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Simple Goiter with Left-Sided Retrosternal Extension and Autoimmune Thyroiditis

Rajnish Mehrotra*

Department of Biomedical Engineering, University of Pisa, Pacinotti, Pisa, Italy

***Corresponding author:** Rajnish Mehrotra, Department of Biomedical Engineering, University of Pisa, Pacinotti, Pisa, Italy. E-mail: mehotra@gmail.com

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Description

Essential Expansion of the thyroid gland (goiter) is a common issue in clinical practice and consists of a single nodule or multinodular (MNG). MNG can vary in symptoms, from no symptoms to life-threatening manifestations. Iodine deficiency, genetic predispositions and environmental factors, and autoimmune diseases have been shown to result in MNG. Herein, we present a unique case of a 64-year-old male who was diagnosed with MNG associated with autoimmune thyroiditis and immediately scheduled for hemithyroidectomy to relieve pressure and compression symptoms on the trachea and esophagus, and to correct hyperthyroidism caused by the thyroid mass. After an uneventful postoperative recovery, the patient was discharged home a few days after his surgery and his follow-up in the outpatient clinic continued for 12 months without any related complaints and the chest X-rays remained normal. Ear, nose and throat, Otolaryngology, Thyroid disease, Endocrinology, Head and neck surgery, Surgery, Thyroiditis. Autoimmune thyroiditis diseases (AITD) are the most prevalent organ-specific autoimmune diseases.

The main AITDs are Graves' disease and Hashimoto's thyroiditis, both of which reflect the loss of immunological tolerance and share the presence of cell and humoral immune response against antigens from the thyroid gland with reactive T and B cells infiltration, auto bodies generation, and, subsequently, the development of clinical manifestations. The etiology of this immune response remains unknown, the current paradigm is that AITDs are complex diseases in which susceptibility genes and environmental triggers act in concert to initiate the autoimmune response to the thyroid. The diagnosis is often intriguing and may take time until later in the disease process. However, early in the course of the disease, patients may reveal signs, symptoms, and laboratory findings of hyperthyroidism or normal values. As the disease slowly progresses, the thyroid gland becomes much enlarged and developed a condition so-called goiter. Goiters have different causes, depending on their type simple, endemic, or sporadic. Multinodular goiter (MNG) is among the most frequent thyroid gland disorders, which often arises from the genetic heterogeneity of thyroid follicles and has a nodular thyroid appearance. Although the clinical characteristics of MNG diverge, direct compression of the airway and major vessels leading to obstructive sleep apnea (OSA) entails a definitive surgical procedure.

Hemi Thyroidectomy

Describe a unique case report of a male patient who was presented to our department with a 6-month history of dyspnea, mild left neck pain, and swelling with retrosternal extension mainly on the left side. Following some clinical investigations, the male patient was diagnosed with MNG associated with left-sided retrosternal extension and autoimmune thyroiditis. The patient was treated with left hemi thyroidectomy to relieve pressure and compression symptoms on the trachea and esophagus level, and to correct hyperthyroidism. On physical examination, the patient was fully conscious, with a blood pressure of 136/75 mmHg (afebrile), oxygen saturation of 100%, and a heart rate of 105 beats per minute (bpm). His chest was clear, with bilateral air entry with no added sounds. His heart S1 and S2 were normal. His abdomen was soft and lax. His lower limbs had no edema. The patient had a full cervical range of motion and intact muscle power and sensation. The neck revealed a large mass extending bilaterally, mainly on the left side and behind the manubrium. It was not possible to feel the lower border of the gland.

The ultrasound examination showed an enlargement of the whole thyroid gland mainly on the left side with a right lobe of 5 × 4 cm and a left lobe of 7 × 5 cm suggesting the diagnosis of MNG, features of the nodules were iso-hyperechoic, surrounding hypoechoic halo, spongiform/honeycomb pattern, also peripheral vessels were noted, showing intranodular vascularity (hyper functioning nodules). Serial sections showed multiple colloidal nodules of 1–5 cm. Furthermore, the chest X-ray revealed a large superior mediastinal mass; a soft tissue density lesion (mainly on the left side) compressing the trachea toward the right side. Fine needle aspiration biopsy revealed benign result. Tc-99m pertechnetate and radioiodine demonstrate an enlarged gland, with heterogeneous (patchy) uptake. The patient was scheduled for hemi thyroidectomy to relieve pressure and compression symptoms on the trachea and esophagus, and to correct hyperthyroidism caused by the thyroid mass. Informed consent was obtained from the patient before his surgery. Under general anesthesia and nerve monitoring, the patient underwent a left hemithyroidectomy through a transverse collar neck incision of 2 cm above the sternal notch.

Dissection of the Platysma

The surgical procedure was performed through dissection by layers: the raising of the superior and inferior flaps, dissection of the platysma, dissection through the linea alba of the strap muscles, dissection of the left MNG lobe, dissection toward the superior and inferior vessels, ligation of the superior and inferior medial vessels, the recurrent nerve was seen to be intact, dissection of the lower part of the goiter in the mediastinum, and final closure by layers. Immediately after surgery, the patient was extubated in the operating room. Post-operatively, thyroid function test level was normal so the patient did not need thyroid replacement therapy. The postoperative recovery was uneventful. The patient was discharged home a few days after his procedure without any complications and maintained simple analgesia. Follow-up in the outpatient clinic continued for 12 months without any related complaints and the chest X-rays remained normal.

Most nodular goiters are benign and have a retrosternal component in the neck. A careful clinical and ultrasonographic examination can be performed for cervical goiters and only around 2% of people will require surgical access other than traditional cervical care combined

with sternotomy, manubriotomy, or thoracotomy. Fine needle aspiration biopsies are performed in some suspected areas, with malignant nodule determination contributing to patients' selection for surgery. Surgeons performing thyroid surgery should administer full thyroid medications for retrosternal goiters with related medical comorbidities, to avoid complications and the cervical approach is effective in most cases. Most cases of RSG are benign and may arise due to iodine deficiency, goitrogen ingestion, and familial types of goiter retained in the neck. Although 40% of RSG may be asymptomatic, many patients complain of pressure symptoms caused by compression of the surrounding tissues, such as the airway (which is most alarming), esophagus, and neurovascular or thyrotoxic structures. A positive Pemberton sign suggesting superior vena cava obstruction may also be noticed. Sternotomy may be required for complete and safe excision of the mediastinal mass to achieve decompression of the surrounding structures and to prevent hemorrhagic complications if a cervical incision is performed. In our unique case report, the 64-year-old male patient who diagnosed with MNG with RSG extension mainly on the left side and an autoimmune thyroiditis, was treated with left hemithyroidectomy to relieve pressure and compression symptoms on the trachea and esophagus level and to correct hyperthyroidism. The patient was discharged a couple of days after his surgery without any postoperative complications and his follow-up in the outpatient clinic continued for 12 months without any related complaints and the chest X-rays remained normal.