



PATTERN OF THYROID LESIONS ON FINE NEEDLE ASPIRATION CYTOLOGY IN A RURAL TERTIARY CARE HOSPITAL OF LOWER ASSAM.

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ABSTRACT

Background:- Fine needle aspiration cytology (FNAC) is the first line diagnostic procedure for thyroid swellings which helps to select patients who require surgery for a neoplastic disease from those patients who can be followed clinically or treated medically. The Bethesda system for reporting thyroid cytopathology (TBSRTC)[1] was introduced in 2007 in an attempt to standardize international terminology and to categorize morphological criteria in fine-needle aspirations (FNAs) of thyroid swellings.

Objective:- The aim of the present study is to characterize the pattern of various thyroid lesions on FNAC along with age and gender distribution in patients presenting with thyroid disorders and to assert its utility in differentiating neoplastic from non-neoplastic lesions.

Methodology:- A hospital based cross sectional study conducted over a period of fifteen months. FNAC of 120 cases of clinically diagnosed thyroid lesions were done, smears stained and observed under the microscope.

Results:- In the study majority of cases were females (F-93 cases, 77.5%) compared to males (M-27 cases, 22.5%) with M:F ratio = 1:3.4. Age of patients ranged from 8 years to 75 years, with cases occurring commonly in the age group of 21-30 years. The most frequent thyroid lesions were benign (103 cases, 85.8%), followed by suspicious for follicular neoplasm (8 cases, 6.7%), malignant (7 cases, 5.8%). 2 cases (1.7%) were unsatisfactory for evaluation. Among benign lesions (103 cases, 85.8%), goiter (93 cases, 90.3%) was the most common followed by Hashimoto's thyroiditis (06 cases, 5.8%), granulomatous thyroiditis (03 cases, 2.9%), primary hyperplasia (01 case, 1%). Among the malignant cases (07 cases, 5.8%) the most common was papillary carcinoma (04 cases, 57.1%) occurring commonly in females (03 cases, 75%). This was followed by anaplastic carcinoma (02 cases, 28.6%), medullary carcinoma (01 case, 14.3%).

Conclusion:- We conclude that a diverse group of diseases affect the thyroid, ranging from inflammatory to neoplastic diseases with their characteristic age and sex pattern. FNAC aided by a careful clinical history and supporting investigations offer optimum results and helps avoiding unwanted surgical procedures.

KEYWORDS : Bethesda, Cytopathology, FNAC, Swelling, Thyroid.

INTRODUCTION

Fine needle aspiration cytology (FNAC) is the process of studying cells and tissue fragments obtained by introducing a needle into an abnormal tissue. It is a rapid, relatively safe and cost-effective diagnostic modality. FNAC of the thyroid gland is the first line diagnostic test for evaluation of thyroid swellings, especially for solitary thyroid nodule. The primary objective of FNAC of the thyroid is to select those patients who require surgery for a neoplastic disorder from those who have a functional or inflammatory abnormality and who can be followed clinically or treated medically¹.

The aim of the present study is to characterize the pattern of various thyroid lesions on FNAC along with age and gender distribution in patients presenting with thyroid disorders and to assert its utility in differentiating neoplastic from non-neoplastic lesions.

MATERIAL AND METHODS

The present study is a hospital based cross sectional study conducted over a period of fifteen (15) months from November 2015 to January 2017. A total of 120 cases of clinically diagnosed thyroid lesions referred for FNAC to the pathology department of FAAMCH, Barpeta from various clinical settings were included in the study. In all the cases a detailed clinical history taken and relevant investigations like thyroid hormone profile, ultrasonography reports wherever available were retrieved. Informed consent was obtained in each case and depending on the nature of the swelling both non-aspiration and aspiration techniques were followed with a 22 gauge needle, 10 ml plastic syringe. Air dried smears were prepared, stained with May Grunwald Giemsa stain and wet fixed smears were stained with Papanicolaou stain and observed under the microscope.

Criteria taken for adequacy of FNA material were: 6 clusters of well preserved thyroid follicular cells in at least two slides². Cytological diagnosis was categorized according to The Bethesda System for Reporting Thyroid Cytopathology².

