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Pathology

CLINICOPATHOLOGICAL SPECTRUM OF OPERATED THYROID LESION: A TERTIARY CARE HOSPITAL BASED STUDY

Dr. Satabdi Dutta Barman*	Postgraduate PGT, Department of Pathology, Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta, Assam. *Corresponding Author
Dr. Rosy Saikia	3rd Year Postgraduate PGT, Department of Otorhinolaryngology, All India Institute of Medical Science, Rishikesh, Uttarakhand.
Dr. Ena Dowerah	Professor and Head of Department, Department of Pathology, Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta, Assam.

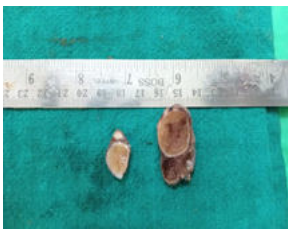
ABSTRACT **Background:** Thyroid lesions are the common clinical problems worldwide ranging from functionally and immunologically mediated thyroid enlargement to neoplastic lesions. It affects the general population irrespective of their age, gender, socio-economic status and geographical pattern. A thorough understanding of the clinicopathological spectrum of varied thyroid lesion is necessary for their proper management. **Aim:** To study the various histopathological spectrum of operated thyroid lesions presented to pathology department at Fakhruddin Ali Ahmed Medical College and Hospital, Barpeta from January 2022- January 2023. **Methods:** All thyroidectomy specimens are present at the Department of Pathology at FAAMCH, Barpeta (2022-2023) were prospectively reviewed and categorized according to the histopathological findings. **Results:** A total of 82 cases were studied in the study. The age ranges between 15-78 years with a mean age of 44 years. Most common age group was found to be between 41-50 years (26.82%). Female to male ratio was 4.5:1. There were 56(68.29%) cases of non-neoplastic lesion among which the most common was colloid goiter which constituted 28 cases (50%). Neoplastic lesions were seen in 26 cases (31.70%) with benign to malignant ratio was 1.87:1. **Conclusion:** Colloid goiter was found to be most common finding in this study. Papillary carcinoma of thyroid is found to be most common malignant lesion 9.75% of all thyroid lesion in this study.

KEYWORDS : Thyroidectomy specimen, Colloid goiter, Papillary carcinoma of thyroid.

INTRODUCTION :

Thyroid gland is a unique endocrine organ and is the largest of all the endocrine glands. Thyroid disorders are one of the most common problems encountered in clinical practice with majority of them being benign in nature11. They are endemic in mountainous regions of the world where the soil, water and food supply contains little iodine11. Most of the thyroid nodules are benign and only 5% of them are considered to be malignant8. Relatively rare differentiated and undifferentiated thyroid carcinoma constitute 0.5% to 1% of all cancers worldwide 9. Long standing cases of goiter (more than 5 years) is regarded as the strongest risk factor for the development of thyroid cancer11. Precise diagnosis of thyroid nodule is necessary for correct clinical management of the patients to avoid needless surgical interventions8. A detailed histopathological examination of thyroid tumors aims at an appropriate management of the cases. The present study was undertaken to describe the spectrum, age, sex and various histopathological pattern of the thyroid lesions8,11.

II. Materials and Methods: A cross sectional study was carried out at Department of Pathology, FAAMCH, Barpeta, Assam over a period of 1 year from January 2022 to January 2023. In the present study, a total of 82 cases of thyroid swellings were studied . A complete history of the patients pertaining to complaints were obtained. The clinical details were recorded as per the performa along with ultrasonographic (USG) findings and related investigations were taken into consideration. FNAC was done by using non aspiration technique except for cystic lesions. In cases of non-diagnostic aspirates the procedure was repeated. After performing the required surgery for the thyroid lesion, the specimen was presented to the Department of Pathology, FAAMCH, Barpeta. A detailed gross examination was done and sections were taken. Paraffin embedded Hematoxylin and Eosin stained sections were obtained and studied under light microscopy.



Sources of Support : Nil; Conflict of Interest: Nil

Figure 1: Photomicrograph showing tan to light brown in colour with intact capsule of growth on left thyroid lobe

III. Results: A total of 82 patients were studied. The gender distribution was predominantely female (81.71%) with female to male ratio of 4.5:1. Most of the affected cases belong to 41-50 years with a mean age of 44 years.

