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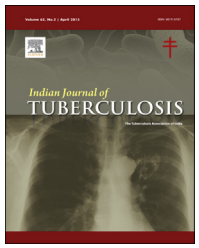

Case Report

Intrathoracic goitre associated with pulmonary tuberculosis

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ABSTRACT

Intrathoracic goitre is an uncommon condition which usually occurs in females in the fifth decade. It can cause compression of several mediastinal structures. A 42-year-old female with goitre since childhood was evaluated for dry cough, occasional wheezing and low grade fever. Imaging showed patchy airspace opacities with cavitation in left lung. Imaging of the neck revealed retrosternal extension of the goitre. Stains and cultures of bronchial aspirate were positive for *Mycobacterium tuberculosis*. A diagnosis of pulmonary tuberculosis with intrathoracic goitre was established, an unusual association.

1. Introduction

Intrathoracic goitre, also known as substernal or retrosternal goitre is seen in 3%–17% of goitres worldwide[1] with an incidence of 0.02%–0.5%.[2] It occurs predominantly in females, generally in the fifth decade of life, with a female: male ratio ranging from 3 or 4:1 to as high as 9:1 in some studies.[3] Although, the most common presentation is growing cervical mass followed by respiratory symptoms due to continuous irritation of the upper airways,[4] up to 20% patients may not have a cervical mass and may be asymptomatic.[3] Compression of mediastinal structures by intrathoracic goitre can cause the patient to present with symptoms like chest pain, venous stasis in neck or arm and dyspnoea.[4] Although, patients with intrathoracic goitre are generally euthyroid, thyrotoxicosis has rarely been reported.[3,5,6] Tracheal compression caused by intrathoracic goitre, can lead to respiratory complications. Pneumonia and atelectasis have been documented in patients with intrathoracic goitre.[7] Bronchial obstruction by intrathoracic goitre leading to atelectasis of middle and lower lobes[8] as well as pulmonary fibrosis and cystic bronchiectasis has also been reported.[9]

The role of thyroid gland in tuberculosis continues to remain a matter of controversy. It has been postulated that clinical hypothyroidism is likely to lower the resistance of the host to tuberculous infection. The increased co-occurrence of goitre and tuberculosis was noted in a large study in children from Calcutta, India.[10] Pulmonary tuberculosis associated with amyloid goitre has been documented in two patients.[11] In another instance, a pregnant female suffering from

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pulmonary tuberculosis along with pleural effusion subsequently developed toxic goitre.[6] However, the occurrence of pulmonary tuberculosis in association with euthyroid intrathoracic goitre, is yet to be documented in the literature.

We report a middle aged lady with goitre since childhood, who presented to us for evaluation of persistent dry cough, occasional wheezing for one year. A low grade fever a fortnight prior to presentation prompted the referral. A diagnosis of pulmonary tuberculosis was established and further investigations revealed that the patient also had retrosternal extension of the goitre.

2. Case report

A 42-year-old HIV-negative housewife, a never smoker, was referred to our Institute for evaluation of persistent dry cough, occasional wheezing, loss of appetite and weight for one year. The cough had gradually increased over the past 5 months. For the last 15 days she also had a low grade fever towards the evening, which prompted the referral. She also had a visible neck swelling since childhood, occasionally associated with palpitations off and on but had not experienced dyspnoea. On presentation, general physical examination revealed a middle aged woman in no acute respiratory distress but febrile. There was no pallor, clubbing, cyanosis or lymphadenopathy. The oxygen saturation at room air was 98%. Diaphragmatic excursion was comparable on both sides. On auscultation, vesicular breath sounds were audible bilaterally with decreased intensity on the left side with prolonged expiration. Bilateral expiratory rhonchi and crepitations were audible also. She also had a left sided neck swelling which moved on deglutition but lower margin could not be delineated. The wheezing and rhonchi were most probably caused by compression of the left main bronchus due to the enlarging intrathoracic goitre. Audible rhonchi on the right side were seemingly due to transmitted sounds since the left main bronchus was involved.

