



ORIGINAL RESEARCH PAPER

Pathology

THYROID CYTOLOGY EVALUATION BY BETHESDA SYSTEM A ONE YEAR STUDY (JUNE 2016- JUNE 2017)

KEY WORDS: tumours, Thyroid Cytology Evaluation.

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ABSTRACT

Introduction: Thyroid lesions are very common. It is difficult to clinical evaluate & reach to correct diagnosis. It is essential that a correct diagnosis is made as early as possible.
Aim :To study various cytological features of material aspirated from thyroid swelling and hence making a pre-operative cytological diagnosis.
MATERIALS AND METHOD : Disposable needles, Glass slides, Methanol as fixative, Reagents for H&E stain & Giemsa stain, sterile gloves, gauze piece, spirit swab and through proper method of aspiration & examination.
CONCLUSION: FNAC is a simple, cost effective and relatively less painful procedure which can be used as an OPD procedure for the diagnosis of thyroid lesion. Bethesda system is very much helpful in categorizing thyroid lesion. It avoids confusion as was associated with previous categorizing methods & is helpful for patient management clinically.

INTRODUCTION:

Thyroid lesions are one of the common conditions encountered in clinical practice. It is difficult to clinical evaluation & reach to correct diagnosis. Hence it is essential that a correct diagnosis is made as early as possible. The majority of solitary thyroid nodules are benign; the incidence of malignancy being only 5-20% of surgically excised thyroid nodules on histopathology. In the management of solitary thyroid nodule, the primary challenge is to separate benign nodules (the majority) from malignant lesions (the minority). About 50% of clinically apparent solitary thyroid nodules turn out to be dominant nodule of multi-nodular goitre.

Thyroid tumours are more prevalent in females and papillary carcinoma is the most common histological type of thyroid tumours followed by follicular carcinoma, medullary carcinoma, anaplastic carcinoma, non Hodgkin's lymphoma and unclassified tumours in order of frequency.

RATIONALE OF THE STUDY:

This study is undertaken to study the cytology of palpable thyroid lesions to minimize surgical intervention and correlating the same with the thyroid function test and histopathological examination to confirm the diagnosis and planning post surgical management of malignant thyroid lesions.

OBJECTIVES OF THE STUDY:

To study various cytological features of material aspirated from thyroid swelling and hence making a pre-operative cytological diagnosis.

To categorize all the thyroid FNA's according to the Bethesda system proposed by the National Cancer Institute (TBSRTC), Bethesda, USA in 2007.

To study the prevalence of various thyroid pathology by Bethesda system.

To correlate cytological features of thyroid swelling with the thyroid hormone profile.

To study age and sex distribution of patient with thyroid pathology.

METHODOLOGY AND MATERIALS:

The present study was carried out in cytopathology laboratory, PDU Medical College and Hospital, Rajkot between June 2016 to June 2017. During this period 2542 FNA is done, out of which 100

cases were included for the purpose of study. Most of the patients in the institute are directly referred by Department of Surgery, Department of ENT and other clinical departments for FNAC in cytopathology laboratory.

For the purpose of study both male and female patients presenting with thyroid swelling in any lobe of thyroid selected by clinical palpation (multinodular, solitary nodules, diffuse goiter etc) and patients with recurrent thyroid swellings after a previous thyroid surgery in the age group of 10-80 years have been included.

RESULTS & DISCUSSION:

Table 1: No. of FNAC from Thyroid lesion

Duration (1year)	Total no. of cytology done	Total no of thyroid cytology done
June 2016 to June 2017	2542	204

Table 2 & 3 :Age and sex wise distribution of thyroid lesions

Age range (in years)	No. of cases	Percentage
0-10	00	00 %
11-20	12	12 %
21-30	24	24 %
31-40	23	23 %
41-50	20	20 %
51-60	14	14 %
61-70	06	06 %
71-80	01	01 %
Total	100	100 %

Sex	No of cases	Percentage
Females	88	88%
Males	12	12%
Total	100	100%

Table 4: Conventional Cytological Diagnosis Method of Thyroid FNAC is as follows:

