Egyptian Journal of Ear, Nose, Throat and Allied Sciences (2016) 17, 167–169

HOSTED BY

ELSEVIER

Egyptian Society of Ear, Nose, Throat and Allied Sciences

Egyptian Journal of Ear, Nose, Throat and Allied Sciences

www.ejentas.com

CASE REPORT

Diffuse lipomatosis of the thyroid gland

Olfa Ben Gamra [a], Nadia Romdhane [a], Safa Nefzaoui [a,*], Madiha Mahjoubi [a], Wafa Abid [a], Wafa Koubaa [b], Ines Hariga [a], Achraf Chadli [b], Chiraz Chaouch Mbarek [a]

[a] *ENT Department, Habib Thameur Hospital, Tunis, Tunisia*
[b] *Pathology Department, Habib Thameur Hospital, Tunis, Tunisia*

Received 26 June 2016; accepted 31 July 2016
Available online 18 August 2016

KEYWORDS

Thyroïd;
Adipose;
Lipomatosis

Abstract Diffuse thyroïd lipomatosis is an extremely rare histopathological condition characterized by diffuse fatty infiltration in thyroïd stroma. We report a case of 67 year old female who presented a plunging goiter. She underwent a thyroïdectomy. Histopathologic study concluded to the diagnosis of diffuse thyroïd lipomatosis. No recurrence was observed.

1. Introduction

The presence of adipose tissue in the normal thyroïd gland is rare. Mature fat tissue can be found in both benign lesions and neoplasms of the thyroïd gland. Diffuse thyroïd lipomatosis is an extremely rare histopathological condition characterized by diffuse fatty infiltration in thyroïd stroma. Only few cases have been reported in literature. We herein present a case of thyroid lipomatosis and we review the literature.

2. Case report

A 67-year-old female was admitted to our department complaining of midline neck swelling of seven month duration with a recent onset of respiratory discomfort while breathing.

Her medical history included chronic renal failure secondary to systemic lupus and she was receiving hemodialysis. On her physical examination, a painless, diffusely enlarged goiter was detected.

Thyroid profile showed an hyperthyroïdism with elevated FT4 30,3 (7–16 µmol/l) and a down level of TSH 0.04 (0.3–4.5 IU/ml). Serum thyroperoxidase antibody (TPO) and anti thyroglobulin antibodies were negative. Euthyroidism was achieved with thiamazole 20 mg daily.

Thyroid ultrasonography revealed diffused thyroïd enlargement whose lower limit was not objectived. No cervical nodes were seen. A cervico-thoracic CT scan was performed and showed an heterogenous plunging goiter with multiples nodules presenting a low attenuation (Fig. 1).

The patient underwent total thyroïdectomy with careful dissection and preservation of the parathyroïd glands and the two recurrent laryngeal nerves. Macroscopically, the specimen weighed 215 g, and the isthmus, right and left lobes measured 2 * 2 cm, 12 * 6 * 3.5 cm, 10 * 5 * 2.5 cm respectively. The external appearance was yellowish brown in color, lobular gland with soft and friable texture (Fig. 2). Microscopic

* Corresponding author.
E-mail address: safanefzaoui@gmail.com (S. Nefzaoui).
Peer review under responsibility of Egyptian Society of Ear, Nose, Throat and Allied Sciences.

http://dx.doi.org/10.1016/j.ejenta.2016.07.009

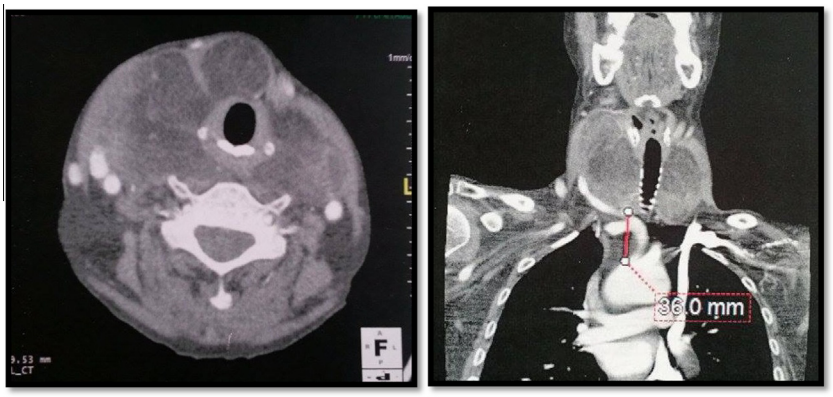

Figure 1 Contrast-enhanced CT in axial and coronal view showing a diffuse goiter with adipose density.

