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Medical Science

SPECTRUM OF THYROID LESIONS IN A TERTIARY CARE HOSPITAL

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ABSTRACT

INTRODUCTION : Diseases of the thyroid gland are common and comprise a spectrum of entities causing systemic disease or localised abnormalities in the thyroid gland such as nodular enlargement or a tumour mass. Thyroid cancer is a relatively rare malignancy, but it is the commonest endocrine cancer accounting for 92% of all endocrine malignancies. The aim of the study was to describe the pattern of thyroid malignancies in thyroidectomy specimens.

MATERIAL AND METHODS : This study was done in the Department of Pathology, Saveetha Medical College and Hospitals, Chennai, over a period of one year from June 2017 to May 2018. It is a retrospective study. The thyroid diseases were classified on histological grounds into non-neoplastic and neoplastic lesions that were further subclassified as benign and malignant as per WHO histological classification of thyroid tumours.

RESULTS : Age of the patient ranged from 14-70 years with a male to female ratio of 1:6.14. Most patients presented with multinodular goitre and most were in euthyroid state. Sensitivity of FNAC was found to be 67% and specificity was found to be 100%. Accuracy was found to be 100%.Negative predictive value (NPV) was found to be 92.7%.

CONCLUSIONS : Papillary carcinoma was the commonest malignant lesion whereas follicular adenoma was the commonest benign neoplasm.

KEYWORDS :

INTRODUCTION

Thyroid swelling is a common disease in India. It is very important to differentiate malignant thyroid swellings from benign swellings for definitive planning of appropriate surgery and relevant patient counseling. Thyroid gland is one of the important organs, which plays wide and vital physiological role in the body. The thyroid hormones affect all body organs and are responsible for homeostasis and the body integrity[1].The incidence of thyroid diseases varies from one geographical region to another, mainly depending upon iodine deficiency status[2]. There is enormous burden of thyroid disease in the general population. Among all the endocrine disorders, thyroid diseases are the most common in India[3].

Thyroid lesions may be developmental, inflammatory, hyperplastic or neoplastic. Diseases of the thyroid gland are common and comprise a spectrum of entities causing systemic disease (Grave's disease) or a localized abnormalities in a thyroid gland such as nodular enlargement (goitre) or a tumour mass[4]

Thyroid cancers are relatively rare, representing only 1.5% of all cancers, but it is the commonest endocrine cancer accounting for 92% of all endocrine malignancies. [5] Papillary carcinoma is the most common thyroid cancer followed by follicular, medullary, anaplastic carcinoma and lymphoma.[6] The disease present clinically either as condition associated with hyperthyroidism/hypothyroidism or as mass lesions. Surgical excision and histopathological evolution are crucial to establish the diagnosis in the later scenario. The objective of this study was to determine the spectrum of various histopathological diagnoses reported from thyroidectomy specimens of our institution.

MATERIAL AND METHODS

This was a retrospective cross sectional study, done in the department of Pathology, Saveetha Medical College and Hospitals, Chennai over a period of 12 months from June 2017 to May 2018. The material for this study consisted of specimens of hemithyroidectomy, subtotal thyroidectomy and total thyroidectomy. The decision to operate on the patient was based on clinical and radiological findings, cytology and other relevant laboratory investigations. Every patient was preoperatively assessed by Fine needle aspiration cytology (FNAC) and thyroid ultrasonography in some patients. Clinical details such as age, gender, thyroid status (hypothyroid/hyperthyroid/euthyroid) are recorded. Pathologic details were recorded in detail retrospectively from the Histopathology case records. The pathology details included gross findings (size of lesion, laterality and so on) and microscopic features from Hematoxylin and eosin stained sections such as the nature of lesion and diagnoses were noted. For retrospective study the histopathology slides were retrieved from the archives of the department of Histopathology and reviewed. The thyroid diseases were classified based on histological grounds into non-neoplastic and neoplastic lesions that were further sub-classified as benign and malignant as per the WHO histological classification of thyroid tumours. The results were statistically analyzed using statistical package.

OBSERVATION AND RESULTS

TABLE 1: SPECTRUM OF HISTOPATHOLOGICAL DIAGNOSES.

TYPE OF LESION		NUMBER	PERCENTAGE
Non neoplastic lesions	Nodular hyperplasia of thyroid	35	70%
Benign neoplasms	Follicular adenoma	8	16%
Malignant neoplasms	Papillary carcinoma	4	8%
	Follicular carcinoma	3	6%

This study included a total of 50 thyroid patients, of which 35 were non-neoplastic lesions [nodular hyperplasia of thyroid], 8 are benign neoplasms [follicular adenoma], 7 are malignant [4 cases of Papillary carcinoma and 3 cases of follicular carcinoma].

Table-2: Gender distribution as per histological type

HISTOLOGIC TYPE		GENDER		TOTAL
		MALE	FEMALE	
Non neoplastic lesions	**Nodular hyperplasia of thyroid**	5	30	35
Benign neoplasms	**Follicular adenoma**	0	8	8
Malignant neoplasms	**Papillary Carcinoma**	2	2	4
	Follicular carcinoma	0	3	3
	Medullary carcinoma	0	0	0
	TOTAL	7	43	50

Out of a total of 50 thyroid patients, non neoplastic lesions are more common (35 cases) and second most common is benign neoplasms (8 cases) and malignant neoplasms (7 cases).

