

Implantation Tuberculosis of Thyroid Gland Following Fine Needle Aspiration

Procedure: A Rare Clinical Presentation: A Case Report

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Abstract

A 55 year female patient presented with thyroid swelling. After initial Fine Needle Aspiration Cytology (FNAC) the swelling gradually increased in size, painful and associated with fever, the site of needle prick done for FNAC, had persisted without healing for nearly two months. Subsequently she developed multiple small swellings on right side of neck. Histopathology examination after near total thyroidectomy revealed sinus tract in thyroid lined by tuberculous granulation tissue, adjacent thyroid gland showed granulomatous thyroiditis with rest of the thyroid gland showing features of colloid goiter. Lymph nodes showed feature of caseating epithelioid cell granulomatous lymphadenitis. Suppuration after FNAC, histopathology showing localized sinus tract in thyroid lined by tuberculous granulation tissue with rest of the thyroid showing features of colloid goiter, all correlate with direct implantation.

Key words: FNAC, Implantation, Thyroid Tuberculosis

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Introduction:

Tuberculosis affecting thyroid gland is rare and may pose diagnostic problems in differentiating from malignancy or benign tumor.^[1-3] Although, more than a hundred cases of thyroid tuberculosis have been documented,^[1-8] diagnosis of thyroid

tuberculosis is often overlooked, owing to poor understanding of the natural history of the disease. Apart from rare, minor complications such as slightly prolonged bleeding, rare cases of implantation of malignant cells following FNAC have been documented. We report an interesting

case of implantation tuberculosis of thyroid that resulted from previous FNAC, possibly of an adjacent lymph node involved by tuberculosis.

Case Presentation:

A 55-year-old female patient presented to a general practitioner with history of small firm, right-sided thyroid nodule for one month. FNAC performed at that time was interpreted as colloid goiter. After initial Fine Needle Aspiration Cytology the swelling gradually increased in size, painful and associated with fever, the site of needle prick done for FNAC, had persisted without healing for nearly two months. The site of needle prick done for FNAC persisted as sinus tract draining pus. Subsequently, she developed multiple right sided cervical lymph nodes, following which she was referred to our institute.

The patient had no history suggestive of pulmonary tuberculosis. On examination, the inflamed thyroid was 3 X 3 cm. Enlarged level 2, 3 and 4 lymph nodes were discrete, mobile and firm; the largest measured 2X1 cm. The sinus with pus discharge was seen at the lower end of sternocleidomastoid (figure1). Though we were clinically able to get below the swelling, the sinus tract was below the clinically palpable thyroid. Erythrocyte sedimentation rate was 34 mm. Mantoux

read 3mm after 48 hours. Chest X-ray was normal and sputum for Acid Fast Bacilli was negative. Thyroid profile was normal. Computer tomogram revealed homogenous enlargement of right lobe of thyroid with multiple, enlarged, ipsilateral lymph nodes of 1 X 2 cm size; also a sinus tract from skin to inferior pole of thyroid (figure 2). Right lobe showed increased iodine uptake on radioiodine scan. FNAC of thyroid and lymph nodes was performed, using 23 gauge needles. The thyroid was reported as colloid goitre with cystic change, while lymph nodes revealed reactive lymphoid hyperplasia.

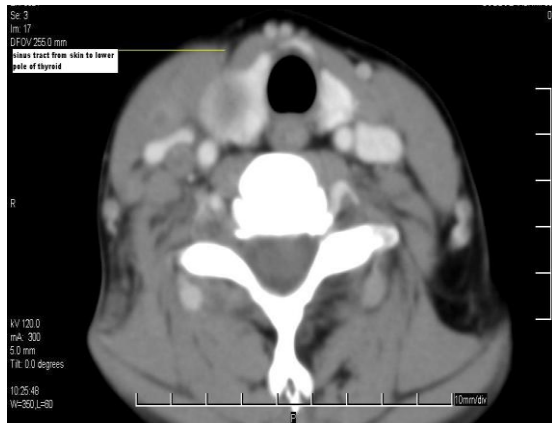
Figure 1 Sinus with pus discharge



Considering the clinical scenario, near total thyroidectomy was done. Histopathology examination of the thyroid specimen showed sinus tract lined by tuberculous granulation tissue (figure3); thyroid tissue surrounding the sinus tract showed features of colloid goitre. Lymph nodes showed features consistent with

tuberculosis with caseating epithelioid cell granulomas. Patient showed good response to antitubercular treatment.

