

# Tuberculous Involvement of the Thyroid

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## Abstract

Despite increasing detection rates of various forms of extrapulmonary tuberculosis (TB), thyroid involvement with tubercle bacilli is rarely encountered and its imaging features have been reported in less than a handful of cases. Herein, we present the clinical, pathologic and imaging (ultrasound and CT scan) features of TB involvement of the thyroid gland in a 65-year-old woman who presented with a painful and rapidly enlarging thyroid mass. While reviewing fine needle aspiration results, the diagnosis of TB should be borne in mind, especially in the presence of imaging findings of a peripherally enhancing thyroid mass or thickening of the adjacent musculature and skin, the so-called dermal sign.

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**Keywords** • Extrapulmonary • tuberculous, thyroid • computerized tomography scan

## Introduction

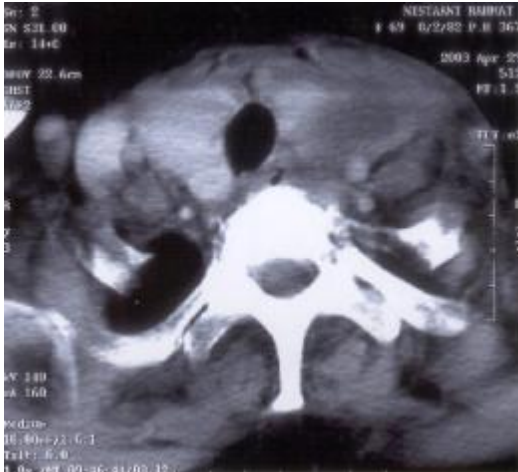
**D**espite increasing detection rates of various forms of extra pulmonary tuberculosis (TB) in the last decades, involvement of the thyroid gland with TB is still extremely rare. It has been reported sporadically as isolated cases, or small surgical and fine needle aspiration (FNA) series.<sup>1-5</sup> It appears that CT scan findings have been reported in only five cases.<sup>6-8</sup> Nevertheless, despite the fact that pulmonary TB is prevalent in Iran, no cases of TB involvement of thyroid has yet been reported. In this study, we present imaging, surgical and pathologic findings of a 65-year-old woman with TB involvement of thyroid gland in absence of a previous history of TB.

## Case Presentation

A 65-year-old woman who had had repeated visits over the past two months, complained of persistent fever and weakness. Despite negative results of available laboratory tests, she had received few courses of empirical antibiotic therapy without significant improvement. She was finally referred to an endocrinologist because of progressive painful swelling in the anterior aspect of her neck. High resolution sonography was carried out followed by fine needle aspiration. A complementary imaging with CT scan also was performed. She, then underwent surgical operation for lack of response to antibiotic therapy and suspicious CT scan in favor of malignancy. Ultrasonography revealed a slightly enlarged thyroid gland harboring several nodules, the largest of which measured 2.4 cm, in the right side, and a solitary hypoechoic nodule in the left side. The most noticeable finding, however, was a 50x90 mm septate mass continuous to the left lobe that extended to the left retroclavicular region (Fig 1). A FNA biopsy yielded a few ml of

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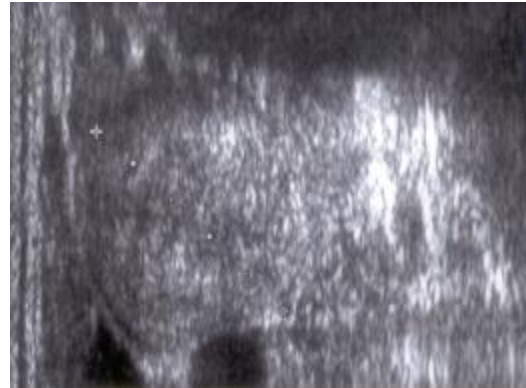


**Fig 1: Non-homogeneous predominantly hypoechoic nodule in the left thyroid lobe.**

pus which was negative for malignancy. Contrast-enhanced CT scan of the neck and mediastinum showed enlargement of the right lobe with a normal left lobe with foregoing mass in its lower border (Fig. 2). This mass clearly showed cystic changes extending down to the retrosternal region which suggested a malignant degeneration arising in a background goiter. There was no lymphadenopathy in the neck or mediastinum.

