

Diffuse Lipomatosis of Thyroid—Case Report

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Abstract

Diffuse lipomatosis of thyroid gland is very rare disease, characterized by diffuse proliferation of adipose tissue in the thyroid gland, the pathophysiology of adipose tissue infiltration in the thyroid gland remains unknown. We report a case of a 55-year-old female who presented 6 months ago a dysphonia, ultrasound of the neck revealed the presence diffuse goiter with heterogeneous echogenicity, her thyroid hormone levels were normal, thyroid isotope scanning showed heterogeneous uptake of radioactivity and coexistence of cold and hot nodules. The patient underwent total thyroidectomy. Histological study concluded to the diagnosis of diffuse lipomatosis of thyroid gland.

Keywords

Diffuse Lipomatosis of Thyroid

1. Introduction

Diffuse lipomatosis of thyroid gland is extremely rare disease [1]; the first case reported in 1942 by Dhaygude [2]. Normal thyroid may have a scanty amount of fat immediately adjacent to the capsule and along the fibrous tissue septa, but does not have fat intermixed with the follicles. Rarely, a small amount of fat around the blood vessels in the subcapsular area of the anterior portion can be seen [3] [4]. Lipomatosis is characterized by diffuse of the mature fat infiltration in all the thyroid gland. It is a lesion benign of the thyroid gland. We are representing the first case of diffuse lipomatosis of thyroid gland and we review the literature.

2. Case Report

A 55-year-old female presented to the outpatient department of surgical with swelling of the neck and dysphonia of six-month duration, her medical story was without notable pathological; on physical examination, the thyroid gland found was to be soft, painless and diffusely enlarged goiter was detected.

The free T3, T4 and TSH levels were normal, 3.20 pg/ml (1.71 - 3.71), 0.80 ng/ml (0.7 - 1.48) and 1.577 μ UI/ml (0.35 - 4.94).

Thyroid ultrasonography revealed diffused goiter with heterogeneous echogenicity, no cervical nodes were seen.

Thyroid isotope scanning with iodine-123 showed heterogeneous uptake of radioactivity and coexistence of cold and hot nodules in all the thyroid parenchyma (**Figure 1**).

The patient underwent total thyroidectomy with careful dissection and preservation of the parathyroid glands and the two recurrent laryngeal nerves. A pathological examination of the specimen revealed the right lobe measured 5.5 \times 3.5 \times 3 cm and two nodules measured 1.8 \times 1.8 cm with colloidal appearance and 2.7 \times 2.8 cm with fleshy appearance, the left lobe measured 4 \times 2.5 \times 2.2 cm and nodules milimetric and the isthmus measured 1.5 \times 1 cm (**Figure 2**).

At microscopic examination of specimen both lobes of thyroid demonstrated thyroid tissue almost totally replaced by mature adipocytes with slightly distended follicles, without any sign of hyperplasia, malignancy or amyloid deposition (**Figure 3**).

The diagnosis of diffuse lipomatosis of the thyroid was made. The post-operative course was uneventful.

Replacement treatment of thyroid hormone was begun after the operation. The patient has had no recurrence to date.

3. Discussion

Diffuse lipomatosis of thyroid gland is a rare entity, initially reported by Dhayagude in 1942 [2]. A few cases have been reported in the literature [5] [6]. It is characterized by diffuse proliferation of adipose tissue in the gland, sometimes associated with amyloid deposition [7], the mechanisms underlying fatty tissue development in thyroid lesions have not been clearly described [8], but the possibility of congenital goiter with fatty change cannot be ruled out [9].

Ge *et al.* reviewed 8 reported cases of diffuse thyroid lipomatosis, the mean age of these patients was 42 years (range: 11 - 76 years), the patients presented with

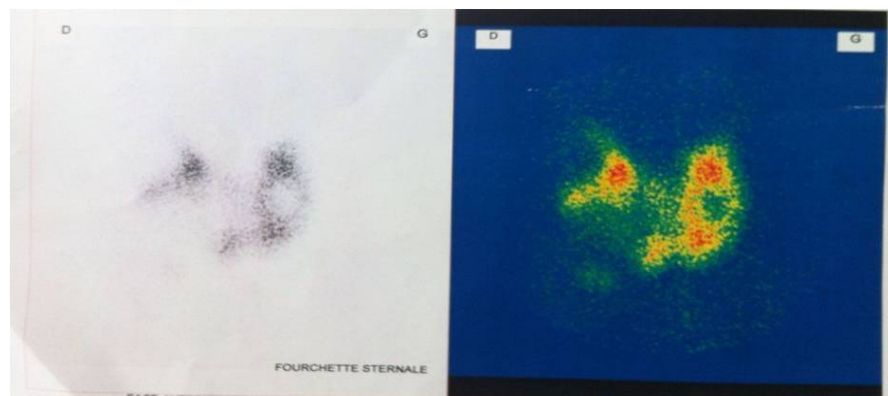


Figure 1. Thyroid isotope scanning with iodine-123 showed diffuse uptake of radioactivity and coexistence of cold and hot nodules.

