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HISTOPATHOLOGICAL STUDY OF THYROID LESIONS IN A TERTIARY CARE HOSPITAL - A 2 YEAR STUDY

Pathology

Ashwini Tangde* Assistant Professor, Department of Pathology,Government Medical College, Aurangabad, Maharashtra,India. *Corresponding Author

Vaidik Shrivastava Assistant Professor, Department of Pathology,Government Medical College, Aurangabad, Maharashtra,India

Anil Joshi Professor, Department of Pathology,Government Medical College, Aurangabad, Maharashtra, India

ABSTRACT

Background: Diseases of the thyroid are manifested by alteration in hormone secretion, enlargement of the thyroid gland (goiter), or both. The principal diseases of the thyroid gland are goiter (diffuse or nodular), hypo or hyperthyroidism, thyroiditis and neoplasms. Significant information regarding the lesions of thyroid can be obtained by histopatholological examination of the thyroidectomy specimens.

Aim: The aim of present study is to determine the prevalence of thyroid lesions in thyroidectomy specimens.

Method: About 88 thyroidectomy specimens received in the pathology department between January 2017 to December 2018 were included in the study. The lesions were basically classified into non- neoplastic and neoplastic. Percentages and simple frequency tables were used for data analysis.

Result: Out of the 88 thyroidectomy specimens 76 (86.36%) were from females and 12(13.64%) were from males. The female: male ratio was 6.3:1. The age of the patients ranged from 9 to 65 years with a mean age of 37.81 years. 68(77.27%) cases were non-neoplastic and 20(22.72%) cases were neoplastic. The common non-neoplastic lesions were diffuse colloid goiter (32 cases; 47.05%) and multinodular goiter 17(25%). There were 12 benign tumors and 8 malignant tumors. Follicular adenoma was the most common benign tumor (11cases, 91.67%) and Papillary carcinoma was the only malignant tumor (8 cases, 100%).

Conclusion: Thyroid diseases showed definite female predominance, with most of them occurring in an age group of 30-39 years. Neoplastic and non- neoplastic disorders affect thyroid gland. Most of the lesions are non- neoplastic. Colloid goiter was the most common non- neoplastic lesion. The most common benign tumor was Follicular adenoma and the most common malignant tumor was papillary carcinoma.

KEYWORDS

Adenoma, Goiter, Neoplasm, Thyroiditis.

INTRODUCTION:

Thyroid gland is one of the important organs, which plays wide and vital physiological roles in the body. The thyroid hormones affect all body organs and are responsible for maintenance of homeostasis and the body integrity. [1]

Thyroid diseases comprise one of the most common endocrine abnormality in India and worldwide.[2,3] India owns the largest goiter belt in the sub Himalayan region.[2] According to a projection from various studies on thyroid disease, it has been estimated that about 42 million people in India are suffering from thyroid diseases.[4]

Diseases of thyroid gland manifest as enlargement of thyroid, improper hormone secretion and its consequences or as both. Clinically apparent thyroid nodules are seen in 4-5 % of population. [5]

Thyroid lesions may be developmental, inflammatory, hyperplastic and neoplastic . Majority of thyroid swellings are non-neoplastic, only <5 % are malignant.[6] Thyroid cancer is a relatively rare malignancy – representing only 1.5% of all cancers, but it is the commonest endocrine cancer accounting for 92% of all endocrine malignancies. Papillary carcinoma is the most common thyroid cancer followed by follicular, medullary, anaplastic carcinoma and lymphoma[7].

Lesions affecting the thyroid can be accurately diagnosed by a careful histopatholological examination of thyroidectomy specimens. This is a retrospective histopathological study of lesions affecting the thyroid, in the Marathwada region of the Maharashtra, The objective of this study was to determine the spectrum of histopathological diagnosis encountered in patients undergoing thyroid surgeries.

MATERIAL & METHOD:

It is a retrospective study carried out in the department of Pathology, Government Medical College & Hospital, Aurangabad, Maharashtra over a period of two years from January 2017 to December 2018.

The material for this study consisted of thyroidectomy specimens including lobectomy, partial thyroidectomy, subtotal thyroidectomy and total thyroidectomy. Detailed information regarding age, gender, clinical details(hypothyroid, hyperthyroid and euthyroid), relevant investigations like Fine Needle Aspiration Cytology, USG reports, thyroid scan and operative findings were obtained.