Chest x-ray was unremarkable except for the lower neck and upper mediastinal mass and a small non-specific area of nodular consolidation in the right mid-zone. No abdominal abnormality was revealed on ultrasound.

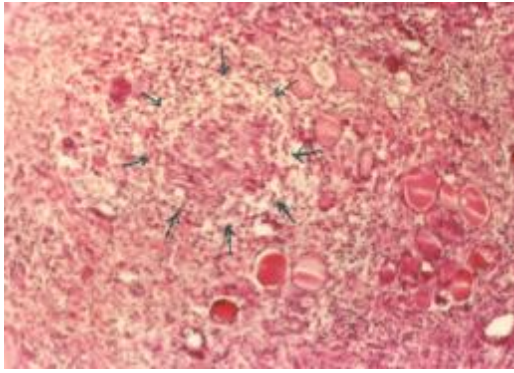
The hemoglobin level was 10.1 g/dl with slight anisocytosis, poikilocytosis and hypochromasia. The WBC count was normal throughout the course of the illness. Wright and Widal tests were negative but the ESR values were 90 and 120 mm after the first and the second hour, respectively. Other laboratory data were unremarkable. Intraoperative findings revealed a 5×10 cm abscess in the left anterior neck, with the left thyroid lobe constituting the superior wall of the abscess and the mid-line structures shifted to the right. The abscess contained a thick cream-colored fluid which was not malodorous. Partial thyroidectomy and abscess drainage was performed. Since pathologic sections of the thyroid gland showed multiple granulomas (Fig. 3) and acid-fast bacilli (Fig. 4), the patient was put on 4-drug regimen anti-TB therapy which led to dramatic improvement. There was a complete resolution of the mass and its associated symptoms seven months after surgery.



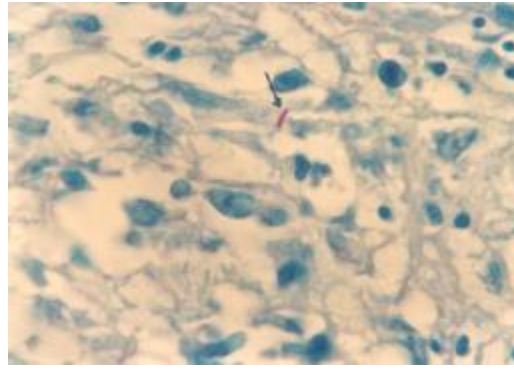
**Fig 2: Hypodense mass involving lower left thyroid lobe.**

## Discussion

TB involvement of the thyroid gland is a rare event. Only one case has been reported in Singapore in 1993,<sup>9</sup> and 44 cases in the Japanese literature until 1994. To the best of our knowledge, 58 cases have so far been reported.<sup>2,6,7,10,11</sup> In the largest series of thyroid TB we found, the disease was reported in only 18 out of 1565 cases (1.15%) subjected to FNA biopsy over a 9-year period.<sup>2</sup> In this series no imaging or surgical data were reported. In another series, TB was reported in 8 out of 1283 cases (0.6%) who underwent FNA. Ultrasound findings were described briefly in 7 of them and none had CT scan performed. It appears that only 5 of sporadically reported cases of thyroid TB included descriptions of CT scan findings,<sup>6-8</sup> whereas most of other series had only described surgical and FNA reports. Various forms of TB involvement of the thyroid gland have been reported which include a painless solitary nodule,<sup>1,2,12-15</sup> a rapidly enlarging mass or goiter,<sup>4,14</sup> and abscesses.<sup>3-6</sup> Less commonly, these may appear as euthyroid multinodular goiter.<sup>16,17</sup> Very rarely, it may present as a draining sinus or thyrotoxicosis.<sup>17</sup> A diffuse miliary type of involvement of the thyroid has been described pathologically, which in the absence of caseous necrosis did not give rise to clinical manifestations.<sup>18</sup> Associated cervical lymphadenopathy seems to be less prevalent than expected. It was reported in 3 out of 8 cases in one study,<sup>1</sup> and 3 out of 18 in another series. However, in presence of lymphadenopathy, the affected nodes showed a characteristic peripheral rim enhancement in CT scans which is similar to malignant lymphadenopathy involving squamous cell carcinoma of the head and neck.<sup>8</sup> This finding, first described by Kim *et al*, was absent in our case. Moreover, the so-called dermal sign or thickening of the adja-



