



A CORRELATIVE STUDY OF FNAC AND HISTOPATHOLOGY OF THYROID SWELLING

Pathology

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ABSTRACT

Background: Most of thyroid nodules are benign, 5% are malignant. Fine needle aspiration cytology (FNAC) is easy procedure to distinguish benign from malignant lesions of thyroid.

AIM: Thyroid swelling diagnosed in FNAC are correlated with histopathology.

Materials and method: In this study 440 cases of FNAC thyroid were compared with subsequent 115 thyroidectomy cases.

RESULT: In this study shows sensitivity 90.9%, specificity 99.5% in diagnosis of thyroid lesions with FNAC

CONCLUSION: FNAC is a simple, easy with minimal traumatic procedure with high specificity in diagnosing malignant neoplasm.

KEYWORDS:

Benign, fine needle aspiration cytology (FNAC), malignant lesions.

INTRODUCTION

Thyroid nodules are commonest upcoming problem in the world. In India thyroid swelling prevalence is 4 to 5% in adult population and 0.2% to 1.2% in children^{(14),(15)}. In this women are mostly affected in all age groups of which most are benign lesions. In India thyroid cancer comprise of 1% of all head and neck cancers. After the clinical examination, related laboratory tests includes imaging studies, fine needle Aspiration cytology (FNAC) was done to distinguish non-neoplastic and neoplastic swelling. FNAC is simple, easy to do, requires minimal time, minimally traumatic procedure. Only pitfall of FNAC are false negative results and to diagnose follicular adenoma In the present study FNAC study was compared with histopathological examination report retrospectively. FNAC can reduce the number of diagnostic thyroidectomies, by identifying benign lesions. The most common diagnoses are colloid goiter, cysts and thyroiditis in 80%, benign follicular neoplasm in 10-15%, and thyroid carcinoma in 5% Mistry et al⁽⁴⁾.

AIMS and OBJECTIVES:

The present study includes FNAC of thyroid lesions were correlated with histopathological examination to establish the specificity and sensitivity of FNAC.

MATERIALS AND METHODS

Patients referred to the department of pathology, Govt Dharmapuri Medical College Hospital, Dharmapuri with thyroid swelling were enrolled for the study over a period of time 18 months between the year January 2015- June 2016. After local examination of thyroid swelling FNA done with 5 cc disposable syringe attached with 23-24G needle with multiple passes. Minimum of 3-4 smears made and stained with hematoxylin and eosin stain after fixation with isopropyl alcohol. FNAC reported based on Bethesda system for reporting thyroid cytopathology Cibase, Aligz Bethesda et al⁽¹⁾.

BETHESDA SYSTEM FOR REPORTING THYROID CYTOPATHOLOGY

- I) Non diagnosed/unsatisfactory consistent with insufficient cellularity, aspirates only fluid and improper fixation
- II) Benign consistent with adenomatoid nodule, colloid nodule, lymphocytic thyroiditis, Hashimoto's thyroiditis, granulomatous thyroiditis and others.
- III) Atypia of undetermined significance or follicular lesion of undetermined significance.
- IV) Follicular neoplasm/suspicious of follicular neoplasm
- V) Suspicious for malignancy
- VI) Malignancy consistent with papillary carcinoma, follicular carcinoma, Medullary carcinoma Anaplastic carcinoma.

RESULTS

440 patients were included in the study of these 404 (91.8%) patients were benign lesions unsatisfactory 10 (2.27%) Atypia of undetermined 8 (1.81%) follicular neoplasm 6 (1.36%) Malignancy 12 (2.72%).

TABLE-1: FNAC REPORTS - BY BETHESDA CRITERIA

S.NO	CRITERIA	NO. OF PATIENTS	Percentage %
1	UN SATISFACTORY	10	2.3%
2	BENIGN	404	91.81%
3	ATYPIA OF UNDETERMINED	8	1.81%
4	FOLLICULAR NEOPLASM	6	1.4%
5	MALIGNANCY	12	2.72%
TOTAL		440	100%

Among 115 cases 40 cases diagnosed as colloid goitre, 30 colloid goitre with cystic change. 15 cases diagnosed as Hashimoto's thyroiditis and 10 cases as lymphocytic thyroiditis, and 60% of them are with positive antibodies. 10 cases were diagnosed as follicular adenoma, 10 cases diagnosed as malignant lesions.

TABLE-2: HISTOPATHOLOGICAL REPORTS FOR THYROIDECTOMY PATIENT FOLLOWED BY FNAC

BENIGN	
COLLOID GOITRE	40
COLLOID GOITRE WITH CYSTIC CHANGE	30
HASHIMOTOS THYROIDITIS	15
LYMPHOCYTIC THYROIDITIS	10
FOLLICULAR ADENOMA	10
MALIGNANCY	
PAPILLARY CARCINOMA	08
ANAPLASTIC CARCINOMA	01
MEDULLARY CARCINOMA	01
TOTAL	115

TABLE -3: STASTICAL CORELATION

S.NO	FNAC	BIOPSY (CONSISTENT)	INCONSISTENT
1	BENIGN -103	103	0
3	MALIGNANCY-12	10	2

Out of 404 benign cases, 103 benign cases only available for HPE which is consistent with FNAC diagnoses. Out of 12 malignant cases in FNAC 10 cases were diagnosed as malignancy in histopathology. 2 cases were diagnosed as follicular adenoma. Sensitivity and specificity calculated for malignant cases as follows.

Sensitivity = TP/TP+FPX100 = 90.9% Specificity = TN/TN+FPX100 = 99.5%.

From table-3 cyto pathological correlation done and sensitivity and specificity are calculated as Sensitivity of malignancy 90.9 is%, Specificity is 99.5 %, Handa et al(12). have done a similar study in which sensitivity of 96%, specificity of 98%.

DISCUSSION:

Thyroid swelling are very common in adult population with prevalence rate of 4-7%. In our study most affected population are 30-50 yrs of age group (60%) women were higher frequency, similar observation was noted in Handa U et al⁽¹²⁾, Pandey P, Dixit A, et al⁽⁸⁾.

When comparing FNAC with histopathology in the present study, it was found that 103 cases of benign FNAC diagnosis were consistent with 103 cases of HPE. Out of FNA diagnosed 8 papillary carcinoma 7 cases consistent with HPE. In this study poor cellularity and suboptimal preparation of smears has been the cause for under diagnosis of papillary carcinoma.

In the present study report shows sensitivity 90.9% and specificity 99.6%. Many international studies have documented the sensitivity of FNAC thyroid nodules is varying from 52-98%, International normal specificity is 72 to 100% and PPV is 50 to 90%. This is well comparable with study by Lewis et al 2000, Handa et al⁽¹²⁾, Atavilla et al⁽¹³⁾. According to Silverman JF, et al⁽⁸⁾ sensitivity of malignancy is 93% which is correlated with my study. FNA can reliably confirm in about more than 2/3rd of benign thyroid nodules, Melcher NL et al⁽³⁾. False negative reports were due to inadequate samples, cystic lesion and errors of Interpretation. FNAC provides a more rapid, safe and accurate diagnosis of the solitary nodule than other tests, Gharib et al (4), Ashof MW et al⁽¹²⁾.

CONCLUSION:

FNAC of thyroid is safe, simpler, and minimal traumatic procedure with high specificity in diagnosis of thyroid lesions. Our study shows high specificity in diagnosing malignancy and so it is reliable diagnostic tool for thyroid swelling evaluation. To avoid the unsatisfactory smear USG Guided FNAC has been planned in cystic swelling.

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