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PROFILE OF THYROID LESIONS IN THYROIDECTOMY SPECIMENS RECEIVED AT A TERTIARY CARE CENTRE

PATHOLOGY

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KEYWORDS

INTRODUCTION

Thyroid gland is a very important endocrine organ which plays a vital role in maintaining the physiological homeostasis.Thyroid diseases comprise one of the most common endocrine abnormality in India and worldwide. India owns the largest goitre belt in the Sub Himalayan region. According to WHO, 7% of the world population suffers from goiter attributed to iodine deficiency.[1] Thyroid enlargement could be multinodular, solitary or diffuse goiter.[2] The majority of thyroid swellings are non-neoplastic, only <5 % are malignant. Most common age group affected by thyroid diseases was 40 - 50yrs followed by 30 - 39 yrs. Non- neoplastic diseases were more common than neoplastic ones in all age groups with multi nodular goiter being the most common. Neoplasms encountered were papillary carcinoma thyroid followed by follicular adenoma.[3] The incidence and prevalence of thyroid diseases in a given community are variable depending on various factors. A wide spectrum of developmental, inflammatory, hyperplastic, immunologic and neoplastic disorders are common in clinical practice.

OBJECTIVES

To determine the different patterns of thyroid lesions in thyroidectomy specimens and to correlate the patterns with age and gender.

MATERIALS AND METHODS

The present cross sectional study was conducted at a tertiary care hospital in the department of Pathology for a period of two years during 2016 – 2017. The sample size included all thyroidectomy specimens received in the department during the above period. Data for the study was obtained from the departmental records. The results obtained and analysis of the different lesions, age group and gender was done using Chi square/ Fisher exact test.

RESULTS

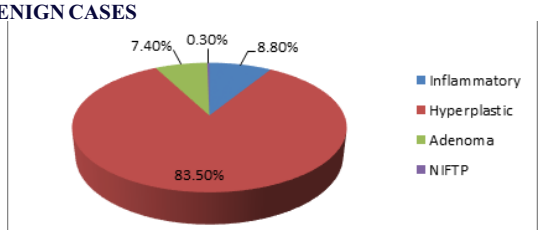
The mean (SD) age of the 376 cases who underwent thyroidectomy was 49.0 (12.0) years, the age ranging from 15-85 years. Majority of the patients were females (86.7%).

Age and gender distribution of patients

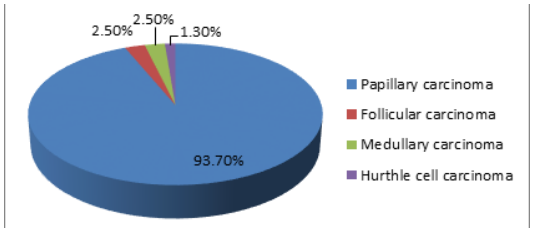
Characteristics	No.of cases	Percentage
Age in years		
<30	23	6
30-39	47	12.5
40-49	123	33
50-59	99	26.2
> 60	84	22.3
Gender		
Male	50	13.3
Female	326	86.7

In the present study out of 376 cases, 297 cases (79%) were benign and 79 cases (21%) were malignant. Among the benign lesions, hyperplastic lesions were the most common followed by inflammatory lesions. In the malignant category, papillary carcinoma was the most common lesion.

BENIGN CASES



MALIGNANT CASES



DISCUSSION

Diseases of thyroid can be non neoplastic and neoplastic lesions. Among the non neoplastic lesions, common ones encountered are hyperplastic lesions like MNG and inflammatory lesions like Lymphocytic thyroiditis and Hashimoto Thyroiditis. Neoplastic lesions can be benign tumors like adenoma or malignant tumours like Papillary carcinoma Thyroid, Follicular Carcinoma, Medullary carcinoma, Anaplastic carcinoma and Hurthle cell carcinoma.[4] In the present study a total of 376 cases of thyroidectomy specimens were analysed. The non neoplastic lesions (73%) were the most common than the neoplastic lesions (27%). This was similar to studies done by Tsegaye, Ashwini and Elizabeth et al.[5,6,7] Neoplastic lesions constituted 27% of cases, among which most common was Papillary carcinoma thyroid which was similar to previous studies.[6,8,9]

In the present study, non neoplastic lesions of the thyroid were more common in the fourth and fifth decade. Females were more affected when compared to males. Multinodular Goiter (MNG) was most common pathological lesion seen in this category, which accounted for 66% of cases. This was in concordance with studies done by, Tsegaye et al and Ashwini et al and Elizabeth et al.[5,6,7] Lymphocytic Thyroiditis (LT) was seen as an associated finding in 23% of MNG. Toxic changes were observed in 7 cases(2.82%). In the present study, inflammatory lesions constituted (7%) which was similar to studies by Darwish et al, Monika, Sherine et al.[9,10,11]

