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Research Article

**STUDY TO KNOW THE COMPARISON OF DIAGNOSTIC
RESULTS OF FINE-NEEDLE ASPIRATION (FNAC)
CYTOLOGY AND PATHOLOGY FOR THYROID NODULES
ASSESSMENT****¹Dr.Benazir Tassawer, ²Dr.Muhammad Wasim Akbar, ³Dr.Muhammad Nadeem****¹Sharif Medical and Dental College, ²Medical Officer District civil Hospital Hafizabad, ³Quaid e
Azam Medical College bwp****Abstract:**

Objective: For the fast thyroid lesions diagnosis, the cost-effective procedure is considered as Fine needle aspiration. On daily basis, fine needle aspiration has decreased unnecessary surgical rate for thyroid nodules. This analysis was performed to know the fine needle aspiration biopsy accuracy.

Study Design: A Cross-sectional Study.

Place and Duration: In the Pathology and Surgery Department of Services Hospital Lahore for four duration from January 2014 to January 2018.

Methodology: we examined 600 cytology reports of thyroid fine needle aspiration during 4 years (2014-2018) in the pathology and Surgery departments. In 28 cases, Pathological diagnosis is available. Cytological reports were analyzed, histological and cytological correlations were evaluated. Using SPSS 18, Statistical analysis and descriptive tests were done.

Results: The cytological diagnosis of 600 cases (90 male, 510 female) was as follows: 28 (4.7%) malignant, 526 (87.7%) benign, suspicious in 10 (1.6%) and insufficient biopsy in 36 (6%). The papillary cell carcinomas are the most common malignant lesions, and follicular adenoma and goitre are benign lesions. In women, Malignant nodules were found frequently than in men (5.0% to 3.4%). We could not detect false positive results between histopathology and malignant FNAC, so 100% positive predictive value was observed.

Conclusion: In thyroid gland, Fine needle aspiration is very sensitive and in malignant form the rate of false positive results was low.

Key Words: Thyroid nodule, Accuracy, FNAC.

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INTRODUCTION:

The suggested prevalence of solitary palpable nodules in the adult population is approximately 4-6%. In different regions of the world, the thyroid nodules prevalence varies. The prevalence is affected by the screening method type. In autopsy records, thyroid nodules were found to be 50% and in normal thyroid ultrasound up to 97%. Although various analysis were conducted in Pakistan, they were referred to the faculty center which could not be accepted as epidemiological analysis. Most of the clinically evident thyroid nodules are benign. Only physical examination cannot differentiate malignant and benign lesions, therefore further preclinical work such as ultrasound, FNAC and radio-nucleotide screening are required. For the thyroid nodules evaluation, an important first-line diagnostic test is FNAC. It gives safe, fast and accurate detection of malignant and benign nodules. The specificity and sensitivity of this procedure range from 84 to 96% and are depended highly on the FNAC procedure, the nature of the test preparation of the lesion (solid or cystic), and the experience of the pathologist. Now, for thyroid nodule diagnosis 1st line method is FNAC. If a FNAC develops a benign lesion, the patient mostly do not need surgical management, and a uncertain or

suspicious diagnosis of malignancy helps in planning preoperatively. In Pakistan, various analysis have been done on the diagnostic effects of this useful method. This study was performed to know the thyroid nodule frequency and histological and cytological correlation in sex, age and finally pathology.

MATERIALS AND METHODS:

This Cross-sectional Study was held in the Pathology and Surgery Department of Services Hospital Lahore for four duration from January 2014 to January 2018. It is simple sampling technique. The variables evaluated were age, gender, FNAC results (lesion type: benign, malignant, malignant and inadequate sampling) and histological report (benign or malignant). Using descriptive tests and SPSS software, the results were analyzed.

RESULTS:

From the total of 509 male were 91 (15.2%) and females were(84.8%), and this proves that in women, thyroid nodules were more common. FNAC results were benign were 87.7% and below 5% of results were malignant lesions and insufficient samples were found to be 4% (Table I).

