



General Surgery

A STUDY ON THE RECURRENT LARYNGEAL NERVE INJURIES IN THYROID SURGERIES AT PESIMSR,KUPPAM

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ABSTRACT

Aims and Objectives: The aim of the present study is to evaluate the recurrent laryngeal nerve injuries in patients undergoing thyroid surgeries at PESIMSR,KUPPAM **Materials and Methods:** All thyroid surgery cases that will be done in PESIMSR from May 2021 to April 2022

Inclusion criteria:

- 1.All the patients admitted and diagnosed as having thyroid swellings.
- 2.Patients who underwent thyroidectomy and attended follow up for a minimum of 1 month after discharge.

Exclusion criteria:

1. Patients with h/o previous neck surgeries for other conditions
- 2.Previous h/o neck irradiations
3. Pre op impaired vocal cord function on indirect laryngoscope

Results:

A clinical study of early post-operative complications in 60 patients undergoing various thyroidectomy procedures was done between May 2021 and April 2022 in PESIMSR, Kuppam. In this study the incidence of RLN palsy is 5%, of these all were transient. All the 3 cases of RLN injury were recognised immediately and were given appropriate treatment.

KEYWORDS : thyroidectomy,recurrent laryngeal nerve,identification of RLN**INTRODUCTION :**

Thyroid surgery has always been the most common endocrine surgical operation. Surgery of thyroid takes place in an area where anatomy is complicated and in which a number of special senses and physiological functions are controlled. Theodor Kocher (1841-1917) in 1909 the first surgeon to receive the noble prize. He was a pioneer in thyroid surgery. One of his accomplishments was to reduce the frequency of thyroid surgery complications. Today most of the complications of thyroid and parathyroid surgery are related to either metabolic derangements or injury to the recurrent laryngeal nerve. This is mainly due to anatomical variations in the course of recurrent laryngeal nerve and positions of parathyroids¹. Other complications include injury to superior laryngeal nerve, infection, airway compromise, bleeding and rarely thyroid storm. Thyroidectomy remains the 3rd most common cause of bilateral vocal cord palsy, and also a great number of unilateral vocal cord paralysis. Patients who develop complications such as permanent hypocalcemia and recurrent laryngeal nerve injury have a decreased quality of life and increased cost of healthcare and often require lifelong replacement therapy with thyroxine or further surgical surgeries and rehabilitation.

AIMS AND OBJECTIVES :

The aim of the present study is to evaluate the recurrent laryngeal nerve injuries. 2.in patients undergoing thyroid surgeries at PESIMSR,KUPPAM

Inclusion criteria:

- 1.All the patients admitted and diagnosed as having thyroid swellings during the study period and requiring surgical management and willing for surgery.

- 2.Patients who underwent thyroidectomy and attended follow up for a minimum of 1 month after discharge.

Exclusion criteria:

- 1.Patients with h/o previous neck surgeries for other conditions
 2. Previous h/o neck irradiation
 3. Pre op impaired vocal cord function on indirect laryngoscope
- Methods Of Collection Of Data: Thyroid cases were being admitted to PESIMSR, general surgery department, proper clinical history and relevant investigations were done. Patients who needed the surgery and met the inclusion criteria were included in this study. After proper

preoperative preparation (euthyroid state) the patient was taken up for proposed surgery. Strict aseptic precautions were taken during the operation. The course of surgery and relevant intra operative factors were directly observed and noted and analysed. Patients were monitored from the time of admission till the time of discharge from the hospital and were later followed up on OPD basis till 1 month after discharge. Detailed analysis of these patients, who underwent thyroidectomy was done regarding various aspects such as age, sex, diagnosis, indication for surgery, type of thyroidectomy done, occurrence of complications, type of intervention and patient outcome, duration of stay and follow up.

STATISTICAL ANALYSIS OF DATA:

The data was entered into MS Excel & further analyzed using SPSS version 23. For Descriptive statistics, tables and figures were used to present the data in frequencies and percentages.

Table 1: Age Distribution:

Age (years)	male	female	total
<25	2	6	8
26-50	5	42	47
>50	2	3	5
Total	9	51	60

The youngest age in the present study was 16 years and the oldest age was 67 years. The peak age individuals undergoing thyroid surgery was between 26-50 years accounts for 78.3% of patients, male patients were 9 and female patients were 51.

Table 2: Size of thyroid swelling:

Size of swelling (cms)	No. of patient	percentage
<2	11	18.33
2-5	32	53.33
>5	17	28.33
Total	60	100

Majority of the patients have size of thyroid swelling ranging from 2-5 cms only.

Table 3: Site of swelling:

Site of swelling	No. of patients	percentage	No. of patients with cervical lymphnodes

Right	18	30	1
Left	12	20	1
Diffuse	30	50	1
Total	60	100	3

50% of patients have diffuse enlargement of thyroid, 20% of patients had enlargement of left lobe, 30% of patients had enlargement of the right lobe, 3 patients had clinically palpable cervical lymph nodes.

