Case Report
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Endothoracic goiter as a cause of dyspnea: case report

Abstract

Endothoracic goiter is rare and mostly affects women between the fifth and sixth decade of life. A case of endothoracic goiter is presented in a 63-year-old man who smoked and presented with cough, dyspnea, and easy fatigue. A chest X-ray and CT scan were performed and an endothoracic goiter was diagnosed. A medial sternotomy with total thyroidectomy was performed. The biopsy revealed Thyroid Nodular Hyperplasia with degenerative changes. The patient evolved favorably. The accurate diagnosis helped effective treatment and satisfactory evolution of the patient. Knowledge about this disease contributes to better management of it.

Keywords: Thyroid, goiter, endothoracic, tumor, mediastinum

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Introduction

Thyroid disease ranges from benign processes to cancers, with variable manifestations and normal or altered function of the gland, which makes its study and treatment interesting.[1] The thyroid gland is located in the anterior cervical region, its growth can cause it to extend towards the thoracic region,[2] if more than 50% of the gland is in the mediastinum, it is called endothoracic,[1-3] which represents less than 6% of cases.[2]

Goiter is defined as any enlargement, diffuse or localized, of the thyroid gland.[1] If this increase in volume occurs in a thyroid gland that is more than 50% located in the mediastinum, it is called endothoracic goiter (ETG),[1,3] and they account for 5.8% of all mediastinal masses.[3]

ETG is an entity with a predominant occurrence in women, with a ratio of 3:1. Despite the above, women are 14% less likely to undergo a substernal thyroidectomy compared to men. The most prevalent age is between the fifth and sixth decade of life. This pathology constitutes an entity of variable etiology, in which a significant percentage of patients can present asymptomatically.[4] As most patients with endothoracic goiter do not present symptoms until the gland weighs 3 times or more than the normal gland; This fact causes the condition to be detected late, which makes it a challenge, both in its diagnosis and in its treatment, since the surgical access route is difficult.[1]

ETG can be secondary to various etiologies; however, the most described in the literature is multinodular goiter, since growth towards the thorax is facilitated by the weight of the tumor itself. The main cause of multinodular goiter is iodine deficiency, which generates a progressive enlargement of the mass. The deficiency of this micronutrient causes a decrease in the synthesis of thyroid hormones and with it a progressive compensatory increase in glandular tissue.[4,5]

Most of these nodules are benign, others correspond to cancers (around 5%), some (10%) are functional and present the risk of slowly evolving towards hyperthyroidism. Goiter is symptomatic and presents a risk of complications only in the multinodular stage.[1]

The main clinical manifestations of patients with BET are dyspnea (59%), dysphagia (43%), cough and orthopnea (20%),[4] although other authors consider dyspnea (50%), dysphagia (30%) and dysphonia (13%).[2]

CT with contrast medium is the method of choice for diagnosis, since it allows determining the size and extent of the mass and its relationship with adjacent structures in order to plan the appropriate type of surgical approach. Other complementary studies include: chest X-ray, in which thickening of the upper mediastinum and tracheal deviation or compression could be observed; an MRI to assess surrounding soft tissue involvement and the extent of goiter.[5]

Presentation of the case

A 63-year-old man with a history of arterial hypertension, a heavy smoker, came to the clinic reporting that for the past two weeks he presented dyspnea on mild exertion, fatigue, and cough. On the physical examination of the respiratory system, the patient was with moderate respiratory distress, the vesicular murmur was preserved, hoarse rales or wheezing wasn´t heard, in the cardiovascular system the heart sounds were normal with good tone and rhythm, no murmur.

No presence of edema. Vitals: BP 140/80, HR 98 x min, RR 22 x min.

Complementary exams

ECG: sinus rhythm

Chest X-ray: No pleural effusion or pneumothorax. Both lungs are clear, with no focal lesion. Widening of the superior mediastinum with deviation of the trachea to the left (Figure 1).

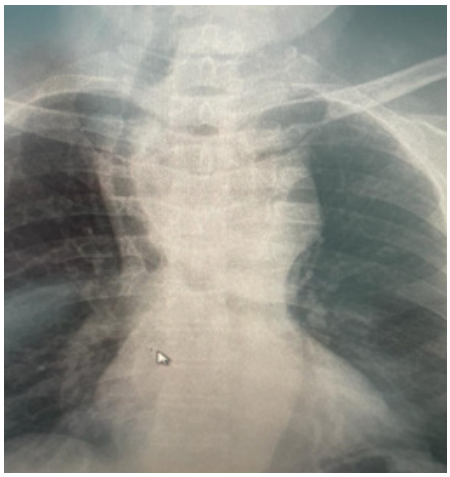

Figure 1 Chest XR.

