

ORIGINAL ARTICLE

Laryngeal Tuberculosis in a Child (A Case Report)

by

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*(From the Department of Child Health, Medical Faculty Airlangga University/
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Since the advent of effective antituberculous chemotherapy, laryngeal tuberculosis has become relatively uncommon, and there is a real possibility that the diagnosis may be delayed or overlooked. Data from the ENT outpatient clinic Dr. Soetomo Hospital showed a significant decrease in the prevalence of laryngeal tuberculosis, from 4.72 ‰ in 1980 to 0.28 ‰ in 1986. This condition is usually found in adult males who have pulmonary tuberculosis. A girl with laryngeal tuberculosis is the objective of the present report. The patient was admitted with a history of chronic hoarseness. With a presumptive diagnosis of papilloma of the larynx, some biopsies were performed. The histopathologic examinations suggested laryngeal tuberculosis. Additional examinations revealed a positive tuberculin test, diffuse infiltrates on both lungs and positive acid fast bacilli. Her condition improved after chemotherapy administration.

Presented at the Seventh National Paediatric Congress, Jakarta 1987.

Introduction

In 1942, Sir St Clair Thompson (as quoted by Hunter, 1981) wrote, 'there is no specific disease of the larynx as common as tuberculosis' and regarded it as a 'most malignant malady'. It was frequently a distressing terminal event in patients dying from pulmonary tuberculosis, and patients with laryngeal tuberculosis were regarded as highly infectious.

The incidence varies from 3 to 25 per cent of the patients with pulmonary tuberculosis (Lederer, 1952). Since the advent of effective antituberculous chemotherapy, laryngeal tuberculosis has become relatively uncommon. Travis et al. (1976) found 13 cases in the past 15 years, Hoveida et al. (1977) found 16 cases among 1053 admissions for tuberculosis in a period of 5 years, Bailey and Taylor (1981) found 37 cases in a period of more than 30 years from 1948, and Espinoza et al. (1981) found only 2 cases out of 270 patients with tuberculosis in the past 7 years. However, it would not do to forget that pulmonary tuberculosis is, throughout the world, still one of the most prevalent communicable diseases, accounting still for many deaths, and the laryngeal infection must be looked for. Data from the ENT outpatient clinic Dr.

Soetomo Hospital showed a significant decrease in the prevalence of laryngeal tuberculosis, from 4.27 ‰ in 1980 to 0.28 ‰ in 1986.

There has been a marked shift in the age distribution of patients suffering from laryngeal tuberculosis in recent years. Previously, it was stated that the disease was the most prevalent in young adults, i.e. twenty to forty years (Lederer, 1952). In the past twenty years, the incidence in over age fifties has increased markedly (Bailey and Taylor, 1981; Hunter et al., 1981). Preponderance of males amongst patients suffering from laryngeal tuberculosis has long been accepted. It would appear, however, that this male predominance is becoming more marked. The male : female ratio varies from 3 to 6 : 1 (Bailey and Taylor, 1981; Friedmann, 1980).

The purpose of this paper is to increase awareness for the existence of laryngeal tuberculosis among paediatric patients. A search for the existence of this condition must be performed on all patients with chronic laryngitis. Early diagnosis is important because, once recognized, tuberculosis of the larynx may be readily eradicated by medical treatment.

Case Report

I, a twelve years old girl was admitted to the hospital on May 25, 1986, with a two months' history of progressive hoarseness and slight non productive cough. There was no history of fever, night sweats, weight loss, dyspnea or dysphagia. She had already received her BCG. The girl was alert and oriented. Vital signs were within normal limits. Her physical examination was unremarkable. The patient was sent to the ENT Department for further evalua-

tion, with the presumptive diagnosis of papilloma of the larynx. The hemoglobin was 12.0 g/dL, WBC 7200/cmm (65% polymorphonuclear leucocytes), and ESR was 80 mm/h. Both indirect and direct laryngoscopy examinations revealed multinodular lesions on both vocal cords covered with tenacious secretions. The interarythoid area was edematous and erythematous. No ulcerations were noted. Both cords were mobile. Biopsies were taken

from the granulomas. They demonstrated tissue fragments having a partial coverage of hyperkeratotic stratified squamous cell epithelium. The underlying stroma showed granulation tissue, marked infiltrates, of lymphocyte and some Langhans type of giant cell with a central caseous necrosis. It was suggested as laryngeal tuberculosis. Since the presumptive diagnosis changed into laryngeal tuberculosis, the patient was sent to the Pulmonology Department. An additional history revealed that her mother died five years before because of hemoptysis. The tuberculin test was positive 14×12 mm. The chest radiograph show-

Discussion

The patient was admitted with a history of chronic hoarseness. Some conditions that have to be considered in the differential diagnosis in such a patient are laryngeal infection (diphtheria, tuberculosis, syphilis), laryngeal tumor (papilloma, rhabdomyosarcoma), mediastinal pressure (lymphnode, tumor), weakness of laryngeal muscle, foreign body, post tracheostomy, radiation burns and external trauma (Illingworth, 1984). Besides an accurate history, physical examination and other investigations, any patient with a history of chronic hoarseness should undergo a laryngoscopic examination and biopsy to establish the tissue diagnosis.

