CASE REPORT

Tuberculosis of the thyroid gland: two case reports

Arjun Baidya¹, Arijit Singha¹*, Rana Bhattacharjee¹, and Bibhas Saha Dalal²

¹Department of Endocrinology and Metabolism, Institute of Postgraduate Medical Education and Research/SSKM Hospital, Kolkata, West Bengal, India and ²Department of Pathology, Institute of Postgraduate Medical Education and Research/SSKM Hospital, Kolkata, West Bengal, India

*Correspondence address. 242, AJC Bose Road, Kolkata, West Bengal 700020, India. Tel: 919674418763; Fax: 22265076; E-mail: drarijits@gmail.com

Abstract

Tuberculosis of the thyroid gland is a rare entity even in countries like India where tuberculosis is endemic. The patients may present with thyroid swelling, inflammation and very rarely thyroid dysfunction. Caseous necrosis and epithelioid cell granulomas on fine-needle aspiration cytology and histopathological examination are diagnostic. We present two cases of thyroid gland tuberculosis. One patient had subclinical thyrotoxicosis with presentation mimicking acute bacterial thyroiditis. The other patient had a solitary thyroid nodule with normal thyroid function. Involvement of other organs was absent in both cases. Proper diagnosis may avoid unnecessary surgical interventions.

INTRODUCTION

Tuberculosis of the thyroid gland is a very rare entity. This rarity is because of some inherent resistive mechanisms of the thyroid gland. Animal studies have documented the bactericidal property of colloid material, increased vascularity and the presence of iodine in the thyroid gland as important mechanisms. In the 19th century, physicians, even great pathologists like Virchow and Rokitansky, were skeptical about tuberculous infection of the thyroid [1]. However, it seems that the incidence of thyroid tuberculosis is increasing due to the routine practice of fine-needle aspiration cytology (FNAC) which had an important impact on its diagnosis and management [2].

The exact prevalence of this infection is lacking, varying from 0.1 to 1.15% [3, 4]. Mean age of onset is around third to fourth decades with slight female preponderance [2]. Even in countries with high prevalence of tuberculosis like India, only few cases have been reported. Here, we present two cases of thyroid tuberculosis having interesting but different clinical presentations.

CASE REPORT

Case 1

A 48-year-old male presented to the outpatient clinic with neck swelling in the last 2 weeks. He had mild discomfort on swallowing and slight tenderness. There was no specific history suggestive of hypo- or hyperthyroidism. He did not have sore throat, cough or sputum production. Though the patient denied any history of fever, he complained of night sweats and loss of appetite. The patient did not have any past history of tuberculosis. On examination, he had a diffuse, mildly tender thyromegaly (Grade 2) and a red nodule located in the thyroid isthmus (Fig. 1). A lymph node (2 × 2 cm) was also palpated in the anterior cervical region. His pulse and blood pressure were 92/min and 136/76 mmHg, respectively. Other systemic and regional examinations did not show any abnormality. Considering the clinical profile, a provisional diagnosis of acute bacterial thyroiditis was made and the patient was put on empirical antibiotic (Co-amoxiclav). Subsequently, investigations showed FT₄—1.60 ng/dl (0.80–1.90),
TSH—0.019 µIU/ml (0.40–4.00), anti-TPO antibody—20 IU/ml (0–45) and ESR—35 mm/first hour. Chest X-ray was normal, but Mantoux test was positive (18 × 15 mm). USG of the thyroid gland revealed multiple cysts of various sizes in both lobes with the largest measuring 3.0 × 1.8 cm in the isthmus (Fig. 2). FNAC showed extensive caseous necrosis without demonstrable acid fast bacillus (AFB; Fig. 3). The patient was put on anti-tuberculosis drugs and subsequently, culture of aspirated fluid for Mycobacterium tuberculosis came out positive. The patient was put on WHO Category-1 anti-tuberculur regime, i.e. combination of Rifampicin (450 mg), Isoniazid (300 mg), Ethambutol (1200 mg) and Pyrazinamide (1500 mg) thrice-a-week for 2 months followed by Rifampicin and Isoniazid for 4 months. His appetite and sense of wellbeing improved significantly within 6 weeks of starting treatment. The thyroid became non-tender on palpation. Biochemical examination at 6 weeks showed TSH of 3.5 µIU/ml and FT4 of 1.1 ng/dl. The patient remained euthyroid till last follow-up visit (18 months after completion of treatment). There was no palpable nodule at that time. Follow-up USG showed resolution of the cystic lesions.

