CASE REPORT

Tubercular thyroiditis with multinodular goitre with adenomatous hyperplasia: a rare coexistence

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SUMMARY

A 32-year-old Indian woman presented with swelling in the anterior part of the neck for the last 3 years. Clinical and radiological examination and fine needle aspiration cytology suggested the diagnosis of multinodular goitre. A subtotal thyroidectomy was performed by the surgeon and the specimen was submitted for the final diagnosis. Histological examination of the specimen revealed multiple caseating tubercular granulomas coexistent with multinodular goitre and adenomatous hyperplasia. The sections demonstrated acid-fast tubercle bacteria, confirming the diagnosis of tubercular thyroiditis. This case emphasises that tubercular thyroiditis should always be considered in patients with thyroid swelling or nodule, in countries where the prevalence of tuberculosis is high.

BACKGROUND

Tuberculosis (TB) of the thyroid gland is a very rare disease.¹⁻² Previous studies in different countries have reported the incidence of TB in the thyroid gland varying from 0.1% to 0.4%.¹⁻³ The diagnosis of this variant of TB was often difficult and required histological examination because clinical and radiological features were non-specific.⁴ The coexistence of TB with goitre and adenoma is extremely rare. Here, we report a case of tubercular thyroiditis with multinodular goitre with adenomatous hyperplasia of the thyroid gland in a young Indian woman, not reported earlier in the literature.

CASE PRESENTATION

A 32-year-old woman presented to the surgery outpatient with a swelling in anterior midline of the neck for the last 3 years. The swelling was gradually increasing in size. There were no symptoms of weight gain or weight loss, heat or cold intolerance, excessive sweating, palpitation, tremors and pressure symptoms such as dysphagia and hoarseness of voice. No history of fever, cough, chest pain or haemoptysis was present. On physical examination, a 4×4 cm multinodular swelling was found in the neck. The swelling was soft to firm in consistency and moved with deglutition but not with protrusion of the tongue. The overlying skin was normal without signs and symptoms of inflammation. The cervical or axillary lymph nodes were not palpable.

INVESTIGATIONS

Routine haematological investigations, blood sugar, urine examination and serum electrolytes of the patient were normal. Tri-iodothyronine, thyroxine and thyroid stimulating hormone levels were all within normal limits. Thyroid peroxidase antibody

and HIV status of the patient were negative. The chest X-ray and ECG were also unremarkable.

Ultrasonography (USG) of the thyroid revealed an enlarged left lobe (2.7×3.4×6.2 cm) with multiple variable size echogenic nodules, with few nodules showing cystic degeneration (figure 1A). There was no evidence of internal calcification. Colour Doppler findings showed increased vascularity of the gland (figure 1B). The right lobe and isthmus were normal in size, shape and echotexture. Neck vessels were normal and the absence of lymph nodes was appreciable.

Fine needle aspiration cytology (FNAC) of the thyroid revealed colloid with follicular cells. A diagnosis of multinodular colloid goitre was made based on clinical, USG and FNAC findings. Subtotal thyroidectomy was performed by the surgeon under general anaesthesia. The specimen was submitted for histopathological examination.

Gross examination revealed encapsulated, nodular thyroid, weighing 62.5 gm and measuring 6.5×5×3 cm. Outer surface was congested. Cut surface was cream-white, nodular with areas of haemorrhage and foci of necrosis (figure 1C).

H&E-stained paraffin sections showed encapsulated thyroid tissue with huge colloid-filled follicles lined by flattened epithelium and others showing hyperplastic linings, separated by thick-fibrous bands. Some nodules presented with adenomatous hyperplasia of the follicular type surrounded by fibrous capsule without evidence of any capsular invasion (figure 2A,C). The sections from subcapsular area showed numerous caseating epithelioid cell granulomas with Langhans' type of multinucleated giant cells and lymphocytes (figure 2A,B,D). The sections showed acid-fast tubercle bacilli (figure 1D), confirming the diagnosis of tubercular thyroiditis.

DIFFERENTIAL DIAGNOSIS

In the present case, a final diagnosis of tubercular thyroiditis with multinodular goitre and adenomatous hyperplasia was made. The differential diagnoses included granulomatous thyroiditis, palpation thyroiditis, fungal infection, sarcoidosis and foreign body reaction. The subacute granulomatous thyroiditis (De Quervain's thyroiditis) also presents with granulomas but it is a painful condition.⁵ In the present case, caseating necrosis, (figure 2D) was characteristic of TB and the acid-fast tubercle bacilli could be demonstrated in the sections, confirmatory of tubercular thyroiditis.

