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Case Report

Laryngeal Tuberculosis Coexisting with Pulmonary Tuberculosis: A Rare Cause of Dysphonia in Children and Adolescents

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Abstract Laryngeal involvement by tuberculosis (TB) is very rare, representing <1% of all cases. It could be primary or coexisting with pulmonary TB. We presented this case of laryngeal TB coexisting with pulmonary TB of an adolescent who presented with chronic and progressive dysphonia without any typical constitutional symptoms. She had no history of contact with active TB case, negative tuberculin skin test, and positive radiological evidence of pulmonary involvement. Dysphonia is a rare symptom of extrapulmonary disease.

Key words Dysphonia; Extra pulmonary tuberculosis; Larynx; Tuberculosis

Introduction

Tuberculosis (TB) continues to be a major Worldwide problem, it remains as significant cause of mortality and morbidity in both children and adults.[1] Paediatric TB represents a major public health concern worldwide. The World Health Organization (WHO) reported that about 9 million people develop TB each year, and of whom about 1 million (11%) occur in children aged less than 15 years. Children contribute to 3-6% of the total TB case load in developed countries and to more than 25% of the burden of TB disease in developing countries.[1]

Extrapulmonary involvement accounts for about 21-44% of pediatric TB. Lymph node disease is considered as one of the most common manifestations of head and neck TB and is more frequently seen in the pediatric population. TB of the head and neck area can also manifested as ear, nose, and throat.[2] True ear, mastoid, nose, oropharynx, and laryngeal involvement by TB very rare, representing <1% of all cases.[3]

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Case Report

A 15-year-old girl presented with a 6 month history of progressive dysphonia, dysphagia and mild difficulty in breathing. There were no associated symptoms of fever, weight loss, fatigue, night sweats, cough (dry or productive) or chest pain. There is no history of chronic medical illnesses or previous operation, no history of TB or contact with active TB case, no history of smoking or inhalation injury. Vaccination is up-to-date according to national vaccination Schedule (BCG included). Laryngoscopic examination which performed by ENT specialist revealed a vocal cord noduler lesion and surgical excision was planed. She was referred to our clinic for preoperative assessment since she had history of shortness of breath. The physical examination was normal. Chest X-ray showed bilateral diffuse nodular opacities and infiltration (Figure 1). A tuberculin skin test (TST) and thorax computerised tomography (CT) scan was requested. TST was 12 mm. Family screening for TB was negative. Thorax CT scan showed bilateral diffuse nodular opacities,

tree-inbud sign, acinar infitration, centrolobular milimetric nodules, ground glass appearance, multiple calcified lymphadenopathy with largest one about 13 mm in diameter, and traction bronchiectasis more prominent in the apical lobes mostly secondary to TB (Figure 1). Bronchoscopy showed oedema and hyperaemia of the true vocal cords, granular appearance of the inter-arytenoid region and nodular lesion at the left true vocal cord.

Trachea and bronchi were normal, and bronchoalveolar lavage (BAL) was sent for cultures (Figure 1).

Immunological workup and HIV testing were normal. Depending on these findings the patient was assumed to have pulmonary TB with extrapulmonary involvement of the larynx and anti-TB medication; isoniazid, rifampicin, pyrazinamide and ethambutol was started. The BAL culture showed *Mycobacterium Tuberculosis Complex* which is resistant to isoniazide. The diagnosis of laryngeal and pulmonary TB was confirmed depending on the radiological and microbiological results. After 6 month of treatment the clinical and radiological status of the patient was improved. The post treatment thorax CT scan showed regression of the acinar infiltration, centrolobular milimetric nodules, and traction bronchiectasis. A small fibrotic band was seen after the treatment (Figure 1). A total of nine months of treatment was completed.

Discussion

We reported a rare case of pulmonary TB with extra pulmonary involvement of larynx in a adolescent girl. The diagnosis of TB in this case was very challenging. The patient was presented with dysphonia as the major symptoms with mild shortness of breath that didn't affect her daily activities. Laryngoscopic examination which performed by ear, nose & throat (ENT) specialist revealed a vocal cord noduler lesion and surgical excision was planed. The differential diagnosis of vocal cord nodule in this case was very wide including: non-cancerous vocal cord lesions (Nodules, polyps, and cysts) which usually develop after prolonged trauma to the vocal cords, pre-cancerous or cancerous lesions, granulomatous lesion due to sarcoidosis, TB and may other causes. We evaluated the patient because of her symptoms of respiratory distress and TB was diagnosed according to radiological and microbiological findings. If TB could not be diagnosed, unnecessary surgical intervention might be done or the patient could come with more advanced, complicated or severe forms of TB.

