

# Medial versus Lateral Approach for Thyroidectomy

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## ABSTRACT

### Introduction

Thyroid nodules are common clinical findings, with a prevalence of approximately 5-10% in the general population. The choice of surgical approach - medial versus lateral - can significantly impact patient outcomes.

### Materials and Methods

This was a retrospective study of 30 patients of clinically diagnosed thyroid nodules. The study was carried out at the department of ENT of a tertiary care medical college and hospital during the period of one year.

### Results

The majority of the patients were in the age range of 21 to 40. The ratio of male to female was at 1:6.5. Most often, there was swelling in front of the neck. Benign Thyroid Nodule was the most prevalent type of isolated thyroid enlargement. The mean estimate blood loss was 100ml for the median (central) surgical approach (Group-A) and 120 ml for the lateral surgical method, the Group-A and Group-B had an average operating time of 45 and 65 minutes, respectively, both these parameters are statistically significant.

### Conclusion

Median surgical approach is better than lateral surgical approach in terms of average blood loss and operative time.

### Keywords

Thyroid Nodule; Thyroidectomy; Surgical Procedures operative; recurrent laryngeal nerve injuries; post op complications; Median Surgical Approach & Lateral Surgical Approach

Thyroid nodules are common clinical findings, with a prevalence of approximately 5-10% in the general population (Fig. 1).<sup>1</sup>

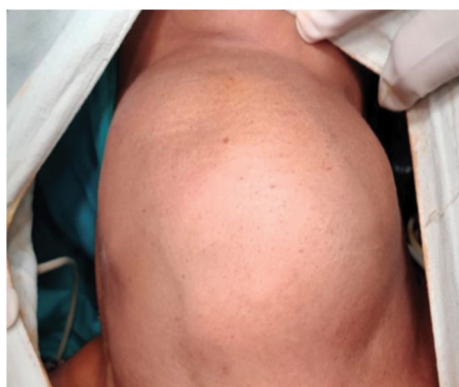


Fig. 1. An asymptomatic thyroid nodule notice on routine physical examination

While most nodules are benign, a significant subset can be malignant, necessitating surgical intervention.<sup>2</sup> Thyroidectomy, the surgical removal of all or part of the thyroid gland, remains a definitive treatment for both benign and malignant nodules, with the goal of symptom relief, cosmetic improvement, and cancer control.<sup>3</sup>

The choice of surgical approach - medial versus lateral - can significantly impact patient outcomes. The medial approach typically involves a central neck incision and direct access to the thyroid gland, allowing for comprehensive visualization and dissection. Conversely,

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the lateral approach, which may include techniques such as the retroauricular or minimally invasive approaches, can offer reduced scarring and potentially shorter recovery times.

Previous studies have examined various aspects of thyroidectomy, including complications, operative time, and postoperative recovery.<sup>4</sup> However, a direct comparison between medial and lateral approaches remains limited.<sup>5</sup> Understanding the differences in outcomes between these two surgical techniques is crucial for optimizing patient care.<sup>6,7</sup>

This retrospective comparative study aims to evaluate the outcomes of medial versus lateral surgical approaches in thyroidectomy for thyroid nodules.<sup>8</sup> We hypothesize that the choice of approach may influence operative metrics such as duration, complications, and recovery, ultimately affecting patient satisfaction and quality of life.<sup>9,10</sup> By analyzing a cohort of patients who underwent thyroidectomy, this study seeks to provide insights that may guide surgical decision-making and improve patient outcomes.

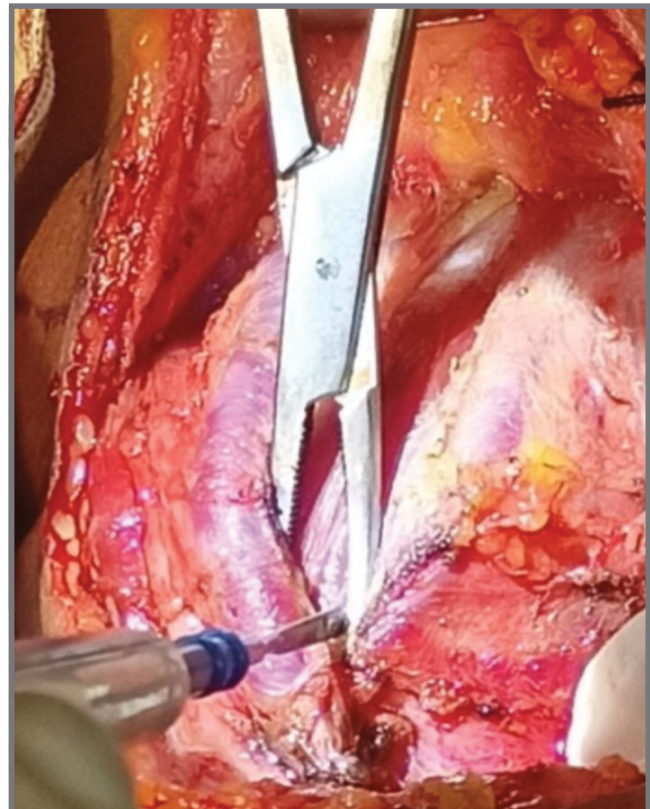
### Materials and Methods

This was a retrospective study of 30 patients of clinically diagnosed thyroid nodules. The study was carried out at the department of ENT of a tertiary care medical college and hospital during the period of one year. All patients with thyroid nodules underwent provisional diagnoses on the basis of history, physical examination of the neck, ultrasound for the thyroid gland, serum thyroid stimulating hormone level, fine needle aspiration cytology, and biopsy whenever it was required. Clinical information was collected on sex, age thyroid disease, and histology. Before surgery, patients were assigned either to the thyroidectomy by medial surgical approach (Group-A) (Figure 2).