**Fig 3: Sections from thyroid shows granuloma with Langherhans type giant cells and without typical caseating necrosis (H&E, x100).**



**Fig 4: Acid fast bacilli is seen in the sections of thyroid (arrow), (Acid Fast x1000, oil immersion).**

cent muscles and the skin<sup>7,8</sup> was also observed in our case.

In this regard, a concomitant focus of infection, either pulmonary or extra-pulmonary, was unusual in most series; Mondal *et al*, treated only 4 out of 18 patients for lung TB.<sup>2</sup> Our case did not show any lymphadenopathy and her pulmonary involvement seemed to represent dissection of mediastinal infection through peribronchial soft tissues accounting for the air bronchograms observed in the CT scan, and the apparent nodular density in the CXR.

## References

- 1 Das DK, Pant CS, Chachra KL, Gupta AK. Fine needle aspiration cytology diagnosis of tuberculous thyroiditis, a report of eight cases. *Acta Cytol* 1992; **36**: 517-22
- 2 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.
- 3 Al-Mulhim AA, Zakaria HM, Abdel Hadi MAS, et al. Thyroid Tuberculosis mimicking carcinoma: report of two cases. *Surg Today* 2002; **32**:1064-7
- 4 Pazaitou K, Chrisoulidou A, Ginikopoulou E, et al. Primary tuberculosis of the thyroid gland: report of three cases. *Thyroid* 2002; **12**:1137-40
- 5 Orlandi F, Fiorni S, Gonzatto I, et al. Tubercular involvement of the thyroid gland: a report of two cases. *Horm Res* 1999; **52**:291-4
- 6 Parmar H, Hashmi M, Rajput A, et al. Acute tuberculous abscess of the thyroid gland. *Australas Radiol* 2002; **46**, 186-8
- 7 Kang BC, Lee SW, Shim SS, et al. US and CT findings of tuberculosis of the thyroid. three case reports. *Clin Imaging* 2000; **24**: 283-6
- 8 Kim YJ, Kim DJ, Sung KJ, et al. Tuberculous abscess of the thyroid gland; a case report of CT demonstration. *J Korean Radiol Soc* 1996; **34**:201.
- 9 Tan KK. Tuberculosis of the thyroid gland—a review. *Ann Acad Med Singapore* 1993 ; **22**:580-2.
- 10 Coller FA, Huggins CB. Tuerculosis of the thyroid gland. *Ann Surg* 1926; **84**: 804-20.
- 11 Rankin FW, Graham AS, Tuerculosis of the thyroid gland. *Ann Surg* 1932; **96**: 625-48.
- 12 El Malki HO, el Absi M, Mohsine R, et al. Tuberculosis of the thyroid . Diagnosis and treatment. *Ann Chir* 2002 ; **127**:385-7.
- 13 Surer I, Ozturk H, Ctinkursun S. Unusual presentation of tuberculosis reactivation in childhood: an anterior neck mass. *J Pediatr Surg* 2000; **35**:1263-5.
- 14 Takami H, Kozakai M. Tuberculous thyroiditis: report of a case with a review of the literature. *Endocr J* 1994; **41**: 743-7.
- 15 Aiska H, Yamagaishi M, Kuihara M, et al. A case of tuberculosis of the thyroid gland. *Kekkaku* 1993; **68**: 565-70.
- 16 Abdullah MA, Saleem MS, Salihi H, et al. Tuberculous anterior neck mass stimulating goiter. *Ann Trop Paediatr* 1996; **16** :369-71.
- 17 Khan EM, Haque I, Pndey R, et al. Tuberculosis of the thyroid gland: A clinico-pathological profile of four cases and review of the literature. *Aust N Z J Surg* 1993; **63**: 807-10.
- 18 Barnes p, Weatherson R. Tuberculosis of the thyroid: two case reports. *Br J Dis Chest* 1979; **73**: 187-91