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STUDY OF SPECTRUM OF BENIGN THYROID LESIONS ON FNAC AT TERTIARY CARE CENTRE

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Abstract

Background: Thyroid lesions are one of the commonly encountered disorders in any hospital. Majority are non neoplastic and malignancy accounts for about 5-10%. Fine needle aspiration cytology is a simple, cost effective, reliable and minimally invasive tool for the evaluation of these lesions and it can differentiate benign from malignancy.

Material and methods: This cross sectional study was conducted on the thyroid swelling attending the cytology OPD of Regional Institute of Medical Sciences (RIMS) during October, 2016 to October, 2019 a tertiary care hospital. All smears are air dried and stained with Giemsa stain.

Results: The most common age group affected is 41-50 years of age followed by 31-40 years age group. Females outnumbered males with female to male ratio of 16.9:1. Out of 729 cases, colloid goiter constitute a total of 387 (53%), Hashimto's thyroiditis 318 cases (43.3%), adenomatous goiter (1.2%) and Graves disease contribute 1.1%

Conclusion: Thyroid Swelling are very common clinical presentation. FNAC is a cost effective, reliable, easy to perform test with commendable sensitivity. It can spare patients to undergo unnecessary surgery. It also helps in differentiating solid from cystic lesions.

Introduction

Background:

Thyroid gland diseases can be described as one of the commonest endocrine disorders encountered in India as well as in rest of the world. Nearly 42 million people in India are estimated to be suffering from it[1]. The prevalence of thyroid nodule is about 3-8% in the general population and is greater than 50% after age 65 years[2]. They include a vast array of developmental, inflammatory, hyperplastic and neoplastic lesions[3]. Most of the thyroid lesions clinically present as thyroid swelling and it is difficult to distinguish between neoplastic and non neoplastic lesions[3]. Thyroid swelling may be diffuse or nodular and may also cause physiological changes. Nodular lesions may be non neoplastic hyperplasia as well as benign and malignant lesions. Majority of thyroid lesions are said to be non neoplastic and 5-10% are malignant. Benign and malignant nodules cannot be distinguished by clinical features only[4].

FNAC is now a well established, simple, easy to perform, quick screening test as well as a diagnostic tool to differentiate benign nodules from malignancy. It is a very good modality to decide the patients who need surgical intervention from those who need medication only. FNAC is regarded as the first line of investigation which is followed by ultrasound examination along with other biochemical tests.

This study is undertaken to identity the cytomorphological spectrum of thyroid lesions in Manipur which lies in the goitrogenic belt of SubHimalayan region.

Material and Method:

This study was a cross sectional study carried out in the department of Pathology, Regional Institute of Medical Institute (RIMS) a tertiary care hospital. Duration of the study was 3 years from October, 2016 to October, 2019.

Inclusion criteria - all cases diagnosed during the study period.

Exclusion criteria - Any case with incomplete data are excluded.

A total number of 796 thyroid swelling were aspirated, out of which 729 were classified as benign and enrolled for this study. Cytological aspirates are air dried and stained with Giemsa, all the relevant data are studied and reviewed. The diagnosis was classified according to Bethesda system for reporting thyroid cytopathology[4].

All data are entered into SPS version 21. Descriptive and inferential statistical analysis was carried out. The qualitative data were expressed in proportion and percentages and the quantitative data expressed as mean and standard deviation.

Results:

4 totals of 729 cases (91.5%) out of 796 thyroid swelling were enrolled for the study. The most common age group encountered in this study is 41-50 years of age followed by 31-40 years of age. The minimum age being 8 years and maximum 98 years. Median population age being 43 years.

