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A Study of Post Operative Complications of Thyroid Surgery

Akash Krishna[1], G. Muralidharan[2], Reshma Rajeev[3]

[1,3]Junior Resident, Department of General Surgery, Shri Sathya Sai Medical College & Research Institute,

Sri Balaji Vidyapeeth deemed to be university, Puducherry

[2]Professor and Head, Department of General Surgery, Shri Sathya Sai Medical College & Research Institute,

Sri Balaji Vidyapeeth deemed to be university, Puducherry

ABSTRACT

Introduction- Thyroidectomy continues a difficult surgical treatment. Because are numerous critical & sensitive anatomy elements near area of thyroid, as well as great blood supply in area of neck, which makes procedure highly vulnerable to difficulties. Methodology- This Prospective Cohort Study was conducted among postoperative patient who are diagnosed with thyroid swelling among 50 Inpatients and outpatients selected using Convenient Sampling. Patients admitted and positively diagnosed as having thyroid swellings requiring surgical management and willing for surgery and above 18 years were included in this study. Demographic data such as age and sex will be recorded. Patients will be interviewed for the history and a thorough physical examination will be conducted including Vitals, Systemic examination, neck examination after due informed consent is taken. Results- Thyroid disease is more common in females in the male female ratio of 1:8. Overall incidence of hypocalcemia is (15/54) 27.7%. All of them are transient and none is permanent. Incidence of hypocalcemia is more in more extensive surgery. Highest in total thyroidectomy. Two cases of cord paralysis was seen. Conclusion- There has been a significant reduction in the incidence of complications and mortality in thyroid surgery due to improved surgical techniques.

Keywords: *Thyroidectomy, Post op complications, Recurrent Laryngeal Nerve Palsy*

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1. INTRODUCTION

Thyroidectomy continues a difficult surgical treatment. Because are numerous critical & sensitive anatomy elements near area of thyroid, as well as great blood supply in area of neck, which makes procedure highly vulnerable to difficulties. Thyroid removal done by experienced surgeons is currently one of the safest procedure performed. The complications following surgical removal of thyroid gland are rare; however when they occur their consequences can often be debilitating and even life-threatening.1 The major complications include postoperative hemorrhage, respiratory obstruction, thyroid storm, hypoparathyroidism, and laryngeal nerve injuries. Thyroidectomy is the third most common cause of bilateral vocal fold immobility, and also, a significant number of unilateral vocal cord paralysis are caused by it. Patients developing complications such as permanent hypocalcemia and recurrent laryngeal nerve injury have a diminished quality of life and increased health costs and often require lifelong replacement therapy, further surgical procedures, and rehabilitation. Several studies have conclusively shown that increased experience of the surgeon is significantly associated with a decrease in complications post thyroid surgery.2,3

In this study, we assessed the occurrence of various postoperative complications following the different thyroidectomy procedures and adequate preoperative patient preparation, careful, meticulous surgical technique, and early recognition of postoperative complications with the prompt institution of treatment in reducing morbidity and providing the patient with the best chance of a satisfactory outcome.

2. METHODOLOGY

This Prospective Cohort Study was conducted in the Department of General Surgery, Shri Sathya Sai Medical College & Research Institute, Sri Balaji Vidyapeeth deemed to be university, Puducherry. Study conducted among postoperative patient who are diagnosed with thyroid swelling among 50 Inpatients and outpatients selected using Convenient Sampling.

Patients admitted and positively diagnosed as having thyroid swellings requiring surgical management and willing for surgery and above 18 years were included in this study.

Patients with thyroid swellings with an already damaged R.L.N as diagnosed by preoperative I.D.L examination, who undergone thyroidectomy for recurrent thyroid disease, concomitant lymph node dissection and hyperparathyroidism, and who have undergone thyroidectomy and who were lost for follow up were excluded.

Demographic data such as age and sex will be recorded. Patients will be interviewed for the history and a thorough physical examination will be conducted including Vitals, Systemic examination, neck examination after due informed consent is taken. These findings will be recorded in a predesigned proforma. Patients will be followed for postoperatively for any complication.

The following are the routine investigation done other than the basis investigation-FNAC, Thyroid profile, ENT evaluation for vocal cord status, Serum calcium levels, USG of thyroid is not routinely done.

Only 3 basic types of surgery are done-Hemi-thyroidectomy in solitary nodule of thyroid, Total thyroidectomy in malignancy and Sub-total thyroidectomy with either a monoliteral remnant (or) bilateral remnant.

All patients were not subjected to routine post-op assessment before discharge. Vocal cord mobility is noted on the table as the anesthetist removes the endo tracheal tube. Patient with voice change are subjected to ENT evaluation. Patient with vocal cord palsy are started on steroids and regularly followed up.

Statistical Analysis: Data was entered into Microsoft excel data sheet and analysed using SPSS 22 version software.

3. RESULTS

In present study Patients Sex Incidence was recorded and found that around 12% participants were male and rest that is majority (88%) were female population. Thyroid disease is more common in females in the male female ratio of 1:8.

