Massive retrosternal goitre in a patient with neck swelling and dyspnoea

Ahmed M Nour. (1) Dabeluchi C. Ngwu.(2) Mohammed Saad Aldarahmi(3)

1. Consultant General, Endocrine and Breast Oncosurgeon, King Abdullah, Bisha, Kingdom of Saudi Arabia.

, Email: dra.nour@yahoo.com

2.. Consultant Thoracic Surgeon, King Abdullah Hospital Bisha, Kingdom of Saudi Arabia.

Email: doctordabs@gmail.com

3. General Surgery Resident(R2), King Abdullah Hospital Bisha, Kingdom of Saudi Arabia. Email: msaldarami@gmail.com

Abstract

Introduction

Simple Multinodular goitre is common cause of huge thyroid and surgery is indicated when it causes dyspnoea and extends retrosternally.

Case presentation

We present a 54 -year old male, who had long standing goitre, that enlarged markedly over the last two years causing dyspnoea.

Blood investigations showed normal thyroid function. CT scan of the neck and chest with contrast revealed huge thyroid in the neck and left intrathoracic extension lying on the aortic arch.Fine needle aspiration and Histopatholgy of the gland revealed benign multindular goitre.

Total thyroidectomy was done through cervical incision without complications.

Discussion

Total thyroidectomy is the primary treatment of retrosternal goitre.

Conclusion

Surgery for huge retrosternal multinodular is a challenging procedure that needs careful dissection and identification of surrounding structures to prevent postoperative morbidities.

Key words: Multinodular goitre, Retrosternal goitre, Total thyroidectomy

Introduction:

Retrosternal goitre (RSG) is defined as thyroid enlargement with the largest mass along dermal sternum from the neck to the substernal part progressing below the thoracic inlet and is biologically inseparable

from nodular goitre.[1] Although there are different definitions for RSG, the currently accepted definition is the presence of more than 50% of the thyroid gland mass below the thoracic inlet.[2] Depending on the criteria used to define RSG, its incidence varies from 0.2% to 45% of thyroidectomy patients.[3] Goitres are diffuse at first, but over time, factors cause them to become nodular. Iodine, genetic factors and other environmental factors are generally accepted as a major factors that contributes to the increase in thyroid nodulation. Various environmental and genetic factors, each with their own effects, play a role in the abnormalities of the thyroid gland, but contribution of various factors ultimately trigger nodular formation, .[4] In huge goitres, there is a greater possibility of mediastinal extension, and this is more likely to happen in the fifth and sixth decades of a person's life. RSG is more likely to be on the left side, and rarely left cervical goitres descends to the right side of the chest.[5] This manuscript reports a rare case of 54-year-old male who had a huge RSG which has rarely been observed. The patient was finally treated with cervical thyroidectomy.

2 Case presentation (Case History, Examination and investigations):

A 54 years old male with past medical history of hypertention was presented to our hospital with chief complaint of long standing neck swelling, dyspnoea on lying flat and neck tightness and discomfort that increased over the past two years.

Examination revealed a large multinodular Goitre, soft, not attached to skin or deep structures, And with dull percussion not over the left upper chest.(Fig.1)

Thyroid Function tests were Normal, Ultrasound neck revealed large multinodular goitre with cysts degeneration, worse in the right and left retrosternal extension, no tracheal compression and no evidence of cervical lymph nodes enlargement with lateral displayed great vessels of the neck. Fine needle Aspiration cytology from the prominent nodules came as benign cutolgy.

CT scan: Neck mass (520.0 gm) extending to the chest displacing the left brachiocephalic downwards and just above the arch of the aorta. With area s of calcifications and benign looking cervical lymph nodes mild shift of the left trachea by the mass to the right. Common carotid arteries and jugular veins were displaced laterally but were not compressed. (Fig.2) We consulted the thoracic surgeon to join us in the operation in case we encounter difficulties in the operation.

The patient was booked for surgery and ENT consultation for vocal cords examination which revealed bilateral mobile vocal cords.

Fig.1 Shows huge cervical right lobe of the thyroid

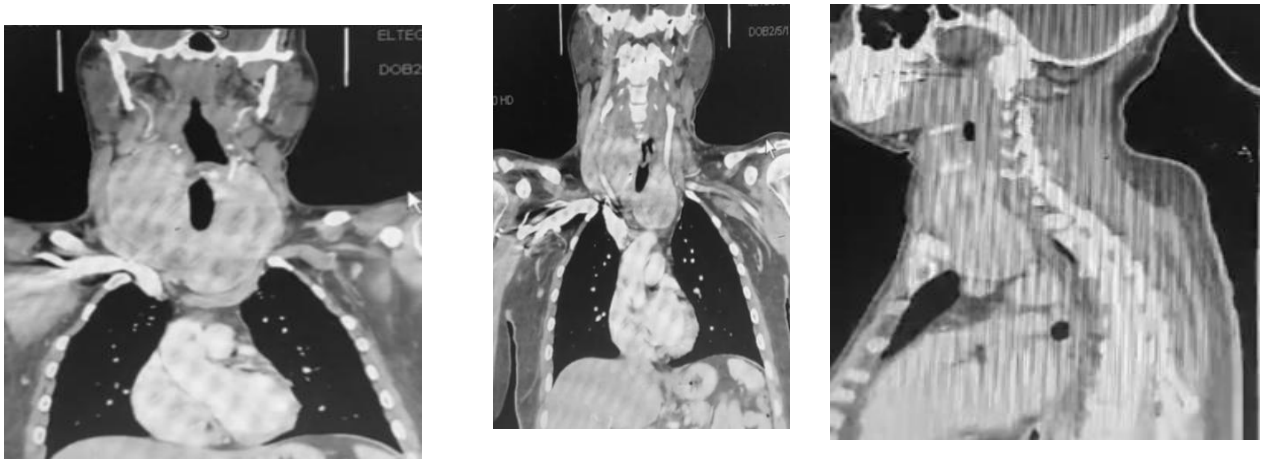

Fig. 2 CT scan of the neck and chest shows huge right thyroid lobe and left intrathoracic lobe over the arch of the aorta.

