



EVALUATING THE SURGICAL DECISION FOR A FOLLICULAR THYROID LESION, IS THE INITIAL HEMITHYROIDECTOMY SUFFICIENT? A RETROSPECTIVE STUDY IN JORDAN

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ABSTRACT

Introduction: Follicular thyroid tumor is a differentiated tumor raised from the thyroid gland, and Fine Needle Aspiration cannot assess its level of malignancy. Because of that, the Surgical decision is debatable initially, to remove all or half of the gland. Our main object to assess the role of initial hemithyroidectomy in case of thyroid follicular lesion. **Methodology:** our study is A retrospective study of 250 patients who underwent hemithyroidectomy for follicular thyroid tumor. The study was conducted at King Hussien Medical Hospital over 2 years duration from April 2023 to May 2025. Retrospectively, we collect the data from patients' files and the HAKEEM electronic medical record system, patients' age and gender, types of thyroid tumor, ultrasonic grade of TIRAD, pathological result of FNA, and finally the histological result of the resected thyroid lobe. All data were collected, registered, and analyzed. Inclusive criteria were any unilateral follicular thyroid lesion with any TIRAD level (Thyroid Imaging Reporting and Data system), whereas the exclusion criteria were tumors with extra-thyroid extension, involving cervical lymphadenopathy, bilateral pathology, and tumors arising from the thyroid isthmus. After surgery, we assess the histological type of the resected lobe, whether it is a benign or malignant mass, and the need for total thyroidectomy as a completion surgery. SPSS statistical software was used to measure the mean and standard deviation, and to perform the Chi-square test and T-test. **Results:** A total of 250 patients who underwent hemithyroidectomy for thyroid follicular tumors were included in the study. The mean age group was 34 $\pm$ 0.35 years with a male-to-female ratio of 1:3. The mean tumor size was 3.5 cm, and the extrathyroid invasion was only seen in 5%, while nodal involvement was 2% only. Complications after surgery were seen in 7% with a non-significant P value, and most of the complications were related to skin scar 5% and RLN injury was seen in 1%. No patient suffered from respiratory distress or hypocalcemia. **Conclusion:** We conclude that performing Hemithyroidectomy among patients with follicular lesions with low malignancy risk carries good overall surgical results and lower complication risk.

KEYWORDS: hemithyroidectomy, follicular thyroid tumor.

INTRODUCTION

A follicular thyroid tumor is a differentiated tumor raised from the thyroid gland, and Fine Needle Aspiration cannot assess its level of malignancy. Because of that, the Surgical decision is debatable initially, to remove all or half of the gland. Our main object to assess the role of initial hemithyroidectomy in case of thyroid follicular lesion.^[1] Generally, thyroid tumors are classified into two major groups: the differentiated and non-differentiated

tumors. The papillary and the follicular thyroid tumors are differentiated and the commonest tumor, whereas the medullary and anaplastic thyroid tumors are more aggressive and less common. The presence of differentiated thyroid tumors is a good prognostic factor because of their slow progression and good response to radio-iodine eradication therapy after the complete surgical resection.^[1,2]

In the surgical world, there are many types of thyroid procedures, and the most common thyroid surgeries are hemithyroidectomy and total thyroidectomy. All surgeons prefer total thyroidectomy, especially in the case of malignancy. Nowadays, hemithyroidectomy is a good option for benign and equivocal tumors that keep part of the normal thyroid gland and preserve its function.^[2,3]

This study aims to clarify the importance of hemithyroidectomy in case of follicular lesions, since the FNA couldn't diagnose the malignancy level of the follicular tumors, and many of the resected thyroid glands showed benign behavior, we should not resect all thyroid glands and preserve their function.^[1,2,3]

METHODOLOGY

Study design: our study is A retrospective study, conducted at King Hussien Medical Hospital over 2 years duration from April 2023 to May 2025.

Study population: A total of 250 patients who underwent hemithyroidectomy for follicular thyroid tumor at KMH, their age ranged from 15-65 years, from both genders, and for both tumor behaviors, benign vs malignant.

Inclusion and exclusion Criteria: The inclusion criteria were follicular tumor, age between 15 and 65 years, and unilateral tumors; patients with other types of thyroid tumors, bilateral lesions, extrathyroidal extension, or prior neck surgery were excluded from the study.