OUTCOME AND FOLLOW-UP

The patient was given antitubercular therapy. The postoperative recovery was satisfactory and the follow-up had been uneventful for the last 1 year.

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Figure 1 (A) Ultrasonograph (USG) showing enlarged thyroid with echogenic nodules (arrow), (B) colour flow USG showing increased vascularity of the thyroid (arrow), (C) cut surface of thyroid showing nodules (double arrow) and area of necrosis (arrow), (D) section showing acid-fast tubercle bacilli (arrow) (AFB stain $\times 1000$).

Figure 2 (A) Adenomatous focus (double arrow) with granulomas (arrow) (H&E $\times 50$), (B) higher magnification showing granuloma with Langhan's giant cells (arrow), lymphocytes and thyroid follicles (H&E $\times 125$), (C) adenomatous focus comprising of numerous follicles lined by small cuboidal cells (H&E $\times 125$), (D) caseous necrosis (arrow) with Langhan's giant cell (double arrow), lymphocytes and thyroid follicles (H&E $\times 125$).

DISCUSSION

The TB of the thyroid gland may occur due to generalised dissemination (miliary disease) from secondary pulmonary or other extrapulmonary tubercular lesions such as cold abscess, and rarely as a sporadic primary lesion.⁴⁻⁶ In the present case, TB of the thyroid gland presented with multinodular goitre and adenomatous hyperplasia. Different hypotheses have been proposed for the rarity of TB in the thyroid, but the exact reason is unknown.⁷ The antibacterial action of colloid material, high vascularity of the gland, excess of iodine content and enhanced phagocytic activity in hyperthyroid states are thought to be the probable reasons for the resistance of the thyroid gland to TB.⁸

The diagnosis of tubercular thyroiditis is difficult because it usually present with non-specific symptoms. In cases of tubercular thyroiditis, the thyroid function is usually well preserved with only rare case reports documenting hypothyroidism or hyperthyroidism.⁹⁻¹⁰ Cases may present with dysphagia, dysphonia or recurrent laryngeal nerve palsy due to fibrosis or compression of adjacent structures simulating a malignancy.¹⁰ In the present case, however, the thyroid function was normal and pressure symptoms were absent.

In cases suspected of TB, a chest X-ray and a tuberculin skin test (PPD) should always be performed.¹¹ In the present case, the PPD was performed postoperatively and was found to be strongly positive with induration of 25 mm after 72 h. There was no evidence of tubercular involvement of any other organ.

The imaging techniques are often not very helpful due to the disease's rare occurrence.¹² A USG usually reveals a heterogeneous hypoechoic mass, in contrast to our case where multiple echogenic nodules were present. The colour flow findings are also not very accurate.¹³ The increased vascularity in the present case deceptively gave a false impression of malignancy on the colour flow, and was attributed to adenomatous hyperplasia. Features of malignancy like hypoechogenicity, ill-defined margins, punctuate calcification (microcalcification), necrosis and nodal metastasis were presently absent.¹⁴

FNAC is an inexpensive, widely available, easy to perform, initial investigation for a thyroid disease. In the present case, FNAC missed to aspirate the granulomas and showed only follicular cells with colloid, suggestive of colloid goiter; it did not help in making the diagnosis of TB. It is reported in the literature that the acid-fast bacilli are not always demonstrable in the lesion. Hence, in the countries with high incidence and prevalence of TB, the diagnosis can be concluded even if caseating epithelioid cell granulomas are present without demonstrable acid-fast bacilli.¹⁵ In the present case, however, the sections showed acid-fast tubercle bacilli, confirmatory of the diagnosis of tubercular thyroiditis.

Learning points

- ▶ Tubercular thyroiditis is a rare disease and its coexistence with multinodular goitre and adenomatous hyperplasia is extremely rare.
- ▶ The preoperative diagnosis of tubercular thyroiditis is often difficult because the patient may be clinically asymptomatic and radiological features are often non-specific.
- ▶ This case emphasises that tubercular thyroiditis should always be considered in evaluating the patients with a thyroid swelling or nodule, in countries where the prevalence of tuberculosis is high.

Competing interests None.

Patient consent Obtained.

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