Gross features of the specimen received were recorded. Representative tissue was taken and after processing the tissue, routine staining was carried out with hematoxylin and eosin (H&E) stain. For retrospective study the histopathology slides were retrieved from the archive and reviewed.

RESULT:

A total of 88 thyroid specimens were received over a period of Two years at the pathology department of Government Medical College, Aurangabad. There were 76 (86.36%) females and 12(22.72%) males giving a female: male ratio of 6.3:1. The age of the studied cases ranged from 10 years to 65 years with a mean age 37.81 years and the relative peak age of incidence was seen in 30-39 years age group (40%). The young age group (≤20 years) and the elderly age group above 60-65 years constituted 1.13% and 15.91% of cases respectively .

Non neoplastic lesions accounted for 68(77.27%) & neoplastic lesions accounted for 20(22.72%).(Table no 1 &2)

The most common non neoplastic lesion was diffuse colloid goiter 32 (47.05%, fig-1,5) followed by multinodular goiter 17(25%), adenomatous hyperplasia 12(17.65%) and Hashimoto thyroiditis 4 (5.88%, fig-6).

Among the 20 neoplastic lesions, 12(60%) were benign neoplasm & 8(40%) were malignant neoplasm. The most common benign neoplasm was follicular adenoma 11(91.67%,fig-3,7) which showed an age predominance in third & fourth decade of life. There was one case of oncocytic(Hurthal cell) adenoma 1(8.33%)

All the malignant neoplasms were papillary carcinoma 8(100%,fig-8). Out of which 5(62.5%,)cases were of encapsulated follicular variant of papillary carcinoma & other 3(37.5%) cases were of classical papillary carcinoma.

After histopathological evalution of resected specimen, various morphological patterns were noted in thyroid tissue. follicular adenoma & Hashimoto thyroiditis were seen together in one case. One

case of colloid goiter show papillary hyperplasia. One case of multinodular goiter shows cholesterol granulomas with calcification. two cases of multinodular goiter show lymphoid aggregates. Four cases of multinodular goiter show secondary changes like fibrosis, hyalinization, hemorrhage & calcification. There was one case of multifocal encapsulated follicular variant of papillary carcinoma (fig4).

Table no: 1-Shows the incidence of the various lesions in thyroid with their percentage.

	Microscopy	Male	Female	Total	%
Non neoplastic	Colloid goiter	1	17	18 32	36.36
	Colloid goiter with cystic change	3	11	14	
	Multinodular goiter	3	14	17	19.32
	Adenomatous hyperplasia	2	10	12	13.64
	Hashimoto thyroiditis	-	4	4	4.54
	Lymphocytic thyroiditis	-	1	1	1.14
	Thyroglossal cyst	1	1	2	2.27
Neoplastic	Follicular adenoma	1	10	11	12.5
	Hurthal cell adenoma	1	-	1	1.14
	Encapsulated FVPC	-	5	8	10.23
	Papillary carcinoma	-	3		
Total		**12**	**76**	**88**	**100%**

Table no: 2-Distribution of the histological thyroid disease in relation with age(yrs)

	Sr no	Microscopy	<20	20-29	30-39	40-49	50-59	60-69	Total
Non neoplastic	1	Colloid goiter		1	4	6	4	3	32
	2	Colloid goiter with cystic change		3	3	1	3	4	
	3	Multinodular goiter		2	10	1	1	3	17
	4	Adenomatous hyperplasia		4	6			2	12
	5	Hashimoto thyroiditis		1	1			2	4
	6	Lymphocytic thyroiditis						1	1
	7	Thyroglossal cyst	1		1				2
Neoplastic	8	Follicular adenoma		3	4	2	2		11
	9	Hurthal cell adenoma			1				1
	10	Encapsulated FVPC		2	2		1		5
	11	Papillary carcinoma		1			2		3
Total			**1**	**17**	**32**	**10**	**13**	**15**	**88**

