

## Bethesda System Of Reporting Thyroid Cytopathology – A Study Of 100 Cases

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**Abstracts: Background & Objective:** Thyroid nodules are common clinical occurrence. More than 50% of the world's population harbours at least 1 thyroid nodule and the frequency of nodular thyroid diseases increases with age. It is therefore no surprise that thyroid fine needle aspiration cytology (FNAC) is one of the most commonly practiced areas in non gynaecologic cytopathology. Objective is to study cytopathology of various Thyroid lesions to Differentiate and classify them according to the Bethesda System. To determine accuracy of the Bethesda classification system for reporting. **Methodology:** This study was conducted in department of pathology BRIMS Bidar, around 100 thyroid FNAC reported cases retrospectively. Hand E, Geimsa and Pap stains were used. All smears were screened and cytomorphological features were ascertained the diagnostic categories according to Bethesda System for reporting thyroid cytopathology. In our study the age group were from 15 to 80 yrs and female prepondence was reported. Non diagnostic (N D) confined 5 cases, Benign category were diagnosed in 75 cases, Atypia of Undetermined Significance (AUS) was diagnosed in 3 cases, Suspicious for Follicular Neoplasm (SFN) in 4 cases, Suspicious for malignancy (SFM) in 4 cases and Malignant 9 cases. **Results & Conclusion:** A definite morphological diagnosis can be made on FNAC which annuls the need of diagnostic biopsies. Surgery can be avoided in benign lesions diagnosed on FNAC. TBSRTC has an excellent diagnostic specificity and accuracy in evaluation of thyroid nodules. [Para R NJIRM 2016; 7(3): 52 - 54]

**Key Words:** Bethesda System, TBSRTC, PAP, AUS.

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**Introduction:** The thyroid gland is unique among endocrine glands, in that it is the first endocrine gland to appear in the fetus. Thyroid nodules are common clinical occurrence. More than 50% of the world's population harbours at least 1 thyroid nodule and the frequency of nodular thyroid diseases increases with age. It is therefore no surprise that thyroid fine needle aspiration cytology (FNAC) is one of the most commonly practiced areas in non gynaecologic cytopathology. Despite its wide spread use, Thyroid FNAC currently Suffers from reporting confusion: multiplicity of category names, descriptive reports without categories and variable surgical pathology terminology<sup>1</sup>

Lack of consistency in reporting thyroid FNAC has led to wide variances in sensitivity and specificity calculations depending on what one considers to be true and false positives/negatives and resulted in confusion among clinicians on how to manage patients who do not have clear cut negative or positive thyroid FNAC result<sup>2</sup>

Therefore National Cancer Institute in 2007 sponsored the NCI Thyroid FNA State of the Science conference a multidisciplinary conference that took place in Bethesda, Maryland on October 22 and 23, 2007. The agenda was addressing indications, techniques, terminology for reporting results, ancillary testing, and management guidelines, this forming the

framework for The Bethesda System for reporting Thyroid Cytopathology(TBSRTC)<sup>3,4</sup>

**Material and Methods:** This study was conducted in department of pathology BRIMS Bidar, around 100 thyroid FNAC reported cases retrospectively. Hand E, Geimsa and Pap stains were used. All smears were screened and cytomorphological features were ascertained the diagnostic categories according to Bethesda System for reporting thyroid cytopathology. In our study the age group were from 15 to 80 yrs and female prepondence was reported. Cytopathologically they were classified as, Non diagnostic, Benign, Atypia of Undetermined Significance, Follicular Neoplasm/Suspicious for Follicular Neoplasm, Suspicious for malignancy, Malignant.

**Results & Discussion:** Our study included 100 cases of thyroid swellings. It was a retrospective study. A tiered diagnostic classification scheme, such as the 6- tiered one proposed by The Bethesda System of Reporting Thyroid Cytology (TBSRTC), is an effective approach for cytological diagnosis and management of thyroid nodules<sup>5,6</sup> The advantage of TBSRTC is the standardization of the reporting of thyroid cytology, which, prior to 2007, consisted of non reproducible classification schemes that in some cases included either too few or too many diagnostic categories. The 6 diagnostic categories of TBSRTC arose from a probabilistic approach: the probability that thyroid

lesion placed into specific category would show histologic evidence of malignancy<sup>(7)</sup>. The advantage of this study of this approach is that each of the 6 diagnostic categories can be associated with implied risk of malignancy that translates into a recommendation for clinical management.

The result obtained after compiling the data have been compared with similar studies and are discussed.

