

EVALUATION OF THYROID LESIONS BY RADIO-CYTOPATHOLOGIC CORRELATION IN A TERTIARY CARE CENTRE

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Abstract

Background: Thyroid gland enlargement is a common presentation in the general population but all thyroid enlargements do not require surgery. FNAC reduces the rate of unnecessary thyroid surgery for patients with benign nodules and appropriately triages patients with thyroid cancer to appropriate surgery. **Materials and Methods:** This prospective study carried out in the Department of Pathology, RIMS, Raichur. Duration of the study is 1 year from March 2018 to March 2019. **Result:** A total of 50 lesions were received during this period. Samples were received from age 11-70 years. A female preponderance was seen. The most common lesion on FNAC was nodular/colloid goitre which well correlated with radiological findings. **Conclusion:** FNAC is a safe, simple and universally accepted modality for evaluation of thyroid lesions. USG guided FNAC for optimization of results is necessary for the location of target lesion which will further help in yielding more accurate diagnosis.

INTRODUCTION

Thyroid gland disorders are most common in clinical practice. Most thyroid swellings are non-neoplastic and only less than 5 % are malignant. Thyroid diseases continue to be a common clinical problem with a prevalence rate of 3 – 8 % in general population.^[1]

FNAC is one of the diagnostic tools with minimal invasive procedure which will help to differentiate neoplastic from non-neoplastic lesions which will further help in reducing the unnecessary thyroidectomy and can be planned depending on the type of thyroid lesion and prevents further surgical complications too.^[2] The incidence of thyroid lesions is increasing due to change in food habits. Thyroid gland pathology presents with diffuse enlargement to nodular swelling, thyroiditis and malignancy. The FNAC as a diagnostic tool was first implemented in 1950 at Sweden hospital and Frable used FNAC to diagnose thyroid lesions in 1983 though histopathology remains the gold standard for confirmation.^[3,4]

USG is a simple high resolution non-invasive mode which gives a good representation of thyroid pathology and is the most useful way for thyroid pathology image.^[5,6,7] USG helps in distinguishing solid and cystic lesions of thyroid, extrathyroidal

masses, differentiates between benign and malignant lesions. USG also helps in targeted FNAC sampling in cystic and solid lesions of thyroid.

The study was conducted for evaluation of thyroid lesions by USG and its correlation with FNAC and wherever possible with gold standard histopathology. Cost effectiveness and diagnostic value repeat FNA on suspicious nodule under USG guidance will be more appropriate approach in both cost effectiveness as well as its role in diagnosis. Along with FNAC, USG play a supportive role for better evaluation of thyroid nodules and in grey zone area of indeterminate lesions.

Aims & Objectives

To study the thyroid swelling spectrum of diseases and to evaluate the accuracy of USG and FNAC in diagnosis of thyroid swellings.

MATERIALS AND METHODS

This was prospective study done on 50 patients of thyroid swellings who visited OPD in RIMS Teaching Hospital from March 2018 to March 2019. Following the clinical examination patient was sent for USG to Department of Radiology further FNAC was done in Department of Pathology as outpatient procedure.

The FNAC smears were fixed in 95% isopropyl alcohol & stained with Haematoxylin & Eosin, Giemsa respectively and reported by pathologist. The results were correlated with USG findings & gold standard histopathology wherever available.

RESULTS

Among 50 patients the age ranged from 11 years to 70 years. The most common age group affected were 31-50yrs followed by 11-30yrs & 51-70yrs respectively.

Table 1: Age distribution

Age in years	Male	Female	Total
11 – 30	00	22	22
31-50	01	22	23
51 – 70	01	04	05
Total	02	48	50

Table 4: FNAC findings

Nodular/ Colloid goitre	Lymphocytic/ Hashimoto's thyroiditis	Colloid goitre with secondary changes	Benign thyroid lesion	Follicular Neoplasm	Total
26	13	09	01	01	50

On FNAC the Nodular/ colloid goitre (26) was the most common lesion followed by Lymphocytic/ Hashimoto's thyroiditis (13), Colloid goitre with secondary changes (9), Benign thyroid lesion (1) & Follicular neoplasm (1).

