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A case of laryngeal tuberculosis in a pediatric patient

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ABSTRACT

Incidence of tuberculosis is on the rise, mainly due to an increase of AIDS, shifting populations and modification of bacillus Calmette–Guerin immunization programs. Tuberculosis of the larynx is not as rare as generally reported. We described a case of active pulmonary tuberculosis with laryngeal involvement in an immunocompetent pediatric host, presenting with night sweats, chest pain, low grade fever and dysphonia. Patient was managed with anti-tubercular treatment and the recovery was successful, with the complete regression of lesions and symptoms.

1. Introduction

Worldwide, about 530 000 children are affected with tuberculosis (TB), with those from developing countries accounting for the largest number^[1]. The extra-pulmonary involvement is common among children, ranging from 30% to up to 40%^[2]. Larynx is an uncommon site of infection, even though it's the third most common site of infection of the ear–nose–throat (ENT) district, after cervical lymph nodes and ears^[3,4].

At the beginning of the 20th century, laryngeal tuberculosis (LTB) involved almost 25% of all TB cases, and since then the percentage has rapidly decreased, although the disease has not been completely eradicated. This has been possible mainly due to the advent of antimicrobials, improvements in living standards and

widespread prevention programs^[5]. We present a case of LTB in a pediatric patient presenting with night sweats, chest pain, low grade fever and dysphonia. The case reported the patient with 5 kg weight loss, no history of immunosuppression and history of high risk travel.

2. Case report

A previously well 14-year-old Pakistani girl, who had emigrated from Pakistan to Italy in 2005, presented with a 2-month history of chest pain on exertion, night sweats, low grade fever, loss of weight and dysphonia. The weight loss was remarkable with a 5 kg (with a starting weight of 56 kg) loss over the previous month. No itching was referred. She had no history of immunodeficiency status, congenital or acquired. She reported travelling to Pakistan in the summer of the previous year.

On clinical examination there was no stridor and no neck lymphadenopathy. On auscultation, chest was full of crackles and bronchovesicular sounds were decreased,

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especially on the right side. The remaining physical examination was normal.

A chest X-ray performed a month before was negative, as well as serology for cytomegalovirus, chlamydia pneumoniae and mycoplasma pneumoniae.

Blood investigations were normal except a slightly increase in activated protein C and erythrocyte sedimentation rate. Antistreptolysin O titre was elevated.

Mantoux test (20 mm×25 mm) and QuantiFERON assay were found positive.

Chest X-ray was repeated and showed an enlargement of the right anterior region of the mediastinum. Moreover, abdominal ultrasonic examination demonstrated a millimetric lymph node in the hepatic hilum and a chest CT scan showed mediastinal lymph nodes clusters, disventilatory bands and bronchiectasis. The transthoracic color Doppler echocardiography revealed a compression of the left atrium, which suggested an oval, parenchymatous extracardiac bulk. No abnormalities in the venous return were detected.

Serologies for HIV, hepatitis C virus and hepatitis B virus were investigated and found negative.

A bone marrow aspiration was performed in order to exclude a lymphomatous adenitis but resulted negative.

Culture and activated protein C of the sputum, gastric aspirates, blood cultures, urine samples and stool analysis were negative. However, sputum smear showed presence of acid-fast bacilli with Ziehl-Nielsen staining and no evidence of malignancy.

Bronchoscopy revealed the presence of a non-specific lesion of the anterior section of the vocal folds. The tracheal and bronchial mucosa was congested, thickened and slightly irregular, because of the presence of millimetric white-grey lesions. Moreover, the bronchoalveolar lavage and bronchoscopy-guided transtracheal and transbronchial fine-needle aspiration were compatible with the diagnosis of active TB lesions. No malignant cells were detected.

Nasal-laryngeal fibroscopy was performed under general anesthesia, and tissue sample was collected for histological examination; macroscopic view showed irregular and congested lesions in the anterior region of the glottis, which suggested a laryngeal involvement of the TB (Figure 1). The diagnosis was definitely confirmed by the histopathological examination of the sample, which showed granulomatous inflammation.

The patient was given antituberculosis treatment

consisting of isoniazide, rifampin, pyrazinamide and ethambutol. Patient responded well and discharged in satisfactory condition. Ethambutol was discontinued after 4 months because of the improvement of the symptoms, particularly the dysphonia, whereas the pyrazinamide was discontinued after 7 months because of the normalization of the chest X ray. After 12 months of therapy, chest X-ray showed clearance of pulmonary disease and the nasal-laryngeal fibroscopy showed a normal mucosa of the larynx with the regression of the lesions, so that the therapy was completely interrupted. She is still on regular follow-up in the infectious disease pediatric unit.