RESULTS

In the present study the following categories of cytopathological

diagnosis were found - non-diagnostic/unsatisfactory, benign, suspicious for follicular neoplasm and malignant.

Out of 120 cases, majority of patients were females comprising of 93 cases (77.5 %) while 27 cases (22.5 %) were males. The male to female ratio was 1:3.4.

Age of patients ranged from 8 years to 75 years, with cases occurring commonly in the age group of 21-30 years (44 cases, 36.7%).

The most frequent thyroid lesions were benign (103cases, 85.8%), followed by suspicious for follicular neoplasm (8 cases, 6.7%), malignant (7 cases, 5.8%). 2 cases (1.7%) were unsatisfactory for evaluation.

Out of the 103 benign cases (85.8%), the most common lesion was goiter (93 cases, 90.3%) of which 74 cases were nodular goiter, 12 cases were simple colloid goiter and 7 cases were goiter with cystic change. Age ranged from 8 to 65 years. Females were most commonly affected with a total of 69 cases while 24 cases were males. This was followed by 6 cases of Hashimoto's thyroiditis (5.8%), age ranged from 17 to 35 years, and all the cases were females. There were 3 cases of granulomatous thyroiditis (2.9%), all the cases were females, one aged 22 years and two aged 30 years each. There was 1 case of primary hyperplasia (1%) in a 23 years old female.

In the group suspicious of follicular neoplasm there were 8 cases (6.7%), age ranged from 24 to 62 years, with 6 female and 2 male patients.

In the malignant group (7 cases,5.8%),the most common variety was papillary carcinoma (4 cases,57.1%) occurring most commonly in females with 3 cases aged 26 years,40 years and 60 years and in 1 male aged 40 years This was followed by 2 cases of anaplastic carcinoma, both cases being females, aged 40 years and 60 years. There was 1 case of medullary carcinoma in a 75 years female.

In the unsatisfactory group there were 2 cases (1.7%), one in a 18

years old male and one in a 26 years old female. In both cases even on repeated FNAC, only blood was aspirated.

DISCUSSION

In the present study, females (93 cases) were more commonly involved than males (27cases) with M:F ratio of 1:3.4. This finding is in conformity with studies done by Sukumaran et al¹, Qureishi and co-workers⁴ and Sinna and Ezzat⁵.

Age of patients showed a wide range starting from as early as 8 years to 75 years old. Most of the cases occurred between 21-30 years age group. In study conducted by Tagore et al⁶ cases showed a age range between 11 to 78 years.

The most common thyroid lesions were benign (85.8%), a finding similar to studies by Guhamallick et al⁷, Tagore et al⁶ who found it in 79% and 84% respectively. In the benign group, colloid goiter was the most common entity.

This was followed by lesions suspicious for follicular neoplasm (SFN) constituting 6.7%. Studies done by Pembegul et al⁸ and Tagore et al⁶ found 7.9% SFN and 9%SFN respectively.

The malignant group comprised of 5.8%. Similar findings were observed by Tagore et al⁶ and Handa et al⁹. The most common malignancy found in our study was papillary carcinoma. Similar result was also found by Babu and co-workers¹⁰ and Akhila and co-workers¹¹. Females were most commonly affected than males.

The unsatisfactory group comprised of 1.7%. Similar finding was observed by studies done by Likhar and coworkers¹² (1.7%) and Bagga and Mahajan¹³ (1.6%).

Table 1:- showing Bethesda Categorization of the cases following "The Bethesda System for Reporting Thyroid Cytopathology".

Bethesda Category	No of cases
Category I- Unsatisfactory	02
Category II – Benign	103
Category IV – Suspicious for follicular neoplasm	08
Category VI – Malignant	07
Total	120

CONCLUSION

Role of FNAC as a first line diagnostic test in evaluation of thyroid lesions is an invaluable tool, as it is a simple, safe, rapid procedure and cost effective. The most important aspect lies in the fact that it helps in differentiating non-neoplastic diseases from neoplastic diseases on the basis of which physicians plan the management.

In the present study we conclude that a diverse group of diseases affect the thyroid, ranging from inflammatory to neoplastic diseases with their characteristic age and sex pattern. FNAC aided by a careful clinical history and supporting investigations offer optimum results and helps avoiding unwanted surgical procedures.

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