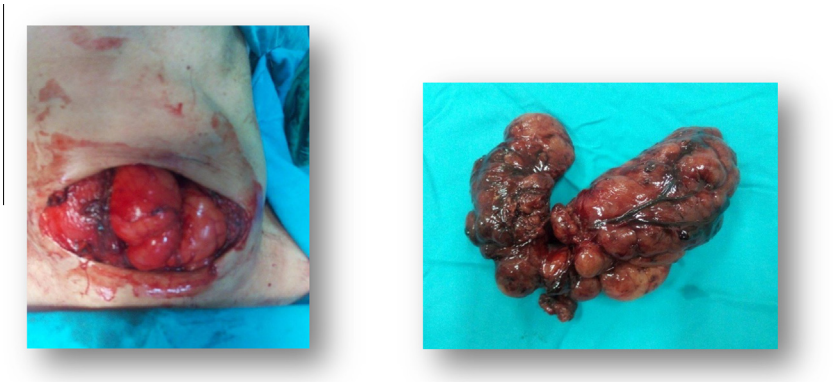

Figure 2 Peroperative view of the thyroïd gland.

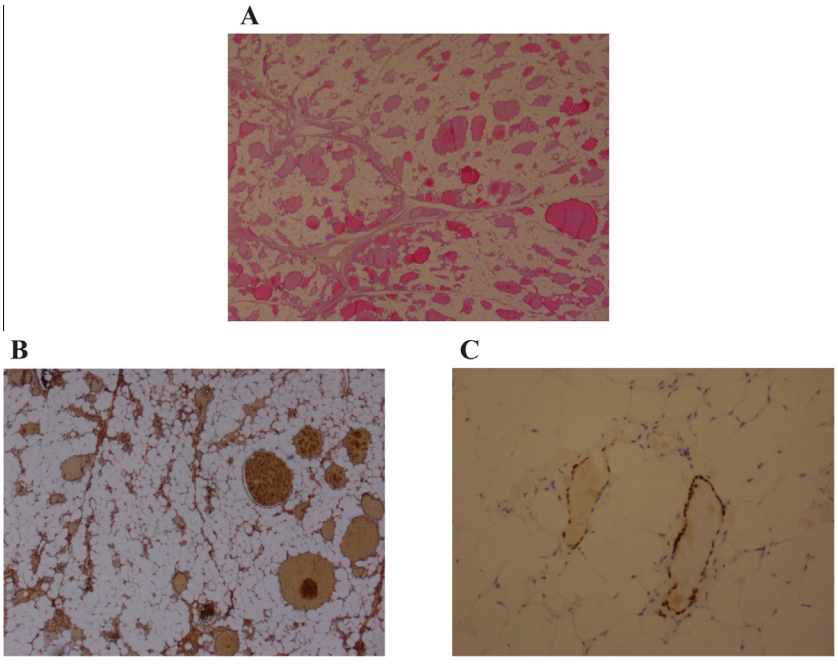

Figure 3 (A) Microscopic examination (hematoxylin and eosin stain at low magnification) showing a lobulated mass with diffuse infiltration of mature adipocyte between benign thyroïd follicles. (B) Immunohistochemical staining for thyroglobulin showing the follicular cells as well as colloid which are immunoreactive to thyroglobulin. (C) Immunohistochemical staining for TTF-1 labels the nuclei of thyroid follicular cells, some of them are difficult to distinguish from fat cells and vessel (small or collapsed cells).

examination of the tissue revealed thyroïd tissue almost totally replaced by mature adipocytes with some follicles containing colloid. There were no signs of hyperplasia, adenoma or malignancy, and no amyloid was demonstrated (Fig. 3). The diagnosis of diffuse lipomatosis of the thyroïd was then made. The postoperative course was uneventful. Replacement treatment of thyroid hormone was begun after the operation. The patient has had no recurrence to date.

3. Discussion

The presence of adipose tissue is commonly observed in parathyroïd glands, thymus, salivary glands, pancreas, and breast. In the normal thyroïd gland, the presence of mature adipose is an uncommon occurrence; few adipocytes may be found near the capsule and in the perivascular location.[1]

Diffuse thyrolipomatosis is a rare entity which was first described by Dhayagude in 1942.[2] It is a type of diffuse infiltration of an otherwise normal thyroïd by mature adipose tissue with no evidence of encapsulation. The most common age group which is affected is the middle aged group, with no sex predilection, but the possibility of congenital goiter with fatty change cannot be ruled out.[2]

Ge et al. reviewed 8 reported cases of diffuse thyroïd lipomatosis. Three cases were in children with congenital goiters.[3] The thyroïd glands with thyrolipomatosis were often described as soft, nodular, bosselated, or diffusely enlarged. Their cut surfaces were pale yellow or yellow brown.

Radiological studies were not diagnostic. Computerized tomography of the thyroid may reveal low attenuation components with negative Hounsfield units.[4].