Table 1- Distribution of Breakup of Pathology

S.NO	TYPE	TOTAL	PERCENTAGE
1	SNG	26	**52**
2	MNG	20	**40**
3	DIFFUSE GOITRE	**4**	**8**

Table 2- Distribution of SNG

S.NO.	HISTOPATHOLOGY	TOTAL OUT OF 26	PERCENTAGE
1	Colloid	17	**65.3**
2	Dominant Nodule	4	**15.3**
3	Follicular Adenoma	4	**5.3**
4	Papillary Carcinoma	1	3.8

Table 3- Distribution of SNG

S.NO.	TYPE	TOTAL OUT OF 20	PERCENTAGE
1	True MNG	13	
2	Thyroiditis	6	
3	Colloid Goiter	**1**	

Overall incidence of hypocalcemia is (15/54) 27.7%. All of them are transient and none is permanent. Incidence of hypocalcemia is more in more extensive surgery. Highest in total thyroidectomy.

Table 4- Incidence of various procedures

S.NO.	PROCEDURE	TOTAL OUT OF	PERCENTAGE
1	HEMI	4/22	**16**
2	SUB TOTAL	10/28	**35**
3	**TOTAL**	**1/1**	**100**

Table 5- Incidence of hemorrhage

S.NO.	TYPE	TOTAL OUT OF 50	PERCENTAGE
1	PER-OP	4	
2	POST-OP	2	
3	**BOTH**	**1**	

Voice change was noted in 3 of 50 cases.
"Two cases of cord paralysis was seen. The overall incidence of recurrent laryngeal Nerve palsy is 2%". "Of this only 1 showed permanent paralysis bringing the incidence of permanent "RLN paralysis to 4%". Cord edema is supposed to be due to endotracheal intubation and it settled with steroids.

Table 6- Incidence of voice change

S.NO.	TYPE	TOTAL OUT OF 50	PERCENTAGE
1	RLN	2	**4**
2	SLN	0	**0**
3	CORD EDEMA	**1**	**2**

Table 7-Sum up of complication rate in thyroidectomy:

S.NO.	TYPE	INCIDENCE
1	Haemorrhage	**12.9**
2	Hypocalcaemia	**27.7**
3	Voice Change	**5.5**
4	Wound Infection	**0**
5	Scar Hypertrophy	**9.2**
6	No Complications	44.7

4. DISCUSSION

Complications of thyroid surgery are uncommon, but some complications like postoperative bleeding with airway compression and bilateral palsy of the recurrent laryngeal nerve (R.L.N.) can be life-threatening. Our study found that the minimum patient age was 20 years, and the maximum age was 75 years. The average age was 20-30 years. In the study done by Soni N et al. 4, most of the patients presented in the 3rd and 4th decades with a mean age of 38.1 years. Lalidaet al.,5 in his study of 361 patients, found that age ranged from 25- 82 years, and Siddique found maximum incidence in 4th and 5th decades in our Country.

Taking sex incidence, the male: female ratio was 1:8. In the Stojadinovic6 series, the ratio is 2:8, and in the Shandilya7 series, the ratio is 2.3:7.7. Thyroid swellings were more common in females (F: M =5.6:1) in the study done by Soni N et al. 4There was a female preponderance in this series, but it was lower than the studies of Lalida and Siddique.8

The most common diagnosis in our study was seen in 50 patients were Solitary thyroid nodule 26(52%), followed by Multinodular goiter 20 (40%) and Diffuse Goiter that were 4(8%). In the study done by Soni N et al. 4 On histopathological examination most common finding was nodular goiter (49.1%), then multinodular goiter (28.3%), follicular adenoma (16.9%), and malignancies (5.7%). In the study done by Soni N et al. 4 Hemithyroidectomy was the most common procedure performed (63.6%), followed by total (27.3%) and near-total thyroidectomies (5.5%). The postoperative complications after thyroidectomies were hypocalcemia (16.9%), recurrent laryngeal nerve (R.L.N.) injury(5.7%), and surgical site infection (1.9%).

In the study done by Bhattacharya N et al. 9 among 17 patients undergoing total thyroidectomy, postoperative wound hematoma was noted in 1.0%, wound infection in 2.0%, and a mortality rate of 0.2%, Postoperative hypocalcemia was reported in 6.2% of patients. Unilateral and bilateral vocal cord paralyzes were 0.77% and 0.39%. The most common indications for total thyroidectomy were thyroid malignancy and goiter. The mean length of stay was 2.5 days.

In the study done by Bishow Tulaschan et al. 10 among 84 cases of thyroid surgery, a case of a hematoma, 2 cases of transient recurrent laryngeal nerve palsy, 1 case of serous discharge, 2 cases of hypocalcemia, 1 case of numbness above the incision site and 1 case of superior laryngeal nerve palsy were noted. In the study done by Chandrasekhar et al. 11 in 100 patients of thyroid surgeries, Complications was noted in 20%, and the most common complication was transient hypocalcemia in 12%, Transient R.L.N. palsy in 6%, wound infection, wound hematoma, and thyroid storm was not seen in the study, and the highest incidence of complications was seen with total thyroidectomy and in multinodular goiter.
Conclusion

There has been a significant reduction in the incidence of complications and mortality in thyroid surgery due to improved surgical techniques. The mentionable postoperative complications like hemorrhage, recurrent laryngeal nerve damage, hypoparathyroidism, and mortality depend on surgery.

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