

Large Goiter: A Case Report

Erhan Onalan¹, Nevzat Gozel^{2*}¹Ercis State Hospital, Department of Internal Medicine, Van, Turkey²Firat University, Medical Faculty, Department of Internal Medicine, Turkey

*Corresponding author

Nevzat Gozel

Email: drngoziel@hotmail.com

Abstract: Substernal goiter is a thyroid gland pathology that occupies a space in the thorax and may cause compressive symptoms, often with enlarged cervical goiter extending to the upper mediastinum. It is also known as mediastinal, intrathoracic or retrosternal goiter. Substernal goiter is a condition that should be treated surgically, considering that it may lead to compressive symptoms, create potential airway obstruction, as well as the likelihood of malignancy. In our case, a 103-year-old woman patient had cervical mass, respiratory distress and chest pain complaints. Reaching giant dimensions in the midline of the neck (25x20 cm), vascular, partly cystic, displacing bilateral carotis and jugular vein with pressure to the lateral, and extending to the retrosternal area, the thyroid tissue has been raised concern and the case was presented in the context of the literature.

Keywords: Goiter, substernal, mediasten

INTRODUCTION

Goiter is the term for enlargement of the thyroid gland for any reason other than malignant diseases. Although most goiters are in the neck region, 3% to 17% of them extend into the thorax. Intrathoracic goiter (ITG) is defined as an enlarged thyroid mass in the thoracic inlet. On the other hand, substernal goiter is defined as a goiter in which at least 50% of the thyroid gland enlarges below the substernal notch [1]. Substernal goiter is caused by the downward growth of cervical thyroid tissue and extension to the superior mediastinum. Enlarged thyroid gland, intrathoracic negative pressure and gravity are important factors in the formation of substernal goiter [2]. Intrathoracic goiters are divided into two groups. The first of these is called true ITGs. ITGs in this group are congenitally located in the mediastinum, and have no direct association with the cervical thyroid gland. This type is very rarely seen [3]. The second type comprises secondary ITGs. They develop with the thyroid tissue being enlarged downward the superior mediastinum along facial plane [4]. Although ITGs are rarely seen, they constitute a significant percentage of anterior mediastinal masses [5]. Substernal goiter is suspected with upper mediastinal width or tracheal deviation detected incidentally on chest radiographs. Diagnosis is made by computed tomography (CT), magnetic resonance imaging (MRI) and scintigraphic examinations [1, 6]. Calcification of goiter tissue is not common. When detected, calcification mostly may appear as dotted or, very rarely, in the shape of a ring [6]. The case of intrathoracic goiter surrounding the neck, extending to the mediastinum thus complicating

respiration, and leading to the formation of mediastinal calcification was evaluated in the light of literature.

CASE REPORT

A 102-year-old woman patient applied to our clinic with complaints of cervical mass, difficulty in breathing, and neck and chest pain. The cervical mass in the patient's neck was first recognized 25 years ago. And, it continued to grow. Her complaints of difficulty in breathing have increased over the last two years, to the extent of limiting daily activities. Physical examination of the patient revealed a solid mass of 25x20 cm in size surrounding the neck (Figure 1).



Fig-1: The appearance of the patient

The mass ranged from the submandibular area to the suprasternal notch and then to the

sternocleidomastoid muscles in laterals. The oropharyngeal examination was normal. USG examination of the neck revealed a significant increase in the size of thyroid gland surrounding the neck like an arch, which can be clearly observed in the midline of the neck by an external inspection, and there were non-uniform and local cystic-necrotic degeneration areas with noticeable parenchyma. It contains nodules of different size and characteristics. The thyroid function tests were TSH: 44 (N: 0.38-5.33), FT3: 3.44 (N: 2.88-4.5), FT4: 0.08 (N: 0.61-1.12) ANTI-TPO AB: 1, 2 (N: 0-9). CT examination of the neck revealed a higher-

than-normal axial size of the left thyroid lobe to be approximately 92x71 mm at the widest side, with the widest side of the right thyroid gland being approximately 84x59 mm. Both thyroid glands that enlarged on the left side exerts significant compression on the trachea, esophagus, and adjacent vascular structures. The left thyroid gland extends to the inferior thoracic inlet. In addition, multiple heterogeneous and hypodense nodular appearances were observed in both thyroid glands, accompanied by millimetric amorphous calcification. (Figure 2)



Fig-2: Multiple heterogeneous and hypodense nodular appearances accompanied by millimetric amorphous calcification.

The patient has been told to have an operation before but she has refused it. The patient has applied to the hospital again due to increased respiratory distress. With current findings, the patient was advised admission to hospital for planning the operation after the current state of hypothyroid became euthyroid following the treatment; however, neither the patient nor her relatives confirmed the operation. The patient with normal ECG and without anemia in the hemogram was recommended to receive levothyroxine 100 mcg at 1x1/2 over the first week, followed by administering at 1x1 and, to check her PLK activity after 3 weeks.

DISCUSSION

Our patient has not presented any symptoms for about 20 years. It is usually found incidentally on chest radiographs. However, it may present with various symptoms and findings as well. In approximately 83% of the cases, the mass may be palpable on the neck [7]. A mass of 25x20 cm was

clearly visible in our patient during the examination. It may cause acute respiratory compression findings due to bleeding into the tumor or goiter, shortness of breath, coughing, vomiting, stridor, night cough, tracheal deviation, Vocal cord paralysis, swallowing difficulty, superior vena cava or subclavian venous compressive findings, head, neck or chest pain, weight loss, and thyrotoxicosis [2-7]. The symptoms of our patient included shortness of breath, swallowing difficulty, and neck and chest pain. It is apparent from our case that multinodular goiter may reach a very large size, extending to mediastinum and thus causing respiratory distress as substernal goiter. The treatment for such cases is complete surgical excision after achieving euthyroid stage in the laboratory.

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