The presumptive diagnosis was papilloma of the larynx, since it is the most common laryngeal tumor in children. The age at clinical onset varies from birth to adulthood. The true vocal cords and anterior commissura are the common laryngeal sites, but the supraglottic and subglottic areas may be affected alone or in combination. Papillomas are of epithelial origin and consist of connective tissue covered by a well-

ed diffuse infiltrates on both lungs. Acid fast stainings of sputum demonstrated positive acid fast bacilli. After the diagnosis of laryngeal and pulmonary tuberculosis had been established, the patient was treated with a combination of tuberculostatic drugs. By discharge, the hoarseness had already improved and the laryngoscopic examination revealed only hyperemic mucosa of the larynx without any new lesions. The patient was sent back to the Child Health Department for ambulatory treatment with streptomycin, INH and PAS.

differentiated squamous epithelial covering with no invasion of stroma or submucosal tissues. Papillomas have a characteristic appearance at laryngoscopy, they appear as white to pinkish red, glistening, mulberry-like nodules. They are friable and bleed easily upon removal. They may be sessile or pedunculated. Multiple papillomas are the rule in children whereas single papillomas are common in adults. The initial symptom is usually hoarseness or abnormal crying. As the tumors enlarge, cough, dyspnea and finally stridorous respirations may occur (Ogura, 1980).

Based on the histopathologic examinations of two consecutive biopsies, the diagnosis of laryngeal tuberculosis was established. Tuberculosis limited to the larynx presents a diagnostic dilemma, and the lesion is difficult to distinguish from other laryngeal granulomas. Tuberculous laryngeal lesions separated by areas of normal mucosa can present a problem in obtaining representative tissue for histologic and bacteriologic examination. Furthermore, hyperplasia of the laryngeal epithelium may

be interpreted as premalignant changes and thus obscure the granulomatous histologic features. These areas of confusion further emphasize the importance of multiple accurate biopsies to establish the diagnosis of laryngeal tuberculosis (Caldarelli et al., 1979). The infected mucosa is often swollen and reddened, as in any form of inflammation, though when examined histologically the swelling can be seen to be due to the presence of tuberculous granulation tissue. One may see only erythema of one vocal cord or both vocal cords may be rough or eroded. Later, ulcerations, tuberculomas, exuberant granulations, obliteration of landmarks and immobility may occur. Fixation of one or both vocal cords may be seen (Chodosh and Willis, 1970). Microscopy shows the ulcerated mucosa infiltrated by tuberculous granulation tissue. It consists of nodules made up of epithelial cells and Langhans type giant cells. There might be large confluent tuberculomas, but caseation is rare. The tuberculous lesions may be localized, and there are fairly wide areas of the mucosa that are free of tuberculous lesion that may be missed where the biopsy is obtained or in the biopsy specimen. Furthermore, the surface epithelium may display a considerable degree of hyperplasia. This may be interpreted as malignant changes (Friedmann, 1980).

Some other chronic granulomatous conditions that have to be considered in the histopathological differential diagnosis are chronic nonspecific laryngitis, vocal cord polyp, intubation contact ulcers, syphilis, leprosy, scleroma, sarcoidosis, fungi and Wegener's granulomatosis (Chodosh and Willis, 1970; Friedmann, 1980).

The diagnosis of tuberculosis solely on the basis of histopathologic evidence is not accepted by most pathologists unless the organism is visualized. Adequate tissue for culture and acid fast smears is required to

establish the definitive diagnosis (Caldarelli et al., 1979; Friedmann, 1980). Unfortunately these investigations were not done in this case.

Primary laryngeal tuberculosis, although described, is an extremely rare condition and most cases of laryngeal involvement are secondary to pulmonary tuberculosis (Bailey and Taylor, 1981; Espinoza et al., 1981). It appears that intact normal respiratory mucosa resists the invasion by mycobacterium tuberculosis. However, local trauma such as vocal abuse, debilitating disease and malnutrition may predispose to infection. The tubercle bacilli reaches the laryngeal mucosa through hematogenous route or a lymphatic spread may also be the source in a small number of cases (Chodosh and Willis, 1970; Espinoza et al., 1981). Hunter et al. (1981) stated that hematogenous is now most frequently responsible for laryngeal tuberculosis. It was also said that the hematogenous route is more common in children (Fabricant and Wallner, 1957).

A comprehensive study of the following data is essential for a proper diagnosis: (1) local history, (2) objective laryngeal findings, keeping in mind the need for accurate laryngoscopic interpretation of the various forms of tuberculosis either by indirect or direct laryngoscopy and by roentgenograms, (3) pulmonary history and findings, (4) repeated bacterial examinations, and (5) biopsy (Lederer, 1952).

Clinical manifestations of laryngeal tuberculosis may vary from vague intermittent throat symptoms, voice weakness, hoarseness, aphonia, cough, dysphagia, odynophagia, odynophonia, otalgia, respiratory obstruction, weight loss, sweats, stridor and hemoptysis (Caldarelli et al., 1979; Chodosh and Willis, 1970). Nowadays, the clinical picture has undoubtedly changed, although part of this change may be a re-

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