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Case Report

A rare case of huge retrosternal goiter

Atish Bansod*, Khushbu Gandhi, Rohan Umalkar, Sarvagya Mishra, Priyanka Tayde, Neha Awachar

Department of Surgery, Indira Gandhi Government Medical College, Nagpur, Maharashtra, India

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***Correspondence:**
Dr. Atish Bansod,
E-mail: atish6267@gmail.com

ABSTRACT

Retrosternal goiter is defined when more than or equal to 50% of the thyroid mass is below the thoracic inlet. A median sternotomy approach is required in selected cases especially those presenting with long standing history and radiological assessment is suggestive of thoracic component larger than thoracic inlet. The case reported by us was a 65 year old lady with huge retrosternal goiter with history of dyspnea. Her contrast-enhanced computed tomography neck and thorax suggested diffuse enlargement of both lobes with mediastinal extension and pressure effects in the form of luminal narrowing of trachea. A total thyroidectomy was performed with median sternotomy. No post-operative complications occurred and patient was discharged on 6th post-operative day. Histopathology suggested multinodular goiter.

Keywords: Retrosternal, Sternotomy, Multinodular, Goiter

INTRODUCTION

Goiter is localized or generalized thyroid hypertrophy. It is usually cervical, but may show intrathoracic development beyond the thoracic inlet and grow towards the mediastinum. Retrosternal goiter was first described by Haller and its definition is still not uniform and varies between authors.[1] However the most widely accepted definition is when a goiter mass is >50% located in mediastinum, it is known as a retrosternal goiter.[2,3] It is characterised by slow progression and a longer course of illness. There is a consensus that surgical removal is the treatment of choice for retrosternal goiter, even in absence of clinical symptoms. Reasons for performing surgery in retrosternal goiter are treatment with thyroid hormone or radioactive iodine ablation is very rarely successful, it can become a life- threatening emergency if there is sudden enlargement of the goiter, secondary to hemorrhageand malignant transformation is reported in 3-21% which can be missed.[4-6]

Most of the retrosternal goiters can be managed through transcervical approach, but a full sternotomy is required when a retrosternal goiter extends in mediastinum or has a larger diameter than the thoracic inlet or airway constriction is revealed. To predict the possibility for sternotomy, clinical and radiological risk assessment is used. Main clinical risk is long standing history of retrosternal extension. Radiologically a computerized tomography (CT) scan showing dumb-bell shaped lesion, conical shaped goiter constricted by thoracic inlet or a thoracic component larger than thoracic inlet predicts the need for sternotomy and thyroid gland density, posterior mediastinal location and sub-carinal extension measured by CT are other risk factors. The gland density is the strongest risk factor and increases the sternotomy risk 47 fold.[7]

CASE REPORT

A 65 year old female presented with neck swelling since 3 years and orthopnoea since 3 years. Patient was a

known case of thyrotoxicosis and on medications (tab methimazole 10 mg OD) since 3 years. She was also a known case of diabetes mellitus and hypertension on regular medications.

On examinations swelling of size 10×15 cm was present in front of neck predominantly on right side, firm consistency with nodular surface. Lower border of the swelling is neither seen on inspection nor palpation. Pemberton's sign was positive. Dilated veins were present over chest wall. Systemic examination was normal. Her X-ray neck showed soft tissue fullness in pre-vertebral and pre-tracheal region.

Fine needle aspiration cytology was s/o colloid goiter and her thyroid profile was within normal limits. A CT scan of neck and thorax was done which suggested diffuse enlargement of both lobes of thyroid gland showing heterogenous enhancement with central necrosis. Right lobe measured 5.7×4.8×14.5 cms. Left lobe measured 6.7×7.9×14 cm. Large lobulated inferior component of the enlarged right and left lobes is showing mediastinal extension along posterior margin of sternoclavicular joint of size 7.8×5.6×5 cm. Significant pressure effect on the trachea which was displaced posteriorly with luminal narrowing with posterolateral displacement of common carotid on both sides with intact fat planes. Mild pressure effect was also seen on bilateral brachio-cephalic veins and left internal jugular vein.

