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Case Report

Video-Mediastinoscopy Assisted Approach for Intrathoracic Goiter Resection

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Abstract

Introduction: Mediastinal goiters (MG) are slow-growing tumors that present progressively extension into the thoracic inlet involving the compartments of the mediastinum. Up to 40% of MG are asymptomatic and usually incidentally diagnosed. The cervical-mediastinal masses have an absolute surgical indication. There are combined techniques to resect MG, but there are not many publications about cervical approach and video-mediastinoscopy assisted resections, this last technique is a less invasive and low rate morbidity rate procedure. The aim of this report is to communicate the resolution of cervical-mediastinal goiter by transcervical approach assisted by a video-mediastinoscopy.

Case Presentation: A 72-years-old man was referred to our center adducing dyspnea during moderate exercise. He had undergone a right hemithyroidectomy for a thyroid cyst when he was 36 y/o. In a chest X-ray a mediastinal enlargement was found. A transverse cervical incision was made following a previous thyroidectomy scar. The upper pole was released and the rest of the cervical gland was resected from the trachea. After the cervical time was finished, we continued with the dissection of mediastinal component using a video-mediastinoscope (Storz). Finally, 12fr drainage was placed in the mediastinum. The patient hadn`t any intercurrence and hospital discharge was given on the second postoperative day.

Discussion: Intrathoracic goiters are a rare entity, but they are prevalent in patient that previously had have a hemithyroidectomy. In recent years, the transcervical approach with mediastinoscopic assistance has been suggested in some circumstances to avoid sternotomy for the treatment of intrathoracic goiters. But there is a lack of evidence in the literature that confirms that this technique is better than previous used ones. This technique requires a special surgical ability and training in mediastinoscopy.

Conclusion: Videomediastinoscopy approach is a great option in patients with intrathoracic goiters representing an important tool. It is very well known that minimally invasive surgery provides a low rate of complications and early patient discharge.

Keywords: *Cervical-Mediastinal Goiter; Intrathoracic Thyroid Mass; Goiter; Surgery; Video-Mediastinoscopy Approach*

Introduction

Large cervical-intrathoracic goiter has history of prior thyroid surgery in 10% to more than 30% of patients [7]. Mediastinal goiters (MG) are slow-growing tumors that present progressively extension into the thoracic inlet involving the compartments of the mediastinum. Up to 40% of MG are asymptomatic and usually incidentally diagnosed [1,3,4]. The cervical-mediastinal masses have an absolute

surgical indication [1]. The tendency to enlarge and compress adjacent anatomical structures and the chance of malignancy require surgical excision as the main treatment option even for asymptomatic patients [1,4].

There are combined techniques to resect MG including: cervicotomy, sternotomy, thoracotomy or video assisted thoracoscopic resections, but there are not many publications about cervical approach and video-mediastinoscopy assisted resections, this last technique is a less invasive and low rate morbidity rate procedure [1,2].

Aim of the Study

The aim of this report is to communicate the resolution of cervical-mediastinal goiter by transcervical approach assisted by a video-mediastinoscopy

Case Presentation

Patients History

A 72-years-old man was referred to our center adducing dyspnea during moderate exercise that he related with chronic smoking. He had undergone a right hemithyroidectomy for a thyroid cyst when he was 36 y/o. In a chest X ray demanded for unspecific respiratory symptoms, a mediastinal enlargement was found, computed tomography (CT) scan revealed a great lobed formation that invade mediastinum and the caudal extreme reached the tracheal carina (Figure 1). MG produced mass effect with compression of the trachea, which presented a decreasing in transverse diameter and displaced to the right side as well as the structures of the pharynx and laryngeal structures. No evidence of lymph nodes enlargement.

