Case Report

Ectopic thyroid mass in mediastinum with normal thyroid function and location

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ABSTRACT

There are very few cases of mediastinal ectopic thyroid reported in the literature. An asymptomatic 49-year-old woman with a mediastinal mass is the subject of this report. Mediastinal ectopic thyroids' epidemiology, clinical manifestations, diagnosis, and treatment were also discussed. A mediastinal ectopic thyroid ought to be viewed as a differential finding among all mediastinal masses. Careful extraction is suggested for both the analysis and treatment of this condition in light of its true capacity for harm and pressure on mediastinal structures. The clinical significance of mediastinal ectopic thyroid is demonstrated in this case.

Key words: Ectopic thyroid, Mediastinal mass, Thyroid function

A rare category of ectopic thyroid tissue (ETT), mediastinal ectopic thyroid glands, makes up around 1% of all mediastinal tumors. ETT is rare, with a prevalence of 1 per 1–3 lakhs of the general population [1]. These goiters typically cause compressive symptoms. Only a handful of cases have been reported in the literature. Although an uncommon condition, it should be taken into account while working through the differential diagnosis for any mediastinal masses.

In this case study, a lady who had a retrosternal non-toxic multinodular goiter with non-compressive symptoms is described. This case provides a current understanding regarding the approach to mediastinal mass, its manifestations, and its management.

CASE REPORT

A 49-year-old lady without any prior comorbidity presented with 5 month's history of non-specific chest pain, dull and aching in nature, non-radiating, non-referred, and predominantly over the upper midline of the chest.

On examination, she was vitally stable and afebrile. Local examination of the neck and chest did not reveal any findings. On auscultation, she had normal heart sounds, and air entry was bilaterally equal. There were no adventitious breath sounds noted. There was no tenderness on chest percussion.

Her electrocardiogram and 2D Echo were normal. Her chest X-ray showed upper mediastinal widening. Her high-resolution chest computed tomography (CT) revealed a lobulated solid cystic mass in the anterior mediastinum with the possibility of neoplastic etiology along with differentials of teratoma and thymoma (Figs. 1 and 2). This mass was abutting the arch of the aorta but not compressing any blood vessels. The mass is inferior and distinct from the left thyroid lobe. There was no bone involvement. The lung parenchyma and pleura were normal. Whole body positron emission tomography revealed that a lobulated anterior mediastinal mass lesion is seen with cystic and low-grade fluorodeoxyglucose avid soft-tissue component and also noted with foci of calcification within; the mass measures 6.1×3.4×4.3 cm and SUV max of 2.36. No metabolically active disease was noted anywhere else in the body. A biopsy of the mass was not done as the mass was lying very close to the aorta and pulmonary trunk. Her routine blood investigations, including a complete blood count and thyroid function test, were normal.

Considering superior and anterior mediastinal mass possibilities of thymoma, teratoma, germ cell tumor, substernal goiter, and lymphoma were considered. However, as the mass was separated from the left thyroid lobe, the possibility of substernal goiter was kept less likely.

To get a diagnosis and prevent the onset of pressure symptoms, surgical removal of the mass was planned. Dissection was started at the thymic notch. The mass was isolated from the innominate vein and the artery was separated from the bilateral pleura. Inferiorly, the mass was released from its diaphragmatic attachment. The thymic mass was dissected from below upward along its posterior surface. No great vessel encroachment was found. The thymic mass was removed intact. The pericardium was intact and the bilateral pleural cavity was opened. Hemostasis was achieved and the chest closure was done. The mass was a

Access this article online

Received - 08 June 2023
Initial Review - 22 June 2023
Accepted - 18 July 2023

Quick Response code

DOI: 10.32677/ijcr.v9i8.4102

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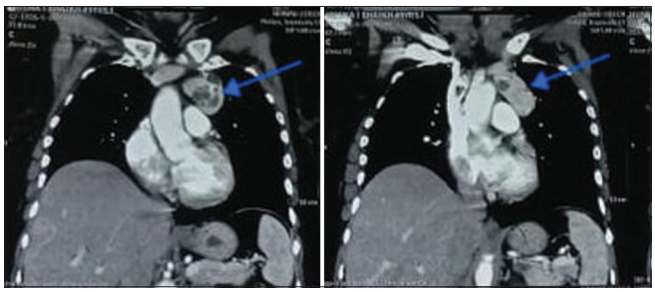

Figure 1: High-resolution computed tomography chest showing anterior and upper mediastinal mass

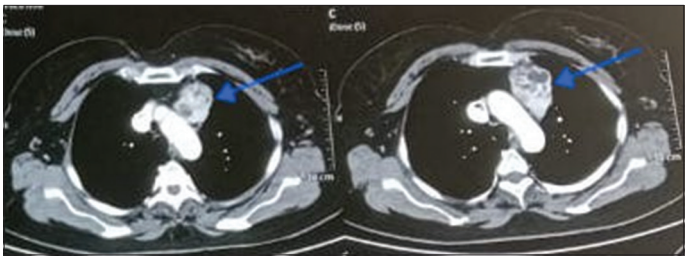

Figure 2: High-resolution computed tomography chest showing anterior mediastinal mass

well-defined oval-shaped, 6.4×5.4×4.4 cm sized solid cystic lesion.

