

A Rare Case of Thyrolipomatosis Presenting with Latent Hyperthyroidism

Abstract

Goiter and hyperthyroidism are fairly common problems in the Indian population. We present a 49-year-old female who presented with thyroid swelling and suppressed thyroid-stimulating hormone. On evaluation, she was having latent hyperthyroidism with diffuse and soft thyroid swelling. During the evaluation for feasibility of radioiodine ablation, she was found to have thyrolipomatosis on computed tomography. She was counseled for total thyroidectomy and subsequently underwent the same with histopathology confirming the presence of fatty infiltration into the thyroid stroma.

Keywords: Radioiodine ablation, thyroid scintigraphy, thyrolipomatosis, total thyroidectomy

Introduction

Thyrolipomatosis (TL) is an uncommon cause of thyroid swelling. TL is characterized by infiltration of mature adipose tissue into thyroid stroma without definite encapsulation. Patients usually present with soft thyromegaly. Hyperthyroidism or coexistent second pathology, though rare, has been described. FNAC may show the presence of fatty tissue. USG and computed tomography (CT) may show fatty infiltration. Definitive treatment is surgery, and the prognosis is usually excellent.

Case Report

A 49-year-old female, a school teacher by profession, presented to our hospital with diffuse thyromegaly. Goiter was first noticed by the patient 3 years before with slow and progressive increase in size. On examination, the swelling moved with deglutition. It was nontender and soft. No obvious cervical lymphadenopathy was found. She was not toxic clinically. Her thyroid function test showed suppressed thyroid-stimulating hormone levels 0.01 $\mu\text{U/ml}$ (laboratory range is 0.47–4.7 $\mu\text{U/ml}$). Her total T3 and T4 levels were within normal limits [Figure 1].

With clinical suspicion of Graves' disease, $^{99\text{m}}\text{Tc}$ -pertechnetate thyroid scintigraphy (TS) was performed as per the standard protocol. TS showed diffuse

thyromegaly with physiological perfusion and trapping function. Total technetium uptake was 1.5% with thyroid: parotid ratio of 2.0. In view of the low uptake, she was given option of total thyroidectomy (TT). The patient refused TT fearing voice change and opted for higher dose radioiodine ablation (RAI). Hence, after counseling, the patient was planned for 30 mCi RAI for reducing the size of the gland and control of hyperthyroid status.

Before RAI, to rule out retrosternal extension and tracheal compression, a noncontrast CT of the neck and upper thorax was performed. CT showed thyromegaly with fatty infiltration into the thyroid stroma (fatty attenuation of -60 HU) admixed with higher attenuation thyroid stroma. Based on the clinical, biochemical, and CT findings, a diagnosis of TL was made. The patient was explained about the diagnosis and was counseled again for surgery. She underwent TT at a different hospital, and histopathological examination showed fatty infiltration into the thyroid stroma. No evidence of malignancy was noted in the specimen. The patient is on telephonic follow-up without any adverse events.

Discussion

Focal microscopic deposits of fat are rarely seen in normal thyroid. TL is characterized by diffuse infiltration of thyroid gland by mature adipocytes without any evidence of encapsulation. Thyrolipoma, the most common fat-containing lesion in the thyroid, is a well-circumscribed and

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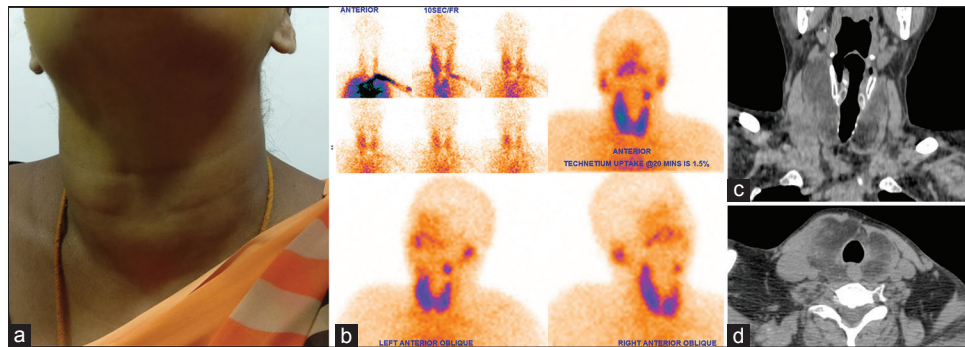


Figure 1: A 49-year-old female presented with diffuse and soft neck swelling (a). The lower border of the swelling was not well made out. She underwent technetium TS as per the standard protocol (b). Technetium thyroid scan showed physiological perfusion and trapping function in both lobes of thyroid without any obvious cold nodules. Noncontrast computed tomography performed for the evaluation of retrosternal extension and tracheal status [(c) coronal; (d) transaxial sections) showed diffuse fatty infiltration (60 HU) with thyroid stroma showing higher attenuation

encapsulated nodule composed of thyroid follicles admixed with mature adipose tissue.^[1]

TL is usual in the middle-aged persons without sex predilection. Less than 40 published accounts on TL are available in scientific literature. Thyroid scintigraphic findings in TL are not well described. One of the studies^[2] reported finding a cold area in one of the lobes with diffuse and physiological trapping function in rest of the thyroid tissue. To the best of our knowledge, this is the first study to present the thyroid scintigraphic findings in TL with hyperthyroidism.

There are no definite set criteria to make a diagnosis of TL by FNAC. CT scan, magnetic resonance imaging, and ultrasonography are effective in the preoperative diagnosis.^[3] In suspected cases, due to the softness of the gland, both FNAC and CT can confirm the diagnosis preoperatively. Unenhanced CT shows a mass with distinct margins and predominantly fat attenuation in the thyroid gland. There is enlargement of the thyroid gland with fatty attenuation in the areas of lipomatous infiltration admixed with areas of increased attenuation comprising thyroid parenchyma.

Pathogenesis of TL, though obscure, may be due to metaplasia of the stromal fibroblasts to adipose tissue in response to tissue hypoxia or to senile involution. It is also postulated that, before the development of thyroid capsule during embryogenesis, there is simultaneous inclusion of fat with striated muscle in the thyroid gland. Some authors even consider it a true neoplasm.

The natural history of the lesion is unknown and so its association with tumorous and nontumorous lesions. TL has been reported to be associated with thyroid hyperfunction^[4,5] and papillary thyroid carcinoma.^[6] Liposarcoma of the thyroid gland is uncommon with rapid progression.^[7]

Surgery is a definitive treatment for these patients. The role of RAI in treating hyperthyroidism in these patients is not known and needs further evaluation.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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