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Assessment of Post-operative Complications in Patients Undergoing Thyroid Surgery

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ABSTRACT

Introduction-Thyroid surgeries, among the most common surgical procedures globally, present with varied complications.

Methodology-In this cross-sectional, retrospective, record-based study, a total of 107 patients who underwent thyroidectomies and satisfied the inclusion criteria, were recruited using convenience sampling technique. This study was conducted. Data were collected from medical records using a researcher-created data extraction form after ethical approval from the institutional ethics committee. The data were analysed using SPSS software with a p-value of <0.05 considered to be statistically significant.

Results-Of the 107 patients who underwent thyroidectomies, 92 (85.9%) reported one or more complications. Complications were most common (90.2% of patients) in the 25-34 years age group and among females (83.3%). The most common complications were dysphagia (30.84% of patients), voice change (21.50%), and respiratory obstruction (8.41%). Temporary hypocalcemia developed in 3.74% of these patients, while tracheal injury and hematoma were documented in 3.74% and 1.87%, respectively.

Conclusion-The most common post-thyroidectomy complications in this group of patients were dysphagia and voice change, while hypocalcemia, tracheal injury, and hematoma were rare complications.

Keywords: *Dysphagia, Risk Factors, Complications, Thyroidectomy*

1. INTRODUCTION

One of the least frequently observed endocrine disorders is thyroid illness. The thyroid is a gland that produces hormones and regulates metabolic.[1] Thyroid disorders is estimated to affect 42 million individuals in India, according to study done there.[2] Thyroid disorders have gone up in India during the last ten years, according to a number of regional studies.[3] Thyroid disorders can be managed with either medical or surgical means. In this context, one of the most common medical treatments is thyroidectomy, which can be partial or whole. Improvements in surgery protection and ways to diagnose are making the surgery easier.[4]

Post-operative mortality and morbidity rates are decreasing as a result of improvements in surgical techniques and treatments. Yet, recurring laryngeal nerve injury, following surgery bleeding lack of calcium, and permanent hypoparathyroidism are some of the main adverse effects of thyroid surgery. Gender, age, and the kind of thyroid illness are among risk variables for thyroidectomies that have been examined in certain research.[5] The purpose of this research effort is to determine the risks and specific factors related to thyroidectomies.

2. METHODOLOGY

A cross-sectional, records-based retrospective study was conducted among 107 post-operative thyroid surgery patients in the general surgery department of Meenakshi Medical College Hospital & Research Institute from January 2024 to December 2024. During the study period, 107 of 124 patients operated for thyroid issues satisfied the inclusion criteria and were included in the final sample.

The method of convenience sampling was applied. A researcher-created extraction form was used to manually extract data from the medical records of the patients. Age, sex, and type of surgery for the thyroid were among the risk factors for post-

thyroidectomy adverse effects, as were the duration of their initial visit with the physician and the location of their {seeking medical treatment behaviour}. Other risk factors included recurrent laryngeal nerve injury, tracheal injury, hoarseness, haematoma formation, hypocalcaemia, wound infection, loss of high-pitched sound, seroma, and thoracic duct injury. Both the post-operative findings based on clinical evaluations and the problems recorded in the records were noted. Also mentioned were the recorded biochemical and/or radiological examinations. The results in this area were taken from the case sheets and recorded since calcium levels are regularly assessed both before and after surgery (for both total and subtotal thyroidectomies). The research covered all thyroid surgery cases with complete medical records and appropriate confirmation. Chronic kidney illness, pre-operative hypoparathyroidism, a previous diagnosis of dysphonia, and repeated thyroid surgeries were excluded factors.

The collected data were entered into a Microsoft Excel spreadsheet and analyzed using SPSS software. All categorical variables were expressed as frequency and proportion. Descriptive statistics were expressed as mean±SD, with range. A chi-square test and Fisher's exact test were used as tests of association, with <0.05 considered to be statistically significant.

3. RESULTS

The medical records of 107 people who had thyroidectomies among January and December of 2024 were examined in the present research. 85.9% of patients were reported to have problems. Males had been surpassed by females (67.2%). The average ages of those surveyed was 33.6±9.7 years, with a range of 18.0 to 64.0 yrs. The BMI was 25.7±3.8 on average. Of the 107 individuals, 28.9% were overweight, 11.2% were obese, 3.7% were underweight, and 56.0% had a normal BMI. Overall, 45.7%participants had no jobs and 57.9% resided in rural areas. Ninety-two (85.9%) of the 107 individuals experienced at least one problem.

Table 1. Association of socio-demographic characteristics of study participants with complications (n=107).

