A Case of Multinodular Goiter with Posterior Mediastinal Extension

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Abstract

Objectives: To review the presentation and management cervicomedial attention with posterior mediastinal extension.

Study Design: Retrospective chart review.

Methods: Case report and review of the literature.

Results: Most cervicomedial goiters are located in the antero-superior mediastinum and can be accessed via a cervical approach or median sternotomy. Goiters with posterior mediastinal extension offer a greater challenge. The present case of a 62 year old man with a two year history of progressive dyspnea, dysphagia, and hoarseness. CT of the neck noted a large multinodular thyroid, each lobe measuring 8-12 cm, with significant extension into the retrotracheal space and tracheoesophageal groove. On flexible bronchoscopy, a left true vocal cord paralysis and 50-75% tracheal compression was noted. The patient underwent a total thyroidectomy. A sternotomy and postero-lateral thoracotomy was necessary to deliver the mediastinal and retrotracheal component. Pathology was consistent with multinodular goiter.

Discussion

Intrathoracic or retrosternal goiters comprise 6 to 30 % of goiters and 10-15% of mediastinal masses. 1-3 75 to 95% are located in the anterior mediastinum, and 90% can be resected via a cervical approach due to the main vascular supply from the inferior thyroid artery. Goiters with posterior mediastinal extension are uncommon, comprising 10-25% percent of intrathoracic goiters.4-5 Occasionally, they are erroneously diagnosed as primary mediastinal masses. Management of substernal goiters with posterior mediastinal extension can be challenging, and often requires a cervical approach in conjunction with a sternotomy and possible thoracotomy.

Conclusions

Cervicomedial goiters are frequently asymptomatic, presenting with persistent cough, wheezing, dyspnea and dysphagia in advanced cases, stridor, superior vena cava syndrome, and hypothyroidism. The incidence of preoperative vocal cord paralysis with multinodular goiter is rare, usually occurring in patients with carcinoma or prior thyrotectomy. Most intrathoracic goiters need to be resected because of the potential for continued growth and compression of important mediastinal structures, and a small incidence of coexisting malignancy. Resection of these retrosternal goiters with posterior mediastinal extension can be challenging, and often requires a cervical approach, sternotomy and thoracotomy. In our case, a postero-lateral thoracotomy was needed in addition to sternotomy to deliver the mediastinal and retrotracheal component.

References


Figure 1. Preoperative chest X-ray noted a large posterior mediastinal mass measuring 9.5 x 7.8 x 12.6 cm with tracheal displacement anteriorly

Figure 2. Computed tomography (CT) of the neck and chest demonstrated a large multinodular goiter with substernal extension. The right lobe measured 6.2 x 4.2 x 8.0 cm, while the left lobe measured 9.6 x 6.2 x 12.0 cm and extended inferiorly into the tracheoesophageal groove posterior to the carina. There was mass effect on the mid and distal trachea with tracheal deviation to the left, superiorly, and to the right inferiorly. A few small nonpathologic cervical lymph nodes were noted.

Case Report

The patient is a 62 year old male with a past medical history of hypertension who reports a two year history of progressive dyspnea and dysphagia. He also reported a change in voice, unknown in duration. Preoperative chest X-ray noted a large posterior mediastinal mass measuring 9.5 x 7.8 x 12.6 cm with tracheal displacement anteriorly (Figure 1). Bronchoscopy revealed a 50-75% compression of the posterior wall of the trachea from the subglottic space to the distal trachea, with tracheal deviation to the right. Computed tomography (CT) of the neck and chest demonstrated a large multinodular goiter with substernal extension. The right lobe measured 6.2 x 4.2 x 8.0 cm, while the left lobe measured 9.6 x 6.2 x 12.0 cm and extended inferiorly into the tracheoesophageal groove posterior to the carina. There was mass effect on the mid and distal trachea with tracheal deviation to the left, superiorly, and to the right inferiorly. A few small nonpathologic cervical lymph nodes were noted (Figure 2). Preoperative fiberoptic flexible laryngoscopy revealed a left true vocal cord paralysis, with the cord in the paramedian position.

Due to the extensive intrathoracic nature of the disease, the surgery was a combined effort of the Otolaryngology and Cardiothoracic Surgery services. The surgical exploration commenced with a standard cervical transcollar incision, whereby the vascular supply to the thyroid was controlled. Blunt dissection was used to deliver the large right thyroid lobe, including a retroesophageal portion. Great care was taken to identify and preserve the right recurrent laryngeal nerve, given the preexisting left true vocal cord paralysis. Once the left thyroid lobe was mobilized down to the thoracic inlet, a median sternotomy was performed. Once the dissection was continued substernally, it was determined that the extensive inferior retrotracheal and retroesophageal extent of the goiter could not be resected completely via an anterior approach. A right posterolateral thoracotomy was performed to deliver the remaining retrotracheal and retroesophageal component. A chest tube was placed, and the patient was transferred intubated to the Cardiologic Intensive care unit for postoperative care. Postoperative flexible fiberoptic laryngoscopy revealed the known left true vocal paralysis and normal mobility of the right true vocal cord.

Pathologic examination of the multinodular goiter. The right and left lobes measured 12 and 9.6 cm respectively in greatest dimension.