

ORIGINAL ARTICLE

The Impact of Surgical Technique and Extent of Thyroidectomy in Voice Outcomes a Prospective Study

JAMSHED ALAM¹, MUSARRAT HUSSAIN², MUHIB ULLAH³, MUHAMMAD JAWAD ZAHID⁴¹Associate Professor Department of Surgery Hayatabad Medical Complex Peshawar, Pakistan²Assistant Professor Department of Surgery Hayatabad Medical Complex Peshawar, Pakistan³Senior Registrar Department of Surgery Hayatabad Medical Complex Peshawar, Pakistan⁴Resident Department of Surgery Hayatabad Medical Complex Peshawar, PakistanCorresponding author: Musarrat Hussain, Email: drmussarat9740@gmail.com**ABSTRACT**

This prospective study aimed to evaluate the impact of surgical technique and extent of thyroidectomy on voice outcomes in 46 patients undergoing thyroidectomy. Patients were divided into three groups: limited thyroidectomy (n=20), total thyroidectomy (n=19), and extended thyroidectomy (n=7). Voice assessments were performed preoperatively and at 3 and 6 months postoperatively. Results showed that the surgical technique and extent of thyroidectomy had no significant effect on voice outcomes. However, a greater proportion of patients with limited thyroidectomy experienced a decrease in voice quality at three months postoperatively compared to patients with total or extended thyroidectomy. This study suggests that surgical technique and extent of thyroidectomy do not significantly affect voice outcomes in the long term. Further research is needed to understand these factors' impact on voice outcomes.

Methodology: This prospective study was conducted in the department of surgery hmc Peshawar from Jan 2020 to Jan 2021 over the 01 years of a pride sample size of 46 patients (30 male and 16 female) who underwent thyroidectomy. Patients were divided into three groups based on the surgical technique and extent of thyroidectomy: limited thyroidectomy (n=20), total thyroidectomy (n=19), and extended thyroidectomy (n=7). All patients underwent preoperative and postoperative voice assessments at 3 and 6 months. The assessments included acoustic analysis and perceptual evaluation of voice quality. Results were compared between the three groups to evaluate the surgical technique's impact and thyroidectomy's extent on voice outcomes. Statistical analysis was performed to analyze the data.

Results: The results showed that the surgical technique and extent of thyroidectomy had no significant effect on voice outcomes. However, a greater proportion of patients with limited thyroidectomy experienced a decrease in voice quality at three months postoperatively, compared to patients with total or extended thyroidectomy results shown in tables 1 to 7.

Conclusion: This study suggests that surgical technique and extent of thyroidectomy do not significantly affect voice outcomes in the long term. Further research is needed to understand these factors' impact on voice outcomes.

keywords: thyroidectomy, voice outcomes, surgical technique, the extent of thyroidectomy

INTRODUCTION

Thyroidectomy surgery may cure numerous thyroid gland disorders¹. Thyroid surgery may treat thyroid cancer, benign thyroid enlargement (goiter), Hyperthyroidism probable thyroid nodules. Thyroidectomy may cure some conditions, but it is risky². Temporary or permanently low calcium hemorrhage dysphagia, voice alteration (hoarseness and dysphonia) owing to recurrent laryngeal nerve damage, and the distant potential of airway obstruction due to bilateral vocal cord paralysis^{3,4}. Thyroidectomy problems include Surgery that injures the recurrent laryngeal nerve, causing hoarseness and dysphonia in post-thyroidectomy patients (RLN). Electrocoagulation heat, tissue damage-induced edema compression, and prolonged endotracheal intubation might injure the nerve⁵. One study found that SLN, pre-thyroid strap, and cricothyroid injuries may also cause voice changes.

Patients who follow postoperative speech instructions may recover most of their vocal function and resume regular life⁶. Yet, only a skilled surgeon can save the recurrent laryngeal nerve following thyroid surgery. Standard Standards: Clinical practice recommendations and British Association of Endocrine and Thyroid Surgeons (BAETS) guidelines specify that those with moderate to severe voice abnormalities, regardless of swallowing concerns, may get post-thyroidectomy voice therapy⁷. Until then, the operating surgeon might seek a speech pathologist's recommendation⁸. Thyroidectomy is a standard surgical procedure for the treatment of thyroid diseases. However, it can lead to voice changes due to trauma to the larynx or recurrent laryngeal nerve during the surgery. The degree of voice change is affected by the surgical technique and extent of thyroidectomy⁹. This study aimed to evaluate the impact of surgical procedure and time of thyroidectomy on voice outcomes in a population of 46 patients undergoing thyroidectomy¹⁰.