A diagnosis of multinodular goiter with controlled thyrotoxicosis with retrosternal extension was made. Total thyroidectomy with excision of retrosternal goiter through a cervical incision planned. Standard neck incision was taken and both the lobes of thyroid dissected. Vascular pedicles of thyroid identified, ligated and cut. Both recurrent laryngeal nerve (RLN) were identified and preserved. Retrosternal goiter could not be delivered through cervical incision. Median sternotomy was done and dissection in mediastinal cavity carried out. Retrosternal goiter was removed by pull and push technique. Drains were kept and both the incisions closed.Hence the final surgery performed was total thyroidectomy with median sternotomy with excision of retrosternal goiter.

Figure 1: Multinodular goitre with dilated veins over chest wall.

Post-operative recovery was uneventful. No hypocalcemia or hoarseness of voice was noted. Patient was discharged on oral medications on 6th post-operative day. Histopathology suggestive of multinodular goiter.

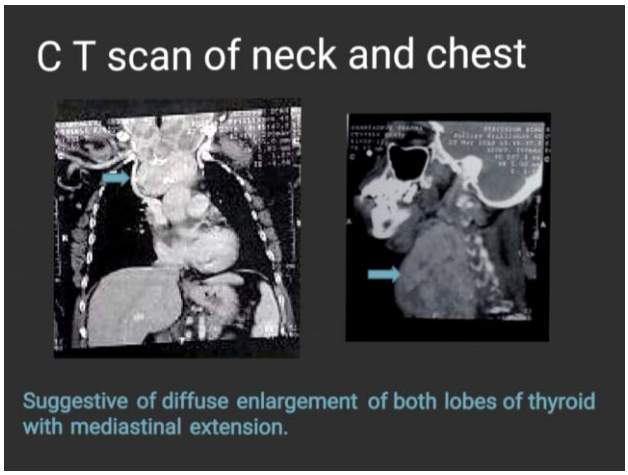

Figure 2: CT scan of neck and thorax showing multinodular goitre with mediastinal extension.

Figure 3: Multinodular goitre with intra-thorax extension-excised specimen.

DISCUSSION

Retrosternal goiter is very rare condition which account for 5 to 20% of thyroidectomy patients. The natural history of retrosternal goiter is slow, progressive growth, commonly leading to presentation in the fifth or sixth decade of life.[8] Symptoms of cough, dyspnoea, dysphagia, strider, chocking are absolute indications for surgery.

Retrosternal goiters exhibits 1.6 times higher frequency in females than in males, and the mean age at the time of diagnosis is 5th to 6th decade of life.[9] 85-90% cases are reported to be located in anterior mediastinum and 10-15% cases in posterior mediastinum.[9,10] Retrosternal goiter with unilateral extension is a more common phenomenon than bilateral extension.[10] Signs and

symptoms of neck mass, dysphagia, dyspnea, dysphonia, wheezing, coughing, stridor, superior vena cava syndrome are of important diagnostic value. CT is very useful for evaluation of retrosternal goiter and radiological imaging indicators for operative management include compression of trachea, tracheal deviation, compression of other adjacent vital structures. Imaging helps in correlating the symptoms with the size of goiter. Prospective studies document incidence of carcinoma development in goiters at 1.3 to 3.7 new cases per 1000 patients.[11,12] Operation of choice is usually a total thyroidectomy. Incidence of those requiring incision other than standard collar incision i.e., manubriotomy, sternotomy or thoracotomy is around 2%.[10] Need for Sternotomy arises in cases with extreme size, prior thyroid surgery, mediastinal blood supply, presence of carcinoma and large goiters constricted by thoracic inlet.

CONCLUSION

Most retrosternal goiters can be managed through a transcervical approach, but a full sternotomy is required when a retrosternal goiter is huge extending bilaterally in thorax and has a diameter larger than of thoracic inlet or when airway constriction is revealed. A full sternotomy provides excellent exposure and can help reduce the risk of complications such as injury to major blood vessels, RLN palsy. Prognosis in retrosternal goiter is very good if diagnosed and treated in proper time. Almost all the compressive symptoms completely disappear (as was seen in this case) and morbidity is very low.

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