TABLE-3: AGE DISTRIBUTION OF PATIENTS WITH NEOPLASTIC THYROID LESIONS

AGE(IN YEARS)	Non neoplastic Lesions NODULAR HYPERPLASIA OF THYROID	Benign neoplasms FOLLICULAR ADENOMA	malignant PAPILLARY CARCINOMA	malignant FOLLICULAR CARCINOMA	MEDULLARY CARCINOMA	TOTAL %
<19	4	0	0	0	0	4
21-30	4	1	1	0	0	6

31-40	10	3	0	1	0	14
41-50	6	1	0	1	0	8
51-60	8	1	1	1	0	11
61-70	3	2	2	0	0	7
71-80	0	0	0	0	0	0
Total	35	8	4	3	0	50

Among the thyroid lesions, nonneoplastic lesions are more common in the 4th decade (10 cases) and malignancy (papillary carcinoma) was common in the 7th dcade (2 cases).

TABLE-4 AVERAGE SIZE OF LESIONS

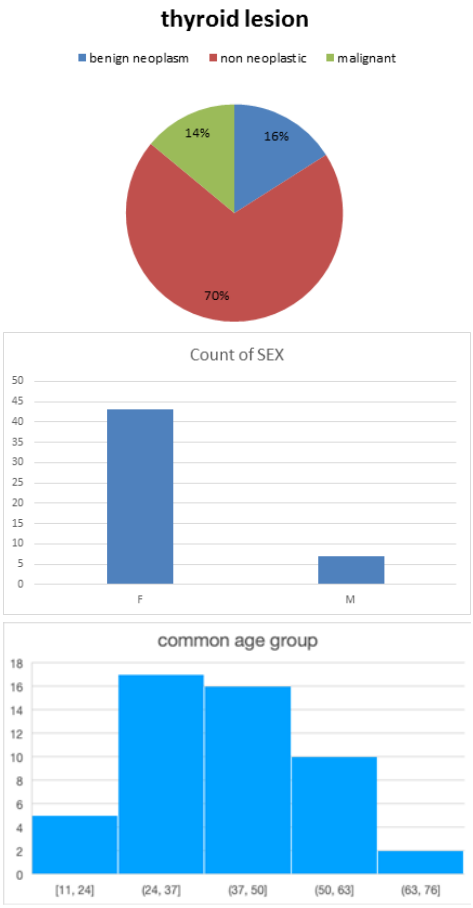
Non neoplastic lesions	**Benign neoplasm**	**Malignant**
Nodular hyperplasia of thyroid	**Follicular adenoma**	**Papillary and follicular carcinoma**
5.7 cm	6.1 cm	3.5 cm

Average size of the lesions in benign neoplasm [6.1 cm], in non-neoplastic lesions [5.7 cm], in malignant [3.5 cm].

TABLE 5: THYROID PROFILE STATUS

	Nonneoplastic	**Benign**	**Malignant**	**Total**
Euthyroid	-	-	-	-
Hypothyroid	32	8	-	40
Hyperthyroid	3	-	7	10
Total	35	8	7	50

A total of 50 thyroid specimens were received over a period of one year, representing 1.21% of all the cases seen at the pathology department of SAVEETHA MEDICAL COLLEGE AND HOSPITALS,CHENNAI. 86% cases were found to be females and 14% cases were males with a female:male ratio of 43:7. The age of the studied benign thyroid neoplastic lesions ranged from 9years to 65 years with a mean age of 38 years and the relative peak age of incidence was seen in 41-50 year age group



DISCUSSION

This study was conducted in the Department of pathology, Saveetha Medical College and Hospitals, Chennai. For this study, 50 thyroid specimens were studied in detailed history and histopathological examination.

Both the neoplastic and non-neoplastic diseases of thyroid are common all over the world, with a varying frequency and incidences depending upon iodine deficiency status. In India, about 42 million people suffer from thyroid diseases. Diseases of the thyroid are of great importance as most can be controlled by medical or surgical management. Thyroidectomy, presently, has become a routine procedure as a result of safe anesthesia, antiseptics, fine surgical instruments, developments of new techniques and is offering the chances to cure to many patients [8].

In this study, the age of patients ranged from 21-70 years in benign neoplasm and 21-70 years in malignant neoplasm with a maximum in 61-70 years. Similar results were found by the study conducted by Darwish et al.(2006).were the age range was 21-82 years in malignant lesions and 20-69 in adenomas.[9].

In the study conducted by Singh P et al.(2000), of 108 cases age range was 12-80 years, mean age was 47 years.[16].

The peak age of incidence in this study was 31-40 years age group for benign neoplasms and 61-70 years age group for malignant neoplasms and 31-40 years age group in non-neoplastic lesions which is in accordance with the study of Gupta A et al (2016) who found 21-40 years age group as the peak age for thyroid diseases.[12] Islam et al.(2009)showed the majority of the patients were within 21-40 years of age[18].

Historically, thyroid diseases have been found to have a female preponderance owing to the presence of estrogen receptors in thyroid tissue.[10]. There were 43 female cases and 7 male cases in our study with a female:male ratio of 43:7. Similar results have been found in the studies conducted by Ashwini et al (2014), Gupta A et al(2016), Salama et al.(2009), Fahim et al (2012) and Mandal S,et al.[11-15]

Follicular adenoma was the commonest benign thyroid neoplasm in our study accounting for 16% of benign neoplasm which is in accordance with Ariyibi et al.(2013)[24]

Our results are consistent with the international remote and recent data regarding the pattern and frequency of neoplastic diseases of thyroid, including the predominance of papillary carcinoma. Our findings regarding increased trend of papillary carcinoma diagnosis among malignant thyroid tumors is also consistent with that of Yang et al.(2013), Yildiz et al.(2014) and Aphlett et al.(2013)[21-23].

CONCLUSION

In conclusion, females accounted for 86% of patients with non-neoplastic thyroid lesions and the incidence peaked at a younger age. Papillary carcinoma was the most frequent thyroid cancer and follicular adenoma was the common benign tumour. The main indication of surgery was a suspicious thyroid nodule.

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