RESULTS AND OBSERVATION

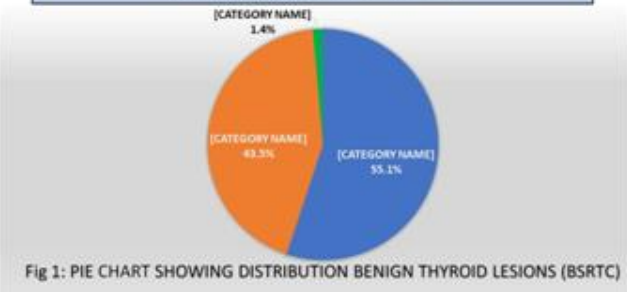
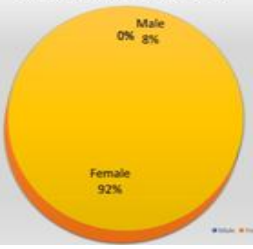


Fig 1: PIE CHART SHOWING DISTRIBUTION BENIGN THYROID LESIONS (BSRTC)

RESULTS AND OBSERVATION

Fig 2: Gender distribution

Gender Distribution



- Female - male ratio of **16.9:1**.

RESULTS AND OBSERVATION (Cont)

Table 4: Age Distribution of Hashimoto's thyroiditis

1-10	2	0	2
11-20	25	5	31
21-30	59	12	71
31-40	71	9	80
41-50	75	3	78
51-60	38	0	38
61-70	14	0	14
71-80	3	0	3
81-90	1	0	1
>90	0	1	1
Total	287	29	318

RESULTS AND OBSERVATION (Cont)

Table 3:Age distribution of colloid goitres

Age group	Simple Colloid goitre	Colloid goitre with degenerative changes			
		Colloid goitre with cystic change	Colloid goitre with Haemorrhage	Colloid goitre with cystic change with haemorrhage	Total
1-10	3	0	0	0	3
11-20	17	4	0	2	23
21-30	39	11	0	1	51
31-40	40	20	2	4	66
41-50	53	43	1	7	104
51-60	48	29	0	8	85
61-70	20	15	1	5	41
71-80	9	1	0	0	10
81-90	2	1	0	0	3
>90	1	0	0	0	1
Total	232	124	4	27	387

RESULTS AND OBSERVATION

Table 1: Distribution of diagnosis (BSRTC) in males and females

Diagnosis* / Sex	Benign follicular Nodule	Lymphocytic thyroiditis	Granulomatous thyroiditis	Total
Female	356	304	8	668
Male	46	14	1	61
Total	402	318	9	729

* Diagnosis according to Bethesda system for reporting thyroid cytopathology[4]

RESULTS AND OBSERVATION (Cont)

Table 4: Age Distribution of Hashimoto's thyroiditis

Age group	Classical Hashimoto's thyroiditis	Florid Hashimoto's thyroiditis	Total
1-10	2	0	2
11-20	25	5	31
21-30	59	12	71
31-40	71	9	80
41-50	75	3	78
51-60	38	0	38
61-70	14	0	14
71-80	3	0	3
81-90	1	0	1
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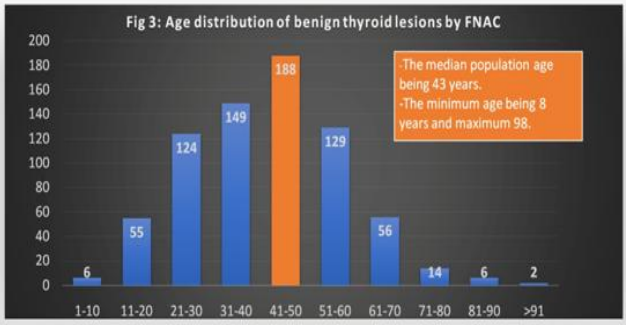
RESULTS AND OBSERVATION (Cont)



RESULTS AND OBSERVATION

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Male	46	14	1	61
Total	402	318	9	729

* Diagnosis according to Bethesda system for reporting thyroid cytopathology[4]

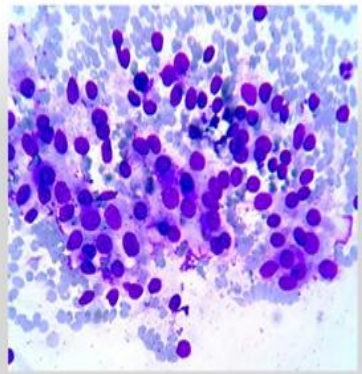
RESULTS AND OBSERVATION (Cont)

Table 2: Age distribution of benign thyroid lesions by BSRTC.

