

Thyroid Cytology? The Bethesda System of Reporting to the Rescue!!

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Abstract

Introduction: The Bethesda system is a uniform reporting system for thyroid cytology that facilitates the clarity of communication among pathologists, and surgeons and facilitates cytohistologic correlation for thyroid diseases. An implied risk of malignancy, a preliminary triage, and at times a definitive diagnosis can be offered. Immunocytochemistry can be done on cell blocks. Molecular studies can also be performed.

Objective: This study was carried out to evaluate thyroid lesions by fine needle aspiration cytology (FNAC) based on Bethesda system of reporting.

Materials and Methods: A total of 40 patients with clinically palpable thyroid lesions were studied at our institute between July 31, 2020, and December 31, 2020. FNAC was performed on those patients and slides were made, both air dried (MGG stained) and wet fixated (PAP, H & E stained). The slides were screen under light microscope and results were compared.

Results: Based on the Bethesda system of classification of thyroid lesions, out of total 40 samples: 02 samples were diagnosed as non-diagnostic even after re-aspiration (Category 1). 21 lesions were diagnosed as benign (Category 2). 07 were in category of follicular lesion of undetermined significance (Category 3). 05 were diagnosed as suspicious for follicular neoplasm (Category 4). 03 as suspicious for malignancy (Category 5). 02 cases as malignant (Category 6).

Conclusions: Reviewing the thyroid FNAs with the Bethesda system for reporting allowed precise cytological diagnosis. Nature of the disease, experience of pathologist, and understanding of certain limitations determine its diagnostic utility.

Discussion: FNAC is a widely accepted method used in the diagnosis of patients with thyroid nodules. The lack of consistency in reporting FNA was solved in 2007, when TBSRTC was introduced.

Keywords: Bethesda; FNAC (Fine Needle Aspiration Cytology); Thyroid.

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INTRODUCTION

- Diseases of the thyroid gland are common and encompass a spectrum of entities.¹
- Majority of the thyroid lesions are benign; <5% of thyroid nodules are malignant.¹
- In India, incidence of thyroid malignancies is 2,16,000 per year.²

- Fine Needle Aspiration Cytology (FNAC) is a sensitive, accurate and cost-effective method for the management of a patient with thyroid nodule.
- As FNAC distinguishes the biologic nature quite effectively, it is the pre-operative screening method of choice worldwide.
- An implied risk of malignancy, a preliminary triage, and at times a definitive diagnosis can be offered.³
- Immunocytochemistry can be done on cell blocks.
- Molecular studies can also be performed.⁴
- However, some aspirates are non-diagnostic.

Functional Thyroid Status	No. of Cases	Percentage %
Euthyroid	28	70
Hyperthyroid	7	17.5
Hypothyroid	5	12.5
Total	40	100

METHODS

- FNAC performed on 40 cases from July 1st to 31st December 2020 was used for cytological evaluation.
- Smears were stained with MGG (air dried), H & E and PAP (wet fixed).
- Cytology results was categorised into 6 groups as per "The Bethesda system for reporting Thyroid Cytopathology - 2017"

RESULTS

Age of presentation ranged from 15–74 years. Maximum number of cases (21) was seen in the 4th decade.



