

## HEMATOMA AFTER FINE-NEEDLE ASPIRATION BIOPSY OF RECURRENT MEDIASTINAL GOITER

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### ABSTRACT

Mediastinal recurrent goiter is a relatively rare finding with a benign nature, leading to dysphagia and dyspnea. Imaging methods are of paramount importance for the diagnostic process, and surgery is treatment of choice. Herein, we present a case of a 71-year-old woman with complaints of shortness of breath and easy fatigue, in which a fine-needle aspiration biopsy was performed in an endocrinology department. One day later, shortness of breath, inspiratory stridor and dysphagia for solid foods appeared. A complete thyroidectomy was performed through cervical approach. Surgical treatment in such cases is indicated as a matter of urgency and should be performed as soon as possible after diagnosis.

**KEYWORDS :** recurrent mediastinal goiter, complete thyroidectomy, fine needle aspiration biopsy, haematoma.

### INTRODUCTION

Mediastinal goiters are usually diagnosed in older women [1]. Mediastinal recurrent goiter is a relatively rare finding with a benign nature that should be diagnosed properly by imaging and histological manners [2]. Complications of each biopsy technique require urgent verification and surgical treatment [3]. Herein, we present a case of a 71-year-old woman with recurrent mediastinal thyroid goiter, which was complicated during fine-needle aspiration biopsy and successfully treated by total thyroidectomy.

### CASE STUDY

A 71-year-old woman with mediastinal goiter was admitted to an endocrinology clinic at another medical institution due to shortness of breath. The patient underwent surgery for cervical nodular goiter 16 years ago. An enlarged right lobe of the thyroid gland was observed and a transcutaneous fine-needle aspiration biopsy was performed, followed by shortness of breath, inspiratory stridor, and solid food dysphagia. During the physical examination, there was mild pain in the area of the puncture. There were no abnormal laboratory results including in TSH, FT3, FT4. Immediately, a roentgenography of the lungs and mediastinum was performed (Figure 1) and a mass in the upper mediastinum was observed.

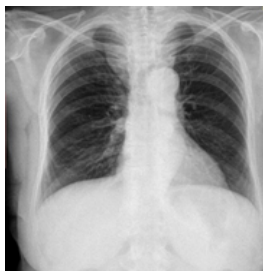


Figure 1: Roentgenography of the mediastinum and lungs

A computed tomography (CT) revealed (Figures 2 A, B and 3) thyroid right lobe located through the upper thoracic aperture into the chest for 35 mm. In the upper pole of the right lobe in the area of the puncture was visualized a 5 cm long hyperdense area with hemorrhagic component and a single

post-procedure air bubble. The mediastinum was dislocated to the left. Trachea was compressed and dislocated to the left of the right lobe of the thyroid gland with stenosis of the lumen up to 5 mm. Only one paratracheal lymph node was enlarged, 17/11 mm in size.



Figure 2 A: CT cross section of the mediastinum with retrosternal evolution, hematoma (arrow), compression of the trachea and esophagus

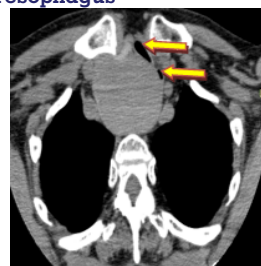


Figure 2 B: CT cross section of the mediastinum with retrosternal evolution, hematoma, compression of the trachea and esophagus (arrows)

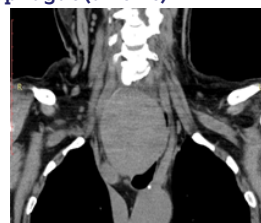


Figure 3: CT coronary section of the mediastinum with hematoma and compression of the trachea and esophagus

The patient was urgently admitted at the Department of Thoracic Surgery. During flexible fibrotracheobronchoscopy we observed, that the two true vocal cords were in the median position, with the right one oscillating slightly by phonation without closing the rhyme. A compressive narrowing of the posterolateral wall of the trachea was seen (figure 4). The stenosis began from the first tracheal ring and was 3 cm long. In this area, the mucosa was highly hyperemic due to external pressure.