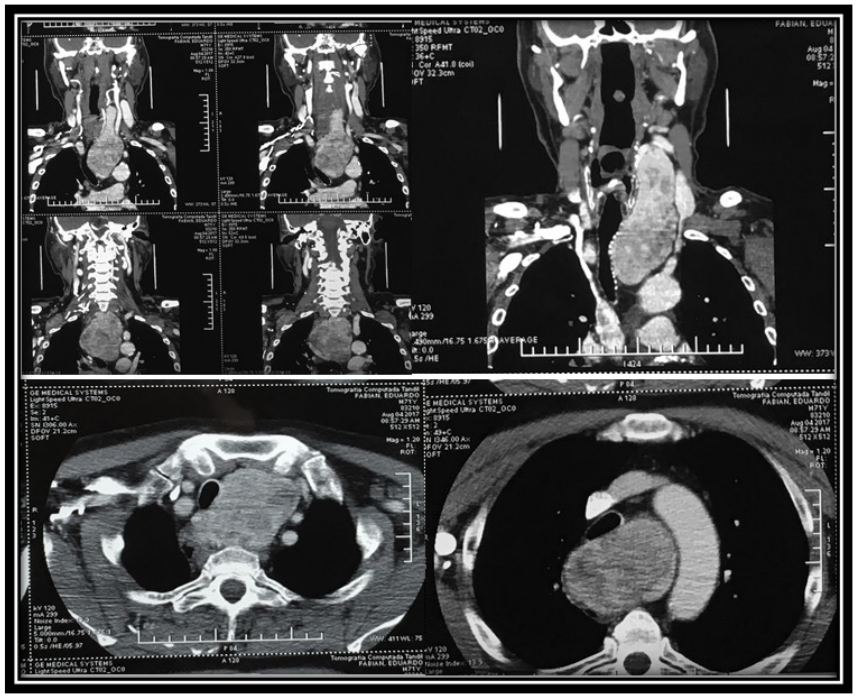


Figure 1: *CT scan coronal slices. Huge cervical mass with intrathoracic extension, partially collapsing de trachea(*) with antero-posterior disposition.*

Before surgery

Analytics of thyroid function were normal but TSH level was low. Tumor markers were normal. Cardiac function was also normal, checked by echocardiogram and electrocardiogram. Fibrolaringoscopy revealed normal cords function. Finally, pulmonary function showed normal values too.

Surgery

A transverse cervical incision was made following a previous thyroidectomy scar. Carefully dissection until access to the thyroid cell, a large thyroid mass with mediastinal extension is recognized. Then the upper pole was released and the rest of the cervical gland was resected from the trachea. During all the procedure the upper and lower parathyroid glands and the recurrent laryngeal nerve on the left side were preserved. After the cervical time was finished, we continued with the dissection of mediastinal component using a video-mediastinoscope (Storz). The goiter was released from the aorta and carotid artery on the left side, from the cava and azygos vein on the right side, pericardium on the posterior side and the innominate venous trunk on the anterior side (Video). All of the structures were separated by using blunt dissection and coagulation with ultrasonic disector so there was no bleeding events. After removing the complete piece by cervical route, an absorbable hemostatic material was left in the mediastinum. Finally, 12fr drainage was placed in the mediastinum (See figure 2 and 3).