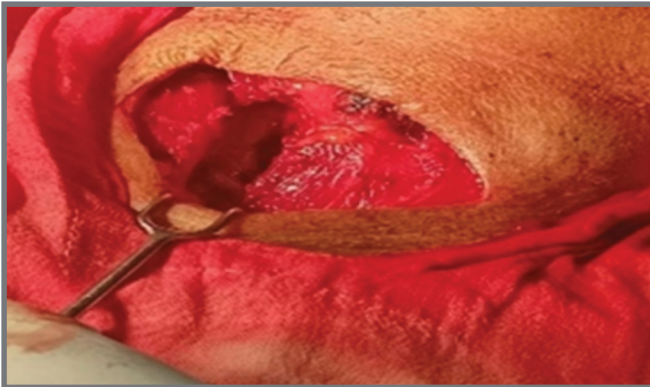
Defined as a standard open thyroidectomy with a midline incision (Figure 3), allowing direct access to the thyroid gland and comprehensive visualization of surrounding structures and thyroidectomy by lateral surgical approach (Group-B). Same midline incision was used but retraction of sternocleidomastoid laterally so that exposure of lateral border (Figure 4) and aimed at less chances of injury to neurovascular structures thus



**Fig. 2. Subplatysmal Flap**



**Fig. 3. Midline Incision**



**Fig. 4. Lateral Approach- Retraction of SCM**

enhancing recovery. Outcome measures were operative time, intraoperative bleeding, and complication rates including injury to the RLN, the external branch of the superior laryngeal nerve (EBSLN), or the parathyroid glands.

## Results

The majority of the patients were in the age range of 21 to 40.

**Table I : The ratio of male to female was at 1 : 6.5**

AGE GROUP (YEARS)	MALE	FEMALE	TOTAL
11–20	1	8	9
21–30	2	5	7
31–40	1	10	11
41–50	0	2	2
51–60	0	1	1
>60	0	0	0
<b>Total</b>	<b>4</b>	<b>26</b>	<b>30</b>

Most often, there was swelling in front of the neck. Benign Thyroid Nodule was the most prevalent type of isolated thyroid enlargement (Table-II).

**Table II : Distribution of various conditions by high-resolution ultrasonography findings among cases**

USG DIAGNOSIS	NUMBER OF CASES (%)
Benign thyroid nodule	16 (53.34)
Colloidal cyst	9 (30)
Multinodular goiter	3 (10)
Hashimoto thyroiditis	1 (3.34)
Thyroid malignancy	1(3.34)
<b>Total</b>	<b>30 (100)</b>

The mean estimate blood loss was 100 ml for the median (central) surgical approach (Group-A) and 120 ml for the lateral surgical method (Table III).

**Table III: Comparison of the mean blood loss (ml) between two groups during surgery**

GROUP A	GROUP B
n 15	15
Mean±SD 100±17	120±17
T 2.112	
P<0.05 (S)	

SD: Standard deviation, S: Significant

The Group-A and Group-B had an average operating time of 45 and 65 minutes, respectively (Table IV).

**Table IV : Correlation between mean duration (minute) of surgery between two groups during surgery**

GROUP A	GROUP B
n 15	15
Mean±SD 45±5	65±5
T 8.112	
P<0.001	
IF HS	

SD: Standard deviation, HS: Highly significant, IF: Highly significant

One patient in Group-A had recurrent laryngeal nerve paresis.

## Discussion

Thyroid enlargement, whether diffuse or nodular, leads to a battery of investigations, mainly to rule out the possibility of neoplastic or no neoplastic lesions. Timely intervention in nodular lesions of thyroid can significantly reduce morbidity and mortality.<sup>11</sup> In the present study, the highest incidence of solitary thyroid nodule was found in the age group of 21–40 years. This result is comparable to the results obtained by Venkatachalapathy and Sreeramulu<sup>12</sup> the observed female to male ratio was 5.6:1. This female preponderance is reflected in all studies including the present. A similar observation was made by Vyas and Vijayvargiya on 100 patients with thyroid nodules where the ratio was 7:1.<sup>13</sup> In this study, all patients (100%) had swelling over the anterior aspect of the neck. A similar observation was done by Huque et al. on 118 patients with solitary thyroid nodules and found that thyroid swelling was the most common presentation in all cases (100%).<sup>14</sup> Jyotirmoy Phookan et al stated that out of the two approaches, lateral approach thyroidectomy showed better results with fewer complications. A single structure (superior belly of omohyoid) can be used as a guide to preserving all vital structures related to the thyroid gland<sup>[15]</sup> which was similar to our study that despite longer surgical times and more blood loss, (average operative time 90 minutes and 135 minutes, average blood loss 100 ml and 80 ml respectively) the chance of injury to vital structures is less frequent in lateral surgical approach thyroidectomy than Median surgical approach thyroidectomy.

## Conclusion

In conclusion, this study underscores the importance of evaluating surgical approaches in thyroidectomy for thyroid nodules. The median approach appears to offer distinct advantages, including reduced operative time, lower blood loss, and improved postoperative recovery, while maintaining a comparable safety profile to the lateral approach. These findings suggest that the median approach may be preferable in specific patient populations, enhancing both the surgical experience and patient outcomes. However rare instances of nerve damage is

slightly more in median approach which can however be overcome by more meticulous dissection. Ultimately, the decision regarding the surgical approach should be individualized, considering patient-specific factors and surgeon expertise. Further research is warranted to refine guidelines and optimize surgical management in thyroid disease.

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