Table 5: Correlation with FNAC and USG studies

USG diagnosis	FNAC
Subacute thyroiditis- 17	Lymphocytic thyroiditis- 08 Colloid goitre – 09
Multinodular goitre – 22	Colloid goitre – 14 Nodular goitre – 08
Benign thyroid nodule - 10	Colloid goitre – 09 Lymphocytic thyroiditis – 01
Malignant neoplasm-01	Follicular neoplasm – 01

In our study, 22 cases of Multinodular goitre were diagnosed on USG which on FNAC 14 were reported as Colloid goitre and 8 as Nodular goitre. 17 cases of Subacute thyroiditis on USG which further on FNA 8 were reported as Lymphocytic thyroiditis and 9 as Colloid goitre. 10 cases of Benign thyroid nodule on USG and on FNA all lesions were benign among which 1 was Lymphocytic thyroiditis & 9 were colloid goitre. 1 case was reported as malignant neoplasm in both USG as well as in FNAC.

All lesions reported as benign in USG were reported as benign on FNAC also similarly malignant lesion reported on USG was reported as malignant on FNAC. Hence USG findings well correlated with FNAC findings as well as aided in yielding better diagnosis by guiding FNAC especially in cystic lesions.

Females were more commonly affected compared to males in our study out of 50 cases 48 were female & only 2 cases were of males.

Table 2: Gender wise distribution of cases

Age in years	Male	Female	Total
11 - 30	00	22	22
31-50	01	22	23
51 - 70	01	04	05
Total	02	48	50

Table 3: USG findings of FNAC lesions

Subacute thyroiditis	Diffuse goitre/ MNG/ Nodular goitre	Benign thyroid nodule	Malignant neoplasm	Total
17	22	10	01	50

The most common lesions on USG findings was Diffuse goitre/ MNG/ Nodular goitre (19) followed by Subacute thyroiditis (17), Benign thyroid nodule (10), Malignant neoplasm (1) & Miscellaneous (03).

DISCUSSION

Thyroid nodules are very common and subclinical nodules are being detected by high resolution USG. USG evaluate the thyroid lesions which is non-invasive and has excellent resolution. It detects clinically silent nodules and guides FNAC of suspicious nodules. The nodules were assessed for echogenicity, calcification, increased vascularity.

In our study, most common age group affected was 11-30 years followed by 31-50 years. Our study is consistent with the studies done by Borsaikia K et al, Kumar A et al, Kumbhakar D et al. [8,9,10]

In the present study, we found that out of 90 patients, female (49) outnumbered the males which was in accordance with Dharmakanta Kumbhakar et al, [11] Hirachand S. et al and Jain D et al. [12,13] It is due to fact that thyroid disorder is female prone owing to the presence of estrogen receptors in the thyroid tissue. [14]

Colloid goitre is the most common diagnosis encountered in our study 26 which is like studies of Jain D et al, [13] (72.1%), Khadatar et al, [10] (67%) & Kumar et al, [9] (65.4%). Second most common diagnosis in our study was Lymphocytic thyroiditis/Hashimoto's thyroiditis which was similar with the findings of the above-mentioned studies.

In a study by Warpe BM et al, several characteristics included sensitivity of 70%, specificity of 91.3 %, positive predictive value of 70%, accuracy of 86.52 %, false positive rate of 6.74 %, and false negative rate of 6.74 %. [15] In another study, the results are similar to the present study. In the present study,

almost every lesion diagnosed on USG was consistent with the histopathological findings.^[16]

CONCLUSION

USG and FNAC is more sensitive modality to assess the thyroid lesions with good accuracy in differentiation benign from malignant thyroid nodules. It can act as a good screening test and avoids unnecessary thyroidectomies and serves as a therapeutic procedure when a cyst is encountered. FNAC can be recommended as the single effective sensitive tool for majority of benign thyroid lesions and it provides a psychological relief to many patients after knowing the condition on FNAC alone.

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