

# A Case Report on Giant Thyroid Cyst with Critical Airway Compression

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## Case Report

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## ABSTRACT

Thyroid nodules are nodules (raised patches of tissue or fluid) that regularly develop within a thyroid gland that is otherwise healthy. Thyroid tumours can be hyperplastic or tumorous, but only a small percentage of them are cancerous. Small, asymptomatic nodules are prevalent and go unreported most of the time. Thyroid nodules with cystic component are common and the vast majority of them do not cause symptoms. Their neck location, close to airway and vascular structures, makes them a potentially life-threatening condition if they become bigger or suffer from an acute haemorrhage. In this case report we expose the case of a twenty-two year old man who went to our emergency service suffering from odynophagia and neck swelling. He was diagnosed with giant thyroid cyst and critical tracheal compression. Initially, in order to relieve symptoms, we carried out two ultrasound-guided aspirations; later, as final treatment, the patient underwent thyroid lobectomy. He progressed successfully without postoperative complications. In our experience, surgery is an effective and definitive treatment to consider in cases for big thyroid cyst in young patients.

## INTRODUCTION

Thyroid disease is a medical illness that affects the thyroid gland's ability to operate. Thyroid nodules are most commonly produced by an excess of normal thyroid tissue. The source of this excessive growth is usually unknown;

however it has a strong genetic component. The thyroid gland is an endocrine organ that generates thyroid hormones that pass through the blood to regulate many other organs. These hormones promote energy consumption, baby growth, and childhood development in the body.

Thyroid nodules are lumps that form in the thyroid gland. It can be solid or liquid-filled. A single nodule or a cluster of nodules can exist. Thyroid nodules are relatively common, and only a small percentage of them are malignant. This guarantees that gas exchange between a patient's lungs and the atmosphere is unhindered. This is performed by either clearing an obstructed airway or preventing airway obstruction in situations like anaphylaxis, the obtunded patient, or medical sedation. The tongue, foreign objects, the tissues of the airway, and body fluids such as blood and gastric contents can all clog the airway (aspiration). Basic and advanced airway management are the most popular classifications.

More than 90% of thyroid nodules are harmless (noncancerous). The majority of thyroid nodules are benign and cause few symptoms. It is also possible to have a thyroid nodule and is not aware of it. Person can notice any symptoms until it becomes large enough to press against windpipe. Many thyroid nodules are identified through imaging techniques (such as a CT scan or an MRI scan) that were originally performed to diagnose. Thyroid nodules are very frequent in young adults. They are usually first discovered by a routine physical examination or by chance during the investigation of an unrelated condition.

Thyroid nodules with cystic component are quite common, reaching even more than 40% of the total nodules depending on the series [1]. A large proportion of them do not produce symptoms and they are usually diagnosed after a self-patient physical examination or in images taken for other reasons. In their evaluation is mandatory to rule out thyroid cancer [2]. Occasionally, they could trigger symptoms as pain, dysphagia or dyspnoea as a consequence of compression of surrounding structures due to acute haemorrhage or progressive growth [3,4].

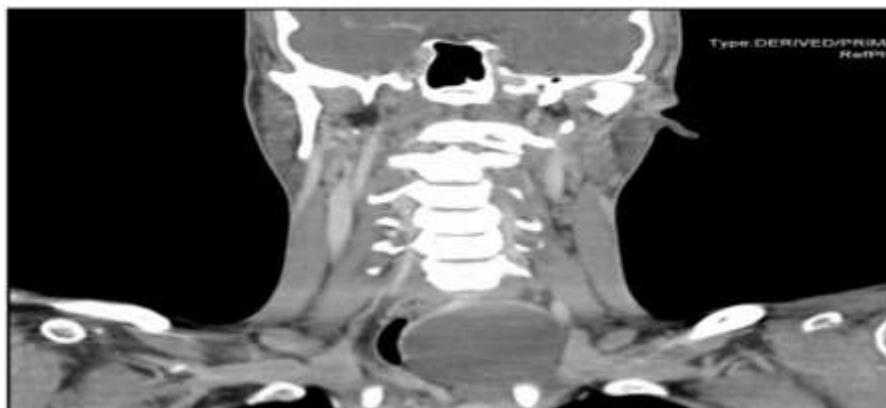
### CASE PRESENTATION

Man of twenty-two years old with history of type one diabetes, who came to our emergency services reporting three days of odynophagia and neck swelling. On physical examination he was eupneic (oxygen saturation 98%) and a lump on his neck was appreciated (Figure 1). Given the findings, we did an urgent CT scan that showed a 7.6 centimetres cyst nodule dependant of the left thyroid lobe (Figures 2 and 3). The cyst displaced the carotid artery and the jugular vein and caused a 6 millimetres tracheal stricture. The same day, we carried out an ultrasound-guided aspiration getting 150 millilitres of colloid material and obtaining an improvement of the symptoms. The patient was admitted for further evaluation and planning definitive treatment. Vocal cords were mobile in indirect laryngoscopy, there were no other lesions in right thyroid lobe and the patient was euthyroid.

