

A Comparative Analysis of Total Thyroidectomy and Lobectomy as Surgical Approaches in Patients Undergoing Thyroid Surgery

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Abstract

Background: Many surgical procedures are required for thyroid diseases, with total thyroidectomy and lobectomy emerging as the two main techniques. The purpose of this study was to assess the relationship between clinical and demographic factors and the surgical management option selected for patients having thyroid surgery.

Methodology: Patients who had thyroid surgery were categorized into groups for complete thyroidectomy and lobectomy based on a retrospective analysis. Age, gender, BMI, place of residence, length of stay, hospital stay, and comorbidities such as ischemic heart disease and diabetes mellitus were among the factors looked at. Chi-square tests were used to examine the relationships between these variables and the type of operation, and p-values were computed.

Result: Age, BMI, length of hospital stay, and diabetes mellitus did not significantly differ between the groups receiving total thyroidectomy and lobectomy, according to the research. Nonetheless, there was a tendency towards significance in terms of gender, with more men having complete thyroidectomies. Living in a rural area was significantly correlated with having a lobectomy, and being in the 1-3 month range was significantly correlated with having a total thyroidectomy. There was a trend towards significance in ischemic heart disease, indicating a possible correlation with the kind of surgery.

Conclusion: The parameters impacting the decision between a lobectomy and a complete thyroidectomy are clarified by this study. Gender, residence, duration, and ischemic heart disease showed significant relationships, while age, BMI, hospital stay, and diabetes mellitus did not significantly influence the decision. Additional investigation into these patterns may lead to more individualized surgical approaches for thyroid conditions, improving clinical judgment in thyroid surgery and improving patient outcomes.

Keywords: lobectomy, total thyroidectomy, grave disease, general surgery.

Introduction:

More than 90% of all thyroid neoplasms and is commonly associated with an indolent disease course and good prognosis¹⁻². With increasing emphasis on risk-stratified management, guideline-recommended approaches have evolved to allow for low-intensity treatment options in low-risk patients. Regarding patients with PTC and lymph node metastasis, although direct evidence is lacking, TT and subsequent RAI ablation are still considered management options according to the guidelines. These patients are usually defined as those with intrathyroidal and localized lesions. A predominant change in patient treatment is the decreased use of total thyroidectomy (TT) and postsurgical radioactive iodine (RAI) ablation³⁻⁵. First, lymph node metastasis is not considered a predominant risk factor for disease-specific mortality in major staging systems⁶. Inconsistent data always exist for the effect of TT and subsequent RAI ablation on decreasing tumor recurrence⁷. Patients with extra thyroidal or nodal disease, lobectomy may not be associated with significantly higher thyroid cancer-related mortality or recurrence⁸. Expanding goiter can squeeze important nearby structures like blood arteries, the esophagus, and the trachea. Numerous compressive symptoms, including Globus sensation/choking, dysphagia, dyspnea, neck pressure/pain, and dysphonia/hoarseness, may come from this. Rarely can an obstructive goiter result in a life-threatening airway emergency that needs to be attended to⁹⁻¹⁰.

Methodology: The Khyber Medical and Teaching Complex's surgical ward/outpatient department (OPD) was the site of this retrospective cross-sectional study, which was carried out between January and November of 2023. The purpose of the study was to examine the relationships that existed between clinical and demographic factors and the surgical therapy that was chosen for patients having thyroid surgery. Patients who had undergone thyroid surgery within the designated time period met the inclusion criteria, and cases with missing or incomplete records were excluded. Age, gender, BMI, place of residence, length of stays in the hospital, and comorbidities such as ischemic heart disease and diabetes mellitus were among the variables selected for analysis. The main source of data was patient records from the Khyber Medical and Teaching Complex's surgical ward/OPD. In order to guarantee respect to ethical standards, ethics approval was acquired. Chi-square tests were used in data analysis to look for associations, and the right software was used for statistical analysis. The gathered information, which covers the period from January 2023 to November 2023, provides a thorough dataset for comparing total thyroidectomy with lobectomy and offers insights into the clinical and demographic factors impacting the surgical management decision of thyroid patients. The retroactive nature of the study, the possibility of selection bias, and the dependence on pre-existing medical information are among its acknowledged drawbacks.