In our study the age group were from 15 to 80 yrs and female prepondence was reported . Non diagnostic confined 5 cases, Benign category were diagnosed in 75 cases, AUS was diagnosed in 3 cases (Fig 1), SFN in 4 cases, SFM (Fig 2) in 4 cases and Malignant 9 cases.

**Table No 1: Bethesda category wise % of cases in various studies**

Bethesda Diagnostic Category	Present study	Shaguf ta TM et al <sup>(8)</sup>	Yaa sa et al <sup>(3)</sup>	Yan g et al <sup>(9)</sup>	Nayar and Ivano vic et al <sup>(2)</sup>	Jo VY et al <sup>(10)</sup>
Nondiagno stic	5	11.6	7	10.4	5	18.6
Benign	75	77.6	66	64.6	64	59
AUS	3	0.8	4	3.2	18	3.4
SFN	4	4	9	11.6	6	9.7
SFM	4	2.4	9	2.6	2	2.3
Malignant	9	3.6	5	7.6	5	7

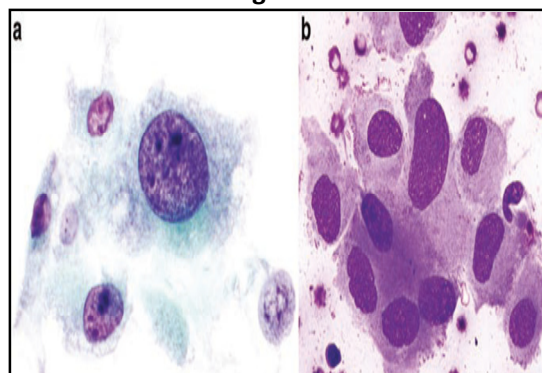
In the present study , % of FNAC diagnosis of 100 cases of thyroid lesions based on TBSRTC yielded comparable results with various other studies. According to Bethesda system , category wise % of cases in present study were as follows Nondiagnostic 5 % ( 5 cases), Benign 75%(75 cases), AUS 3% ( 3 cases), SFN and SFM 4% each ( 4cases each ), Malignant 9%( 9 cases).

All other studies were having similar results with the present study. The percentage of various studies are mentioned in above table no 1. Nodules with initial Non diagnostic result need to be re aspirated , but no sooner than 3months . the 3 months interval is recommended to prevent false positive interpretations due to reactive/reparative changes<sup>(11)</sup>. Ultrasound guidance with immediate on site adequacy evaluation is preferred for repeat aspiration after initial

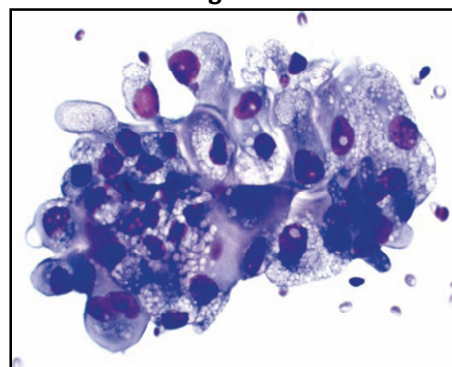
nondiagnostic specimen , especially for solid nodules. Patients with Benign thyroid cytology are generally followed clinically with periodic physical examination, supplemented by ultrasonography in some cases<sup>(11,12)</sup>. Follow up is carried out at 6 to 18 month intervals and for at least 3 to 5 yrs following initial Benign diagnosis .

Repeat FNA is recommended for nodules showing significant growth or developing USG abnormalities, such as irregular margins , microcalcifications intranodular hypervascularity , and hypoechoogenicity in solid areas<sup>(11)</sup>. The recommended management for AUS category is the clinical correlation and ,for most cases ,repeat FNA at an appropriate interval<sup>(3,11)</sup>. A repeat FNA usually results in more definitive interpretation. Use of immunocytochemistry , liquid based cytology and radiological correlation may improve diagnostic accuracy. The recommended management of a patient with a diagnosis of SFN is surgical excision , most often a hemithyroidectomy or lobectomy because definitive diagnosis relies on histological examination of nodule architecture<sup>(11,12,13)</sup>. Surgical consultation is recommended for patients with an FNAC interpretation of S/O malignancy or Malignant.

**Figure 1**



**Figure 2**



**Conclusion:** A definite morphological diagnosis can be made on FNAC which annuls the need of diagnostic biopsies . Surgery can be avoided in benign lesions diagnosed on FNAC.

TBSRTC has an excellent diagnostic specificity and accuracy in evaluation of thyroid nodules.

The system improves the clarity of communication among cyto pathologists and other health care providers .

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