Table 4: Clinical diagnosis:

Clinical diagnosis	No. of patients	percentage
Solitary nodule of thyroid	30	50
Multinodular goitre	30	50
Total	60	100

Table 5: Type of surgery:

Type of thyroidectomy surgery	No. of patients	percentage
hemi	30	50
total	23	38.33
Near total	5	8.33
mrnd	2	3.33
total	60	100

30 patients underwent hemithyroidectomy, 23 patients underwent total thyroidectomy, 5 patients and 2 patients underwent near total, modified radical neck dissection respectively.

Table 6: Recurrent laryngeal nerve course intraoperatively:

Recurrent laryngeal nerve		total	RLN anatomy			total
identified	Not identified		yes	no	Not known	
56	4	60	3	5.3	4	60
93.3	6.67	100	5	88.3	6.67	100

RLN identified in 56 patients of which RLN anomaly was seen in 3 patients. RLN anomaly was not identified in 4 patients.

Table 7: Post operative hoarseness of voice:

Post op hoarseness of voice	No. of patients	Percentage
yes	8	13.33
no	52	86.87
total	60	100

Post operative hoarseness of voice was seen in 8 patients.

Table 8: Recurrent laryngeal nerve palsy:

RLN injuries	No. of patients	total
yes	3	5
No	57	95
total	60	100

RLN palsy was identified in 3 patients

DISCUSSION:

The thyroid gland being located in neck and it is related to many important vital structures such as carotid vessels, jugular veins, RLN and SLN nerves, trachea, esophagus and thoracic duct⁷, hence surgery on thyroid gland tests the dexterity skill and finesse of any surgeon. The total number of admissions for thyroid disorders during the study period was 75 which accounted for 1% all surgical admissions and 3.5% of all elective general surgical operations. 15 patients were excluded from study as per exclusion criteria for different reasons. The majority of patients in the study were females i.e. 51 cases, with a sex ratio of 5.7:1 (F:M). The youngest age in the present series was 16 years and the oldest was 67 years. The peak age group of individuals undergoing thyroid surgery was between 26 to 50 years accounting for 78.3% of patients. The mean age was 36.6 years. Of the 60 cases who underwent surgery, hemithyroidectomy was carried out in 30 cases, most of which were solitary benign thyroid nodules and 23 cases underwent total thyroidectomy. In 5 cases, near total thyroidectomy was carried out and modified radical neck dissection was done in 2 cases. In the present series mortality was zero and morbidity was minimal (25%). This was possible because of stress being laid on preoperative preparation of cases, careful attention and respect to anatomy of structures like recurrent laryngeal nerves and parathyroids

and achieving hemostasis. The incidence of post operative transient RLN palsy varies from 0.9 to 17% in various study groups. The incidence in this study group is 5% which is comparable to study results of Chiang et al (5.1%)⁵. In the present study, there were 3 cases (6%) of recurrent laryngeal nerve palsy of which all the 3 were transient (5%), unilateral (right side in two cases). Intraoperatively⁶ RLN identified in 56 patients among them 3 patients had anomalies one diagnosed to have papillary carcinoma of thyroid and rest 2 patients had benign nodules. In 4 patients intra operatively⁶ nerve has been not identified. Postoperatively 8 patients had hoarseness of voice in which 3 are with abnormal vocal cords position.

All the 8 patients were treated with nebulisation in which 5 patients regained their voice within 24 hours and 3 patients with abnormal vocal cords position had persistent hoarseness of voice. Postoperative IDL in the above 3 patients has shown vocal cords in median position (right side 2 patients and left 1).

All the 3 patients were treated with steroids and neurotrophic vitamins. After 2 months these 3 patients regained normal voice repeat IDL showed normal position of vocal cords.

Recurrent Laryngeal Nerve injury³:

Methods of identification:

1. posterior to inferior thyroid Artery
2. closely related to tubercle of zuckerkanndl
3. berry's ligament⁸

In the case of bilateral vocal cord paralysis,⁴ initial treatment involves obtaining an adequate airway. Tracheostomy may be emergently required. If endotracheal intubation is possible, however, it should be performed initially.

If the surgeon is certain the recurrent laryngeal nerves are both well preserved, a trial of extubation after several days may be performed. Intravenous steroids may be beneficial in this situation. One should extubate in a controlled setting in case reintubation is necessary.

CONCLUSION:

A clinical study of early post-operative complications⁹ in 60 patients undergoing various thyroidectomy procedures was done between May 2021 and April 2022 in PESIMSR, Kuppam.

In this study the incidence of RLN palsy is 5%, of these all were transient. All the 3 cases of RLN injury were recognised immediately and were given appropriate treatment. All these cases, the injuries that occurred and the follow-up gives a final conclusion that sound knowledge about the recurrent laryngeal nerve anatomy and its variations and anomalies, careful identification of recurrent laryngeal nerve during surgery will prevent its injuries during surgery and watchful post op monitoring will help in managing the complications that ensue because of that. Inflammatory diseases of thyroid and malignant disease have an impact over RLN injuries during surgery.

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