In the present study neoplastic lesions accounted 102 cases, of which Adenoma constituted 22p.c, which was similar to other studies.[10,12,13,14.] Follicular Adenoma(12 cases) was the most common benign neoplastic thyroid lesion. In the present study 7 cases of Hurthle cell adenoma and 3 cases of Hyalinizing Trabecular adenoma (HTA) were found. Follicular adenomas are benign encapsulated non invasive neoplasms. Radiation exposure and iodine deficiency are known risk factors. It is associated with a very good prognosis, following surgery.[15] Hurthle cell adenomas are neoplasms composed of oncocytic cells. Non-invasive cases are called Hurthle cell adenoma and cases with capsular/vascular invasion are called Hurthle cell carcinoma. There are no known etiological factors that predispose to these tumors. These tumors are associated with good prognosis.[15] Hyalinizing trabecular adenoma (HTA) is a follicular-derived neoplasm composed of large trabeculae of elongated or polygonal cells admixed with variable amounts of intratrabecular and intertrabecular hyaline material. Females above the fifth decade are usually affected. These tumors are usually classified as indeterminate/suspicious in the British Thyroid Association (BTA) system as category Thy3-5 and as category IV-VI in the Bethesda system. Diagnostic clues favouring HTA include hyaline or amyloid -like material, loosely cohesive groups of tumour cells with a trabecular or syncitial pattern,lack of papillae and calcification.The prognosis is extremely good after surgery.[15]

Recently a new entity described by WHO is Non-invasive follicular thyroid neoplasm with papillary-like nuclear features **(NIFTP)** which is a non -invasive neoplasm of thyroid follicular cells with a follicular growth pattern and nuclear features of PTC that has an extremely low malignant potential.(Table-1) Hence such lesions require close follow up.

Table1: 2017, WHO classification: recommended nomenclature for encapsulated follicular patterned tumors on the basis of presence or absence of nuclear features of papillary thyroid carcinoma (PTC) and capsular/vascular invasion.

		Capsular or vascular invasion		
		Present	**Questionable**	**Absent**
Nuclear features of PTC	**Present**	Invasive encapsulated follicular variant of PTC	Well differentiated tumor of uncertain malignant potential	Non-invasive follicular thyroid neoplasm with papillary-like nuclear features (**NIFTP**)
	Questionable	Well differentiated carcinoma, NOS		
	Absent	Follicular carcinoma	Follicular tumor of uncertain malignant potential	Follicular adenoma

NIFTPs are estimated to constitute 10-20% of thyroid cancers in European countries and North America, with possibly lower prevalence in Asia. The female-male ratio is 3:1 with a wide age range from 4th to 6th decade of life. In the present study there was one case (0.3%) detected in a 35year old female. It is important to recognize this entity because it favours a shift in surgical management from total thyroidectomy and radioactive iodine therapy to just lobectomy / hemithyroidectomy.[15]

The incidence of thyroid malignancy has shown an increase over the last few years.[16,17] Studies have shown that the incidence of thyroid malignancy is around 3.32 -17% all thyroid diseases.[18] In our study 79 cases (21%) were malignant. This is similar to a study by Elizabeth et al which showed 18.8% Inthe present study, PTC was the most common malignancy which accounted for 74 cases (93.7%), similar to several other studies.[9,10,14] According to WHO the median patient age at diagnosis is 50 years, with 91% of patients diagnosed at an age of 20-74 yrs. The incidence rate in women is about three times the rate in men.[15] In the present study, most of the tumors were seen in females in the 4th to 5th decade. The youngest patient was a 20 year female.

Follicular carcinoma and Medullary carcinoma are relatively rare tumors of the thyroid. Follicular thyroid carcinoma accounts for 6-7% and Medullary carcinoma accounts for < 2-3% of all thyroid malignancies. These tumors are also commoner in women than men and occur 6th to 7th decade.[15] In the present study there were two cases (2.5%), each of follicular carcinoma and Medullary carcinoma. All these cases had associated Lymphocytic Thyroiditis. Females in the 6th decade were found to be affected which was similar to other studies.[10,6]

Hurthle (oncocytic) cell tumors are rare neoplasms composed of oncocytic cells. Hurthle cell tumors with capsular/vascular invasion are called Hurthle cell carcinomas. They are usually found in elderly men above 55 years.[15] Present study showed one case (1.3%) of HCC in a 63yr old woman.

CONCLUSION

Present study shows a wide spectrum of various thyroid diseases. Females in the 4th to 5th decade were most commonly affected. Non neoplastic lesions were more common than neoplastic lesions. Among the non neoplastic lesions Multinodular goiter was the most common lesion. Most of these were associated with Lymphocytic Thyroiditis as well. Among the neoplastic lesion, Papillary thyroid carcinoma was the most common malignant neoplasm. NIFTP which is the newly described entity by WHO must be thoroughly Looked for, as it avoids the need for a total thyroidectomy.

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