

# Thyrolipomatosis: A Rare Fat Containing Lesion diffusely Infiltrating Throughout the Thyroid Gland

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**Fig. 1: Unenhanced axial view CT scan shows diffuse, predominantly fatty mass (–60 HU) with no distinct margins (marked by yellow asterisk) of the thyroid gland. The mass causes enlargement of the isthmus and extends to both right and left lobes. Small portions of the right and left lobes have a soft tissue attenuation (+50 HU), consistent with normal. CT: Computed tomography; HU: Hounsfield unit**



**Fig. 2: CT coronal reformatted image showing regions of low density areas (–60 to –70 HU, marked by yellow asterisk) in both lobes and isthmus of thyroid. Both thyroid lobes and isthmus are enlarged in size causing mass effect on trachea**

A 73 yr old male presented with rapidly enlarging midline neck swelling of 2 months duration. Respiratory discomfort during breathing and hoarseness of voice occurred since few days. There was no history of palpitation, tremor or sweating. A physical examination revealed signs of pallor without icterus. A large midline neck swelling was found, which moved with deglutition. The swelling was more prominent on right side and soft in consistency. All routine haematological investigations and thyroid function tests showed normal results. Clinical diagnosis was multinodular goiter. Sonography showed diffusely enlarged thyroid gland with altered echotexture. Multiple nodular echogenic lesions were noted in both the lobes. Unenhanced Computed tomography (CT) of the thorax and neck revealed a mass with no distinct margins and predominantly fat attenuation in both lobes of the thyroid gland. The intralésion low

density areas suggested fat density (– 60 to –70 Hounsfield units [HU]) with mass effect on trachea (Figures 1, 2). No enlarged lymph nodes could be noted. Magnetic Resonance (MR) images of the neck confirmed the fatty nature of the mass. Fast spin-echo T1-weighted MR image showed the lesion to be isointense with subcutaneous fat. These imaging findings signalled towards diffuse presence of mature adipose tissue inside thyroid gland which defines thyrolipomatosis. Also, skin biopsy was negative for amyloid deposition. A near total thyroidectomy was performed and histopathological studies confirmed thyrolipomatosis in the post-operative specimen.

Normally, adipose tissue is observed in the parathyroid, salivary glands, thymus, breasts and pancreas; however, it is unusual to detect adipose tissue in the thyroid gland.<sup>1</sup> Fat containing lesions

of thyroid are very rare with only a few cases documented in the literature. Most of the fat containing lesions of thyroid are benign, occasionally malignant, hence rendering a correct diagnosis is essential.<sup>2</sup> Thyrolipomas (adenolipomas) are described as well-capsulated benign nodules containing fat and thyroid tissue.<sup>3</sup> Thyrolipomatosis is characterized by diffuse infiltration of adipose tissue in the thyroid gland.<sup>4</sup> Differential diagnosis of fat containing thyroid lesions include lymphocytic thyroiditis, parathyroid lipoma, heterotopic adipocytic nests, amyloid goiter, thyrolipoma, liposarcoma and encapsulated papillary carcinoma.<sup>5,6</sup>

Sonography is the mainstay for imaging the thyroid gland and is usually sufficient to make a diagnosis when combined with laboratory findings and fine needle aspiration cytology.<sup>3</sup> Fatty tissue infiltration or fatty masses may be iso-echoic and cannot be differentiated from normal thyroid gland on ultrasonograms. For the current patient, sonography was not diagnostic, and the diagnosis of thyrolipomatosis was based on the CT and MR imaging appearances, and exclusion of other diseases.

## References

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