TABLE – 1 Age distribution chart

AGE(years)	NO. of CASES	PERCENTAGE(%)
10-20	5	6.09
21-30	18	21.95
31-40	18	21.95
41-50	22	26.82
51-60	10	12.19
61-70	7	8.5

Source of Support : Nil; Conflict of Interest: Nil

Table2: Thyroid surgeries distributed according to Non neoplastic and Neoplastic Lesions.

Lesions	Lobectomy	Hemi Thyroidectomy	Subtotal Thyroidectomy	Total Thyroidectomy	Total
Non-neoplastic Lesions					
Colloid goiter	7	17	4		28
Colloid Cyst	3	11			14
Multinodular Goiter		2	1		3
Lymphocytic Thyroiditis		4	3		7
Nodular hyperplasia of Thyroid		2			2
Thyroglossal Cyst		1			1
Granulomatous Thyroiditis		1			1
Neoplastic Lesion					
Follicular Adenoma	2	9		4	15
Papillary Carcinoma of Thyroid	1	2	3	2	8
Anaplastic Carcinoma				1	1
Hurthel Cell Carcinoma			1	1	2
Total	13	49	12	8	82
Percentage	15.85%	59.75%	14.63%	9.75%	100

Table 3: Histopathology and Cytopathology types of thyroid lesion (n=56)

Sl no.	Non-neoplastic Lesion	Number	Percentage (%)
1.	Colloid goiter	28	50%
2.	Colloid Cyst	14	25%
3.	Multinodular Goiter	3	3.35%
4.	Lymphocytic Thyroiditis	7	12.5%
5.	Nodular hyperplasia of Thyroid	2	3.57%
6.	Thyroglossal Cyst	1	1.78%
7.	Granulomatous Thyroditis	1	1.78%
8.	Total	56	100%

Out of 82 cases studied, 56 cases(68.29%)were non-neoplastic and 26

(31.70%)were neoplastic lesion. Among the 56 non-neoplastic cases, colloid goiter was most common accounting for 41.07% of all non-neoplastic cases followed by 25% colloid cyst and 12.5% lymphocytic thyroiditis.

Fig 4: Histopathology and Cytopathology types of thyroid lesion (n=26)

Sl no.	Neoplastic Lesion	Number	Percentage (%)
1.	Follicular Adenoma	15	57.69%
2.	Papillary Carcinoma of Thyroid	8	30.76%
3.	Hurthel Cell Carcinoma	2	7.69%
4.	Anaplastic Carcinoma	1	3.84%
5.	Total	26	100%

Out of 26 neoplastic lesions of thyroid, follicular adenoma contributing 15 cases (57.69%). The most common malignant thyroid was papillary carcinoma which was seen in 8 cases (30.76%) followed by 2 cases of hurthel cell carcinoma (18.18%) and 1 cases anaplastic carcinoma (9.1%).

IV DISCUSSION:

In the study, the mean age was 44 years (range 15 -78 years) which correlates with the study of Silverman et al and Arvintham et al where the mean age of cases were 44.8 years and 46 years4,5.In the present study, it was observed that 67 (81.71%) were females and 15 (18.29) were males which was similar to the study Letha Podam et al. The female to male ratio in the present study was 4.5:1, while it was 7:1, 6.2:1, 6:1 and 5.7:1 in the study conducted by Nzegwu et al, Nggada et al, Abdulkareem et al and Adenji et al1,2,6,8.This high prevalence in women may be due to physiological demands of puberty, menstruation pregnancy and lactation7.Nowadays, thyroidectomy is a routine procedure due to the introduction of safe anesthesia, antiseptics, fine surgical instruments and development of new techniques3. In the study, Hemi-thyroidectomy cases were most common (49 cases-59.75%), followed by 13 cases(15.83%) of Lobectomy which was similar to Urmila devi et al study9.The overall incidence of non-neoplastic lesion of this study was 68.29% as compared to 31.70% neoplastic lesions which is similar to Letha Podam et at. In the current study, among non-neoplastic lesions, colloid goitre of 28 cases (50%) was found to be the most common lesion and it was similar to Adenji KA et al and Ghartimagar et al10,15. Multinodular goiter was the third common case (5 cases-5.35%) among the non-neoplastic thyroid lesions where in Champa Sushel et al study it shows 60%11.In this study, among 26 cases (31.70%) of neoplastic lesions, follicular adenoma (15 cases- 57.69%) was found to be most common. This study was similar to Nwegwu et al and Edino et al.1,12. The malignant cases of the present study was diagnosed in 11 cases (13.41%) which was similar to Nwegnu et al and Seleye et al at a range of 10.9-14.1%1,13. Among the thyroid malignancy, papillary carcinoma of thyroid was the most common case (30.76%) which was similar to the study Nwegnu et al and Seleye et al1,13 . Papillary carcinoma accounted 9.75% of all cases of thyroid lesion while Nggada et al and Edino et al found follicular thyroid carcinoma as the most common pathological thyroid findings2,12. In the study, there is 1 case(3.84%) of anaplastic carcinoma which was similar to Nzegwu et al, Nggada et al, Abulkareem et al and Seleye- Fubara et al1,2,6,13.

