



CYTOMORPHOLOGICAL STUDY OF THYROID LESIONS

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ABSTRACT **INTRODUCTION:** A solitary thyroid nodule is defined as a palpable single, clinically detected nodule in the thyroid. They cause more concern because of high probability of malignancy in them, which can range from 5-35% of all solitary thyroid nodules. Nodular lesion comprises those disorders that produce a clinical nodule and consists of non-neoplastic hyperplasia as well as benign and malignant tumours.

MATERIAL AND METHODS: The present study was conducted in cytopathology section in Department of Pathology on the cases which presented from December 2015 to June 2017.

Type of study – Prospective study

Methodology: All the patients with palpable thyroid nodule referred from the OPD of J.A hospital for FNAC were included in the study. 22-25 gauge needle attached to 20 ml syringe was used for aspiration. On an average 2 to 3 passes were made in the lesion and the aspirate was smeared in clean glass slide and air dried smear. May Grunwald Giemsa (MGG) staining was done and using DPX MOUNTANT slide were prepared

RESULTS: To assess diagnostic parameters for cytodiagnosis of thyroid lesions. Thyroid cytology comprised 212 cases of total FNACs (4150) conducted at our institution over study period (December 2015 to June 2017). It was observed that during this period the percentage of thyroid FNACs has remained more or less constant

The mean age of patients with thyroid lesions in our study was 40.8. years. Female : Male ratio in our study was 4.73:1. The lower size of the thyroid swelling mostly favours benign pathology. In our study, the majority of the patients-90 cases (42.45%) had the size of the thyroid swelling between 2 to 3 cms. Maximum size of the swelling was 4 to 5 cms diameter in 11 cases

KEYWORDS :

INTRODUCTION

The word 'Thyroid' originated from 'Thyreos', a Greek word meaning shield. It was first used by Thomas Wharton (1614-1673) of London, UK. He named it as Glandularis thyroideis in 1656 in his book "Adenographia." In old times, it was called Struma (Latin word for swollen gland), bronchocele (a cystic mass in the neck) and Goitre (Latin word-gutter meaning throat). The last name is in use even today.¹ After diabetes mellitus, the thyroid gland is the most common organ to cause endocrine disorders². Thyroid carcinoma closely resembles its benign counterpart in physical characteristics, measurable physiological parameters such as serum T3/T4 levels and ultrasonic characteristics. Therefore, the surgical excision of the nodule and its histological examination is the only way to differentiate between the more frequent benign and much less frequent malignant nodules. Since most of the thyroid nodule are benign, symptomless and small in size, they do not require surgical excision.³ A solitary thyroid nodule is defined as a palpable single, clinically detected nodule in the thyroid. They cause more concern because of high probability of malignancy in them, which can range from 5-35% of all solitary thyroid nodules.⁴ Neoplasm of the thyroid are relatively uncommon disease. They constitute only 0.7% of all cancers in female and 0.2% in males. However, there has been an increase in the incidence of thyroid neoplasm in India and abroad.⁵ Striking advances in various disciplines of medicine and science as applied to the study of thyroid lesions have led to a better understanding and management of many thyroid disorders.⁶ Evaluation of different methods of therapy continues to be a problem, partly because thyroid cancers are uncommon.⁷

Thyroid cytology-Fine Needle Cytology (FNC) has proven to be a firstline tool to evaluate the thyroid lesions because of its cost effectiveness and high patient acceptance. FNC particularly, guided is highly successful in triaging patients with thyroid nodules into operative and non-operative groups. This enables surgeons to take an early decision regarding mode of treatment to be applied

MATERIAL AND METHODS

The present study was conducted in cytopathology section in Department of Pathology on the cases which presented from December 2015 to June 2017.

Type of study – Prospective study.

Inclusion criteria

1. All palpable lesions of thyroid gland.
2. Non palpable lesion through ultrasound and CT guided FNAC.

Exclusion criteria

1. Swellings arising from the skin and surrounding structure of the thyroid gland.

Methodology

All the patients with palpable thyroid nodule referred from the OPD of J.A hospital for FNAC were included in the study. 22-25 gauge needle attached to 20 ml syringe was used for aspiration. On an average 2 to 3 passes were made in the lesion and the aspirate was smeared in clean glass slide and air dried smear. May Grunwald Giemsa (MGG) staining was done and using DPX MOUNTANT slide were prepared.

RESULTS

The present study was carried out in the Department of Pathology from December 2015 to June 2017. It was a prospective analysis of 212 cases with thyroid swellings referred to cytology OPD.

As per the proforma mentioned in Materials and Methods, detail clinical history was procured before obtaining a sample for cytological study. Based on clinical history, the following observations were made

Table No. 1 Year-wise distribution of thyroid (212) cases

Year	Total no. of FNACs	Total no. of Thyroid FNACs	Percentage of thyroid FNACs
December 2015 to November 2016 (12 months)	2800	147	5.25
December 2016 to June 2017 (7 months)	1350	65	4.8
Total	4150	212	5.10

Table No.1 shows that thyroid cytology comprises 5.10% of total FNACs conducted at our institution over the one year seven months

period.

Table No. 2 Age wise distribution of (212) thyroid cases

Age group in years	No. of cases	Percentage
<10 years	1	0.47%
11-20	17	8.01%
21-30	44	20.75%
31-40	86	58.96%
41-50	32	15.09%
51-60	19	8.96%
>60	13	6.13%

Table No.2 indicates the overall age of incidence of thyroid lesions in 212 cases. The age of presentation ranged from 9 to 72 years in our study of 1.7 years.

Table No. 3 Sex-wise distribution of cases

Gender	Number	Percentage
Male	37	17.45
Female	175	82.55

Table No. 3 shows that thyroid disease occurs more commonly in females thanmales.