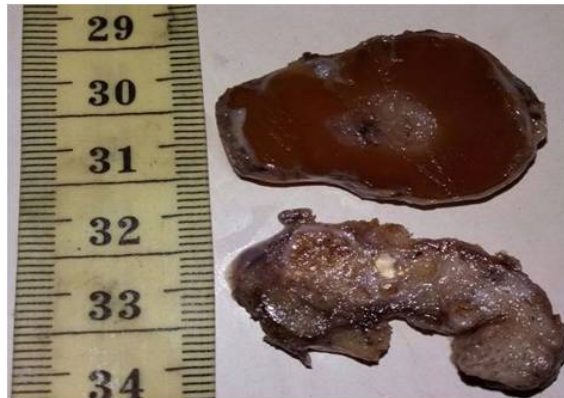


Figure 2. Macroscopic appearance the thyroidectomy specimen shows yellow and colloidal nodules.

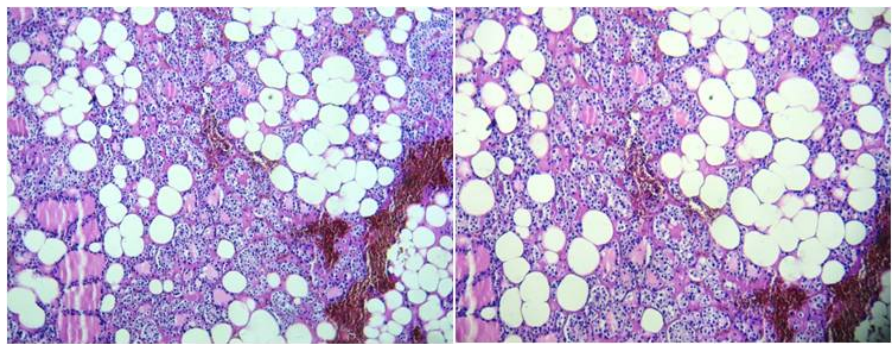


Figure 3. Few preserved thyroid follicles in an extensively lipomatous area.

either diffuse or nodular goiter with or without compression symptoms similar to the presenting symptoms observed in our case.

Radiological studies were not diagnostic, but the ultrasound may reveal enlargement of the thyroid with diffuse increase in the echogenicity and attenuation of sound typical of fat [10], Computerized tomography of the thyroid may reveal low attenuation components with negative Hounsfield units [11].

The thyroid hormone level is frequently normal; in contrast to other series that of the Ben Gamra and Pradeep reported some cases with hyperthyroidism [12] [13].

Preoperatively, fine-needle aspiration cytology may suggest a diagnosis of thyroid lipomatosis based on an abundance of fat cells in the smear but histopathological studies confirmed the diagnosis [13].

Adenolipoma and intrathyroid fat-containing masses were easily excluded, because these rare entities appear as focal nodules, well circumscribed within an otherwise normal gland [7]. However, liposarcoma of the thyroid is rare, the rapid clinical course and local invasion suggests the diagnosis [12]. Amyloid goiter, which often contains fat cells, is not difficult to distinguish from thyrolipoma or thyrolipomatosis as the amyloid deposition is readily evident and can be confirmed with special stains [1].

Association tumor lesions as papillary carcinoma of thyroid has with diffuse lipomatosis of thyroid have been described; Vestfrid reported a case of papillary

thyroid carcinoma associated with diffuse lipomatosis occurring in a 53-year-old woman [14], Nandyala reported one case of 37-year old man presenting diffuse lipomatosis of thyroid gland associated with papillary microcarcinoma [15].

In our case, the diagnosis of multinodular goiter with tracheal compression was posed, the other causes were excluded, because the patient was euthyroid and did not have any neck pain and there were no solid elements on imaging to suggest diffuse lipomatosis of thyroid. Given the patient's presentation and findings on imaging, diffuse lipomatosis of the thyroid gland was felt to be the most likely diagnosis. Patients with this condition are also often euthyroid as seen in our patient [1] and are usually asymptomatic until the thyroid causes mass effect in the neck. Most patients with this condition elect for a thyroidectomy and therefore the natural history of this rare entity is unknown [10].

4. Conclusion

Diffuse lipomatosis of thyroid gland is very rare entity, but it should be kept in mind this diagnosis in fatty lesions of thyroid with or without neoplasm lesions.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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