Complete blood counts, ECG, urine analyses and renal as well as hepatic functions were within normal limits. On presentation, patchy airspace opacities were observed in left upper and middle zones on chest X-ray. In addition, loss of volume was also seen along with shift of the mediastinum towards left. A prominent left hilum associated with a raised left hemidiaphragm which obscured the left costophrenic and cardiophrenic angles was also noted (Fig. 1). On presentation, the contrast-enhanced high resolution computed tomography (CECT) of the thorax, demonstrated patchy airspace consolidation associated with necrosis and cavitation along with peribronchial centrilobular nodules in the apical segment of left lower lobe. A large lobulated airspace opacity in apicoposterior segment of left upper lobe with surrounding small patchy fibrotic nodules was also observed (Fig. 2A and B). CT of the neck shows a well-defined lobulated oval peripherally enhancing lesion with central non enhancing necrotic region seen in pretracheal and left paratracheal region causing right sided displacement and partial intrathoracic compression of trachea between T2 to T4 levels in the superior mediastinum (Fig. 3A and B). Sputum stains for acid fast bacilli (AFB) were positive, but cultures for other aerobic organisms and fungi were negative. No induration or erythema was noted with Mantoux test (1 TU) after 48 h. Fiberoptic bronchoscopy, done subsequently, revealed narrowed opening of left main bronchus with presence of mucopurulent secretions. The bronchial aspirate and the post-bronchoscopy sputum were positive for AFB. *Mycobacterium tuberculosis* was also cultured from the bronchial aspirate. Cultures of the bronchial aspirate did not yield any other organism. Multiple endobronchial and transbronchial biopsies revealed granulomas consisting of epithelioid cells and multinucleated giant cells showing intracytoplasmic polarising crystalloid bodies (Schaumann bodies).

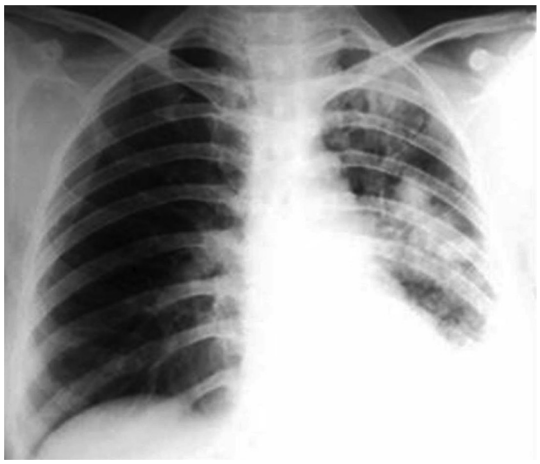

Fig. 1 – Chest X-ray on presentation, showing patchy airspace opacities in left upper and middle zones with loss of volume and shift of the mediastinum towards left. The left costophrenic and cardiophrenic angles were obscured.

Thyroid function tests revealed a euthyroid state. Thyroid scan performed after intravenous administration of 5 mCiTc-99m pertechnetate showed an enlarged left lobe of the thyroid with a hypofunctional area in the lower pole which extended to the lower pole of the right lobe. The left lobe nodule was avascular in nature with a retrosternal extension. Fine needle aspiration cytology from the nodule showed features suggestive of hyperplastic nodular goitre. A diagnosis of goitre with retrosternal extension in euthyroid state along with pulmonary tuberculosis was made.

Once pulmonary tuberculosis was confirmed, the patient was initiated on standard first line antituberculous therapy (ATT) which included rifampicin 450 mg, isoniazid 300 mg, pyrazinamide 1500 mg and ethambutol 800 mg once daily, early in the morning on an empty stomach. After the intensive phase of two months, sputum stains and cultures for *M. tuberculosis* were negative. The patient's symptoms were largely abolished and she expressed a desire to continue ATT at her home town, which was a thousand kilometres away. The patient was advised to consult a thyroid surgeon for her goitre. The patient was then lost to follow up.

3. Discussion

Intrathoracic goitre can be classified into primary which arises from truly ectopic thyroid tissue or secondary that arises from