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Research Article

A STUDY ON THE ANALYSIS OF RETROSTERNAL GOITER¹Dr Zirwa Younas, ²Dr Aqsa Hameed, ³Dr Munibah Nisar¹Punjab Medical College, FMU, Faisalabad, ²Aziz Fatimah Medical College, Faisalabad,³Aziz Fatimah Medical College, Faisalabad.**Abstract:**

Objective: The purpose of this research work is to find out the rate and occurrence of RG (Retrosternal Goiter), its medical symptoms and complications after surgery in the patient of this disease. **Methodology:** It is a transverse research work conducted in the surgical department of Allied Hospital Faisalabad This research work started in January 2007 to December 2018. All the patients of goiter assessed for expansion of thyroid, medical symptoms and complications after the surgery.

Results: Among nine hundred and seventy-eight patients, eighty patients found with the retrosternal expansion of thyroid. Female patients were greater in quantity & most of the patients were euthyroid (91.02%). All the patients were in their fifth decade of life. Retrosternal enlargement of two lobes was available in more than eighty-three percent patients & one lobe in more than sixteen percent patients. Dyspnea was the most common problem as complaint by the patients. The second most common problem was headache (30.33%) & dysphagia (25.84%) came in the least than the previous ones. Recurring LNP (laryngeal nerve palsy) was available in 4.49% patients & 3.37% patients suffered hypocalcaemia & infection of wound after operation.

Conclusion: Retrosternal expansion of thyroid is very common. Cervical approach is in use for the conduction of the surgery.

Key Words: Dyspnea, Lobes, thyroid, Thoracic Vertebra, Hypocalcaemia, Goiter.

Corresponding author:**Dr. Zirwa Younas,**

Punjab Medical College, FMU, Faisalabad.

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INTRODUCTION:

The ectopic tissue of thyroid can be available in abnormal conditions in the center part of the neck, later portion of the tongue, under inferior normal thyroid pole & sometimes in front mediastinum [1]. RG is an abnormal appearance of intrathoracic enlargement of an expand thyroid which is normally a result of multi nodular goiter. There are different definitions of RG in this field. Golden burg [2] in 1957 described a RG when it approaches the stage of forth thoracic vertebra, Singh [3] in 1994 defined this when more than fifty percent thyroid tissue under the inlet of thorax & White [4] in 2008 defined when it needs mediastinal classification. But the acknowledged standard is by Candela [5] which explained that when thyroid extends greater than two centimeters under the inlet of thorax.

Cervical & retrosternal parts normally portion sustain their supply of blood directly from the arteries of thyroid. Pure IG (intrathoracic goiters) occurs with no extension from cervical part. In the mediastinum, ectopic thyroid gland may be linked with the ordinary sized cervical gland in shorter than one percent patients. In seventy to ninety percent patient the location of the gland in the compartment of anterosuperior & in twenty-five patients located in the compartment of the middle visceral.

Ectopic tissue of thyroid had abnormal supply of blood from the loco regional vessels of blood [6]. There are different clinical representations of this disease. The removal of the thyroid can be carries out through surgery 7 most of the patients have improvement in the symptoms after surgery. RGs can be detached with model cervical incision in most of the patients except the patients with previous history of same surgery [7, 8].

METHODOLOGY:

The study was conducted in the surgical department of Allied hospital Faisalabad and the duration of the research work was from January 2007 to December 2018. Computerized entry of every patient carried out and computerized identification number allotted to them. Record of every patient maintained in computer. Every patient gave consent to participate in the study. Evaluation of goiter patients carried out & patients having retrosternal expansion of thyroid were the part of this research work.

To evaluate the retrosternal expansion, Candela standard was in use [5]. According to this standard, thyroid expansion greater than two centimeters detected under the inlet of thorax during surgery, when neck of the patient is kept in extension is defined as RG were the part of this case study. The patients having thyroid expansion of less than two centimeters was not the part of this work. Medical, biochemical