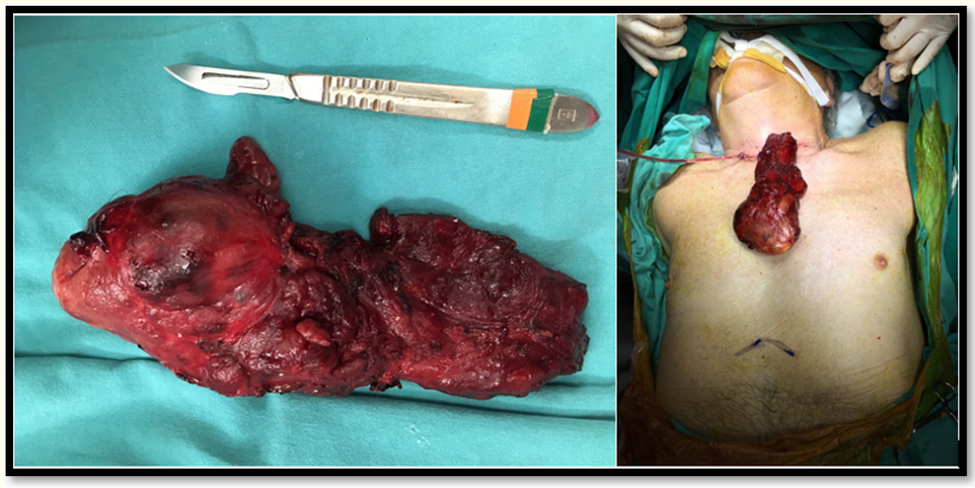


Figure 2: *Surgical piece.*

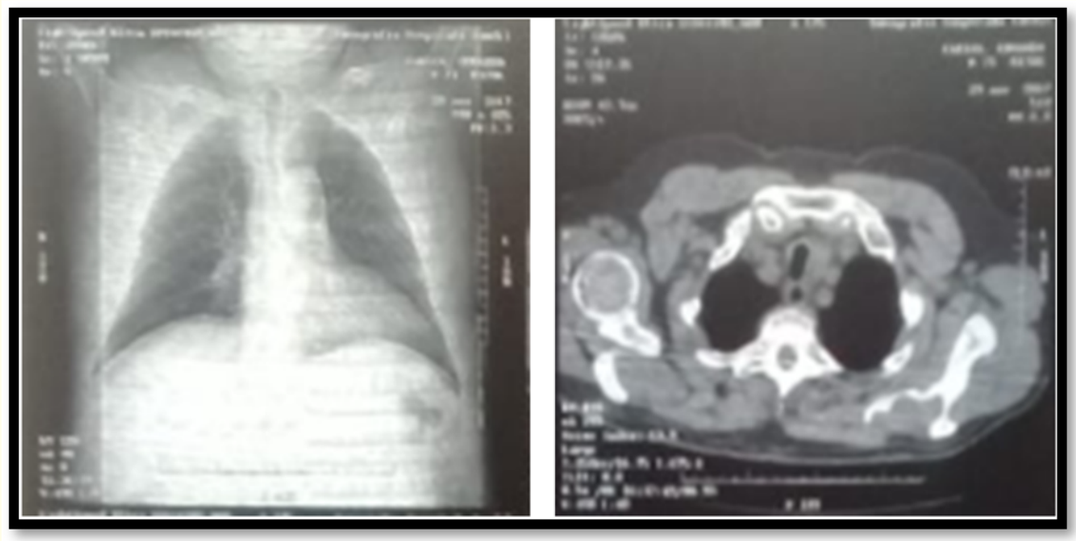
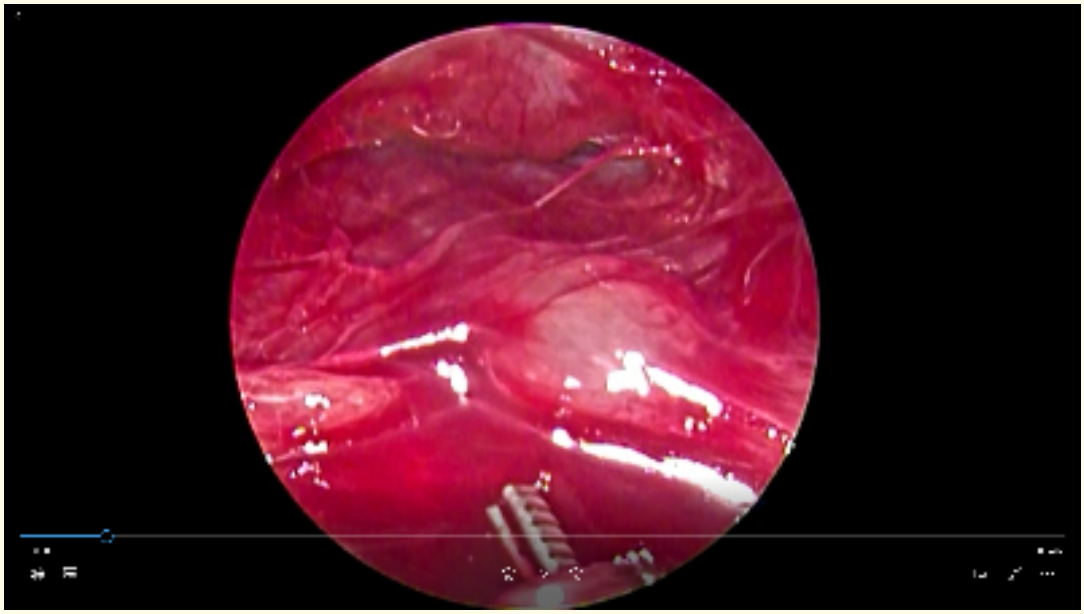


Figure 3: *Post-operative results.*



Postoperative time

After surgery the patient went to ICU non intubated only for 24 hours to guarantee critical care nursing. Six hours after surgery seric calcium and parathormone were checked and the results were normal. Soft diet is tolerated in first postoperative day. The drainage had slight serohematic fluid and extracted in postoperative day 1. The patient hadn`t any intercurrence and hospital discharge was given on the second postoperative day,

Discussion

Intrathoracic goiters are a rare entity, but they are prevalent in patient that previously had have a hemithyroidectomy [1]. There are many definitions of substernal goiter. Some of them include: a thyroid gland extending 3 cm below the sternal notch or extension of the gland below the fourth thoracic vertebra, or when at least 50% of the thyroid tissue is located substernally [1,2,4].

In recent years, the transcervical approach with mediastinoscopic assistance has been suggested in some circumstances to avoid sternotomy for the treatment of intrathoracic goiters [2]. But there is a lack of evidence in the literature that confirms that this technique is better than previous used ones. This technique requires a special surgical ability and training in mediastinoscopy.

Sternotomy or thoracotomy offered the advantage of greater exposure and bleeding control but it has higher morbidity than transcervical approach (wound infection, sternal dehiscence and postoperative pain) [1,5,6].

When we chose mediastinoscopy to complete the thyroid resection, the optic can be inserted through the cervical incision into the mediastinum. The thyroid can be released from the structures that surround it by using mediastinoscopy tweezers and aspirating elements. The blunt dissection with the fingers that we previously used to do during sternotomy now is replaced by the delicate elements that are used with the video mediastinoscope. Also, deep small vessels are easily identified and they can be clipped or burned [2].

Furthermore, after the piece is removed, the mediastinoscope allows to show the cavity left and ectopic gland or persistent bleeding [2].

Patients recovery is faster and the technique is related with less postoperative complications.

Conclusion

Videomediastinoscopy approach is a great option in patients with intrathoracic goiters representing an important tool. It is very well known that minimally invasive surgery provides a low rate of complications and early patient discharge. The fact of being a video-assisted technique improves visualization of anatomical structures facilitating dissection and hemostasis.

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Conflict of Interest

There is no potential conflict of interests related to the exclusive nature of this paper.

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