Histopathology revealed a benign multinodular thyroid goiter (which may represent a plunging goiter or a goiter arising from ectopic thyroid tissue (ETT) in the mediastinum) along with benign involuting thymic tissue.

DISCUSSION

The term ETT refers to thyroid tissue that is positioned somewhere other than its typical anatomical place in the neck, close to the trachea, and slightly below the larynx [1]. The aberration that alters the normal embryologic thyroid descent from the primordial foregut floor to its ultimate placement anterior to the trachea is the primary cause of ETT [2,3]. The lingual thyroid is the most common site of ETT which accounts for 90% of cases [1,4]. The pharynx, esophagus, trachea, mediastinum, pericardial sac, heart, breast, lung, duodenum, small intestine mesentery, and adrenal gland are among the rare locations [1,3].

ETT is more commonly seen in females than males, with a F: M ratio of 4:1. It can present at any age, with the predominant age of presentation during childhood, adolescence, and the menopausal period, probably due to the increased demand of thyroid during this period [3]. Various studies have shown ETT with lingual thyroid has a high percentage of hypothyroidism, while most mediastinal ETT cases are euthyroid [1]. However, both hypothyroid and hyperthyroid cases have been reported [5]. It is rare to have ETT in the thorax that is unconnected to the cervical thyroid gland, and only a few cases have been reported in the literature [6].

Thymoma, germ cell tumors, lymphomas, neurogenic tumors, benign cysts, lipomas, oesophageal lesions, paragangliomas, metastases, and mediastinal ETT are among the many diagnostic possibilities for a mediastinal mass [1]. Although radiological imaging procedures including CT scans, magnetic resonance imaging, and ultrasounds can be useful in determining the extent of ETT, technetium-99 m thyroid scanning is the best diagnostic procedure [4]. A tissue biopsy can be performed using many methods, such as CT-guided fine-needle aspiration, endobronchial ultrasound-guided transbronchial needle aspiration, or surgical excision.

Mediastinal ectopic thyroid tumors are frequently asymptomatic and discovered incidentally on imaging examinations [1]. Compressive symptoms such as dyspnea, coughing, trouble swallowing, hoarseness of voice, and chest discomfort might appear in some cases [1].

Due to the uncommon occurrence of this entity and the varied clinical course, there is currently no agreement on the best treatment approach for the therapy of mediastinal ectopic thyroid [2]. Because of the significant risk of tracheal compression and the low morbidity of surgery, surgical intervention should always be taken into account when determining the nature of the mediastinal mass, even for elderly people [4]. Surgical excision of mediastinal masses is done either through thoracotomy or sternotomy, according to the location of the mass. Patients who do not have a normal functioning thyroid gland require hormone replacement with levothyroxine postoperatively [5]. Even though a cervical approach may remove 97% of mediastinal goiters, imaging may occasionally show that a sternotomy is necessary for a full and safe resection, with current studies showing that the rate of sternotomies is roughly 3–8% [6]. Given the possibility of ETT developing into a malignant condition, surgery is a wise decision [7].

In our case, the patient was a young woman who was asymptomatic until the mass was accidentally discovered. Through a sternotomy incision, a mediastinal mass excision was performed to reach the anterior mediastinum and extend into the neck to release the tumor from the trachea. The histopathology revealed benign ETT. The patient had a normal thyroid function test with a normal anatomical location of the thyroid gland.

CONCLUSION

Ectopic mediastinal thyroid tissue is an uncommon clinical phenomenon that needs to be taken into account when determining the differential diagnosis of any mediastinal tumor. If there is a strong suspicion of ETT, diagnostic imaging using a radioactive iodine uptake scan and thyroid function should be evaluated before surgery. Post-operative thyroid function testing should be done on all patients with confirmed ETT.

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Funding: Nil; Conflicts of interest: Nil.

How to cite this article: Madavi A, Kor A, Thakur LS, Tayade K. Ectopic thyroid mass in mediastinum with normal thyroid function and location. Indian J Case Reports. 2023;9(8):229-231.