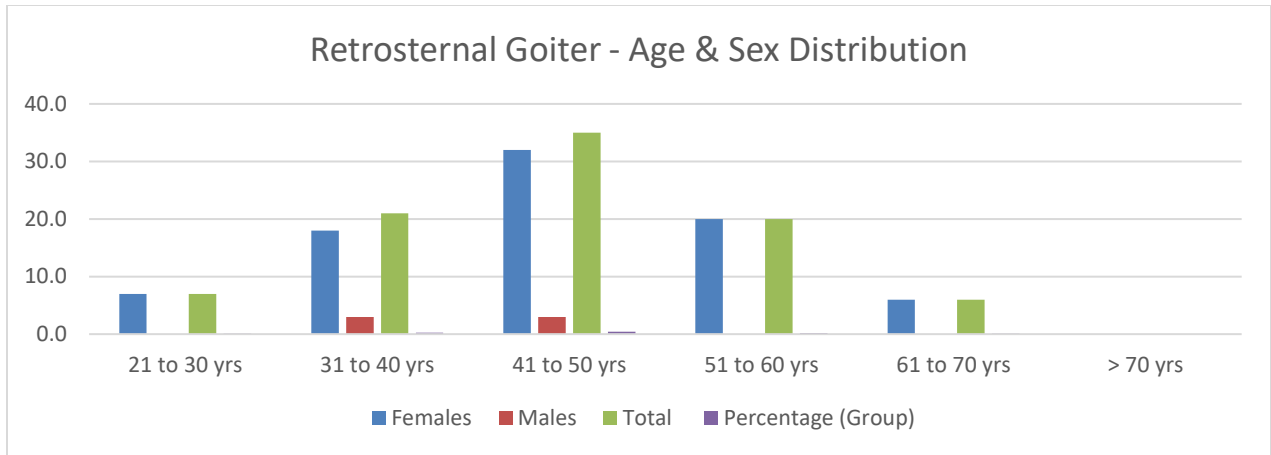
& histopathological assessments carried out for every patient. Chest X-ray, computed tomography scanning and other techniques were in use for investigations for surgery. Surgical removal of thyroid carried out from cervical approach. EPI 6 software was in use for the analysis of the data.

RESULTS:

Nine hundred and seventy-eight patients reported with multi nodular goiter in the OPD of surgical department from January 2007 to the end of December 2018. Among the total patients, eighty-nine patients were suffering with retrosternal expansion of goiter as displayed in Figure-1. Most of the patients were females from the fourth and fifth stage of their lives as described in Table-1.

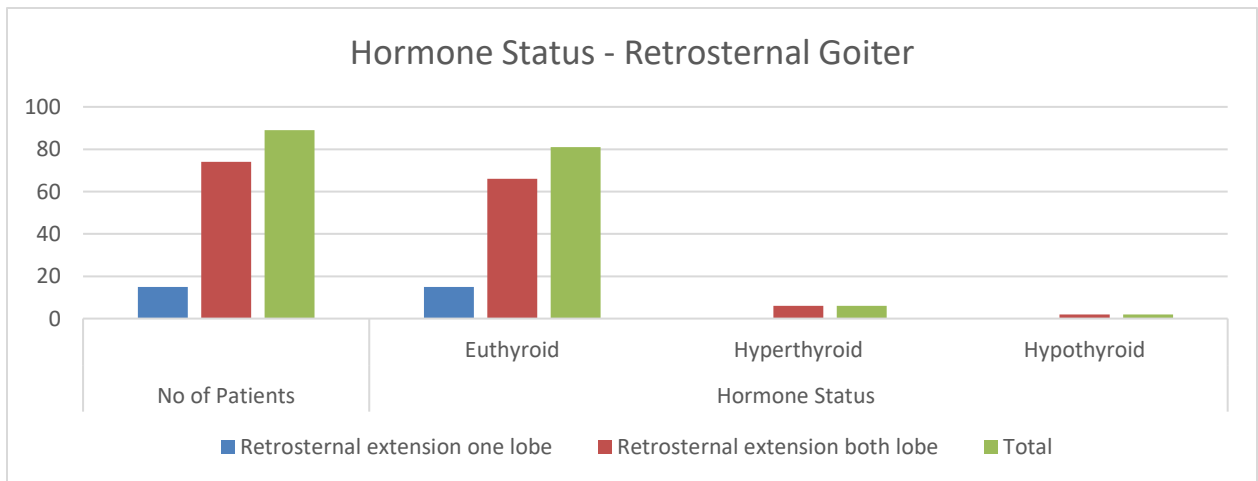
Table- I: Age and Sex Distribution of Retrosternal Goiter in Different Age Groups.

Age	Females	Males	Total	Percentage (Group)
21 to 30 yrs	7.0		7.0	7.860%
31 to 40 yrs	18.0	3.0	21.0	23.590%
41 to 50 yrs	32.0	3.0	35.0	39.330%
51 to 60 yrs	20.0	—	20.0	22.480%
61 to 70 yrs	6.0	—	6.0	6.740%
> 70 yrs	—	—	—	—
Total	83.0	6.0	89.0	
% among total	8.490%	0.610%	9.100%	
% among group	94.590%	5.410%		



About ninety-one percent patients were euthyroid & remaining were available with hyperthyroid as mentioned Table-2.

