



General Surgery

CORRELATION BETWEEN FINE NEEDLE ASPIRATION CYTOLOGY AND HISTOPATHOLOGICAL FINDINGS OF THYROID SWELLINGS IN A TERTIARY CARE HOSPITAL

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ABSTRACT **Background:** Fine-needle aspiration cytology (FNAC) has been widely accepted as a diagnostic safe method for preoperative assessment of salivary gland lesions. This diagnostic tool is inexpensive, easy to perform, relatively painless and it provides useful information to differentiate between benign and malignant salivary gland tumors that helps in the management and surgical planning. This study was undertaken to compare FNAC results with permanent histopathological findings of salivary gland tumors in order to assess its diagnostic accuracy.

KEYWORDS : Thyroid Swelling FNAC Histopathology

INTRODUCTION

Solitary thyroid nodule is defined clinically as the localised thyroid enlargement with apparently normal rest of the gland. Solitary thyroid nodule is a common entity. Majority of these nodules are benign. The main goal of evaluating these nodules is to identify nodules with malignant potential.

A multitude of diagnostic tests like ultrasound, thyroid nuclear scan, and fine needle aspiration cytology (FNAC) is available to the clinician for evaluation of thyroid nodule. FNAC is considered the gold standard diagnostic test in the evaluation of a thyroid nodule, and other tests like ultrasound and nuclear scan should be used in conjunction with FNAC.

FNAC is simple, cost effective, readily repeated, and quick to perform procedure in the outpatient department with excellent patient compliance. Important factor for the satisfactory test includes representative specimen from the nodule and an experienced cytologist to interpret findings. It is often used as the initial screening test for diagnosis of thyroid nodules.

OBJECTIVE

To evaluate the accuracy of fine needle aspiration cytology for the thyroid swellings and correlate it with the histopathological findings.

Duration Of The Study Prospective study for a period of 6 months.

Inclusion Criteria

Patients of either gender aged 18 years or older Patients who presented with thyroid swellings, and subsequently underwent surgery.

Exclusion Criteria

Patients aged under 18 years.
Patients who presented with other neck swellings.

Methods

Simple size calculation

$$n = \frac{Z^2 \cdot d^2 \cdot \text{Prevalence} \cdot (1 - \text{sensitivity})}{d^2 \cdot \text{Prevalence}}$$

Handa U et al
 Here; $\rightarrow Z = 1.96, \alpha = 0.05, d = 0.075$
 Sensitivity = 0.97, Prevalence = 0.50
 $n \geq 40 \approx 50$ subjects

RESULTS

Table 1 Characteristics Of The Study Subject

Subjects (N = 50)		Frequency %
Age group	18 to 30 years	11 (22.0%)
	31 to 45 years	21 (42.0%)
	46 to 60 years	16 (32.0%)

	>60 years	2 (4.0%)
Gender	Male	7 (14.0%)
	Female	43(86.0%)
Duration of swelling	<1 month	1 (2.0%)
	1 to 6 months	8 (16.0%)
	6 to 12 months	27 (54.0%)
	>12 months	14 (28.0%)

Non-Neoplastic Lesion (N=38)



■ Colloidal nodular Goitre 89.50%
 ■ Autoimmune thyroiditis 10.50%

Figure 1: Diagnosis Of Thyroid Swelling Based On FNAC

Neoplastic Lesion



■ Follicular (83.33%) ■ Papillary (16.67%)



■ Follicular (73.33%) ■ papillary (26.67%)

Figure 2 : Diagnosis Of Thyroid Swelling Based On HPE

Table 2: Histopathological Correlation Of FNAC Diagnosis

Subjects (N=50)				HPE
		Neoplastic	Non-neoplastic	
FNAC	Neoplastic	10	2	12
	Non-Neoplastic	5	33	38
TOTAL		15	35	50

Table 3: Validity Of FNAC In Diagnosis Of Thyroid Swellings

Validity	Value	95.0% CI
Sensitivity	66.67%	38.38% to 88.18%
Specificity	94.29%	80.84% to 99.30%
Positive predictive value	83.33%	55.40% to 95.27%
Negative predictive value	86.84%	76.26% to 93.13%
Positive likelihood ratio	11.67	2.90 to 46.96
Negative likelihood ratio	0.35	0.17 to 0.73
Accuracy	86.00%	73.26 to 94.18%

DISCUSSION

Present study	Single Pet al ²
Sensitivity = 66.7%	Sensitivity = 83.3%
Specificity = 94.3%	Specificity = 100.0%
Accuracy = 86.0%	Accuracy = 95.7%
Muppidi K et al ²	Luck C P et al ⁴
Sensitivity = 69.2%	Sensitivity = 93.3%
Specificity = 97.0%	Specificity = 97.0%
Accuracy = 89.3%	Accuracy = 95.6%

CONCLUSION

FNAC is a simple, minimally invasive, and cost-effective procedure that plays a crucial role in the accurate diagnosis of malignant lesions. High levels of specificity and overall diagnostic accuracy, although sensitivity was relatively lower. FNAC remains most essential tool for the management of patients with thyroid swellings.

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