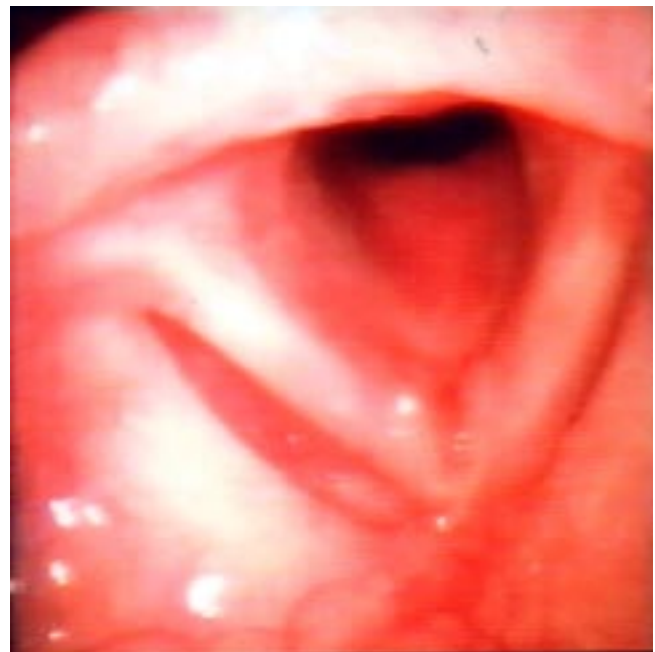


Figure 1. Nasal-laryngoscopy showing irregular and congested lesions in the anterior region of the glottis, suggesting a laryngeal involvement of the TB.

3. Discussion

The natural history of LTB has changed over time. At the beginning of the 20th century, TB of the larynx was usually related with late stage of pulmonary TB. LTB was often the terminal event in about 85% of cases of pulmonary TB with poor prognosis[6]. The bacilli typically spread along the airway from a primary pulmonary site of infection directly to the larynx. The lesion usually appeared as multiple ulcers in the posterior part of the larynx due to the fact that the most patients were bedridden[7]. With the advent of antimicrobials, improvements in living standards

and widespread prevention programs, the incidence of all forms of TB has declined over the years. However, since the 80's, TB has shown a worrying steady increase and therefore also the incidence of LTB is on the rise. Its clinical pattern of presentation has also changed. True vocal cord and arytenoids are the most commonly involved sites followed by aryepiglottic fold, vestibular folds, epiglottis, and posterior commissure^[4,8]. The macroscopic appearance of the lesions is variable, ranging from ulcerative, edematous, granulomatous and non-specific inflammatory to polypoid^[8,9]. Macroscopically the lesions may mimic laryngeal carcinoma, chronic laryngitis, cat scratch disease, syphilis, sarcoidosis, Wegener's granulomatosis or laryngeal candidiasis^[10,11].

Our case is a typical pulmonary TB spreading to a laryngeal site. The symptoms, in particular night sweats, low grade fever and loss of weight, were compatible with the diagnosis of TB. The diagnosis was made by direct examination of the sputum smear for acid-fast bacilli. Moreover, the dysphonia suggested an involvement of the larynx, which was further confirmed by the endoscopy. The histopathological analysis of the laryngeal lesion showed a granulomatous inflammation which is compatible with the diagnosis of LTB involvement.

Antitubercular treatment is very effective in the treating of LTB, with complete recovery of the patient and regression of lesions and symptoms^[8,11]. Our case also responded to chemotherapy with complete resolution. The treatment was well tolerated and the patient had no adverse effects. The patient's family was screened and no signs and symptoms of TB were found, supporting the hypothesis that the girl has been exposed to TB bacilli during the travel to an high risk country in the previous year. It should be noticed that no other risk factors, such as immunodeficiency, malnutrition, or advanced age were found.

In conclusion, laryngeal involvement in TB is a rare disease, but not as much as it is generally considered. TB should be considered in the differential diagnosis of patients who present with any form of laryngeal lesion. An abnormal plain chest radiograph showing features of pulmonary TB may suggest the diagnosis, but a normal chest radiograph should not exclude the hypothesis. Thus physicians should take into account the existence of this condition and its clinical features in order to avoid delays in the diagnosis.

Conflict of interest statement

We declare that we have no conflict of interest.

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