

# Thyroid tuberculosis mimicking carcinoma: A case report and review of the literature

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## Abstract

Thyroid tuberculosis (TT) is a very rare condition, even in endemic countries, this can be explained by the high resistance of the thyroid gland to infections. It can be primary or secondary to disseminated infection. A solitary thyroid nodule is the most common reason for consultation, and can present in the form of a cystic nodule. He can even present a picture of a thyroid abscess with pain, fever, and other nonspecific signs and symptoms. We present the case of a 65-year-old woman who consulted for a lower median cervical swelling that had been present for 4 years associated with upper right laterocervical lymphadenopathy mimicking a thyroid carcinoma. As symptoms and imaging features are nonspecific, diagnosis is challenging. Fine-needle aspiration cytology is a useful technique for preoperative diagnosis. Typical caseous necrotic granulomas are the hallmark in histological examination. Thyroid tuberculosis should be considered in the differential diagnosis of a thyroid nodule and of neck mass, in order to prevent unnecessary surgery. Histopathology and culture of MTB remain a key step for the diagnosis.

**Keywords:** thyroid tuberculosis, cervical swelling, caseous necrotic granulomas

## Introduction

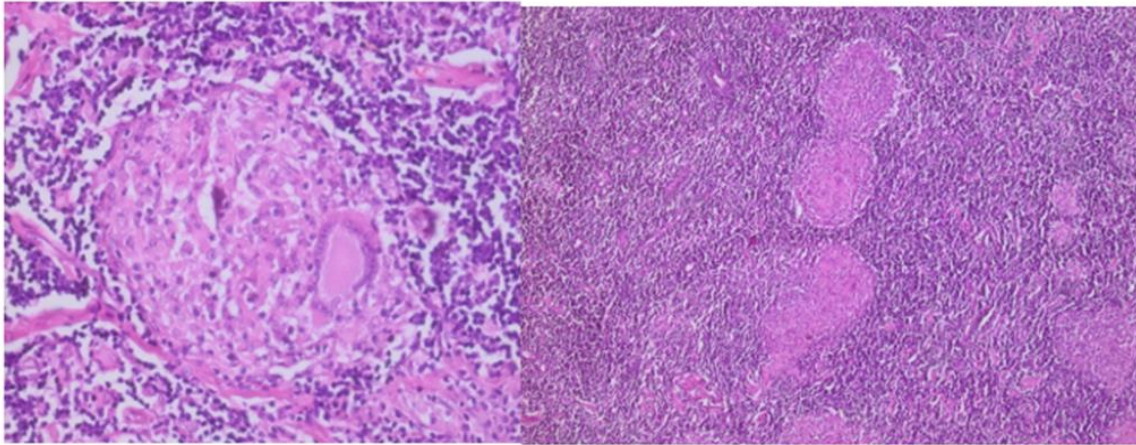
Tuberculosis is an infectious disease that typically affects the lungs first, but can involve any other organ, either as primary disease, or secondary to hematogenous or lymphatic dissemination. Involvement of thyroid gland is very uncommon, even in endemic area. The frequency of thyroid tuberculosis is 0.1–0.4% according to the literature. [1]Thyroid tuberculosis was first described in 1862 by Lebert in a case of disseminated tuberculosis.[2] Few cases were reported in the literature. Primary thyroid tuberculosis is rarer. in the majority of cases, patients present with other tuberculous foci. [3]

We report the case of thyroid tuberculosis mimicking a thyroid tumor in a 65-year-old woman.

## Case report

We present the case of a 65-year-old female patient, with a history of diabetes, who presented to our department for an anterior painless cervical swelling which had been progressively increasing in size the last six months. There was no past or family history of tuberculosis. The patient did not complain of dysphonia, dysphagia or dyspnea. There were no

signs of dysthyroidism. The patient did not report any history of fever, weight loss, cough or hemoptysis. Clinical examination found an anterior cervical mass of firm consistency that moved with deglutition, measuring about 4cm, with no inflammatory signs. A right cervical lymphadenopathy was observed. Cervical ultrasonography revealed a nodule in the right thyroid lobe measuring 4x2,5 cm, classified EU-Tirads IV, associated with a right lymphadenopathy measuring 2cm. Blood tests were normal. Thyroid carcinoma was suspected. Fine needle aspiration wasn't performed. The patient underwent a right thyroid lobectomy with an adenectomy. The specimen was sent for frozen section examination. There were no signs of malignancy. Further histological examination confirmed tuberculosis in both thyroid gland and lymphadenopathy (Figure 1). Antituberculosis drugs were administrated during 6 months. Long term follow-up was uneventful.