Cytological diagnosis	No. of cases	Percentage
Cystic lesions	06	06%
Inflammatory lesions	10	10%
Lymphocytic thyroiditis	05	05%
Hashimoto thyroiditis	05	05%
Benign lesions	67	67%
Colloid goiter	57	57%
Hyperplastic thyroid lesion	10	10%

Malignancy	15	15%
Follicular neoplasm	08	08%
Papillary carcinoma	04	04%
Medullary carcinoma	02	02%
Anaplastic carcinoma	01	01%
Unsatisfactory	02	02%
Total	100	100%

Table 5: Cytological Diagnoses Of 100 Cases According To Bethesda System

BETHSEDA Diagnostic Category	BETHSEDA Description	No of Cases	Percentage
I.	Non diagnostic or unsatisfactory	03	03 %
II.	Benign thyroid lesion	82	82 %
III.	Atypia of undetermined significance/follicular lesions of undetermined significance	02	02 %
IV.	Follicular neoplasm or suspicious of follicular neoplasm	06	06 %
V.	Suspicious for malignancy	01	01 %
VI.	Malignancy	06	06 %
Total		100	100 %

Table 6: Age and Sex Incidence of Thyroid Lesion

Age (in years)	Sex		BETHESDA DIAGNOSTIC CATEGORY					
	M	F	I.	II.	III.	IV.	V.	VI.
0-10	00	00	00	00	00	00	00	00
11-20	01	11	00	11	00	01	00	00
21-30	04	20	01	20	00	01	00	02
31-40	02	21	01	18	01	02	01	00
41-50	03	17	01	15	01	01	00	02
51-60	02	12	00	12	00	01	00	01
61-70	00	06	00	04	00	01	00	01
71-80	00	01	00	01	00	00	00	00
Total	12	88	03	81	02	07	01	06

Table 7 : Cytological Examination Of Thyroid Lesions With Hormonal Correlation

BETHESDA		THYROID FUNCTION TEST		
Diagnostic Category	Description	Hypothyroid	Euthyroid	Hyperthyroid
I	Non diagnostic or unsatisfactory	00	03	00
II	Benign thyroid lesion	01	75	06
III	Atypia of undetermined significance/follicular lesions of undetermined significance	00	02	00
IV	Follicular neoplasm or suspicious of follicular neoplasm	00	06	00
V	Suspicious for malignancy	00	01	00
VI	Malignancy	00	06	00
Total	(100 case)	01	93	06

DISCUSSION:

FNAC is now accepted as the cost effective, minimally invasive, low complication, non operative diagnosis for most of the thyroid lesions and is highly successful in triaging the patients with solitary thyroid nodule in to non operative and operative group. The location of target lesion, careful searching for malignant cells and repeat FNAC is the key to successful diagnosis to plan proper surgical management in thyroid mass. The distinction of benign and malignant thyroid nodules is fundamental, as malignancy necessitate surgery while strict patient follow up is necessary in case of benign thyroid mass. FNAC is considered to be gold standard in the selection of the patients for surgery.

CONCLUSION :

Fine needle aspiration cytology is a simple, cost effective, quick, and relatively less painful procedure which can be used as an outdoor patient procedure or as a part of screening programme for the diagnosis of thyroid lesion. FNAC can be utilized as a first line diagnostic procedure in patient presenting with thyroid swelling especially in developing countries with limited resources. FNAC diagnosis of malignancy is highly significant and such patients should be subjected to surgery. A benign FNAC diagnosis should be viewed with caution as false negative results do occur and these patients should be followed up and any clinical suspicion of malignancy even in the presence of benign FNAC requires surgery. Bethesda system is very much helpful in categorizing thyroid lesion and avoiding confusion as was associated with previous categorizing methods. Hormone study should be done to know the functional status of the lesions, it also help us to lead the diagnosis. When combined with clinical examination, hormone study and imaging technique, FNAC gives more accurate results which will help clinician for proper line of treatment in the respective thyroid pathology.

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