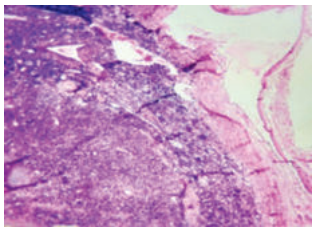


Fig 2: Photomicrograph showing the fibrous capsule with closely packed thyroid follicles of follicular adenoma.

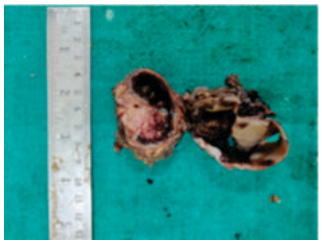


Fig 3: Photomicrograph showing gross image of papillary carcinoma of thyroid

Fig 4: Photomicrograph of papillary carcinoma of thyroid showing branching papillae with optically clear nucleus.

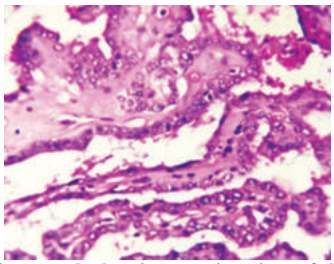


Fig 5: Photomicrograph showing varying sizes of thyroid follicle lined by low cuboidal epithelium of colloid goitre.

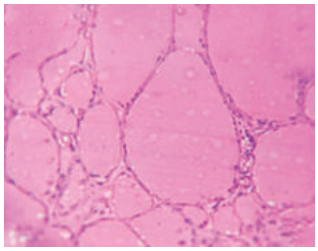


Fig 6: Photomicrograph showing central clearing of papillary carcinoma of thyroid

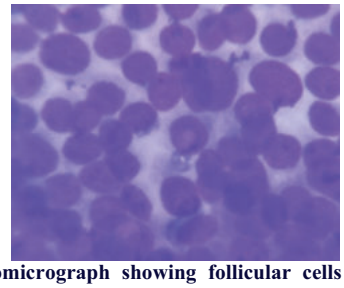


Fig 7: Photomicrograph showing follicular cells arranged in monolayer sheets

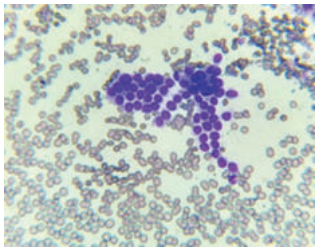


Fig 8: Photomicrograph showing follicular cells arranged in monolayer sheets

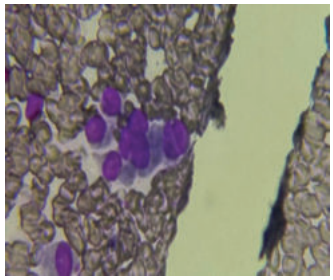


Fig 9: Photomicrograph showing nuclear grooving of papillary carcinoma of thyroid

V. CONCLUSION:

Identification of thyroid disorders needs proper diagnostic tools, including clinical history, ultrasonography and proper clinical examination. Diagnosis by histopathological report is utmost important for proper treatment of thyroid lesions. In this study, it has been found that females are most commonly affected than male, of mean age of 44 years. Among the non-neoplastic and neoplastic

thyroid lesions, colloid goiter and follicular adenoma are most common thyroid lesion respectively. Papillary carcinoma of thyroid are the most common thyroid malignancy in this study. Early diagnosis and prompt treatment will provide relief to the patient and also decreases the alarming rate of thyroid malignancies.

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