Surgery was achieved via formal transcervical incision, started with cervical right lobe. The strap muscles in the right side were thin and very adherent to the right thyroid lobe, they were divided high up. Dissection of the upper pole and division of the superior thyroid artery and vein using ligasure. The right lobe was delivered to the wound. Total thyroidectomy was performed after ligation of the inferior thyroid vein and artery. The right recurrent laryngeal nerve and parathyroids were identified and preserved. Then the big left retrosternal lobe was removed by after division of the superior thyroid artery The left recurrent laryngeal nerve and parathyroids were identified and preserved.(Fig.3)

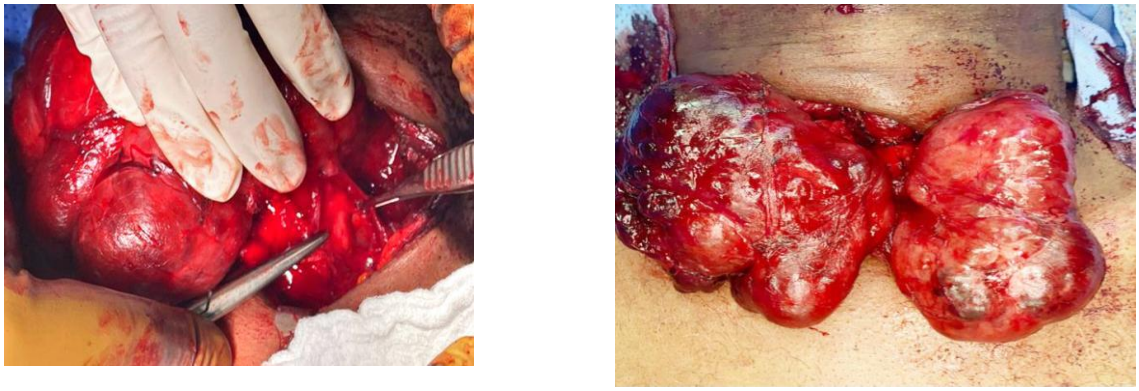

Fig 3 Identification of left recurrent laryngeal nerve(Left)t and total thyroidectomy(Right)

Fig. 3 Totally removed thyroid

The patient was extubated in the operation room with bilateral moving vocal cords which were checked by video laryngoscope. Postoperatively has normal voice and no difficulty in breathing, He was transferred to ICU for 24 hours observation,

Post operatively day 1 patient had Serum calcium 2.3 mmol/L and PTH 39.1 pg./ml. With neck drain removed on the second day (20 ml serous fluid). and discharged home in a good condition.

The patient seen in the clinic and histopathology was benign multinodular goitre. (Fig.4 and 5)

Fig.4 wound after 5 days

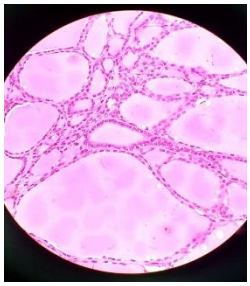

Figure. 5 Histopathology. Multinodular goitre

3. Discussion:

Surgery is the treatment of choice for retrosternal goitre with or without clinical symptoms. The case reported by us used a single neck collar-shaped incision for huge retrosternal goitre (performed total resection) with good outcome (less trauma and quicker recovery).

The literature is consistent in stating that most 7substernal goitre cases may be resected through one neck incision. The need for sternotomy or thoracotomy ranges between 0% and 13% [6] while some authors claim such rate to be as high as 50%one author reported rates of 29% [7] Arici C et al. believed that the cervical collar incision is nearly always adequate, with few exceptions [8] In reality, patients with retrosternal goitre can and should be safely treated through the neck approach with good outcome, while sternotomy or thoracotomy should be reserved for selected cases.

Though retrosternal goitres are classified as either primary or secondary, the primary goitre is an exceptional finding and this group represents approximately 1% of retrosternal goitre. The vast majority of retrosternal goitre are secondary, which originate from the downward extension of the gland along the planes of the cervical and mediastinal fascia. [9] The blood supply arises principally from the inferior thyroid arteries and most of the venous return is through the inferior thyroid veins. The surgical strategy for treating retrosternal goitre is somewhat different from the one used for the goitre due to anatomic and physiologic dissimilarities. Once the following situations appear, sternotomy or lateral thoracotomy should take into account. 1)retrosternal goitre is too large to be removed through thoracic inlet; 2)the retrosternal goitre blood supply originates in the chest. 3)retrosternal goitre growing into the mediastinum causes anatomic variations in the location of the recurrent laryngeal nerve and the parathyroid glands; 4) Venous congestion due to compromised drainage may cause severe bleeding.

Conclusion:

Surgery is the treatment of choice for retrosternal goitre with or without clinical symptoms and should be performed as soon as possible. The procedure can be performed through a single neck incision in most patients with retrosternal goitre, which is less trauma and has quick postoperative recovery.

Ethical approval:

Approval of the study was obtained from the Institutional Review Board. King Abdullah Hospital, Bisha, Saudi Arabia on 28/7/2024

Conflict of interest:

No competing interests.

Consent:

Written informed consent was obtained from the patient to publish this report .

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