**Case 2**

A 42-year-female presented to the outpatient clinic with weakness, fatigue and loss of appetite for 4 months. She also complained of fever and widespread body ache. She denied cough, sore throat or sputum production. There was no family history of thyroid disorder. There was no history of tuberculosis in the past. On examination, incidentally we found a non-tender, firm, solitary nodule located in the right lobe of thyroid gland. Her vitals were stable and other systemic examinations did not show any abnormality. Biochemically, she was euthyroid with negative anti-TPO antibodies. However, cervical USG showed a solitary nodule with heterogeneous echotexture with no features of malignancy. FNAC showed epithelioid granulomas (Fig. 4). Chest X-ray was unremarkable, but Mantoux test was positive (15 × 15 mm). AFB was not found in smear, but TB-PCR was positive from the aspirate. The patient received WHO Category-1 antitubercular regime. Her symptoms improved within 2 months of starting therapy. The patient remained asymptomatic and euthyroid till the last follow-up visit, i.e. 6 months after completion of therapy. The nodule was no longer palpable at that time.

**DISCUSSION**

Pathogenesis of tuberculous infection of thyroid gland is still difficult to ascertain. The bacillus may directly affect the gland (primary infection) or it can seed the gland from other infected organs by hematogenous route (secondary infection) [5]. In most cases, disseminated disease is not identified. So far, five
pathological varieties of tuberculous thyroiditis have been described—multiple lesions with miliary tuberculosis, goiter with caseation, chronic fibrosing tuberculosis, acute abscess and cold abscess. Since the demonstration of AFB is not always possible, the diagnosis of infection is usually made by histopathological examination showing caseous necrosis. Epithelioid granulomas are considered to be diagnostic of tuberculous infection of the thyroid gland. It is important to note that aspirated material should be cultured for mycobacterium bacillus when it appears cheesy or pus-like, even if the clinical presentation does not look like tuberculosis [6].

Tuberculous infection of thyroid gland may present with several clinical manifestations. The patient may present with subacute thyroiditis, thyroid abscess or fever of unknown origin. It can also mimic thyroid malignancy as patient may have dysphagia, dysphonia and laryngeal nerve palsy [7]. The symptomatology of our cases illustrates the varied manifestations of thyroid tuberculosis. Consistent with the literature, an extrathyroidal involvement was not demonstrated. An interesting point to note is that though thyroid dysfunction is said to be extremely unusual, the first patient had subclinical thyrotoxicosis [6]. Moreover, as in the second case, constitutive symptoms of tuberculosis may mimic hypothyroidism. It should also be kept in mind that a long duration of illness is an important differentiating feature in diagnosing thyroid tuberculosis. However, in our series, the first patient had a relatively short duration of symptoms.

Treatment options for thyroid tuberculosis are antituberculous drugs and/or surgery. Previously, surgical drainage or combination of drugs with removal of affected parts was the mainstay of therapy. But presently, antituberculous drugs are considered as first-line treatment modality as it has been seen that appropriate drug treatment may lead to complete resolution of the infection [8]. However, in case of large abscess, surgical intervention followed by medical management should be considered [9].

Though a rare entity, tuberculosis of the thyroid gland should be considered while managing a patient with a thyroid nodule. As anti-tuberculosis therapy is efficacious, proper diagnosis by FNAC and histopathological examination could avoid unnecessary surgical interventions. Informed consent of the patients was taken.

CONFLICT OF INTEREST STATEMENT

None declared.

REFERENCES

1. Coller FA, Huggins CB. Tuberculosis of the thyroid gland: a review of the literature and report of five new cases. Ann Surg 1926;84:804–20.
2. Bulbuloglu E, Ciralik H, Okur E, Ozdemir G, Ezberci F, Cetinkaya A. Tuberculosis of the thyroid gland: review of the literature. World J Surg 2006;30:149–55.
3. Rankin FW, Graelm AS. Tuberculosis of thyroid gland. Ann Surg 1932;96:625–8.
4. Mondal A, Patra DK. Efficacy of fine needle aspiration cytology in the diagnosis of tuberculosis of the thyroid gland: a study of 18 cases. J Laryngol Otol 1995;109:36–8.
5. Johnson AG, Phillips ME, Thomas RJ. Acute tuberculous abscess of the thyroid gland. Br J Surg 1973;60:668–9.
6. Khan EM, Haque I, Pandey R, Mishra SK, Sharma AK. Tuberculosis of the thyroid gland: a clinicopathological profile of four cases and review of the literature. Aust N Z J Surg 1993;63:807–10.
7. Pandit AA, Joshi AS, Ogale SB, Sheode JH. Tuberculosis of thyroid gland. Ind J Tub 1997;44:205–7.
8. Terzidis K, Tourli P, Kliapeou E, Alevizaki M. Thyroid tuberculosis. Hormones 2007;5:75–9.
9. Majid U, Islam N. Thyroid tuberculosis: a case series and a review of the literature. J Thyroid Res 2011:359864, doi:10.4061/2011/359864.