



ORIGINAL RESEARCH PAPER

Pathology

CORRELATION OF FINE NEEDLE ASPIRATION CYTOLOGY AND HISTOPATHOLOGY OF SOLITARY THYROID NODULE

KEY WORDS: cytology, thyroid, nodule, solitary

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ABSTRACT

Fine needle aspiration cytology is commonly used to screen lesions in pathology including thyroid lesions. It is mainly used to identify malignant lesions which then can be excised and examined by histopathology. FNAC uses the cytological features to distinguish between benign and malignant lesions. In our study, 60 patients were taken, age ranging from 15 to 65 years. Initially patients were clinically evaluated and FNAC followed by histopathological examination was performed on the excised thyroid lesions. In our study, majority were females and neck swelling was the commonest presentation. Majority were benign lesions. Malignant lesions were 18%. While comparing lesions in FNAC and histopathology, sensitivity of FNAC was found to be 84.61% and specificity to be 93.61%. The accuracy of FNAC obtained was 91.6%. Thus, sensitivity and specificity of FNAC was high and can be used to screen thyroid solitary nodules

INTRODUCTION

Fine-needle aspiration cytology (FNAC) is a technique for screening of solitary thyroid nodule [1]. It is considered the confirmatory diagnostic test in the interpretation of thyroid nodule [2]. FNAC provides a benign diagnosis in 60% of patients with benign thyroid nodules.[3]. Thyroid nodules are present in 4-10% of adults and 0.2-1.2% in children and 5-30% are malignant and require surgery [4]. The main aim of FNAC is to identify nodules with malignancy. [5].

With the increase in the use of USG, thyroid nodules are being discovered more, and the image helps in the procedure of FNAC [6].

AIMS AND OBJECTIVES: to determine the diagnostic usefulness of FNAC compared to histopathology in solitary thyroid nodule.

MATERIALS AND METHODS:

Between August 2021 and July 2022, FNAC of 60 patients with solitary thyroid nodule was done in the Department of Pathology at IPGME&R and SSKM Hospital. Age of the patients ranged from 15 to 65 years. The patients underwent FNAC of thyroid swelling.

Inclusion criteria: Patients with solitary thyroid nodule with normal thyroid function were included.

Exclusion criteria: (1) Multinodular goiter. (2) Hypothyroidism. (3) Hyperthyroidism.

Complete history taking and lab investigations for TSH, T3 and T4 were evaluated. FNAC was performed using 24 G needle, smears were fixed with 95% alcohol solution and staining was performed using hematoxylin and eosin stain, Papanicolaou stain and air dried smears were stained with Giemsa. Histopathological examination was performed on the thyroid specimens of the above patients. In this study, scanty material was not reported in FNAC. Preoperative FNAC results were compared with the histological diagnosis.

The age of patients ranged from 15 – 65 years with mean age 37.6 + 5.2 years (Table 1). 56 (93.3%) patients were females and 4 (6.4%) were males (Table 2).

Table 1. Age distribution

AGE (YEARS)	TOTAL PATIENTS (n = 60)
15 – 30	11
31 – 45	25
46 – 55	15
56 – 65	09

Table 2. Sex distribution

MALE	4 (6.4%)
FEMALE	56 (93.3%)

Table 3. Neck symptoms

NECK PAIN	8 (13.3%)
NECK SWELLING	47 (78.3%)
NECK DISCOMFORT	5 (8.4%)

Table 4. Distribution of subjects by lesions in FNAC and Histopathology.

CLASSIFICATION	FNAC	HISTOPATHOLOGY
COLLOID CYST	08 (13.3%)	08 (13.3%)
COLLOID GOITRE	15 (25%)	15 (25%)
CHRONIC LYMPHOCYTTIC THYROIDITIS	03 (5%)	03 (5%)
FOLLICULAR NEOPLASM	22 (36.6%)	--
FOLLICULAR ADENOMA	--	18 (30%)
SUSPICIOUS FOR MALIGNANCY	02 (3.3%)	--
HYPERPLASTIC NODULE	--	05 (8.3%)
PAPILLARY CARCINOMA	08 (13.3%)	07 (11.6%)
ANAPLASTIC CARCINOMA	02 (3.3%)	02 (3.3%)
FOLLICULAR CARCINOMA	--	02 (3.3%)

Out of 26 (43.3%) patients with benign FNAC, 8 (13.3%) patients had colloid cyst, 15(25%) patients had colloid goitre, 3 (5%) had chronic lymphocytic thyroiditis. 22 (36.6%) patients had follicular neoplasm in FNAC, out of which 18 (30%) were follicular adenoma, 2 (3.3%) had follicular carcinoma and 2 (3.3%) were hyperplastic nodule confirmed by histopathology. 2 (3.3%) patients with diagnosis of suspicious for malignancy in FNAC were hyperplastic nodule confirmed by histopathology. Out of 8 (13.3%) patients with papillary carcinoma, 7 (11.6%) were diagnosed as papillary carcinoma and 1 was confirmed as hyperplastic nodule in histopathology (Table 4).

While comparing lesions in FNAC and histopathology, sensitivity of FNAC was found to be 84.61% and specificity to be 93.61%. Accuracy of FNAC was 91.6% (Table 5).

Table 5. Comparison of lesions in FNAC and histopathology.

	POSITIVE	NEGATIVE
POSITIVE	11	03
NEGATIVE	02	44

management of solitary thyroid nodule: A prospective analysis of fifty cases. *Ind J Otolaryngol head neck surg* 2002;54(2):96-101.

Sensitivity = 84.61%, specificity = 93.61%, accuracy = 91.6%.

DISCUSSION:

Fine needle aspiration cytology is done for preoperative screening of thyroid nodules. This procedure helps to differentiate benign and malignant thyroid nodules [7,8]. FNAC is nowadays used by pathologists and physicians all over the world. [9]

In our study, the age of patients ranged from 15 – 65 years with mean age 37.6 + 5.2 years. The highest number of patients were aged between 31- 45 years, which is 25 (41.6%). Bukhari et al. has shown mean age to be 35.37 + 12.17 years, similar to our study [10]. In our study, female to male ratio was 14:1, that is females were more in number.

Out of 26 (43.3%) patients with benign FNAC, 8 (13.3%) patients had colloid cyst, 15 (25%) patients had colloid goitre, 3 (5%) had chronic lymphocytic thyroiditis. Patients with benign FNAC had the same results in histopathology. Most common lesion among benign lesions was colloid goitre.

22 (36.6%) patients had follicular neoplasm in FNAC, out of which 18 (30%) were follicular adenoma, 2 (3.3%) had follicular carcinoma and 2 (3.3%) were hyperplastic nodule confirmed by histopathology. 2 (3.3%) patients with diagnosis of suspicious for malignancy in FNAC were hyperplastic nodule confirmed by histopathology. Out of 8 (13.3%) patients with papillary carcinoma, 7 (11.6%) were diagnosed as papillary carcinoma and 1 was confirmed as hyperplastic nodule in histopathology. 2 (3.3%) patients with anaplastic carcinoma were confirmed as same in histopathology. Malignancy was reported in 18% of patients which is comparable to study by Kaur K et al [11]

The sensitivity , specificity and accuracy of FNAC in our was found to be 84.61%, 93.61% and 91.6% respectively, comparable to study by Bukhari et al [10].

CONCLUSION:

Thus, FNAC can be used as a reliable technique for diagnosing thyroid lesions and also to rule out malignancy. Since it is also cheap and timesaving procedure, it can be used for diagnosing solitary thyroid nodule.

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