**Figure 4: Fibrotracheobronchoscopy: Compressive narrowing of the trachea**

The patient was considered for surgical treatment. After a Kocher cervicotomy and incision of the cervical linea alba, massive adhesions from the previous operation with an extremely unclear anatomy were seen. A debridement and transection of the prethyroid muscles to the right followed. A slightly dense formation with dimensions of 80/65 mm, originating from the right lobe, was reached (figure 5).

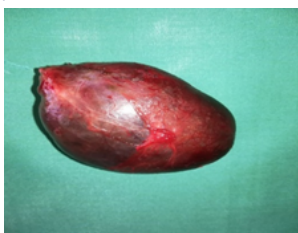


**Figure 5: Formation of the right thyroid lobe after cervicotomy, debridement and dissection of the prethyroid muscles to the right with a**

The formation descended into the mediastinum paratracheally and retroesophageally and pushed the trachea and esophagus to the left, the innominate vessels ventrally, and the right common carotid artery to the right. After mobilization and luxation of the formation, we performed total thyroidectomy with a harmonic scalpel (figure 6 and 7).



**Figure 6: Luxation of recurrent mediastinal goiter in the operative field.**



**Figure 7: Surgical specimen**

By cutting the specimen, we observed a colloidal-nodular goiter. The histological result confirmed the diagnosis. The patient was discharged on the 5th postoperative day with L-Thyroxin replacement therapy. 3 months later the patient was followed-up and had no complaints.

## DISCUSSION

The majority of mediastinal goiters are diagnosed after the age of 60 predominantly in women (female:male ratio of 3:1) [1]. After thyroid resection, intrathoracic goiter is detected in 3% to 20% of patients [4]. The natural development of thyroid mass is characterized by progressive growth, including to the mediastinum in the form of mediastinal and intrathoracic tumors [5]. Mediastinal and intrathoracic goiters are rare findings and their treatment is surgical [3]. They are challenging and high-risk entities that can cause serious technical intraoperative difficulties [6]. In our clinical case, we present recurrent colloid goiter with hemorrhage as a complication after fine-needle aspiration biopsy. Computed tomography is a main diagnostic modality that establishes the formation and determines its exact location and relationship to adjacent structures and vessels. Preoperative laryngoscopy or bronchoscopy determines the condition of the vocal cords, especially when undergoing thyroid surgery. Given the dysphagia and possible compression of the esophagus, it is also appropriate to perform fibroesophagoscopy or contrast esophagography to rule out infiltration, especially in malignant mediastinal currents. We have not performed upper endoscopy due to the strengthening of the stridor and the need for urgent surgery. Thyroid fine-needle aspiration biopsy under palpation or ultrasound control is the procedure of choice in diagnosing thyroid nodules as it is easy to perform with high accuracy and low cost [2, 7]. If possible, transcutaneous ultrasound-guided transthoracic true cut biopsy is also appropriate [8]. Ultrasound-guided transcutaneous core needle biopsy for mediastinal lesions is at risk for hemorrhage, especially in patients with vena cava superior syndrome [9]. Ultrasound-guided fine-needle aspiration biopsy of the thyroid gland continues to play a central role in the study of patients with thyroid nodules [10]. Moon W-J et al recommended fine-needle aspiration biopsy of any suspected for malignancy nodules if the nodule is larger than 5 mm [11]. In our opinion, in cases with imaging data (ultrasound and CT), indicating benign mediastinal recurrent goiter especially in the presence of complaints, it is appropriate to approach surgical treatment without prior biopsy. Moreover, fine-needle aspiration biopsy provides only cytology results. However, surgical treatment is indicated for recurrent goiters, especially in complicated cases after biopsy. Complete total thyroidectomy is a difficult high-risk technique and is performed mainly by cervicotomy [12]. In rare cases, combined accesses are required. Common complications of surgical treatment are palsy of the recurrent nerve, tracheomalacia, dysphonia, laryngeal edema, hypocalcemia, nausea, vomiting etc. [4].

## CONCLUSIONS

Hemorrhages are common complications of both fine-needle aspiration biopsy and cutting biopsy needles of the thyroid parenchyma. Imaging, and in particular CT, are crucial for the proper diagnosis. Surgical treatment in such cases is indicated as a matter of urgency and should be performed as soon as possible after diagnosis.

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