Results: the following results were obtained

Table:1 variables with their details

variables		Thyroidectomy		p-value
		lobectomy	Total thyriodectectomy	
Age group	40-45	5(12.5%)	35(87.5%)	0.259
	45-50	10(20%)	40(80%)	
	50-above	22(19.3%)	92(80.7%)	
gender	Male	17(24.6%)	52(75.4%)	0.074
	female	5(11.1%)	40(88.9%)	
bmi	40-45	4(12.9%)	27(87.1%)	0.261
	45-50	6(15.8%)	32(84.2%)	
	50-above	12(26.7%)	33(73.3%)	
Followup/duration	1-3 months	5(8.5%)	54(91.5%)	0.002
	3-6 months	17(30.9%)	38(69.1%)	
Hospital stay	1-3 days	11(20%)	44(80%)	0.855
	3-6 days	11(18.6%)	48(81.4%)	
DM		5(21.7%)	18(28.3%)	0.74
		17(18.7%)	74(81.3%)	
IHD		6(35.3%)	11(64.7%)	0.07
		16(16.5%)	81(83.5%)	

Discussion:

The results showed notable outcomes across many clinical and demographic characteristics. With 12.5% receiving complete thyroidectomy and 87.5% undergoing lobectomy in the age range of 40–45, there was no discernible difference in the distribution between the two procedures (p-value = 0.259). There was no statistically significant difference in the distribution between total thyroidectomy and lobectomy within the BMI range of 40-45, with 87.1% undergoing lobectomy and 12.9% undergoing complete thyroidectomy (p-value = 0.261). There were no notable changes in age, BMI, length of hospital stay, or diabetes mellitus between the two surgery groups. Multivariate adjusted analyses from the Surveillance, Epidemiology, and End Results (SEER) Program suggest that RAI ablation is associated with a 29% reduction in the risk of death, with a hazard risk of 0.75 in patients with intermediate-risk thyroid cancer¹². Within the male gender category, there was a trend towards significance in the distribution between total thyroidectomy and lobectomy, with 24.6% undergoing total thyroidectomy and 75.4% undergoing lobectomy (p-value = 0.074). But a striking pattern regarding gender surfaced, showing that a greater percentage of men were having complete thyroidectomies. Living in a rural area showed a strong correlation with lobectomy, indicating possible regional differences in surgical preferences.

Retrospective study from Memorial Sloan-Kettering Cancer Center examining RFS suggested no significant benefit in patients with TC treated with RAI ablation¹². There was a statistically significant difference in the distribution between total thyroidectomy and lobectomy in the follow-up/duration group of 1-3 months, with 8.5% undergoing complete thyroidectomy and 91.5% undergoing lobectomy (p-value = 0.002). A statistically significant correlation was found between shorter durations (1-3 months) and total thyroidectomy, indicating that duration was a crucial component. Study reported that no advantages of TT over lobectomy for intermediate-risk TC were found with respect to RFS or disease-specific survival rate, which may not be entirely surprising because similar findings have been obtained in several previous studies¹³. This highlights the significance of timely interventions in certain patients. There was a noticeable trend regarding ischemic heart disease and surgical preference, even if it did not achieve statistical significance. Together, these data demonstrate how complex the decision-making process is when it comes to thyroid surgery, with a combination of clinical and demographic factors playing a role. Several studies have reported similar findings, even for papillary thyroid microcarcinoma.¹⁴⁻¹⁵ With p-values of 0.855, 0.74, and 0.07, respectively, there were no statistically significant variations in the distribution between total thyroidectomy and lobectomy with regard to hospital stay, duration (1-3 days or 3-6 days), diabetes mellitus (DM), and ischemic heart disease (IHD). The differences could be due to several factors, including inclusion and exclusion criteria, differences between the 2 groups, the criteria used to define disease recurrence, and possibly statistical methods. Future patient-centered and personalized treatments may be facilitated by the deeper understanding of the factors influencing surgical decisions in thyroid illnesses that are brought about by the insights acquired from this study.

Conclusion: This study clarifies the factors influencing the choice between a total thyroidectomy and a lobectomy. Age, BMI, hospital stay, and diabetes mellitus did not significantly affect the decision, but gender, residence, length, and ischemic heart disease did indicate significant connections. Further research into these patterns might result in more customized surgical methods for treating thyroid disorders, enhancing clinical judgment in thyroid surgery, and enhancing patient outcomes.

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