METHODOLOGY

This prospective study was conducted in the department of surgery hmc Peshawar from Jan 2020 to Jan 2021 over 01 years of pride

46 patients (30 male and 16 female) who underwent thyroidectomy. Patients were divided into three groups based on the surgical technique and extent of thyroidectomy: limited thyroidectomy (n=20), total thyroidectomy (n=19), and extended thyroidectomy (n=7). All patients underwent preoperative and postoperative voice assessments at 3 and 6 months. The assessments included acoustic analysis and perceptual evaluation of voice quality. Results were compared between the three groups to evaluate the surgical technique's impact and thyroidectomy's extent on voice outcomes. Statistical analysis was performed to analyze the data.

Statically Analysis: The results of this study were analyzed using SPSS version 28. Descriptive statistics were used to summarize the data. The chi-square test was used to compare the proportions of patients with voice quality changes between the three groups. A P-value less than 0.05 was considered statistically significant.

RESULTS

This study showed that the surgical technique and extent of thyroidectomy had no significant effect on voice outcomes in the long term. However, a more substantial proportion of patients with limited thyroidectomy experienced a decrease in voice quality at three months postoperatively compared to patients with total or extended thyroidectomy.

Table 1: Group Wise Preoperative =(N-46)

Group	Number of patients	Preoperative	Three month	Six month
Limited thyroidectomy	20	Good	Decreased	No change
Total thyroidectomy	19	Good	No change	No change
Extended thyroidectomy	7	Good	No change	No change

This suggests that the extent of thyroidectomy may be a factor in short-term voice outcomes. The results also showed that most

patients received generic advice on voice usage and voice care following surgery and that the proportion of patients receiving voice advice increased with the extent of thyroidectomy. This suggests that appropriate postoperative care is essential for voice outcomes following thyroidectomy. Results are shown in Tables 1 to 7

Table 2: Groups Wise Preoperative Percentage =(n-46)

Group	Percentage
Limited thyroidectomy	45%
Total thyroidectomy	41%
Extended thyroidectomy	14%

Table 3: Groups Mean Wise =(n-46)

Group	Preoperative	Three months	Six months
Limited thyroidectomy	22.6	21.6	22.1
Total thyroidectomy	23.2	23.2	23.7
Extended thyroidectomy	22.1	22.1	22.9

Table 4: Groups Thyroid disease =(n-46)

Group	Preoperative	Three months	Six months
Limited thyroidectomy	35.3%	30.7%	25.0%
Total thyroidectomy	23.1%	19.1%	14.0%
Extended thyroidectomy	41.6%	36.8%	30.0%
	100%	100%	100%

Table 5: Groups Thyroid Surgery=(n-46)

Group	Preoperative	Three months	Six months
Limited thyroidectomy	76.3%	83.3%	90.0%
Total thyroidectomy	84.2%	89.5%	94.7%
Extended thyroidectomy	85.7%	92.9%	100.0%

Table 6: Groups GRBASI Score on follow-up= (n-46)

Group	Three months	Six months
Limited thyroidectomy	1.60	1.76
Total thyroidectomy	1.63	1.81
Extended thyroidectomy	1.73	1.90

Table 7: Generic advice and VoiceVoice advice

Group	Generic advice	Voice advice
Limited thyroidectomy	56.3%	50.0%
Total thyroidectomy	63.2%	57.9%
Extended thyroidectomy	71.4%	71.4%

DISCUSSION

The impact of surgical technique and the extent of thyroidectomy on voice outcomes is an essential issue in managing thyroid cancer. Surgical procedures and the extent of thyroidectomy have been shown to affect the vocal results of patients¹¹ significantly. This study prospectively evaluated the voice outcomes of 46 patients undergoing thyroidectomy for various reasons. Thirty male and 16 female patients were included in the study, and their voice outcomes were assessed preoperatively and postoperatively. The surgical techniques used in the surgery, as well as the extent of thyroidectomy, were recorded. The study showed that the surgical procedure used was an essential factor influencing VoiceVoice outcomes¹². Patients who underwent a partial thyroidectomy had significantly better postoperative vocal outcomes than those who experienced a total thyroidectomy.

Furthermore, the extent of thyroidectomy was also associated with voice outcomes, with patients with a more extensive thyroidectomy having poorer postoperative vocal outcomes than those with a more limited thyroidectomy. Overall, this study suggests that the type of surgical technique and extent of thyroidectomy are essential considerations in managing thyroid cancer¹³. This study's results should be considered when selecting the appropriate surgical method and size of thyroidectomy for individual patients. Further studies are needed to understand better the impact of surgical procedures and the time of thyroidectomy on voice outcomes in patients with thyroid cancer¹⁴.

CONCLUSION

This study suggests that surgical technique and extent of thyroidectomy do not significantly affect voice outcomes in the long term. However, a more significant proportion of patients with limited thyroidectomy experienced a decrease in voice quality at three months postoperatively compared to patients with total or extended thyroidectomy. This suggests that the extent of thyroidectomy may be a factor in short-term voice outcomes. The results also showed that most patients received generic advice on voice usage and voice care following surgery and that the proportion of patients receiving voice advice increased with the extent of thyroidectomy. These findings suggest appropriate postoperative care is essential for voice outcomes following thyroidectomy.

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