Inclusive criteria were any unilateral follicular thyroid lesion with any TIRAD level (Thyroid Imaging Reporting and Data system), whereas the exclusion criteria were tumors with extra-thyroid extension, involving cervical lymphadenopathy, bilateral pathology, and tumors arising from the thyroid isthmus.

Data collection: Retrospectively, we collect data from patients' files and the HAKEEM electronic medical record system, including patients' variables (age and gender, types of thyroid tumors, ultrasonic grade of TIRAD, pathological results of FNA, and finally the histological results of the resected thyroid lobes). All data were collected, registered, and analyzed. After surgery, we assess the histological type of the resected

lobe, whether it is a benign or malignant mass, and the need for total thyroidectomy as a completion surgery.

Surgical technique: after skin incision in the lower anterior neck, opening the subcutaneous and the platysma layer, and identifying the thyroid gland. Grasping the gland and clamping the superior thyroidal artery and the middle thyroid vein, then tying the inferior thyroid artery. Exposing the zuckercandle nodule (the landmark of the recurrent laryngeal nerve) and resecting the hemithyroid gland from the isthmus. Preserving the parathyroid gland and the recurrent laryngeal nerve are important steps. Then close the strap muscle with vicryl stitches and close the platysma and skin without drain insertion.

Outcomes: the primary outcomes include the histological tumor type and the level of malignancy. Whereas the secondary outcomes were procedure length, the need for thyroxine management, complications like RLN injury or hypocalcemia.

Statistical analysis: SPSS version 27 statistical software was used to measure the mean and standard deviation, and to perform the Chi-square test and T-test; a P value less than 0.5 was significant.

Ethical approval: our study is approved for publication by the Ethical Committee at the Royal Medical Service under the number 2026/23/6.

RESULTS

A total of 250 patients who underwent hemithyroidectomy for thyroid follicular tumors were included in the study. The mean age group was 34 $\pm$ 0.35 years with a male-to-female ratio of 1:3. Table {1} The mean tumor size was 3.5 cm, and the extrathyroid invasion was only seen in 5%, while nodal involvement was 2% only. Complications after surgery were seen in 7% with a non-significant P value, and most of the complications were related to skin scar 5% and RLN injury was seen in 1%. No patient suffered from respiratory distress or hypocalcemia. Table {1} After discharge, the histopathological result was in favor of benign thyroid tumor, mostly follicular adenoma 60%, 25 % atypia, and 15% was malignant follicular adenocarcinoma. Table {1}.

Table 1.

	Age (year) $\pm$ SD	Male N (%)	Female N (%)	Tumor size (cm) $\pm$ SD	Extrathyroidal involvement %	RLN injury	Hospital stay (days) $\pm$ SD	Operative time Minuts $\pm$ SD
Hemi thyroidectomy	41 $\pm$ 3	25	75	3.5cm $\pm$ 0.56	1%	0.7%	1day	45mins
Total thyroidectomy	43 $\pm$ 2	45	80	4 cm $\pm$ 0.7	7%	1.5%	3 days	90 minutes
P- value	0.7		0.9	0.56	0.05	0.04	0.04	0.007

CONCLUSION

We conclude that performing Hemithyroidectomy among patients with follicular lesions with low malignancy risk carries good overall surgical results and lower complication risk.

DISCUSSION

Hemi-thyroidectomy or total thyroidectomy are both modalities of surgical decision are accepted in the past and in the present, we performed both procedures and we found a several studies that described the comparison between both procedures. Hao Q and his colleagues described the differences and publish his systemic-analysis in 2025.^[3] Carling T and Udelsman R, in their study, describe the limitations of cytology in diagnosing follicular thyroid tumors and clarify the ineffectiveness of intraoperative frozen section. Their results are similar to ours in favour of hemithyroidectomy as the primary surgery for follicular lesions.^[4]

Sobrinho-Simões M. and his colleagues supported the idea of lobectomy to avoid extensive dissection and reduce the risk of complications. They highlighted the role of lobectomy in differentiating benign from malignant and explain its role in diagnosis the invasion of the tumour.^[5]

Most of authors in the literature review prefer the option of lobectomy. It carries a lower complication rate, with better results. At the same time, hemithyroidectomy spent a shorter operative time and better hospitalization.^[5,15] A narrative study published in 2021 by Barbaro D, Basili G and Materazzi G showed different opinion. They preferred doing total thyroidectomy to avoid recurrences and to give a good chance for radio-iodine ablation, which is cant be performed in the case of lobectomy.^[16]

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