Variable		Complications present (n=92)	Complications absent (n=15)	p-Value
Age group (years)	18-24 (n=18)	13 (72.3%)	5 (27.7%)	0.14*
	25-34 (n=41)	37 (90.2%)	4 (9.8%)	0.46*
	35-44 (n=24)	21 (87.5%)	3 (12.5%)	0.92**
	45-54 (n=15)	13 (86.6%)	2 (13.3%)	0.75**
	55-64 (n=9)	8 (88.8%)	1 (11.2%)	0.81**
Gender	Male (n=35)	32 (91.4%)	3 (8.6%)	0.41*
	Female (n=72)	60 (83.3%)	12 (16.7%)	
BMI	Underweight (n=4)	4 (100%)	0	0.92**
	Normal (n=60)	52 (86.7%)	8 (13.3%)	1.0*
	Overweight (n=31)	27 (87.1%)	4 (12.9%)	0.92*
	Obese (n=12)	9 (75%)	3 (25%)	0.47**
Permanent residence	Urban (n=45)	37 (82.2%)	8 (17.8%)	0.50*
	Rural (n=62)	55 (88.7%)	7 (11.3%)	
Educational status	Primary (n=11)	10 (90.9%)	1 (9.1%)	1.0*
	High school (n=27)	26	1	0.14**
	Intermediate (n=30)	23 (76.6%)	7 (23.4%)	0.16*
	Graduate (n=28)	24 (85.7%)	4 (14.3%)	0.79*
	Postgraduate (n=11)	9 (81.8%)	2 (18.2%)	1.0**

Employment status	Unemployed (n=49)	43 (87.8%)	6 (12.2%)	0.84*
	Employed (n=58)	50 (86.2%)	8 (13.8%)	
Type of family	Nuclear family (n=44)	36 (81.8%)	8 (18.2%)	0.45*
	Joint family (n=50)	44 (88%)	6 (12%)	0.78*
	Three-generation family (n=13)	12 (92.3%)	1 (7.7%)	0.78**
Marital status	Unmarried (n=37)	29 (78.4%)	8 (21.6%)	0.18*
	Married (n=70)	63 (90%)	7 (10%)	

Table 2. Complication status with the health-seeking behavior (n=107)

Health-seeking behavior		**Complications present**	**Complications absent**	**p-Value**
Delay	>10 days (n=9)	8 (88.9%)	1 (11.1%)	0.81*
	10 days-1 month (n=76)	64 (84.2%)	12 (15.8%)	0.60*
	>1 month (n=22)	20 (90.9%)	2 (9.1%)	0.69**
Whom did you first approach	Local doctor (n=18)	17 (94.4%)	1 (5.6%)	0.44**
	PHC (n=30)	26 (86.7%)	4 (13.3%)	0.86**
	Tertiary hospital (n=59)	49 (83.1%)	10 (16.9%)	0.49*

Table 3. Association of types of surgery performed with complications.

Management	**Complication present (n=92)**	**Complication absent (n=15)**	**p-Value**
Total thyroidectomy (n=29, 27.1%)	29 (100%)	0 (0%)	0.02*
Hemithyroidectomy (n=75, 70%)	61 (81.3%)	14 (18.7%)	0.06**
Isthmusectomy (n=2, 18.6%)	1 (50%)	1 (50%)	0.64*
Total thyroidectomy + MRND (n=1, 0.93%)	1 (100%)	0 (0%)	0.29*

4. DISCUSSION

In this particular research, there were more females than males. Nonetheless, problems were more prevalent amongst male individuals, whereas more females had thyroidectomies. According to Alqahtani et al., among all patients who had thyroidectomies in Saudi Arabia, women suffered higher problems than men.[6] According to a 2013 study by Pandey et al., women made up 70% of the subjects.[7] Alqahtani et al.'s 2021 investigation revealed that 151 out of the 182 participants were female.8. The functional classification of the problems may be the cause of this discrepancy. Only haematoma, voice modifications, and hypocalcaemia were addressed in previous report; the latest one examined a collection of problems.6. The current research demonstrated that there was no statistically significant connection between post-operative problems and

gender, age, or BMI. In a Saudi Arabian research of individuals receiving thyroidectomies, similar outcomes were obtained.

Complications were higher among research participants who smoked and drank alcohol and ate a non-vegetarian diet, albeit there was no statistically significant correlation. Following the procedure, all of individuals with thyroid illness who had received radiation exposure experienced problems. Post-thyroidectomy problems were also observed in patients with iodine shortage as a risk factor. Post-operative complications were statistically significantly correlated with a family history of thyroid dysfunction.

Following thyroid surgery, post-operative dysphagia is prevalent. The main repercussion in the current research was post-operative dysphagia, which was followed by wound infections and transient voice changes. Rarely, breathing obstruction, haemorrhage, and hypocalcaemia were noted. A strong correlation was found between the probability of post-operative complications and total thyroidectomies. Three individuals experienced chronic hypocalcaemia, while 116 patients experienced post-operative transient hypocalcaemia in a study conducted in 2021 with 182 patients by Alqahtani et al.[8]

5. CONCLUSION

Voice alteration and dysphagia were the most common post-thyroidectomy sequelae, while haematoma, tracheal damage, and hypocalcaemia were uncommon. More problems were expressed by men. Increased problems following thyroidectomy were linked to alcohol consumption, tobacco use, and non-vegetarian diet. Those that sought medical assistance as soon as possible and sought out hospitals showed a lower incidence of issues. More difficulties were reported by those with iodine shortage, family history, and prolonged exposure to radiation. Complete thyroidectomies have more complications.

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