Type of Goiter	No of patients	Hormone Status		
		Euthyroid	Hyperthyroid	Hypothyroid
Retrosternal extension one lobe	15.0 (16.850%)	15.0	—	—
Retrosternal extension both lobe	74.0 (83.150%)	66.0	6.0	2.0
Total	89.0	81.0 (91.020%)	6.0 (6.740%)	2.0 (2.240%)
95% CL		82.50 to 95.70	2.77 to 14.60	0.40 to 8.60

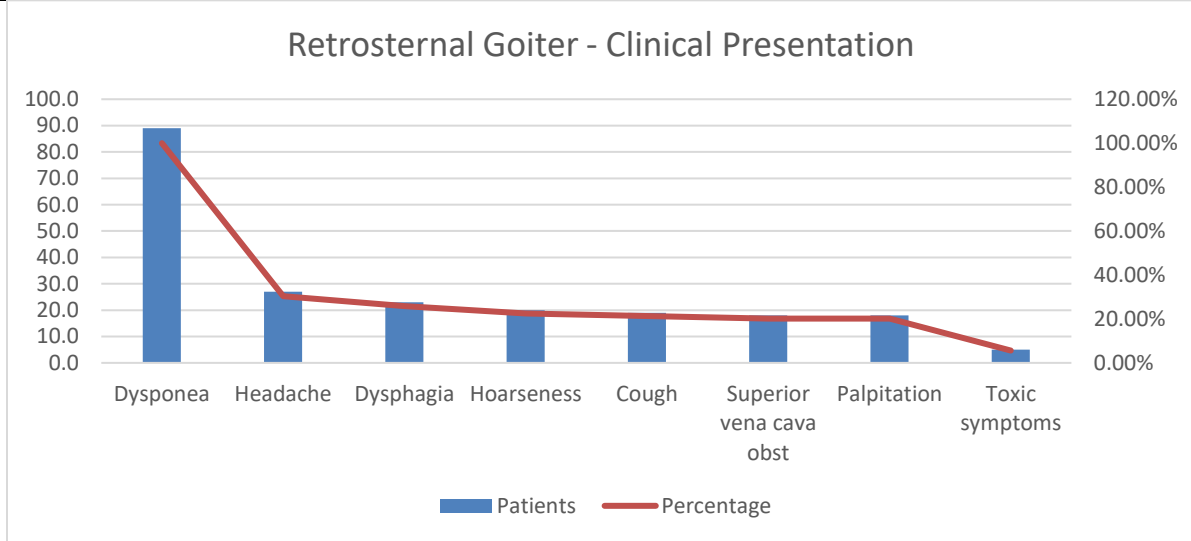


This table displays the participation of the lobe in retrosternal expansion of thyroid. More than eighty-three percent patients had retrosternal expansion of 2 lobes and sixty-six out of seventy-four patients were euthyroid. About 16.85% had retrosternal expansion

of one lobe & all patients were euthyroid. Every patient complained about the dyspnea. The most common complaint was headache. The percentages of the all complaints are available in Table-3.

Table-III: Retrosternal Goiter - Clinical Presentation

Clinical presentations	Patients	Percentage
Dyspnea	89.0	100.00%
Headache	27.0	30.33%
Dysphagia	23.0	25.84%
Hoarseness	20.0	22.47%
Cough	19.0	21.34%
Superior vena cava obst	18.0	20.22%
Palpitation	18.0	20.22%
Toxic symptoms	5.0	5.61%