Table-I: Distribution of the thyroid nodular lesion according to FNA result

<i>FNA result</i>	<i>No.</i>	<i>%</i>
Benign	526	87.7
Malignant	28	4.7
Suspicious to malignancy	10	1.6
Insufficient material	36	6
Total	600	100

Thyroiditis (1.3%) and Follicular adenoma (1.5%) were other benign lesions of thyroid nodules. The papillary carcinoma (77.80%) was the most common malignant nodule, also included with 21.4% of follicular carcinoma, Hurthle cell carcinoma and

malignant thyroid neoplasms. The squamous cell carcinoma was found in 1 case only. In males, 3.3% of lesions were Malignant and in females 4.9% (Table II).

Table-II: Distribution of the benign thyroid nodular lesion in this study

<i>Type of benign lesion</i>	<i>No.</i>	<i>%</i>
Goiter	322	61.2
Benign thyroid hyperplasia	41	7.8
Follicular adenoma	55	10.5
Benign cyst	11	2.1
Thyroiditis	7	1.3
Probably benign	90	17.1
Total	526	100

In males, 97% benign nodules were observed and in females 86%. (Table III).

Table-III: Distribution of malignant thyroid nodular lesion in this study

<i>Type of malignant lesion</i>	<i>No.</i>	<i>%</i>
Papillary carcinoma	19	67.8
Follicular carcinoma	4	14.3
Hurthle carcinoma	2	7.1
Medullary carcinoma	1	3.6
Anaplastic carcinoma	1	3.6
Metastatic carcinoma	1	3.6
Total	8	100

At the 30-39 years of age, the benign nodules occurred more frequently. The malignancy risk at an advanced age increased and the most frequent injury occurred in 70-100 years. Malignant FNAC results showed no false positive results. The positive predictive value noted was 100%.

DISCUSSION:

Thyroid fine needle aspiration biopsy is the 1st choice in the detection of thyroid nodules and is a high specificity and sensitivity method. In several studies, specificity and sensitivity in this assay were recorded to be 86-99 and 91-96%, respectively. In an analysis conducted by Bakhos R. et al on thyroid FNAC in 625 cases (2001-202005), 503 women and 122 men, 60% of the cases were as suspicious as malignant, were diagnosed as 87% and 7% were not diagnostic. It was

8% compared to false positive histopathology. Another analysis by JM Chehade et al shows the FNAC results of 235 (209 females and 26 males), shown to be inappropriately seen in 19 cases, were considered benign lesions in 204 and suspected in 11 cases. By Mondell. DL, et al., another analysis shows accuracy of FNAC in the thyroid were compared with the case of frozen FNAC in the case of frozen FNAC with 95%, 96% and 90%, and 89% in the case of section. Also, our study has shown that the most common benign thyroid nodular goiter nodular lesion, as it accounted for 61.2%. The most common lesion after follicular adenoma in our study (10.5%) is thyroid nodular benign nodular goiter including thyroiditis (1 patient), subacute (4 patients), acute thyroiditis, Hashimoto thyroid disease (2 patients) also represent 1.3% of benign lesions. The most common

malignant lesion was an incidence of nodular papillary carcinoma cells and between 75 and 85% in our analysis, and this represented 68.08%. In the follicular cell carcinoma event, a total of 10-20% of follicular cell carcinomas were reported in our study, and Hurthle was 22.04% more than the noted in previous analysis. In our analysis one case of squamous cell carcinoma was noted and in one case of carcinoma metastasis. The thyroid nodule is more common in women and the incidence reported is more than 82% noted in our analysis. In both males and females, the most common thyroid nodule were benign (in women 96% and in men 86%). In this analysis, no suspicion regarding malignancy and insufficient sample was filed in men. In contrast, malignant nodules in females (5.09%) were more common in men (3.4%), who were compatible with other studies. This means that the incidence of thyroid nodules decreases after 30 years of age and then further declines with age. This finding is important because many studies indicate that the thyroid nodules incidence increases with age. With age the malignancy chances increases, but previous studies suggest that the malignancy incidence increases with age, but returns to normal after 50 years. Malignant histopathological reports were available in all 28 patients with malignant FNAC records in the histopathological correlation, therefore, there were no false positive values in this study and the thyroid FNAC positive predictive value was 100%.

CONCLUSION:

We concluded that FNAC has a good specificity and sensitivity in the evaluation of thyroid nodules.

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