International Journal of Medical and Health Research
ISSN: 2454-9142, Impact Factor: (RJIF 5.54)
www.medicalsjournals.com
Volume 2; Issue 5; May 2016; Page No. 10-13

Histopathological review of thyroid swellings a retrospective study

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Abstract
Diseases of thyroid gland presents with either an alteration of hormone secretion or as enlargement of the thyroid gland. The normal thyroid gland is impalpable. The term goiter (Latin, guttur=the throat) is used to describe generalized enlargement of the thyroid gland. Thyroid nodules which occur spontaneously in 4 to 10% of adult population are source of concern for patients and a diagnostic dilemma for the physicians. The ultimate answer rests with the histopathologic examination of the excised tissue.
The aim of this study was to study the spectrum of thyroid lesions and to correlate the FNAC findings with histopathology of excised specimens.
About 565 patients underwent FNAC study and 286 patients underwent surgery. All specimens were reviewed in this study from 2013- 2015. Both showing female preponderance and goitre is the most common presentation in both. Among the FNAC specimens 57%-Colloid goitre, 31%- thyroiditis, 6%- carcinoma, 4%- cystic disease and 2%- toxic hyperplasia. HPE specimens 53%- goitre, 17%- carcinoma, 16%- thyroiditis, 7%- MNG with adenomatous hyperplasia, 3%- adenoma and 1.5%- cystic change. This study shows that majority of thyroid diseases are benign and seen mainly in females.

Keywords: Histopathological review, thyroid swellings, thyroid gland.

1. Introduction

Diseases of thyroid are of great importance since most of them are amenable to surgical or medical management. They include conditions associated with hyperthyroidism, hypothyroidism and mass lesions of thyroid [1]. Incidence of thyroid gland diseases also vary with geographical location [2]. Thyroid gland is the largest of all endocrine glands and because of its superficial location it is amenable to direct physical examination and biopsy. The prevalence of thyroid swelling ranges from 4% to 10% in the general adult population and from 0.2% to 1.2% in children [3].Thyroid swellings are four times more common in females.
The majority of clinically diagnosed thyroid swelling are non-neoplastic; only 5% to 30% are malignant and require surgical intervention [4]. In India, thyroid cancer comprises of 1% of all head and neck cancer.
Nodular goitre is the most common cause of thyroid swelling and can occur as a result of an endemic goitre due to iodine deficiency in the soil, water or food. The patient may seek medical advice due to cosmetic deformity or the thyroid swelling may also present as obstructive symptoms of trachea and esophagus or change of voice. They may be solitary within a "normal" thyroid gland or dominant within a multinodular goiter. The incidence of thyroid nodules has been on the rise in recent decades, mainly due to the wider use of neck imaging. Therefore, the incidental finding of a thyroid nodule in an asymptomatic patient is not rare. The differential diagnosis of a thyroid nodule is crucial, as malignancy necessitates surgery, while strict patient follow-up is necessary in the case of benignity [5]. Utilization of FNAC in euthyroid patients with suspicious nodules is believed to be an effective technique for distinguishing benign from malignant thyroid nodules. Due to its simplicity, low cost and absence of major complications, this procedure is being performed on an increasing number of patients, which has led to the detection of thyroid cancers at earlier stages. However, only limitation is to differentiate between follicular adenoma and carcinoma. The main indications of surgical removal of thyroid nodules are malignancy, family history of thyroid cancer or suspicious clinical findings, such as, solitary nodule in a male patient.

Materials and Methods

This study was a retrospective study of FNAC and Histopathological review of samples obtained during the period of 2013-2015.Records were collected from the Department of pathology and General surgery. Patients clinically diagnosed as goitre, underwent FNA with or without ultrasonogram guidance after getting informed consent from the patient and cytological diagnosis was made according to Bethesda conference classification.
Cytological reports were classified in to colloid goitre, cystic changes in goitre, thyroiditis, toxic nodular goitre, malignancies like papillary, medullary and anaplastic carcinoma. Thyroiditis group include Hashimoto's disease, subacute granulomatous (DeQuervain's) and Riedel's thyroiditis.
All the patients were explained about their diagnosis and a written informed consent was obtained from each patient. Total thyroidectomy and hemi thyroidectomy were performed according to cytological and radiological investigation of thyroid swelling. Thyroidectomies have been indicated to relieve compression symptoms, cosmetic reason, suspicious solitary nodule, or following failure of medical treatment in thyrotoxicosis. All thyroid specimens were sent for histopathological examination. The sensitivity, specificity,