Fig. 1: Pie Chart

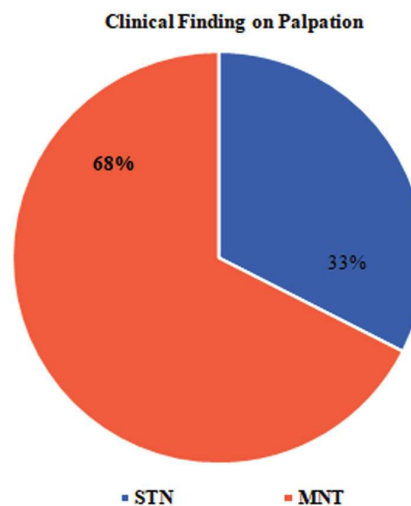


Fig. 2: Pie Chart

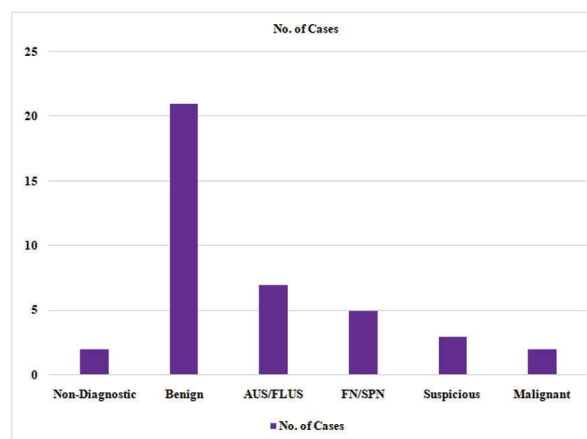


Fig. 3: Graph Chart

Based on the Bethesda system of classification of thyroid lesions, out of total 40 samples:

- 02 samples were diagnosed as non-diagnostic even after re-aspiration (Category 1).
- 21 lesions were diagnosed as benign (Category 2). (Fig. 2, 3)
- 07 were in category of follicular lesion of undetermined significance (Category 3).
- 05 were diagnosed as suspicious for follicular neoplasm (Category 4).
- 03 as suspicious for malignancy (Category 5).

- 02 cases as malignant (Category 6). (Fig. 1)

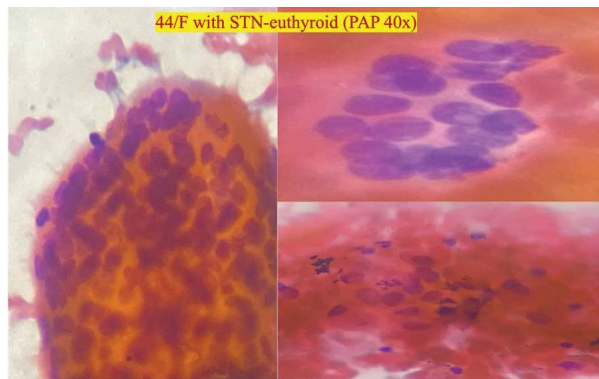


Fig. 1: Papillary thyroid Carcinoma

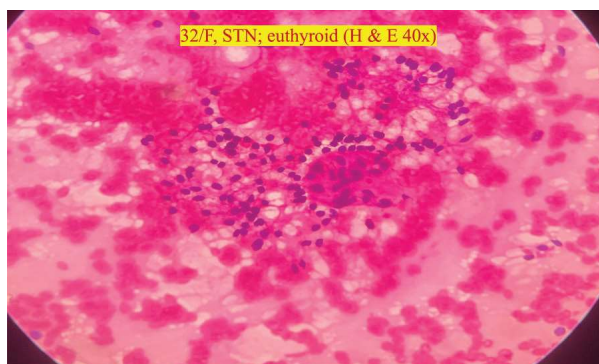


Fig. 2: Graves Disease

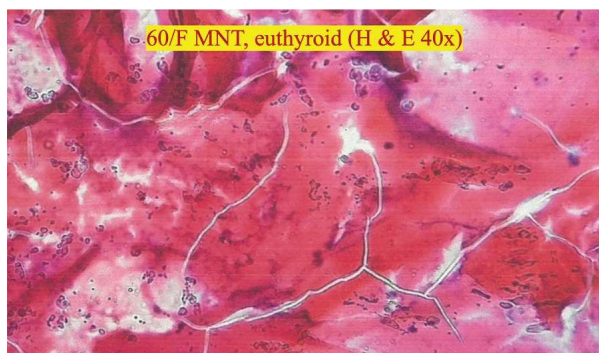


Fig. 3: Colloid Goitre

DISCUSSION

- FNAC is a widely accepted method used in the diagnosis of patients with thyroid nodules.^{1,5}
- The lack of consistency in reporting FNA was solved in 2007, when TBSRTC was introduced.⁶
- Advantages: Reduction in number of non-diagnostic/indeterminate smears.⁷

- Better inter-observer concordance.
- Implied malignancy risk enabling a better clinical management of the results.⁸

CONCLUSION

- FNAC is a initial diagnostic test for evaluating thyroid nodules. It is a simple, cost effective and accurate pre-operative diagnostic test compared to other diagnostic modalities.
- Moreover, it is safe outpatient procedure which can be repeated without any major complications.
- Few cytology tests have so effectively decreased unnecessary surgery while increasing the yield of malignancy.

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