**Fig 1:** histological section showing thyroid tuberculosis

### Discussion

Thyroid tuberculosis (TTB) is an extremely rare disease. The thyroid gland is known to be relatively resistant to infections due to certain attributes, such as its well-developed capsule, high vascular and lymphatic supply, high iodine content, bactericidal action of colloid, and possible antitubercular role of thyroid hormones.[4]

There are two distinct categories, primary and secondary thyroid tuberculosis. Primary thyroid tuberculosis is defined as microbiological and histopathological evidence of tuberculosis within thyroid gland with no evidence of extrathyroidal tuberculosis. In the secondary form, the involvement of the gland is mainly the result of hematogenous or lymphogenous dissemination from an extra-thyroid focus, or direct extension from the larynx or adjacent lymph nodes. [5]

There is no specific symptom associated with thyroid tuberculosis. Sometimes it can be asymptomatic. In cases of associated regional lymphadenopathy, thyroid tuberculosis can mimic thyroid tumor. Fever, night sweats, fatigue, and weight loss, which are common in pulmonary tuberculosis, are exceedingly rare in cases of thyroid tuberculosis. [6–8]

Thyroid dysfunction is extremely uncommon. In early stages, thyrotoxicosis may be due to thyroid cells destruction and the resulting discharge of thyroid hormones. On the other hand, caseous necrosis, which causes significant glandular damage, could be the cause of hypothyroidism.[9]

The imaging techniques are not very helpful for the diagnosis of thyroid tuberculosis. Ultrasound findings are unspecific, showing a diffuse or multinodular goiter, solitary nodules mimicking carcinomas, or in rare cases, abscesses. Tuberculosis lesions in the thyroid gland are usually hypoechoic.[10]

Computed tomography (CT) scan shows a typical necrotic center with peripheral enhancement of cold abscess. [11] On MRI, the tuberculous thyroid exhibits intermediate signal intensity due to the presence of highly cellular inflammatory granulation tissue and tuberculous granulomas. However, this appearance is nonspecific to thyroid tuberculosis, similar features can be seen in thyroid carcinoma. [12]

Fine needle aspiration cytology (FNAC) is a useful diagnostic tool, as it provides material for cytological and bacteriologic analysis. The presence of multinucleated giant cells and caseous necrotic granulomas are typical of the disease. [12] Confirmation techniques must be performed, either using Ehrlich ziehl Neelsen, specific cultures, or PCR for *Mycobacterium tuberculosis*. [4,13] It is a simple and rapid technique that can be repeated easily. However, most of the reported cases are diagnosed postoperatively.

Histologically, the presence of caseating necrosis of epithelioid cell granulomas along with Langhans type giant cells confirm the diagnosis. [14]

The treatment of thyroid tuberculosis is based on antituberculosis drugs. Surgery is indicated in case of a large thyroid abscess requiring surgical drainage or the removal of a part of the gland. After total thyroidectomy, antituberculosis treatment is indicated for at least 6 months, but only in patients with additional tuberculosis foci. In cases of thyroid lobectomy or subtotal thyroidectomy, antituberculosis treatment should always be administered for at least 6 months, regardless of the existence of any additional foci.[15]

### Conclusion

Even though it is rare, thyroid tuberculosis should be considered as differential diagnosis of thyroid masses especially in endemic countries and particularly in lesions that increase rapidly in size and resemble

thyroid malignancy. FNAC is a rapid safe and inexpensive technique for a timely and accurate diagnosis. It can prevent an unnecessary thyroidectomy and make an appropriate antitubercular therapy possible.

### Declarations

#### Ethics approval and consent to participate.

We had verbal agreement from the patient that his case will be published for scientific purposes while maintaining his anonymity.

#### Consent for publication

After having the patient's agreement to publish his case as a clinical case in a newspaper, we insisted on hiding his identity and keeping his anonymity.

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