The thyroïd hormone level is frequently normal. In contrast to other previously reported cases that were euthyroid, our patient had hyperthyroidism. Pradeep, reported one case of thyrolipomatosis with hyperthyroidism, however, he do not propose that hyperthyroidism was causally related to this entity.[5] 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. Microscopically, the lesions showed diffuse infiltration of mature fat between benign thyroid follicles. Stromal fibrosis and lymphocytic aggregates were occasionally observed. Differential diagnoses are adenolipoma (thyrolipoma), amyloid goiter, lymphocytic thyroiditis, or parathyroïd lipoma, encapsulated papillary carcinoma and liposarcoma.[6] Thyrolipoma is a fat containing thyroid follicular adenoma, with complete fibrous encapsulation.[7] Differentiating adenolipomas from intrathyroidal parathyroïd lipoadenoma may be difficult and may need immunohistochemistry. However, liposarcoma of the thyroïd is rare, the rapid clinical course and local invasion suggests the diagnosis.[5] Amyloïd goiter, which often contains fat cells is not difficult to distinguish from thyrolipoma or thyrolipomatosis as the amyloïd deposition is readily evident and can be confirmed with special stains.[3] Lymphocytic thyroiditis shows diffuse lymphocytic stromal infiltration. Papillary carcinoma has characteristic histomorphological features. Mature fat is to be found within tumor stroma and papillary structures. No fat is detected in adjacent nontumoral thyroid parenchyma in this case.[7] Coincidental tumoral lesions may be rarely associated with the diagnosis of thyrolipomatosis. In fact, Vestfrid reported a case of a papillary thyroid carcinoma associated with diffuse lipomatosis occurring in a 53-year-old woman.[8,9] Nandyala reported one case of 37 year old man presenting diffuse lipomatosis of thyroïd gland associated with papillary microcarcinoma.[10]

The pathophysiology of adipose tissue infiltration in the thyroïd gland is not clear and several theories have been proposed that fat could be included in the thyroïd gland along with skeletal muscle during embryologic development.[11] Some authors have evoked a metaplastic process from stromal fibroblasts secondary to hypoxia or to the phenomenon of senile involution.[11] Natural history of thirolipomatosis is unknown and its association with tumorous and nontumorous lesions is possible. For that, further follow-up is required.[10]

4. Conclusion

Fat containing lesions of thyroïd include not only non-neoplastic lesions but also neoplasms, including an occasional malignant one. Because of the rarity of thyroïd fat-containing lesions, confusion in differential diagnosis may occasionally occur. Therefore, thyroïd lipomatosis should be kept in mind.

Conflict of interest

None.

References

1. Kitagawa W, Kameyama K, Tamai S, et al. Adenolipoma of the thyroid gland: report of a case. *Surg Today*. 2004;34:593–596.
2. Dombale Vijay D, Javalgi Anita P, Kalburgi. Symmetric diffuse lipomatosis of the thyroid gland. *J Clin Diagn Res*. 2011;5(4):867–868.
3. Ge Y, Luna MA, Cowan DF, Truong LD, Ayala AG. Thyrolipoma and thyrolipomatosis: 5 case reports and historical review of the literature. *Ann Diagn Pathol*. 2009;13:384–389.
4. Gonulalan G, Esen H, Eriko_lu M, Cakir M. Thyroid lipomatosis. *Intern Med*. 2012;51:3383–3385.
5. Pradeep PV, Kumar R, Ragavan M, Ramakrishna BA. Diffuse lipomatosis of thyroid with hyperthyroidism. *J Postgraduate Med*. January–March, 2010;56(1):35–36.
6. Gupta R, Arora R, Sharma A, Kumar Dinda A. Diffuse lipomatosis of the thyroid gland: a pathologic curiosity. *Indian J Pathol Microbiol*. 2009;52:215–216.
7. Esin Çelik Z. Mature fat containing thyroid lesions: report of five cases and review of the literature. *Eur J Gen Med*. 2015;12(4):353–355.
8. Vijay Rama Sanuvada R, Kumar Chowhan A, Rukmangadha N, Patnayak N, Yootla M, Yadagiri Amancharla L. Thyrolipomatosis: an inquisitive rare entity. *Gland Surg*. 2014;3(4):E6–E9.
9. Vestfrid MA. Papillary carcinoma of the thyroid gland with lipomatous stroma: report of a peculiar histological type of thyroid tumour. *Histopathology*. 1986;10:97–100.
10. Nandyala HS, Madapuram S, Yadav M, Katamala SK. Diffuse lipomatosis of the thyroid gland with papillary microcarcinoma: report of a rare entity. *Indian J Pathol Microbiol*. 2015;58:348–350.
11. Arslan A, Alıc A, Uzunlar AK, Buyu kbayram H, Sarı I. Diffuse lipomatosis of thyroid gland. *Auris Nasus Larynx*. 1999;26:213–215.