**Figure 1.** Neck swelling in patient with thyroid cyst.



**Figure 2.** Coronal views of trachea stricture and thyroid cyst in first CT scan.

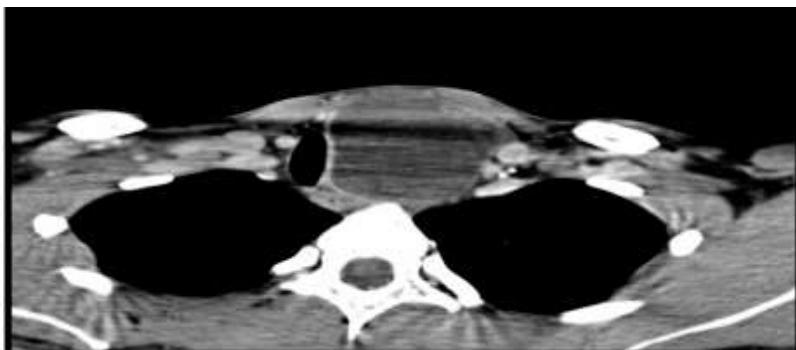


**Figure 3.** Axial view of trachea stricture and thyroid cyst in first CT scan.



Due to the reappearance of cervical swelling 4 days later, we performed a new CT scan. It showed a 5.6 centimetres cyst and 10 millimetres tracheal stricture, thus a second ultrasound-guided aspiration was conducted extracting 70 millilitres (Figure 4). Finally, two days later, a left thyroid lobectomy with intraoperative laryngeal neuromonitoring was carried out (Figures 5 and 6). The patient did not present postoperative complications and was discharged 24 hours after surgery. The definitive pathology reported a nodular hyperplasia with partial cyst transformation.

**Figure 4.** Axial view of trachea stricture and thyroid cyst in second CT scan previous to the second ultrasound-guide aspiration.



**Figure 5.** Cyst in left thyroid lobe during surgery.



**Figure 6.** Specimen after left thyroid lobectomy.



## DISCUSSION

Thyroid nodules with cyst component rarely become a life-threatening condition [5]. However, due to their location in the neck, patients with big lesions or acute cyst haemorrhage are at risk of airway, oesophagus or vascular structures compression [6,7]. Therefore, special follow up should be considered.

In the case reported, the patient did not show respiratory insufficiency even with the reduced trachea diameter. This evidence indicated a gradual growth of the cyst. In this scenario, the patient was able to tolerate critical airway compression but the collapsed oesophagus probably triggered the odynophagia.

With regards to the treatment of this type of lesions, a large number of interventional approaches have been described during last decades but none of them has become an absolute gold standard. Some of the most popular are: aspiration, ethanol ablation, radiofrequency, or sclerosing [8-11]. Initially, two aspirations were carried out in four days in order to relieve the symptoms. However, the rapid refilling, the big size of the cyst and the young age of the patient forced the need to consider a more definitive solution.

In a multidisciplinary team with endocrinologist, radiologist and pathologist a consensus was reached in performing a surgery [12]. It was considered that a left thyroid lobectomy would be the optimum treatment with the objective to remove the cyst, rule out cancer, relieve symptoms completely and preserve thyroid and parathyroid function.

### **CONCLUSION**

If patient nodule isn't malignant or creating issues, endocrinologist may determine that it doesn't require any treatment. Our experience in treating a big thyroid cyst in a young male with surgery has been successful. However, more studies with a bigger volume of patients are necessary to establish the best approach to manage this pathology. Thyroid nodules are very frequent in adults. Almost half of all people have had one, usually first discovered by a doctor during a routine physical check or by chance while investigating an unrelated condition.

### **DECLARATIONS**

#### **Ethics approval and consent to participate**

Not applicable

#### **Consent to participate and for publication**

The patient has been told about the use of his data for academic purpose. He showed his agreement and he signed the proper informed consent.

#### **Conflict of Interest**

The authors declare that they have no conflict of interest.

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#### **Availability of data and material**

All data underlying the results are available as part of the article and no additional source data are required.

#### **Code availability**

Not applicable.

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