CASE REPORT

Disseminated tuberculosis presenting as cold abscess of the thyroid gland—a case report

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Abstract

Tubercular involvement of the thyroid gland is a rare entity. Tuberculosis of thyroid gland can present as cold abscess, multinodular goitre, acute abscess or generalized goitre. Clinically, these patients can be euthyroid, hypothyroid or hyperthyroid. Diagnosis is made by fine needle aspiration and demonstration of acid fast bacilli. Here, we report the case of a 46-year-old male who presented with disseminated extrapulmonary tuberculosis with obstructive hydrocephalus and cold abscess of the thyroid gland. He was managed with anti-tubercular therapy and ventriculoperitoneal shunt for hydrocephalus. This report emphasizes the clinical importance of the rare presentation of a common disease in an endemic region.

INTRODUCTION

Tuberculosis (TB) of thyroid is a rare disease even in an endemic country like India [1]. To establish a diagnosis of thyroid TB is challenging since it can mimic a carcinoma, suppurrative abscess or a haemorrhage in a thyroid cyst. In this paper, we present the case of thyroid TB that developed while the patient was on anti-tubercular therapy (ATT). The diagnosis was made on fine needle aspiration (FNA) of thyroid gland.

CASE REPORT

A 46-year-old gentleman presented with complaints of painless, progressive neck swelling for 2 months and altered sensorium for 1 week. Eight months ago, he was diagnosed to have miliary TB and was started on empirical ATT in a local health care centre. Three months later, he presented with clinical features suggestive of sub-acute meningitis and was diagnosed to have tubercular meningitis based on positive cerebrospinal fluid (CSF) TB PCR. While on the ATT, he developed gradually progressive neck swelling and acute worsening of sensorium. He had no other co-morbid illness and he was not on any immunosuppressive therapy.

At presentation in the accident and emergency department, his pulse rate was 88 beats per minute, blood pressure 130/80 mm Hg and his Glasgow Comma Scale (GCS) was 9/15. He had a right thyroid swelling of 10×8 cm², nontender, fluctuant swelling with no local warmth or redness. Neurological examination revealed bilateral papilloedema while rest of the examination was unremarkable. Magnetic resonance imaging (MRI) of the brain showed communicating hydrocephalus with multiple ring enhancing lesions (Fig. 1). The differentials considered were tuberculomas, thyroid malignancy with CNS metastases, lymphoma and cysteocercosis. His CSF analysis was normal (total white cell counts: 3 cells/mm³, protein: 40.6 mg/dL and glucose: 64 mg/dL). TB PCR was negative on CSF and cytospin was negative for malignant cells. Biochemically, he was euthyroid with normal thyroid stimulating hormone (TSH) 1.66 μIU/mL and thyroxin (T4) levels 7.1 mg/dL, triiodothyroxine (T3) 90.6 ng/dL, and FTC 0.98 ng/dL. His anti-thyroglobulin and anti-microsomal antibodies were negative. He
was screened negative for HIV antibodies. His haematological, other biochemical parameters and chest x-ray were normal. Ultrasound examination of the neck (Fig. 2) showed a large heterogeneous nodule measuring 8.6 × 5.9 × 8.3 cm³ in the right lobe of the thyroid with a predominant cystic component, fine internal floating echoes and dependent internal debris. Aspiration from the lesion was positive for acid fast bacilli on mycobacterium culture and the Xpert PCR showed evidence of mycobacterium TB with drug sensitivity to rifampicin and on follow up MGIT cultures isolated mycobacterium TB.

Following the external ventricular drain insertion, his sensorium improved completely. Later, a ventriculoperitoneal shunt was done (Fig. 1c). He was started on weight based daily regimen of ATT along with steroids and was discharged in a stable condition. He is currently under follow up and has shown good clinical improvement.

DISCUSSION

The common sites of extrapulmonary TB are pleura, lymph nodes, osteoarticular and the central nervous system. Thyroid gland, along with prostate and breast, is considered a rare site of involvement by TB [1]. Rarity of TB in thyroid may be due to bactericidal action of colloid, high amounts of iodine and possible anti-tubercular roles of thyroid hormone [1, 2].

TB may affect the thyroid gland via haematogenous, lymphogenous route or through direct invasion from the larynx or cervical lymph node [1, 3]. Isolated thyroid involvement without concomitant cervical lymphadenopathy or contiguous disease has been reported [4]. Tubercular thyroid involvement can be focal caseous TB presenting as thyroid swelling, cold abscess or a nodule with or without cystic component. It can also present as a result of miliary spread to the thyroid with multiple nodules. Our patient had disseminated TB with predominant involvement of thyroid gland and central nervous system suggesting a haematogenous spread. A majority of patients with tubercular involvement of thyroid have been reported to be euthyroid, during the initial stage of gland destruction, the patient can be hyperthyroid [5]. In the later stages, after gland destruction, the patient can become hypothyroid. Our patient was clinically and biochemically euthyroid and presented with cold abscess.

In our case, patient recruited new organ involvement on ATT, the development of ring enhancing lesions and abscess of thyroid was thought to be because of drug resistant TB, non-compliance to treatment, use of inadequate doses of ATT or paradoxical worsening of TB on ATT. Since the aspirate was positive for culture, the possibility of paradoxical worsening was unlikely. Xpert PCR was sensitive to rifampicin which makes the possibility of drug resistant TB less likely. In our patient, lack of compliance and usage of inadequate doses was confirmed with history and was considered as the most likely reason for clinical worsening.

In the cases presenting as abscess, diagnosis is done by FNA and by observing for presence of positive acid fast bacilli [6]. In our patient, CSF analysis was normal and the diagnosis was established from the FNA of thyroid abscess. Granulomatous inflammation of the thyroid is seen in granulomatous thyroiditis, fungal infection, TB, sarcoidosis, granulomatous vasculitis and foreign body reaction in thyroid. However, caseous necrosis is commonly seen in tuberculous inflammation. The differential diagnoses of painful swelling of thyroid include infectious form of thyroiditis and sub-acute granulomatous thyroiditis. Thyroid TB resolves with adequate and optimal ATT in a majority of the patients. However, in the case of large abscesses, drainage may be required while surgical resection is usually not needed. However, in acute abscess, surgery may be required to prevent destruction of thyroid gland [7]. Due to rarity of cases with recommendations on treatment, the duration has been mostly based on smaller case series.

CONCLUSION

In conclusion, thyroid TB is rare, but should be considered as a differential diagnosis of thyroid swelling in endemic countries.
like India, especially in the context of other systemic features. FNA of the thyroid swelling is instrumental in establishing the diagnosis and the utility of Xpert TB PCR in rapid diagnosis of TB is re-emphasized. An early diagnosis and adequate ATT can prevent the need for surgical intervention.

CONFLICT OF INTEREST STATEMENT
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