FVPC- follicular variant of papillary carcinoma

Fig -1 Gross:-Colloid goiter

Fig-2 Gross:- Colloid goiter with cystic degeneration

Fig -3 Gross:- Follicular adenoma

Fig -4 Gross:-Encapsulated multifocal FVPC

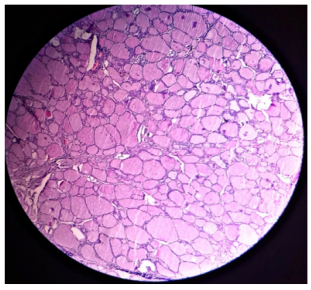

Fig-5:- Colloid goiter [H&E 10x]

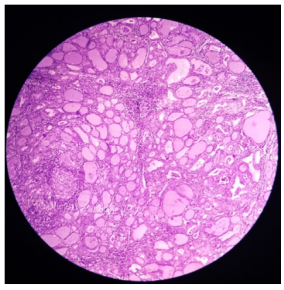

Fig-6:- Hashimoto thyroiditis [H&E 10x]

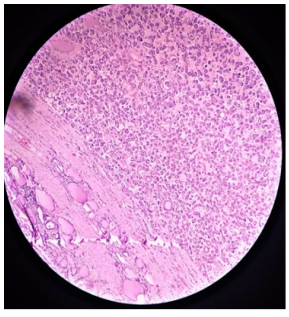

Fig -7:- Follicular adenoma [H&E 10x]

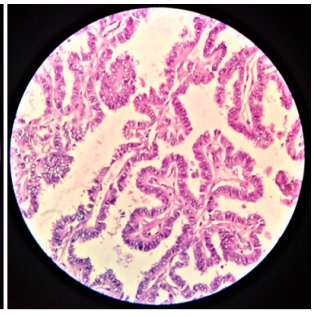

Fig -8:-Papillary carcinoma [H&E 40x]

DISCUSSION

Diseases of the thyroid are of great importance because most are amenable to medical or surgical management. According to WHO, 7% of the world population is suffering from clinically apparent goitre, and majority of them are from developing countries, where the disease is attributed to iodine deficiency.[8] Both the neoplastic and non-neoplastic diseases of thyroid are common all over the world, with varying frequency and incidences .[9]

The age range of patients in our study ranged from 10 years to 65 years with the mean age of 37.81 years which is in accordance with the study of Beigh A *et al*[10] (2018) who reported the age range of patients from 9-74years. Similar results were also obtained by Lateef et al [11](2015), Fahim *et al*[12] (2012) & Veyseller *et al*[13] (2009). The peak age of incidence in our study was 30-39 years age group which is in accordance with the study of Abdulkader *et al*[14] (2014) who found 31-40 years age group as the peak age for thyroid diseases.

Historically thyroid diseases have been found to have a female preponderance owing to the presence of estrogen receptors in the thyroid tissue. There were 86.36% female cases and 13.64% male cases in our study with a female:male ratio of 6.3:1. Similar results have been found in the studies conducted by Beigh A *et al*[10] (2018, Ashwini et al[15] (2014), Gupta A et al[16] (2016), Salama et al[17] (2009), Fahim et al[12](2012) and Mandal S, et al[18]

The non- neoplastic disorders (68 cases; 77.27%) were more than the neoplastic disorders (20 cases; 22.72%). Similar results were found in other studies.[19,20]

Colloid goiter was the most common lesion in most of studies. In our study it accounted for 47.05%. Similar results were found in other studies.[19] Among other non neoplastic lesions, thyroiditis was seen in about 7.35 % of cases.

Within the neoplastic lesions, benign adenoma predominated over malignant lesions in our study. Our findings in this regard are contrary to the study of Beigh A *et al*[10] (2018) & Abdulkader et al[14](2014) who reported 81 neoplastic cases, among which 88.8% were malignant.

Follicular adenoma was the commonest benign thyroid neoplasms in our study accounting for 91.67% of benign neoplasms which is in accordance with Ariyibi et al. (2013) who found 89.5% cases to be follicular adenomas.[22] Papillary carcinoma was the most common malignant thyroid lesion and constituted 100% of the malignant lesions in our study. This observation was in accordance with the study of Chukudebelu et al.[21] (2012), Abdulkader et al.[14] (2014) and Gupta A et al[16] (2016).

CONCLUSION:

Thyroid lesions were more common in the age group of 3rd to 4th decade. Majority of the patients were females. Colloid goiter was the most common non-neoplastic lesion. Papillary carcinoma was the most frequent thyroid cancer accounting for 100% of thyroid cancers and follicular adenoma was the common benign tumor.

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