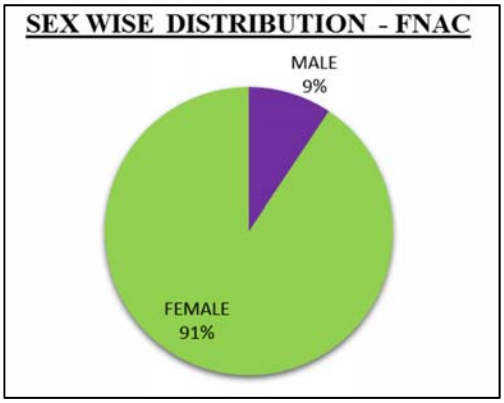
yield of cancer of FNAC were assessed by comparing cytological diagnosis with histopathological examination.The histopathology findings were classified into following groups: Nodular goitre, thyroiditis, benign tumours, malignant tumours, primary thyrotoxicosis and others.

Results

565 FNAC and 286 HPE specimens were reviewed. The age and sex distribution of patients is shown in tables 1 and 2. The age range between 15->60 yrs in both males and females.

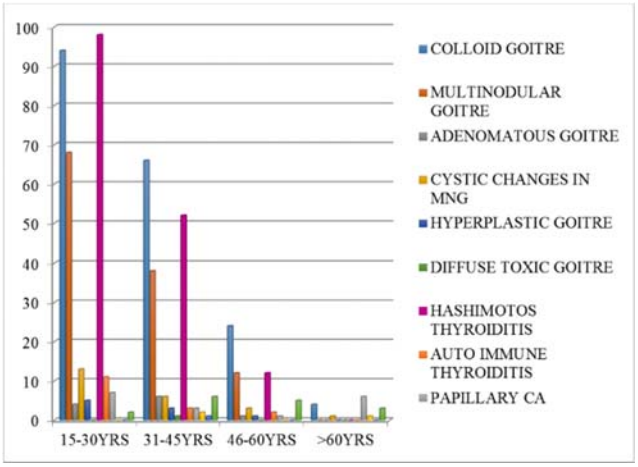
Sex wise Distribution of the Disease

S. no	Thyroid Disease - Fnac	No. Of Patient	Female	Male
1	Colloid Goitre	188	175	13
2	Multinodular Goitre	118	111	7
3	Adenomatous Goitre	11	11	-
4	Cystic Changes In Mng	23	20	3
5	Hyperplasia Goitre	9	0	9
6	Diffuse Toxic Goitre	1	0	1
7	Hashimotos Thyroiditis	162	155	7
8	Auto Immune Thyroiditis	16	14	2
9	Papillary Ca	17	11	6
10	Anaplastic Ca	3	2	1
11	Medullary Ca	1	0	1
12	Follicular Neoplasm	16	13	3
	Total	**565**	**512**	**53**

