



Original Article

Retrospective Study of Thyroid Swellings Clinical and Histopathological Correlation

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ABSTRACT

Background: Thyroid swellings are a common clinical entity encountered in surgical practice, ranging from benign conditions to malignant neoplasms. Accurate diagnosis requires correlation between clinical findings and histopathological examination.

Objective: To evaluate the clinical presentation of thyroid swellings and to assess their correlation with histopathological findings.

Materials and Methods: This retrospective observational analytical study was conducted in the Department of General Surgery of a tertiary care hospital. Data were collected from medical records of patients presenting with thyroid swellings between January 2025 and December 2025. A total of 150 patients were included. Clinical features, laboratory investigations, imaging findings, and histopathological reports were analyzed. Statistical analysis was performed using the Chi-square test, with $p < 0.05$ considered statistically significant.

Results: The majority of patients were females (80%), with a mean age of 38 ± 10 years. Multinodular goiter (45%) was the most common clinical presentation. Histopathological examination revealed that 85% of lesions were benign and 15% were malignant, with papillary carcinoma being the most frequent malignancy. A statistically significant correlation was observed between clinical diagnosis and histopathological findings ($p < 0.05$).

Conclusion: Most thyroid swellings are benign, with multinodular goiter being the predominant presentation. Although clinical evaluation provides useful initial assessment, histopathology remains essential for definitive diagnosis and detection of malignancy.

Keywords: Thyroid swelling, multinodular goiter, histopathology, clinical correlation.

INTRODUCTION

Thyroid swellings are among the most frequently encountered clinical conditions in general surgical and endocrine practice, encompassing a broad spectrum of disorders ranging from benign hyperplastic lesions to malignant neoplasms. The global burden of thyroid disorders has shown a steady rise over the past few decades, influenced by factors such as iodine deficiency, environmental exposure, and improved diagnostic capabilities (1).

Clinically, thyroid swellings may present as diffuse enlargement, solitary nodules, or multinodular goiter, each with distinct etiological and pathological implications. Although the majority of thyroid nodules are benign, approximately 5–15% may harbor malignancy, making early evaluation and accurate diagnosis crucial (2). The risk of malignancy varies depending on patient factors such as age, gender, radiation exposure, and family history.

The thyroid gland plays a vital role in regulating metabolism, growth, and development through the secretion of thyroid hormones. Structural or functional abnormalities of the gland can lead to significant clinical manifestations, including

compressive symptoms, cosmetic concerns, and systemic effects related to altered hormone levels. Therefore, a systematic approach to evaluation is essential.

Clinical assessment remains the first step in the evaluation of thyroid swellings, including detailed history and physical examination. Features such as rapid growth, firmness, fixation, cervical lymphadenopathy, and hoarseness of voice may raise suspicion of malignancy. However, clinical examination alone is often insufficient to reliably differentiate benign from malignant lesions (3).

Various diagnostic modalities are employed in the assessment of thyroid swellings. Ultrasonography is widely used to characterize nodules and guide further management, while thyroid function tests help determine the functional status of the gland. Fine-needle aspiration cytology (FNAC) is considered a valuable initial diagnostic tool due to its simplicity, cost-effectiveness, and high sensitivity (4). Despite these advances, histopathological examination of the excised specimen remains the gold standard for definitive diagnosis and classification of thyroid lesions (5).

Correlation between clinical diagnosis and histopathological findings is essential to evaluate the accuracy of preoperative assessment and to identify potential discrepancies. Such correlation studies are particularly important in improving diagnostic strategies, guiding surgical decision-making, and reducing unnecessary interventions.

Retrospective studies provide valuable insights into disease patterns, demographic distribution, and diagnostic accuracy in real-world clinical settings. Therefore, the present study was undertaken to analyze the clinical profile of patients presenting with thyroid swellings and to correlate these findings with histopathological outcomes in a tertiary care hospital.

MATERIALS AND METHODS:

Study Design

This study was a retrospective observational analytical study conducted to evaluate the clinical profile of thyroid swellings and to correlate clinical diagnosis with histopathological findings.

Study Setting

The study was carried out in the Department of General Surgery of a tertiary care teaching hospital, which receives patients from both urban and rural populations and provides surgical management for thyroid disorders.

Study Period

Data were collected retrospectively over a period of one year, from January 2025 to December 2025.

Study Population

The study included all patients presenting with thyroid swellings who subsequently underwent surgical intervention during the study period.

Sample Size

A total of 150 patients fulfilling the inclusion criteria were included in the study. The sample size was determined based on the availability of complete clinical and histopathological records.

