

# Correlation Between Histopathology and Fnac in Thyroid Lesion Diagnosis

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## ABSTRACT

**Background:** FNAC is effective for the identification of benign and malignant thyroid lesions prior to surgery or therapy, which helps to limit the number of needless treatments. Thyroid swelling FNAC is a straightforward, quick, patient-friendly, and low-cost technique that may be repeated if samples are insufficient. It has the highest predictive value of any diagnostic method presently available.

**Objective:** To confirm if the fine needle aspiration cytology (FNAC) and histopathology have any correlation in the diagnosis of thyroid lesions.

**Place and duration of research:** The present study comprised 100 patients in the ENT department, Khyber teaching hospital from January 2019 to December 2020.

**Materials and Methods:** Multiple neck swellings were presented to the ENT department in Khyber teaching hospital where they were clinically assessed after a thorough history was gathered. FNAC was administered to just those thyroid-swelling patients who were hospitalized to an indoor facility and ultimately had surgery, according to the findings of this study. Every patient had a preoperative FNAC as well as a postoperative histopathology report of thyroid lesions. Before each of the 100 surgeries, informed consent was obtained.

**Results:** The histopathological diagnosis of thyroid lesions was associated with the FNAC diagnostic. There were 26 men and 78 women among the 104 patients. The male-to-female ratio was 1:3. The majority of the 104 patients were between the ages of 31 and 40. There were 9 false Cyto-diagnosis cases out of 104 FNAC patients. The overall accuracy rate was 91.35%.

**Conclusion:** As a preoperative examination of thyroid gland swelling before surgery, FNAC is a reliable, safe, and somewhat accurate approach. FNAC is a reliable diagnostic test for evaluating thyroid swelling since it is more accurate in diagnosing thyroid gland cancer.

**Keywords:** FNAC, histopathology, thyroid swelling

## INTRODUCTION

Thyroid disease is a widespread condition. In the body The largest endocrine gland is thyroid gland in the body and the first to mature during fetal life.(1) . Thyroid nodules are widespread in the general population and are a common problem in daily clinical practice, however they are more common in women. (2). Thyroid nodules are predicted to be present in 4-7 percent of the population, however 50-70 percent of those investigated by ultrasound are considered incidental finding. (3) Thyroid hormone is one of the body's most significant hormones, and it plays a key part in metabolism. This rhythm is disrupted when this hormone is not functioning properly, resulting in organ and organ system dysfunction. (4). To examine thyroid disease, a variety of diagnostic tests like ultrasound, FNAC, thyroid function test, and others are available. FNAC is the reliable and most common test for the diagnosis of thyroid swelling. (5) Final diagnosis necessitates morphological study of thyroid lesions, which necessitates FNAC and histological investigation. (6) (7) It can be used to diagnose pathological lesions in a variety of organs, including lymph nodes, the breast, and the thyroid gland. The thyroid is an ideal organ for FNAC because it is a superficial and easily accessible organ; it also aids in determining the course of treatment and making surgical decisions. (8) For those patients with toxic multinodular goiter, chronic thyroiditis, thyroid cancer, thyrotoxicosis, total thyroidectomy is recommended. (9) One of the most accurate approaches to determine the pathology is to examine surgically removed thyroid swelling histopathologically. The study's primary goal was to evaluate the findings of histopathology and FNAC in the identification of various thyroid lesions.

## MATERIALS AND METHODS

From January 2019 to December 2020, a retrospective record review was conducted in the ENT department at Khyber Teaching

Hospital. This study included 104 patients with thyroid swelling over the course of two years. All patients had FNAC and histopathological examinations. 104 patients were chosen for this investigation who had both preoperative FNAC and postoperative histology reports available. Clinical examinations, thyroid function tests, FNAC, standard hematological investigations, ultrasound scans, and histological analyses of thyroidectomy materials were all performed on the patients who were chosen. In those patients, FNAC was correlated with histopathology results.

## RESULTS

The majority of the 104 patients ranged in age from 21 to 50 years. The average age was 29.5 years. The lowest age was 11 years, and the maximum age was 70 years old. Only 25% of the 104 patients were male.

Table 1: Gender' distribution

Gender	Number	%
Female	78	75
Male	26	25

Table 2: age distribution

Age(years)	Number
11 to 20	14
21 to 30	27
31 to 40	35
41 to 50	20
51 to 60	7
61 to 70	1

Table 3: FNAC of thyroid swelling

Diagnosis	No of patients	Percentages
Neoplastic	36	34.6
Non neoplastic	68	65.3

Table 4: FNAC diagnosis of malignancy in thyroid swelling.

Number of patients	%	Neoplastic
"Follicular carcinoma	10	9.6
Papillary carcinoma	22	21.1
Medullary carcinoma	2	1.9
Anaplastic carcinoma"	2	1.9

Table 5: FNAC with result of Histopathological Examination' correlation

FNAC	No of patients	Correct cytological diagnosis	False cytological diagnosis	Accuracy
Colloid goiter	60	56	4	91.3%
Papillary carcinoma	22	22	00	
Hashimoto thyroiditis	8	6	2	
Follicular carcinoma	10	8	2	
Anaplastic	2	1	1	
Medullary carcinoma	2	2	0	

**DISCUSSION**

Physical examination, hormone tests, and ultrasound are not usually used to diagnose thyroid abnormalities. Fine needle aspiration cytology is the initial step in the detection of thyroid swelling. FNAC is an important preoperative diagnostic technique that is both selective and non-invasive.(10) (11) This study evaluated the accuracy of FNAC in diagnosing thyroid swelling to some of the available international studies. Thyroid problems disproportionately affect women. (12) Thyroid lesions were more common in females, with a M:F ratio of 3:1. (1:3). The M:F ratio ranged from 1:3.84 to 1:11.2 in the majority of previous investigations.. (13) The majority of the people were between the ages of 31 and 40. The average age was 29.5 years old. The mean age of a research published in 2000 by Shafirusam, Momtaz N Khan was 32, and statistical analysis found no significant difference between the two studies' mean ages (Z=2.00,P). (14) The most patients were discovered in the third and fourth decades, which was similar with this investigation. Preoperative FNAC was performed on 104 cases in this study. Out of 104 cases of thyroid swelling, 65.38 percent were non-neoplastic & 34.62 percent were neoplastic, with follicular neoplasms 10 cases, papillary carcinoma of the thyroid 22 cases, medullary carcinoma of the thyroid 2 cases, & anaplastic carcinoma of the thyroid 2 cases.

FNAC has a diagnosis accuracy of 91.35 percent for thyroid swelling. This is in comparison to altavillaetal (92.86 percent) (15) and As a preoperative examination of thyroid gland swelling before surgery, FNAC is a reliable, safe, and somewhat accurate approach. FNAC is a reliable diagnostic test for evaluating thyroid

swelling since it is more accurate in diagnosing thyroid gland tumor.

**CONCLUSION**

Thyroid lesions can be diagnosed with FNAC, which is a minimally invasive and affordable technique. However, proper aspiration, identification, and diagnosis interpretation require expertise as well as pathologist skills.

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