It is decided to hospitalize the patient for better study and treatment. Chest CT with contrast was requested.

CT scan (Figure 2):

Left thyroid lobe mass 143 x 63 mm measurement with significant retrosternal extension tracheal compression till 7 mm in diameter and right side deviation

Left renal cyst 40 62 mm measurement.

No more significant pathology are detected in the chest and abdomen MD CT scan study.

Clinic Diagnosis: Multinodular goiter with a massive endothoracic extension

Given the patient's symptoms and the size and extent of the thyroid, surgery was performed by medial sternotomy and total thyroidectomy was performed. A thyroid biopsy was indicated.

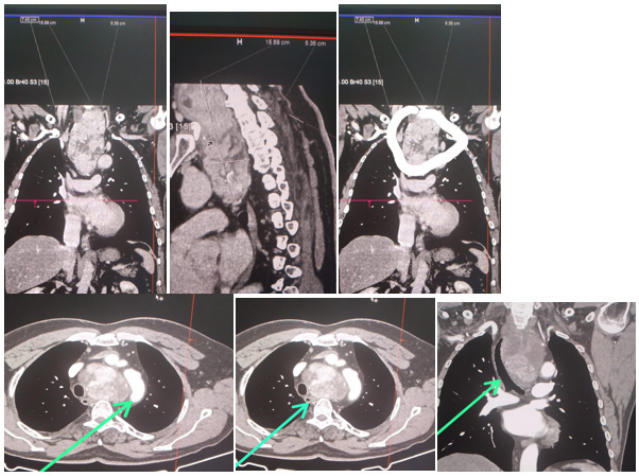

Figure 2 CT scan.

Thyroid biopsy:

The sections show thyroid gland with follicles of variable size and marked enlargement. Hyperplastic thyroid follicles with papillary infoldings lacking fibrovascular cores are identified. The nuclei of follicular cells are round. No significant nuclear atypia is apparent. No nuclear overlap is readily apparent. A thin fibrous capsule is identified. Focal degenerative changes (cysts and hemorrhage) are also seen as well as foci of chronic lymphocytic inflammation, extensive areas of fibrosis and calcification.

Biopsy Diagnosis: Thyroid Nodular Hyperplasia with degenerative changes.

Six months after the operation, the patient showed a favorable evolution.

Discussion

Endothoracic goiter is considered to be one that is partially or totally in the mediastinum and that can be located in the anterior or posterior mediastinum and its incidence is related to multinodular goiter. Diagnosis is fairly easy, mostly with imaging tests.[5]

This disease is more frequent in women than in men and between 50 and 60 years of age.[1] In this particular case, it occurred in a man after 60 years of age, which is rare. This patient underwent initially, for the diagnosis of the disease, in addition to a correct and comprehensive history and an exhaustive physical examination, chest X-ray, and chest CT, achieving a clinical diagnosis of the disease. The main clinical manifestations are related to compressive effects on adjacent structures, especially on the trachea, whose compression and displacement cause coughing, dyspnea, and sleep apnea, or on the esophagus, whose compression leads to dysphagia.[2] The described case was complaining cough, dyspnea, and easy fatigue, due to compression of the trachea.

The treatment of this disease is varied, but since it responds poorly to treatment with thyroxine, surgery is the treatment of choice, and total resection of the gland is preferred, which can, for the most part, be removed by cervical approach, although the thoracic approach can be used in ectopic goiters located posteriorly. In high-risk patients, radioactive iodine treatment may be performed.[1-6]

Coinciding with the reviewed literature, in this case, given the significant retrosternal extension of the thyroid with tracheal compression and deviation to the right, it was decided to perform a surgical approach through medial sternotomy and a total thyroidectomy was performed. Most cases of thyroidectomy for ETG have an excellent prognosis,[4] in this patient the prognosis is favorable, coinciding with the previous approach.

Conclusion

Endothoracic goiter is a rare disease that often manifests with respiratory symptoms. Its accurate and timely diagnosis helps effective treatment and satisfactory evolution by reducing complications. Knowledge about this disease contributes to better management of it. In this particular case, despite having occurred in a man after 60 years of age, which is not the most common, it could be diagnosed and treated on time, improving the patient's quality of life.

Acknowledgments

None.

Conflicts of interest

Authors declare that there is no conflict of interest.

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