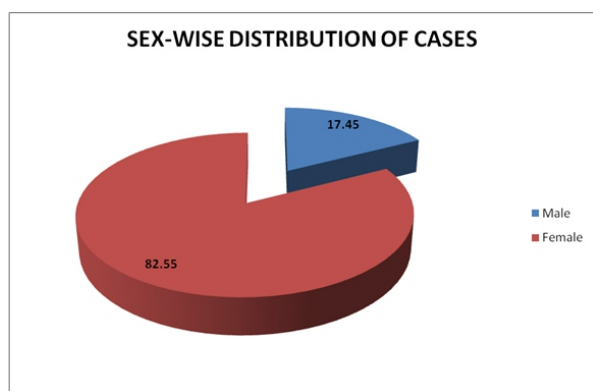


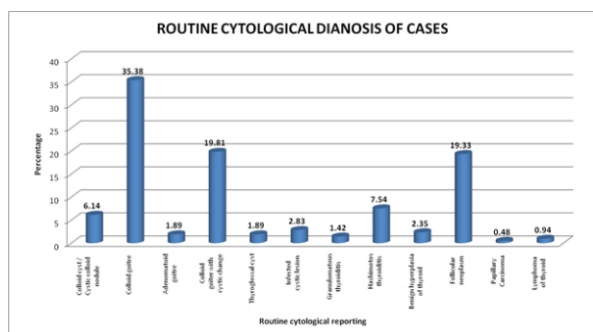
Table No. 4 Size of thyroid swelling in 212 cases on palpation

Size of thyroid swelling-length and breadth in cms	No. of cases	Percentage
2x1	25	11.79%
3x 2	90	42.45%
4 x3	86	40.56%
5x 4	11	5.18%

Table No.7 shows that maximum number of cases (90) having the size of 3x2 cms, followed by 40.56% cases having the size 4x3 cms.

Table No. 5 Diagnostic criteria of 212 thyroid FNAC based on Bethesda classification

Categories	Total no. of Cases	%
Group 1 : Benign	170	80.1
Group 2 : Atypia with Undetermined Significance(AUS)	28	13.2
Group 3 : Suspicious for Neoplasm	04	1.88
Group 4 : Suspicious for malignancy	03	1.41
Group 5 : Malignant	03	1.41
Group 6 : Inadequate/Non-diagnostic	05	2.35



DISCUSSION

The study was undertaken with the Aims and objectives of evaluating clinicopathological profile of various thyroid lesions.

To assess diagnostic parameters for cytodiagnosis of thyroid lesions. Thyroid cytology comprised 212 cases of total FNACs(4150) conducted at our institution over study period (December 2015 to June 2017). It was observed from Table No 1. that during this period the percentage of thyroid FNACs has remained more or less constant.

The mean age of patients with thyroid lesions in our study was 40.8. years. Female : Male ratio in our study was 4.73:1. The lower size of the thyroid swelling mostly favours benign pathology. In our study, the majority of the patients-90 cases (42.45%) had the size of the thyroid swelling between 2 to 3 cms .Maximum size of the swelling was 4 to 5cms diameter in 11 cases. Walker J et al (1985)⁸ observed that for a thyroid nodule to be detected by palpation it must be atleast 1 cm in diameter, while USG detects nodules as small as 3mm in diameter. In our study majority of cases were diagnosed as colloid goitre (35.38% cases) on routine reporting., followed by colloid goiter with cystic changes(19.81%).

In our study one case reported as papillary carcinoma and two cases as lymphoma.

In our study non neoplastic cases were(79.25%) and neoplastic were(20.75%)



Figure 1 : A case of solitary nodule thyroid

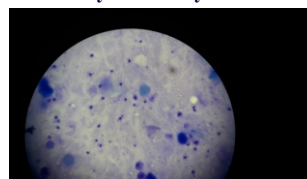


Figure 2 : Thyroglossal cyst

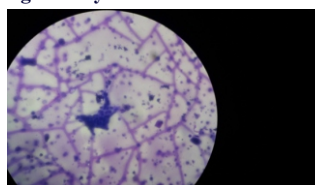


Figure 3 : Colloid goitre

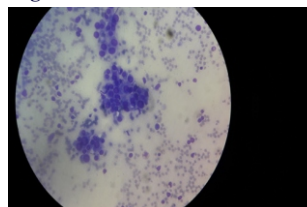


Figure 4 : Follicular neoplasm with hurthle cell change

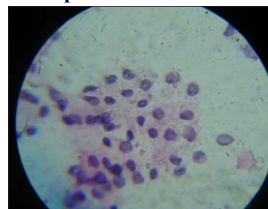


Figure 5 : Paillary carcinoma showing nuclear grooving

CONCLUSION:

- Specificity of FNAC of thyroid was found to be high enough to reduce the number of surgical problems
- Thyroid cytology proves to be a reliable, simple and cost-effective firstline diagnostic procedure with high patient acceptance and without complications
- The results of thyroid cytology must be assessed in conjunction with the clinical findings and other investigations.
- The procedure has acceptable sensitivity and specificity in wide range group of patients in experienced hands and hence can be followed as a pre-operative diagnostic modality in the management of patients with thyroid lesions, thus reducing the number of surgeries.
- Studies to evaluate various diagnostic parameters are necessary in all cytology centers to improve upon technical as well as interpretative errors.
- Application of various techniques like advanced imaging techniques, immunocytochemistry, immunologic analysis, analysis of hormone receptor and electron microscopic study can result in further reduction in misdiagnosis and can considerably broaden the diagnostic Spectrum and increase the diagnostic accuracy.

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