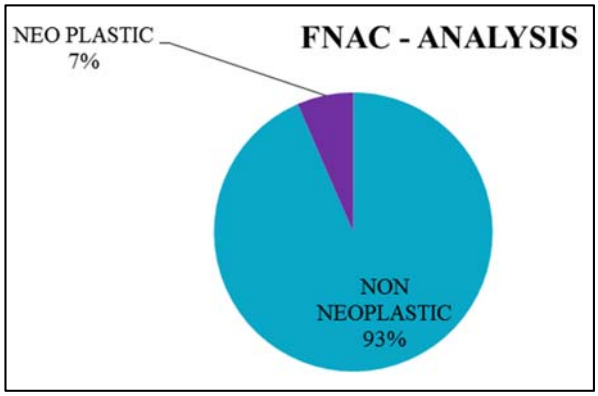


Age wise Distribution of Thyroid Disease – FNAC

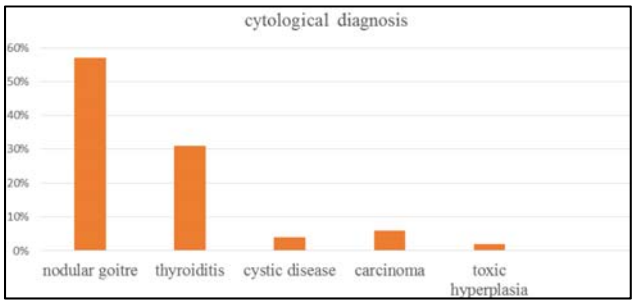
Sno	Thyroid Disease Fnac	15-30yrs	31-45yrs	46-60yrs	>60yrs	Total
1	Colloid Goitre	94	66	24	4	**188**
2	Multinodular Goitre	68	38	12	0	**118**
3	Adenomatous Goitre	4	6	1	0	**11**
4	Cystic Changes In Mng	13	6	3	1	**23**
5	Hyperplastic Goitre	5	3	1	0	**9**
6	Diffuse Toxic Goitre	0	1	0	0	**1**
7	Hashimotos Thyroiditis	98	52	12	0	**162**
8	Auto Immune Thyroiditis	11	3	2	0	**16**
9	Papillary Ca	6	3	1	7	**17**
10	Anaplastic Ca	0	2	0	1	**3**
11	Medullary Ca	0	1	0	0	**1**
12	Follicular Neoplasm	2	6	5	3	**16**
	Total	**301**	**187**	**61**	**16**	**565**



Among the 565 FNAC samples, 528 are non-neoplastic and 37 are neoplastic. Five hundred twelve cases (512) were female and fifty three (53) cases were males, the ratio was 10:1.



FNAC- the most common non neoplastic disease is Nodular goitre (57%), remaining are thyroiditis (31%), carcinoma (6%), cystic disease (4%), toxic hyperplasia (2%). The mean age group of nodular goitre was 40 yrs.

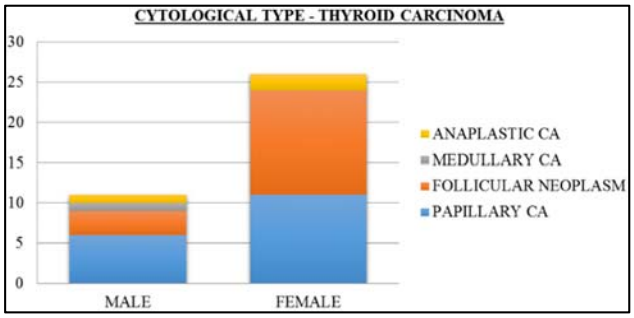


Hashimoto's thyroiditis was the second most common finding in FNAC with mean age group of 35yrs. In malignancy

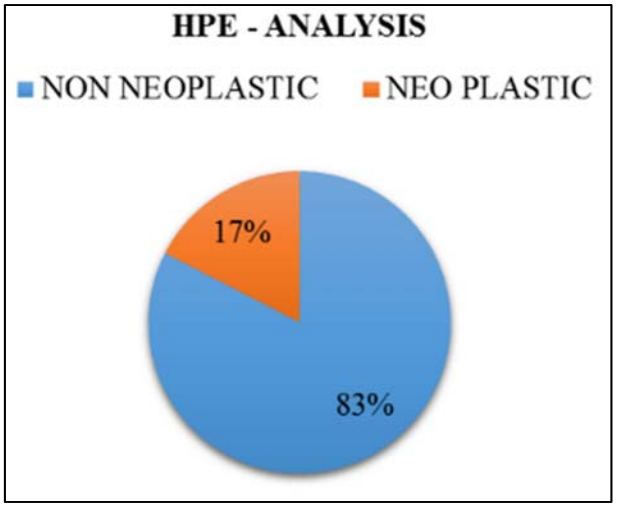
papillary carcinoma was the common findings this study and the mean age group was 60 yrs.