Diagnosis / Age group	Benign Follicular Nodule	Hashimoto's Thyroiditis	Granulomatous thyroiditis	Total
1-10	4	2	0	6
11-20	23	31	1	55
21-30	53	70	1	124
31-40	68	80	1	149
41-50	107	78	3	188
51-60	89	38	2	128
61-70	42	14	0	56
71-80	10	3	1	14
81-90	5	1	0	6
>90	1	1	0	2
Total	402	318	9	729

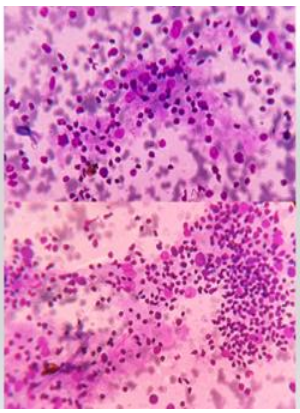
Graves Disease

- Fire flare appearence



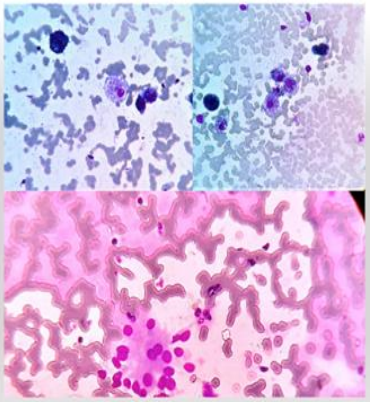
Lymphocytic thyroiditis

- Mixed population of lymphocytes.
- Hurtle cells.
- Scant colloid.



Colloid Goitre

- Benign follicular cells.
- Colloid (thick/thin)
- Degenerative changes – Cystic macrophages and hemosiderin laden macrophages are seen



Discussion:

Most common age group affected in our study was 41-50 years followed by 31-40 years. Our study is consistent with the studies done by Yassa et al[5]. Jain D et al[6], Goel MN et al[7] and Khadatkar As et al[8] while it was 31-40 years in studies done by Borsaikia K et al[9], Kumar A et al[10] Kumbhakar D et al[11].

Females outnumbered males with female to male ratio was found to be 16.9:1 which is comparable to studies done by Hirachand S et al[12] (12:3:1) and Jain D et al [6] (12.8:1).

Colloid goiter is the most common diagnosis encountered in our study (53%) which is similar to studies of Jain D et al [6] (72.1%), Khadatkar AS et al [11] (67%) & Kumar et al[10] (65.4%). Colloid goiter is most commonly seen in 4th decade and it is the most common diagnosis in both male & female. Both simple colloid goiter and those showing degenerative changes are seen in the same age group thereby hinting that degenerative changes do not depend on the duration of the swelling.Among female patients ,majority (50%) are diagnosedwith colloid goiter.Similarly among males also colloid goiter is diagnosed in majority(72.2%).

Second most common diagnosis in our study was Hashimoto's thyroiditis which was similar with the finding of the above mentioned studies.Among Hashimoto's, classical Hashimoto's thyroiditis is common in younger age group (21-30 years) which shows that florid represents early stage of Hashimoto's thyroiditis which is consistent with studies by Anila KR et al[13] and Chandanwale SS et al[14].

De Quervains Thyroiditis is the third most common diagnosis, the diagnostic picture of multinucleate giant cells, granulomas may also be seen in Hashimoto's thyroiditis and thus differentiation may be difficult. One differentiating point is lymphocytic impingement which is seen in Hashimoto's but not in De Quervain's thyroiditis, only one case of Graves disease was reported and it is the least common diagnosis.

Conclusion:

Thyroid swellings are very common clinical presentation. FNAC is an easy, cost effective rapid OPD procedure which can give accurate diagnosis with minimum complications. It can spare the patients from unnecessary surgery and it also helps in differentiating the solid from cystic lesions.

FNAC can be recommended as the single effective sensitive tool for majority of benign thyroid lesions. Lastly, it can provide a psychological relief to many patient after knowing the benign condition.

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