The clinical manifestations of TB are variable depending on characteristics of the host and the microbe and the interaction between them. Before the beginning of the HIV

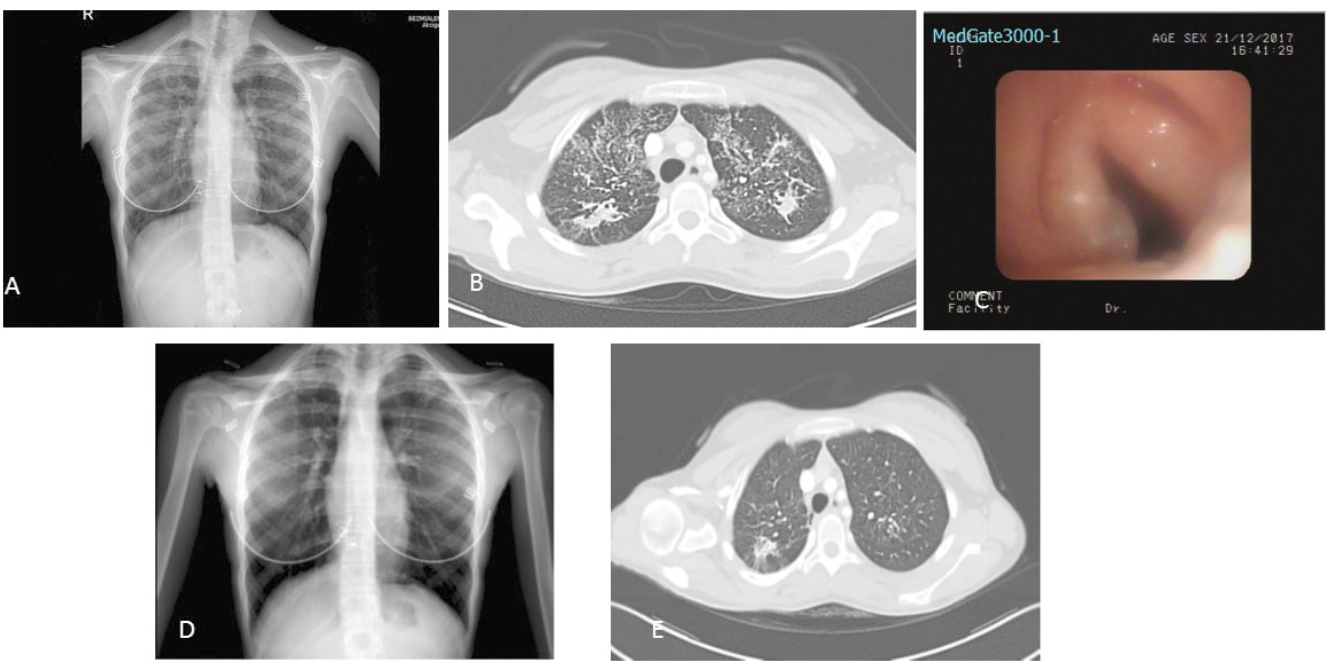

Figure 1 (A) Chest X-ray showing diffuse infiltration; (B) Thorax CT showing bilateral diffuse nodular opacities, tree-in-bud sign, multiple calcified lymphadenopathy; (C) endoscopic appearance of hyperemia and oedema of the true vocal cords, before treatment; (D & E) chest X-ray and thorax CT showed improvement after treatment.

epidemic, ~85% of reported TB cases were limited to the lungs. This proportional distribution is substantially different among persons with HIV infection, because extrapulmonary TB involvement tends to increase in frequency if immune function is compromised.[4]

Other predisposing factors for extrapulmonary TB development were identified from case reports mostly in the adult populations includes male gender, family history of TB, personal history of pulmonary TB, smoking, alcohol or drug abuse.[5] The most frequent forms of TB disease in children and adolescent are intrathoracic TB and extrathoracic in the form of peripheral lymphadenitis. Extrathorasic disease accounts for 20-30% of all adolescent TB cases, with both intra- and extrathorasic TB seen in up to 20% of cases.[3]

TB of the head and neck area, excluding TB meningitis, often presents as ENT disease. True ear, mastoid, nose, oropharynx, and laryngeal involvement by TB is very rare, representing <1% of all cases. Ear and mastoid TB are the most common of these infections. In adults, laryngeal TB is the second most common form after ear/mastoid TB, but it is exceedingly rare in children and adolescent.[3]

There is changing trends in the clinical presentation of laryngeal TB between the pre and post-antibiotic era. In the pre- antibiotic era laryngeal TB used to be common and usually was associated with advanced cavitary pulmonary lesions. After the development of chemotherapy, improvements in living standards and the spread of public health it started to manifest with primary laryngeal disease without pulmonary involvement and generally without history of contact with active TB case.[6] According to many reported cases, laryngeal TB can present with non specific symptoms and signs which may contribute to the delay in the diagnosis. The most common presentation is dysphonia followed by sore throat and then odynophagia with most patients doesn't have the typical constitutional symptoms.[7] The gross lesions appearance with flexible laryngoscopy themselves had also changed from an ulcerative in character to hypertrophic, exophytic polypoid type or non-specific inflammatory lesion.[8]

These changing trends make the diagnosis very challenging and need high index of suspicion, as in our case in which the patient had history of progressive dysphonia without the typical constitutional symptoms of fever, weight loss, night sweat and even without history of cough. There was absence of history of contact with TB case or personal history of TB. TST result was negative and family screening was also negative.

Conclusion

Laryngeal TB is extremely rare in children and adolescent but remains highly contagious with unspecific symptoms and signs that can result in delay in the diagnosis. It necessitate the need of high index of suspicion in order to prevent its transmission and possible further complication.

Acknowledgement

A signed consent form was taken from the patient and her parents.

Conflict of Interest

The authors declare that there is no conflict of interest.

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