Sex & Histologic subtypes of Thyroid carcinoma in FNAC

Sno	Cytological Type	Sex		Total	%
		Male	Female		
1	Papillary Ca	6	11	17	46%
2	Follicular Neoplasm	3	13	16	43.24%
3	Medullary Ca	1	0	1	1%
4	Anaplastic Ca	1	2	3	8%



Among the 286 HPE specimens 237 were non- neoplastic and 49 were neoplastic. Two hundred and forty one cases (241) were female and forty five (45) cases were male, the ratio was 6:1.

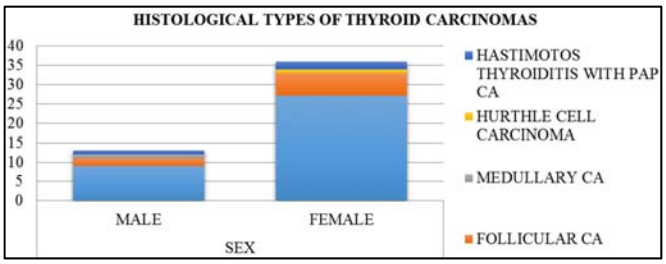


Age Distribution – Hpe

Sno	Thyroid Disease - Hpe	15-30yrs	31-45yrs	46-60yrs	>60 yrs	Total
1	Colloid Goitre	7	5	2	0	14
2	Adenomatous Goitre	9	11	3	0	23
3	Multinodular Goitre	25	47	23	2	97
4	Nodular Goitre	8	4	3	0	15
5	Toxic Goitre	0	1	2	0	3
6	Nodule Of Nodular Goitre	0	2	1	0	3
7	Cystic Change In Mng	0	3	1	0	4
8	Non Neoplastic Cyst Of Thyroid	0	1	0	0	1
9	Thyroglossal Cyst	2	1	0	0	3
10	Mng With Adenomatous Hyperplasia	13	6	2	0	21
11	Hashimotos Thyroiditis	11	14	20	0	45
12	Papillary Ca	8	10	13	5	36
14	Medullary Ca	0	0	1	0	1
15	Follicular Adenoma	5	1	2	0	8
16	Follicular Carcinoma	2	1	2	3	8
17	Hurthle Cell Carcinoma	0	0	1	0	1
18	Hastimotos Thyroiditis With Pap Ca	1	2	0	0	3
	Total	**91**	**109**	**76**	**10**	**286**

Sex & Histologic subtypes of thyroid carcinoma in HPE specimens

S.no	Histological Type	Sex		Total	%
		Male	Female		
1	Papillary Ca	9	27	36	12.54%
2	Follicular Ca	2	6	8	2.78%
3	Medullary Ca	1	0	1	0.35%
4	Hurthle Cell Carcinoma	0	1	1	0.35%
5	Hastimotos Thyroiditis With Pap Ca	1	2	3	1.04%



On Histopathological examination - the most common disease was Nodular Goitre (53%) followed by Carcinoma (17%) Thyroiditis (16%) MNG with Adenomatous hyperplasia (7%) Follicular Adenoma (3%) Cystic changes in goitre (1.5%) Others (2.5%). The mean age group of nodular goitre was 45 yrs. Hashimoto's thyroiditis was the second most non neoplastic lesion and the mean age was 40 yrs.

Papillary carcinoma of thyroid was the most common malignant lesion and the mean age of presentation was 50 yrs. Follicular neoplasm was the second, and the mean age was 60 yrs. medullary carcinoma mean age group was 50 yrs. There was no case of anaplastic carcinoma reported in HPE report.

Discussion

Thyroid nodules are very common occurring in 4% of the population aged between 30 and 60 [3]. Most of the swellings are benign only between 10% to 20% are malignant [4].Thyroid enlargement whether diffuse or in the form of a nodule, leads to a battery of investigations mainly to rule out the possibility of neoplasm or thyroiditis [6]. Fine needle aspiration cytology (FNAC) is usually the first line of investigation and the other investigations are done subsequently with an aim to select patient who require

surgery and those that can be managed conservatively. Fine needle aspiration cytology is inexpensive, can be performed in an outpatient clinic.The sensitivity of the thyroid FNAC ranges from 43% to 99% and its specificity from 72% to 100% respectively [4, 8, 9].

