

Surgical Management of Retrosternal Goitre - A Single Surgeon Experience in 30 Years

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Abstract: ***Background:** The definition of retrosternal goitre is unclear and not uniform among the authors. As most of the authors defined retrosternal goitre as the goitre with its greater mass is inferior to thoracic inlet. Haller described the first retro-sternal goitre in 1749. Reported incidence of the retrosternal goitres is 1% to 20%. There are no clear guidelines for pre-operatively identifying those patients that may require an intrathoracic approach. **Material and methods:** During a period of 30 years from 1986 to 2016 nearly 36 cases of retro-sternal goitres were encountered in various institutions by a single surgeon. **Results:** Retrosternal goitres were resected after a median sternotomy in all the 36 cases. There were 2 minor complications and no mortality. There was a clear and highly significant association between the extent and definition of RSG and reported complications, as well as the approach used. Mean age at diagnosis was 55.3 ± 3.58 years, and most cases were found in women (83.3%). The clinical picture of retrosternal goitre was dominated by compressive disorders. The length of stay in the hospital was 8.6 days (range, 4-11 days) and mean follow up was 24.3 months (range, 4-39 months). **Conclusions:** In all the patients the symptoms caused by the Retrosternal goitre were disappeared following the resection of the swelling. Decision making in such patients should be individualized.*

Keywords: Retrosternal goitre, sternotomy.

1. Introduction

Goitre is a term derived from the Latin 'tumidum gutter' - swollen throat- and is defined as a thyroid gland that is twice the normal size, or over 40 g [1]. An enlarged thyroid can be the clinical manifestation of several pathologies, although most commonly it is associated with dietary Iodine deficiency leading to subclinical hypothyroidism, with subsequent elevated TSH and gland hypertrophy. Terms such as retrosternal, substernal, intrathoracic, or mediastinal have been used to describe a goitre that extends beyond the thoracic inlet. Although cervical incisions are enough for a good exposure in most of the retrosternal thyroid gland pathologies, an extended surgical approach with median sternotomy or thoracotomy may be necessary. Determining the most appropriate surgical technique is very important to figure out and treat the complete pathology and prevent the patients from complications. In this study we reviewed twenty five cases of thyroid pathologies of patients who underwent median sternotomy and compared surgical techniques and postoperative follow-up data.

2. Materials and methods

This is a retrospective study conducted between the period of 1986 to 2016 in various institutions by a single surgeon, 36 patients were referred for our service for thyroidectomy requiring sternotomy approach. We reviewed the patients who had undergone thyroidectomy requiring sternotomy approach. The mean age at diagnosis was 55.3 ± 3.58 years, and most cases were found in women (83.3%). The clinical picture of retrosternal goitre was dominated by compressive disorders like dysphagia, dysnoea, dysphonia. Many patients have more than one symptom at the time of presentation. The diagnosis of retrosternal goitre was suggested by clinical examination and confirmed by imaging: chest X ray

(both AP and Lateral views), ultrasonography, Computed tomography chest scan.

Symptoms of presentation of the patients with Retro-sternal Goitres: (n=36)

Dysnoea	21
Dysphagia	5
Dysphonia	7
Palpitations	5
Cough	8
Stridor	7
Congested veins	2
Back pain	1
Distended neck veins and mild proptosis	3

The goitre was anterior in 20 patients and posterior in 5 patients (Retrotracheal =2, Retroesophageal = 3).

3. Results

Sternotomy was required in 25 cases because of the deep retrosternal extension. 11 cases did not require sternotomy and was dissected through the cervicotomy. There was no mortality. There was no massive blood transfusion requirement, post operative tracheostomies. There was difficult intubation in 4 cases and intubated with the aid of intubating bronchoscope. All the patients were extubated early in the post operative period. There were no intraoperative, perioperative and in-hospital mortality. The mean length of stay in the hospital was 8.6 days (range, 4-11 days) and mean follow up was 24.3 months (range, 4-39 months). Only 2 minor morbidities like Sternal wound infection (n=1) and post operative hoarsness of voice (n=1) which was subsided in the subsequent follow up of the patients. Most of the retrosternal goitres were extension of multinodular goitres. One case there was hyperplastic thyroid nodule with mediastinal syndrome.

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4. Discussion

Retrosternal and intrathoracic goitre can be examined in two groups. One of them is true or aberrant "ectopic" intrathoracic goitre, which is congenitally perfused by intrathoracic arteries and has no cervical elongations.[1] The second one is acquired and much more frequently seen group that can be defined with a spreading thyroid gland from thoracic inlet to the mediastinum along the retrosternal fascia. Prevalence of retrosternal goitre firstly described by Haller and colleagues at 1947 is 13%–20%.[2–5]. Majority of the retrosternal goitres are located anterior to the innominate artery and vein. There are few cases of retrotracheal and retroesophageal components reported in the literature [6,7]. Retrosternal goitre may cause dyspnea, hoarseness, superior vena caval syndrome and dysphagia while the growing thyroid mass directed to the right side, posterior or anterior mediastinum and pushing the mediastinal structures.[8, 9] In our patients, the most common symptoms were tumescence, and majority of the patients were suffering from dyspnea and dysphagia. Tracheal deviation was the most observed radiological sign. Katlic and colleagues had observed in their study trachea deviation and compression at the rate of 79% and Madjar and colleagues in their study at the rate of 77%. [2, 4]. When the goitre is situated in the posterior mediastinum the transthoracic approach is often required. It represents 10–15% of all mediastinal goitres and the development to the right side because the presence of the aortic arch prevents any descent on the left side. Frequently the transthoracic approach is preceded by a cervicotomy. In the case of ectopic or forgotten substernal goitres, a transthoracic approach is habitually required on the beginning[10]. CT scan neck including chest is an important component of the preoperative evaluation in all the patients of goitres. A distal displacement of the left brachiocephalic vein, the size of mediastinal mass which is $\geq 70\%$ below the thoracic outlet and particularly a distal border below the level of the aortic arch suggests a combined approach[11]. In our study we did not observe any recurrent lesions. The compressive symptoms related to the retrosternal goitre related to mediastinal compression has regressed. All the patients had hospital stay in the optimal conditions and were discharged at 4–11 days with a mean of 8.6 days and all the patients are on regular follow up to our out-patient services.

5. Conclusion

CT scan chest with neck is an important imaging tool in the preoperative evaluation to avoid unexpected intraoperative sternotomies. In our series 69.44% has required sternotomy and 31% were managed with cervicotomy alone.

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