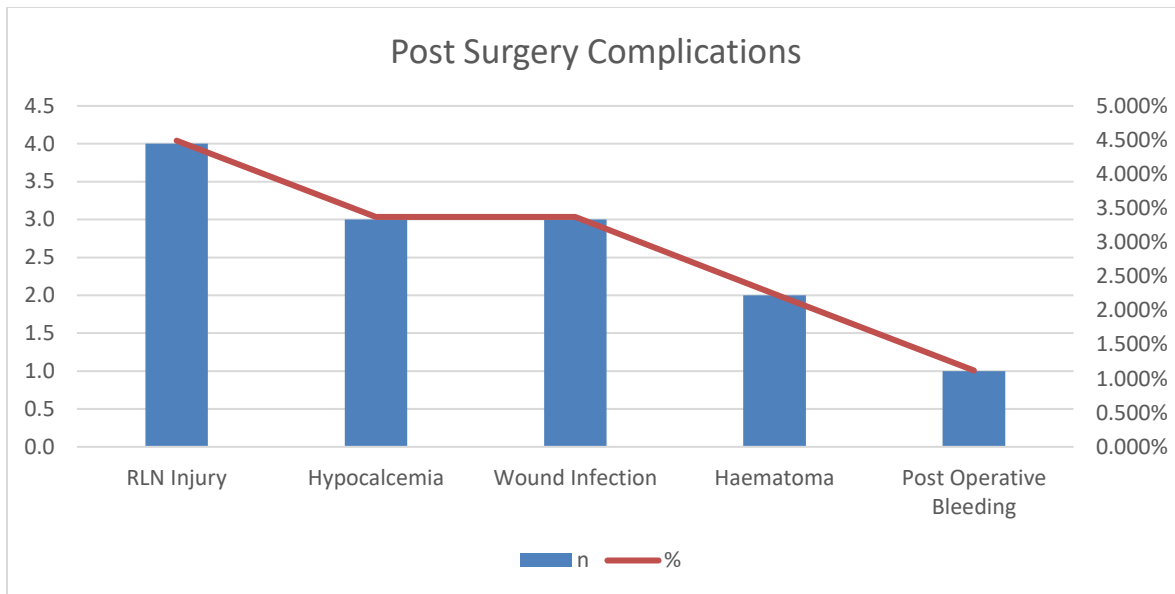


After surgery recurring laryngeal nerve palsy was the most important problem examined in 4.49% patients, infection in wound & hypocalcaemia examined in

3.37% patients as shown in Table-4. There was not any mortality during or after surgery.

Table-IV: Complications After Surgery N=89

Complications	n	%
RLN Injury	4.0	4.490%
Hypocalcemia	3.0	3.370%
Wound Infection	3.0	3.370%
Hematoma	2.0	2.240%
Post-Operative Bleeding	1.0	1.120%



DISCUSSION:

RG is described as the expansion of the thyroid detected two centimeters below the inlet of thorax at surgery, the neck of the patient is fully extant [5]. It is uncommon appearance as intrathoracic expansion of an inflamed multi nodular goiter. Their expansion is usually downwards to front mediastinum. Lower than one percent of RG which occur as aberrant tissue of thyroid in the mediastinum & lower artery of the thyroid does not provide blood to them [6]. RG is commonly a condition with symptoms, having a less but sure danger of malignancy. Choking & dyspnea are the frequent apparent symptoms of RG [9-11]. Headache, irregular voice pattern & dysphagia were the problems faced by 1/3 of the patients; same results were the outcome of many other works [8, 9, 12].

Radiology of chest computed tomography scan of chest and neck and mediastinum are in use for the detection of this disease. Computed tomography scanning & MRI are very vital for assessment before surgery [12, 13]. The scanning to thyroid may be carried out to exclude other detections as lymphoma which displays the operating thyroid [14, 15]. In RG, it is very vital to describe its association with neck and other structures to maintain exact operation approach. RGs may have to be occurred on left side [10]. Most of the patients had bilateral RG (83.15%) & euthyroid (91.02%). Because of the expansion of the RG resulting to high amount of morbidity, the surgical exclusion of tissue of thyroid tissue is always designated. In the regions of endemic goiter, the occurrence of the retrosternal expansion differs from three to twenty percent. Majority of patients with RG

had more than fifty years of age and females were dominant than man in quantity [6, 9, 16]. Hedayati concluded high occurrence of (thirty percent) of RG [17]. In his research, the rate of occurrence of this problem was 9.10%. In this research work, female to male ratio was very high as 17:1 and most of the patients were thirty to fifty year of age. Cervical approach was the suitable mode of surgery with a very low rate of [17, 18]. In most of the patients, lower artery of the thyroid was the main source of supply of blood which was allowing the greater retrosternal volumes to be assembled in the neck. When dissection of RG is very complicated and recurring laryngeal nerve is fully detected, fractional sternotomy is the requirement for the better management of the vessel & nerve. Calo [16] in Italy concluded sternotomy as 3.28 percent & thoracotomy as 0.93% in his research work. Ben [12] from Israel concluded nine percent frequency of sternotomy, Chow reported [19] 8.3% in Hong Kong, and Arici [20] reported four percent in Turkey.