FNAC can significantly reduce mortality as well as morbidity of patients by making early and accurate differentiation of benign and malignant thyroid nodules due to its high accuracy, sensitivity and specificity. A benign FNAC diagnosis should be viewed with caution as false negative results do occur and these patients should be followed-up with thorough investigation and at times with surgical intervention.

In this study the thyroid diseases were common between 15 to 60 yrs with a mean age of 45yrs. This is similar to the study of Anidi *et al* 1993, Tsegaye & Eregete 2003, Gitau 1975- which showed that thyroid diseases occur predominantly in the 21-59 age groups.

Out of 565 FNAC specimens 512 were females and 53 were males which correlates with studies of Mans Akerman, Mazzaferi *et al*, Eilen *et al* where there was strong evidence of female preponderance.

Among the FNAC specimens 528 (93%) are benign and 37 (6%) samples are malignant which is contrary to the findings of Manderkar *et al* in 1995, who found that from 1557 smears reported 89.58% were benign and 1.73% were malignant.

In this study 178 (31%) were thyroiditis which is contrary to the findings of Silverman *et al* in 1986 reported out of 273 cases, 13(4.76%) with thyroiditis.

About 17(3%) cases are reported with papillary carcinoma which is contrary with study of Mair *et al* were he reported in 1989 out of 27 cases 3(11.11%) were malignant.

Taking into consideration Histopathology as a gold standard, correlation of FNAC finding with HPE finding was done. Out of 565 patients 286 only underwent surgery and specimen submitted for histopathological examination. Out of 286 HPE reported, 237 (80%) were reported as benign and 49 (17%) were malignant. Out of the reported benign samples 53% were goitre, 16% were thyroiditis, 7% were MNG with adenomatous hyperplasia, 3% were adenoma and 1.5% were cystic change.

Out of 49 reported malignant samples 36 (12%) were papillary carcinoma, 1(1%) were medullary carcinoma, 8 (2.79%) were follicular carcinoma, (1%) hurthle cell carcinoma. Our findings are similar to the findings of Goelner *et al*, Altavilla *et al* and Manderkar *et al*.

Conclusion

In this study, colloid goitre was commonly observed in both FNAC and HPE samples and shows female preponderance. Thyroid malignancy accounts for 6% in FNAC reports and 17% in HPE reports. This study shows preoperative FNAC diagnosis plays a role in the diagnosis of thyroid nodules and enables the number of surgical operations to be reduced.

References

1. Maitra A, Abbas AK. The Endocrine system in: Kumar V, Abbas A K, Fausto N. Editors. Robbins and Cotran Pathologic basis of disease. 7th ed. Philadelphia: Elsevier Saunders, 2004, 1164-1183.
2. Hedinger C. Geographic pathology of thyroid diseases. Pathol Res Pract. 1981; 171(3-4):285-92.
3. Burch HB, Burman KD, Reed HI, Buckner L, Raber T, Ownbey Jl. Fine needle aspiration of thyroid nodules. Determinants of insufficiency rate and malignancy yield at thyroidectomy. Acta Cytol. 1996; 40(6):1176-83.
4. Gharib H, Goellner JR. Fine-needle aspiration biopsy of the thyroid: an appraisal. Ann Intern Med. 1993; 15; 118(4):282-9.
5. Polyzos SA, Kita M, Avramidis A. Thyroid nodules - stepwise diagnosis and management. Hormones (Athens) 2007; 6:101-19.
6. Franklyn JA, Sheppard MC. The value of imaging inthe diagnosis of thyroid cancer. Nucl Med Commun. 1992; 13(9):641-3.
7. Sukant Garg, Uma Handa, Harsh Mohan, Nitin Nagarkar. Role of fine needle aspiration cytology in diagnosis and management of thyroid lesions: A studyon 434 patients. Journal of Cytology. 2008; 25(1):13-17.
8. Pandey P, Dixit A, Mahajan NC. Fine-needle aspiration of the thyroid: A cyto-histologic correlation with critical evaluation of discordant cases. Thyroid Res Pract 2012; 9:32-9.
9. Caraway NP, Sneige N, Samaan NA. Diagnostic pitfalls in thyroid fine-needle aspiration: A review of 394 cases. Diagn Cytopathol 1993; 9:345-50.