Figure 2 C.T of Thyroid gland (Disease state)

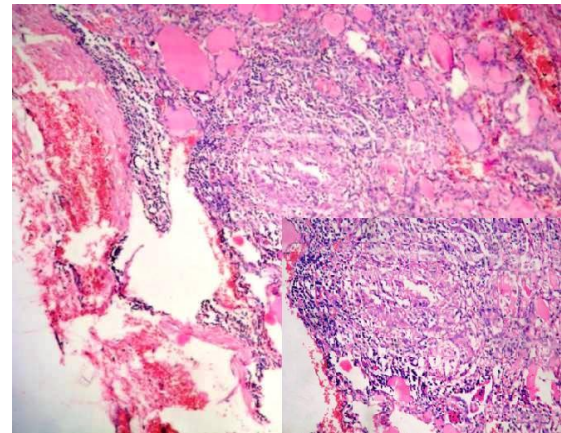


Discussion:

The thyroid is one of the organs extremely resistant to tuberculosis infection. Other organs resistant to tuberculosis are pancreas, heart and skeletal muscle. The rarity of thyroid tuberculosis is attributed to (i) inherent bactericidal property of the colloid, (ii) high perfusion of the organ, (iii) excess of iodine and (iv) enhanced destruction of tubercle bacilli by increased physiologic activity of phagocytes in hyperthyroidism.^[8] The postulated routes of spread include hematogenous, lymphatic and direct spread. Majority of the cases occur from the first two routes, while the direct spread results from the adjacent lymph nodes.^[5]

Histologic examination revealed colloid goiter, however, with unexpected tuberculous focus in the form of sinus

Figure 3 Histopathology of Thyroid gland (Disease state)



tract; histology of lymph nodes showed tuberculous infection with frank caseation. It is interesting that the FNAC done on nodes did not show tuberculosis, which we attribute to sampling error. Owing to the fact that the lesion was confined to sinus tract and histology of nodes showed tuberculosis, we strongly believe that the infection must have been introduced into thyroid from an adjacent lymph node during first FNAC. Failure of needle-prick site to heal and suppuration of thyroid that followed first FNAC were also perhaps part of inflammatory response to mycobacterial infection.

Implantation of malignant cells has been well documented in cases of hepatocellular,^[9;10] and pancreatic carcinomas^[10] as well as in papillary^[11] and anaplastic thyroid carcinomas^[12]. As for direct implantation of tuberculosis, although proposed, to the best our knowledge has not been documented in

literature. Needle tract sinus of thyroid following fine needle aspiration has been reported in papillary thyroid carcinoma.^[11] Some factors involved in the needle track seeding are needle size; number of passes; withdrawing the needle without releasing suction; injecting tumours at biopsy; and inherent characteristics of lesion.^[12] FNAC plays an important role in diagnosing thyroid tuberculosis.^[4;6;7] Mondal and Patra have documented 18 cases diagnosed by FNAC.^[6] However, unfortunately, in present case, FNAC failed to pick up tuberculosis perhaps due to sampling error. In contrast to diffuse involvement of thyroid observed in cases of hematogenous spread of M. Tuberculosis,^[2-4;7;8] in present case, the lesion was confined to sinus tract alone indicating that the infection was contained due to resistant nature of thyroid tissue. To conclude, although, implantation tuberculosis of thyroid is extremely rare; its possibility needs to be considered in differential diagnosis, in a patient with enlarged thyroid, particularly, when usual diagnostic reasoning is inconclusive. Our case also stresses the need for carefully performed FNAC.

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