The rate of complication was less than five percent in international case works [11, 13, 19, 20]. Calo [16] and Chow [19] concluded the occurrence of recurring injury to laryngeal nerve in 2.2% & 2.7% respectively. Same occurrences of complications were also the outcome of many other research works [12, 21]. This research work was similar to the other research works conducted in the same.

CONCLUSION:

RG is very frequent in the regions with occurrence of goiter. This problem is easily preventable with cervical approach but retrosternal thyroidectomy has

very complicated form so a specialized team of surgeons having knowledge of this specific condition should perform this technique to get the best result from the operation.

REFERENCES:

- Batori M, Chatelou E, Straniero A. Endocrinosurgery Eur Rev Med Pharmacol Sci 2007;11(4):265-268.
- Goldenberg IS, Lindskog GE. Differential diagnosis, pathology, and treatment of substernal goiter. JAMA 1957; 163:527-529.
- Singh B, Lucente FE, Shaha AR. Substernal goiter: A clinical review. Am J Otolaryngol 1994;15(6):409-416.
- White ML, Doherty GM, Gauger PG. Evidence-Based Surgical Management of Substernal Goiter. World J Surg 2008; 32:1285–1300.
- Candela G, Varriale S, Di Libero L, Manetta F, Giordano M, Maschio A, et al. Surgical therapy of goiter plunged in the mediastinum. Considerations regarding our experience with 165 patients. Chir Ital 2007;59(6):843-51.
- Olk J. Applied anatomy of the chest wall and mediastinum. In Baker RJ, Fischer JE (Editors) Mastery of surgery 4th edition Lipponcott Wiliam and Wilkins, Philadepha. 2001;633-634.
- Ríos A, Rodríguez JM, Balsalobre MD, Tebar FJ, Parrilla P. The value of various definitions of intrathoracic goiter for predicting intra-operative and postoperative complications. Surgery 2010;147(2):233-238.
- Erbil Y, Bozboru A, Barbaros U, Ozarmagan S, Azezli A, Molvalilar S. Surgical management of Substernal goiter: Clinical experience of 170 patients. Surg Today 2004;34(9):732-736.
- Moron JC, Singer JA, Sardi A. Retrosternal goiter: A six-year institutional review. Am Surg 1998;64(9):889-893.
- Chauhan A, Serpell JW. Thyroidectomy is safe and effective for Retrosternal goiter. ANZ J Surg 2006;76(4):238-242.
- Hanks JB. Thyroid. Townsend CM, Beauchamp RD, Evers BM, Mattox KL (Editors) In Sabiston Text Book of Surgery 17th edition, Saunders, Philadelphia 2004;961-962.
- Ben Nun A, Soudack M, Best LA. Retrosternal thyroid goiter: 15-year experience. Isr Med Assoc J 2006;8(2):106-109.
- Makeieff M, Marlier F, Khudjadze M, Garrel R, Crampette L, Guerrier B. Substernal goiter: Report of 212 cases. Ann Chir 2000;125(1):18-25.
- Mc Dougall R. In vivo radionuclide tests and imaging. In Breverman LE, Utiger RD (editors) The thyroid, A fundamental and clinical text 9th edition. Lippincott Williams & Wilkins, London. 2004:318.
- Gerard SK, Cavalieri RR. I123 diagnostic thyroid tumor whole body scanning with imaging at 6, 24 and 48 hours. Clin Nucl Med 2002; 27:1-8.
- Calo PG, Tatti A, Farris S, Piga G, Mallocci A, Nicolosi A. Substernal goiter: Personal experience. Ann Ital Chir 2005;76(4):331-335.
- Hedayati N, McHenry CR. The clinical presentation and operative management of nodular and diffuse Substernal thyroid disease. Am Surg 2002;68(3):245-251.
- Rodríguez JM, Hernandez Q, Pinero A, Ortiz S, Soria T, Ramirez P, et al. Substernal goiter: Clinical experience of 72 cases. Ann Otol Rhinol Laryngol 1999;108(5):501-504.
- Chow TL, Chan TT, Suen DT, Chu DW, Lam SH. Surgical management of Substernal goiter: Local experience. Hong Kong Med J 2005;11(5):360-365.
- Arici C, Dertsiz L, Altunbas H, Demircan A, Emek K. Operative management of Substernal goiter: Analysis of 52 patients. Int Surg 2001;86(4):220-224.
- Chaudhary IA, Samiullah, Masood R, Mallhi AA. Complications of thyroid surgery: A five-year experience at Fauji Foundation Hospital, Rawalpindi. Pak J Surg 2006;22(3):134-137.