency department in April of 2003. On admission, he presented progressive cough, dysphagia, and severe

difficulty in breathing. The patient was emaciated and too weak to stand. The patient was not febrile. He reported weight loss of 18 pounds during the previous 6 months. He had been a smoker of 25-30 cigarettes a day for the last 19 years. He also unwillingly admitted a history of alcohol abuse. The patient was single and irregularly worked at various construction jobs. His previous medical history and his family history were unremarkable. Indirect laryngoscopy showed a diffusely inflamed larynx. The epiglottis was edematous and covered with ulcerative lesions. Granulomatous lesions were seen on the aryepiglottic folds. The mobility of the vocal cords was limited. Chest radiograph showed diffuse reticulonodular infiltrations extending over both lungs, mainly in the mid and upper lobes. Two large 7.5 x 5 cm and 6 x 4 cm cavitory lesions were seen in the right and left infraclavicular regions, respectively. Laboratory tests revealed ESR was 46 mm/h, white blood cell count (WBC) 13.1 10⁹/L, HB 11.1 g/dL, hematocrit (HCT) 0.342, red cell distribution width (RDW) 17.4%, PLT 409 10⁹/L, and MPV 5.2 fL.

Two sputum samples were negative for acid-fast bacilli. A sputum culture on Lowenstein-Jensen medium grew *Mycobacterium tuberculosis* in the third week. The third sputum sample examination showed acid-fast bacilli. A diagnosis of tuberculosis of the larynx with pulmonary tuberculosis was made and the patient received the same five-drug regimen used in the previous two cases. The patient promptly responded to the antituberculous therapy. The two-month follow up after treatment showed that the patient was symptom free. The laryngoscopy showed almost complete resolution of the inflammation in the larynx.

DISCUSSION

Even though laryngeal TB is still a rare disease, a recent worldwide increase in the incidence of TB can be seen as an indicator that the incidence of laryngeal TB will also increase. Hence, laryngeal TB should be considered in the differential diagnosis of laryngeal lesions.

The patients in this study were analyzed for their age, presenting symptoms, predisposing factors, indirect laryngoscopy examination, chest radiographs, sputum examinations, and response to antituberculous regimen. The patients' ages ranged from 44 to 54 years, in agreement with recent findings [4,8]. The variable clinical features of laryngeal TB make the differential diagnosis a challenge [9]. This was demonstrated in the first presented case where laryngeal TB was initially confused with laryngeal tumor. In

the past the main presenting symptoms were constitutional symptoms such as fever, night sweats, and weight loss [10]. The clinical patterns seen in the presented cases agree with the recent findings where laryngeal TB presented chiefly with laryngeal symptoms such as hoarseness, odynophagia, and dysphagia [4,8]. Pulmonary and constitutional symptoms presented in this study pointed to the pulmonary involvement. Alcohol abuse, smoking, and poor living conditions were confirmed as principal predisposing factors. Indirect laryngoscopy in each of the presented cases revealed involvement of the whole larynx, contrary to predominantly the posterior larynx involvement reported in the past [11]. Recent literature also reveals an increased involvement of the anterior larynx [10,12]. The varied nature of laryngeal TB was demonstrated on the appearance on indirect laryngoscopy. Multiple nonspecific inflammatory lesions were seen in the first two cases while multiple ulcerative and granulomatous lesions were seen in the third case. Due to the known risks associated with direct laryngoscopy to the patient and operating personnel [13], the use of direct laryngoscopy in diagnosing laryngeal TB remains a contentious issue. Some authors believe that direct laryngoscopy should be limited to the cases in which a patient fails to promptly respond to antituberculous therapy [14]. In this study, the definitive diagnosis of laryngeal TB was made on noninvasive diagnostic examinations and tests. As it was demonstrated in the third case, physicians should not hesitate to repeat sputum examinations for acid-fast bacilli if the initial results are negative. The second patient in this study may have contracted the disease while working as a nurse at the pulmonary department of our hospital. The risk of exposure of health care staff to laryngeal TB is credible and should be carefully considered.

CONCLUSION

Laryngeal TB has to be included into the differential diagnosis of laryngeal lesions. Prompt diagnosis rests upon clinical suspicion; careful consideration of medical history and predisposing factors; and laryngeal, chest, and sputum examinations. Multiple and repeat sputum examinations may be necessary for definitive diagnosis. The presence of

predisposing factors such as alcohol abuse, smoking, and poor living conditions, accompanied with laryngeal symptoms such as hoarseness, odynophagia, and dysphagia should alert physicians to the possibility of laryngeal TB.

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