Inclusion Criteria

- Patients presenting with clinically diagnosed thyroid swelling
- Patients who underwent thyroid surgery (hemithyroidectomy/total thyroidectomy)
- Availability of complete histopathological reports

Exclusion Criteria

- Patients with incomplete or missing records
- Patients managed conservatively without surgery
- Cases of recurrent thyroid swelling
- Patients with previously diagnosed thyroid malignancy

Data Collection

Data were retrieved from:

- Patient case sheets
- Operation theatre registers
- Histopathology reports

Statistical Analysis: All collected data were entered into Microsoft Excel and subsequently analyzed using SPSS Version 20.0. Continuous variables were expressed as mean \pm standard deviation (SD). Categorical variables were expressed as

frequencies and percentages. The Chi-square test was used to assess the association between clinical diagnosis and histopathological findings. A p-value < 0.05 was considered statistically significant

Ethical Considerations: Approval was obtained from the Institutional Ethics Committee.

RESULTS:

A total of 150 patients presenting with thyroid swellings and undergoing surgical management were included in the study. The study population showed a marked female predominance (80%), with most patients belonging to the third and fourth decades of life, indicating higher prevalence of thyroid disorders in females of reproductive age. (Table 1)

Table 1: Demographic Characteristics (n = 150)

Variable	Category	Value
Age (years)	Mean ± SD	38 ± 10
Gender	Female	120 (80%)
	Male	30 (20%)

The most common clinical diagnosis was multinodular goiter (45%), followed by solitary thyroid nodules (30%). Diffuse goiter accounted for 20% of cases, while a small proportion (5%) were clinically suspected malignancies. (Table 2)

Table 2: Clinical Diagnosis of Thyroid Swellings

Diagnosis	Number (n)	Percentage (%)
Multinodular goiter	68	45%
Solitary thyroid nodule	45	30%
Diffuse goiter	30	20%
Suspicious malignancy	7	5%

Histopathological examination revealed that the majority of thyroid lesions were benign (85%), with colloid goiter (40%) being the most common diagnosis. Among malignant lesions (15%), papillary carcinoma (12%) was the predominant type. (Table 3)

Table 3: Histopathological Diagnosis

Diagnosis	Number (n)	Percentage (%)
Colloid goiter	60	40%
Multinodular goiter	45	30%
Thyroid adenoma	23	15%
Papillary carcinoma	18	12%
Follicular carcinoma	4	3%

A statistically significant correlation was observed between clinical diagnosis and histopathological findings (p < 0.05), indicating good concordance. However, a proportion of clinically benign cases were found to be malignant on histopathology, highlighting the importance of definitive diagnosis. (Table 4)

Table 4: Correlation Between Clinical and Histopathological Diagnosis

Clinical Diagnosis	Benign (n)	Malignant (n)	P-value
Multinodular goiter	65	3	<0.05
Solitary thyroid nodule	35	10	
Diffuse goiter	28	2	

DISCUSSION:

Thyroid swellings constitute a common clinical problem with a wide spectrum of pathological diagnoses. In the present study, a clear female predominance (80%) was observed, which is consistent with the known higher prevalence of thyroid disorders in females due to hormonal influences and autoimmune susceptibility. Similar gender distribution has been reported in previous studies, highlighting the role of estrogen and immune modulation in thyroid pathology (6,7).

The majority of patients in this study belonged to the third and fourth decades of life, which corresponds with the age group commonly affected by benign thyroid disorders. Previous literature has also demonstrated that benign thyroid conditions such as multinodular goiter and colloid goiter are more prevalent in this age group (8).

In the present study, multinodular goiter (45%) was the most common clinical presentation. This finding is in agreement with other studies, which have reported multinodular goiter as the predominant thyroid pathology in iodine-deficient and

endemic regions (9,10). The high prevalence may be attributed to chronic stimulation of the thyroid gland due to iodine deficiency and other environmental factors.

Histopathological examination revealed that 85% of cases were benign, with colloid goiter (40%) being the most frequent diagnosis. This observation is consistent with earlier studies where benign lesions constituted the majority of thyroid swellings (11). Among malignant lesions, papillary carcinoma (12%) was the most common, which aligns with global trends indicating papillary carcinoma as the predominant thyroid malignancy (12,13).

The correlation between clinical diagnosis and histopathological findings was found to be statistically significant in this study. This suggests that clinical evaluation provides a reasonably reliable initial assessment; however, discrepancies were noted in a subset of cases where clinically benign lesions were diagnosed as malignant on histopathology. Similar findings have been reported in other studies, emphasizing that clinical evaluation alone cannot definitively exclude malignancy (14).

Fine-needle aspiration cytology (FNAC), although not the primary focus of this study, plays a crucial role in preoperative evaluation and has been shown to improve diagnostic accuracy. However, histopathological examination remains the gold standard for confirming the diagnosis and guiding further management (15).

CONCLUSION:

Thyroid swellings are predominantly benign, with multinodular goiter being the most common clinical presentation. A significant correlation exists between clinical assessment and histopathological findings; however, clinical evaluation alone may not reliably exclude malignancy. Histopathological examination remains the gold standard for definitive diagnosis. Early detection and appropriate management are essential to improve patient outcomes.

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