Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Pathology

Patterns of Thyroid Lesions: A Histomorphological Analysis from a Tertiary Care Teaching Hospital of NIENT

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DOI: 10.36347/sjams.2022.v10i10.005 | **Received:** 20.08.2022 | **Accepted:** 29.09.2022 | **Published:** 04.10.2022

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Abstract **Original Research Article**

Background: Thyroid gland is unique among the endocrine glands in having a wide spectrum of diseases. Lesions of thyroid appear to be common in Bangladesh. Goiter or enlargement of the thyroid may be diffuse or nodular, ranges from functional enlargements, immunologically mediated enlargements to neoplastic lesions. ***Objectives:*** This study is aimed to describe the histomorphological spectrum of thyroid lesion in relation to age, sex distribution and also to compare the findings with other studies done in Tertiary Care Teaching Hospital of NIENT. ***Methods:*** It is a prospective study of all thyroidectomy specimens received from June 2020 - May 2021 in Department of Histopathology, National Institute of Ear, Nose and Throat (ENT), Dhaka. Bangladesh. The specimens included lobectomy, subtotal thyroidectomy and total thyroidectomy. Formalin fixed specimens were routinely processed and paraffin embedded. Sections were stained with hematoxylin and eosin. Lesions were classified on the basis of light microscopy as congenital, goiter, inflammatory and neoplastic lesions. Neoplastic lesions were classified according to WHO classification of thyroid tumours. ***Results:*** A total of 301 specimens of thyroid were received in department of histopathology during the period from August 2016 to December 2017. No case of follicular carcinoma or lymphoma was found. ***Conclusion:*** Thyroid disorders are one of the common problems encountered in surgical practice. Among the varied histomorphological spectrum nodular or multinodular goiter is the most common lesion. Thyroid lesions are more common in female.

Keywords: Goiter, Follicular adenoma, Follicular carcinoma, Thyroiditis.

INTRODUCTION

The most common manifestation of thyroid disease worldwide occurring in 3% - 5% of the population [1]. Thyroid disorders are more frequent in females [2]. Goiter is endemic in geographic areas where soil, water and food supply contain low levels of iodine. Iodine deficiency causes functional enlargement of the gland due to hypertrophy and hyperplasia of thyroid follicular cells manifested as colloid / nodular and multinodular goiter, the most common thyroid lesions [3]. Thyroid cancer is the most frequent endocrine malignancy. Long standing goiter is regarded as one of the most frequent risk factors for the development of thyroid cancer [1]. Papillary carcinoma is the commonest thyroid cancer followed by follicular, medullary and anaplastic carcinoma. [4] Marked variation in the prevalence of thyroid cancer has been observed in different regions of the world [5]. Other thyroid disease entities like thyroiditis, adenomas and congenital lesion thyroglossal duct cyst are not uncommon [6]. Diagnosis of thyroid disease needs a thorough clinical examination along with assessment of hormone secretion activities of the gland and its morphology. Histopathological examination gives a definitive diagnosis. Thyroid is one of the most labile organs in the body and responds to numerous stimuli

such as puberty, pregnancy, physiological stress & various pathological states. Thyroid diseases are quite common and are associated with hyper thyroidism, hypothyroidism and mass lesions [7]. The relative frequency of some of these diseases varies in different geographic regions according to iodine intake of a diet consumed. These diseases are important because most of the mare amendable to medical or surgical treatment.

METHODS

It is a prospective study of all thyroidectomy specimensreceived from June 2020 - May 2021 in Department of Histopathology, National Institute of Ear, Nose and Throat (ENT), Dhaka. Bangladesh. The specimens included lobectomy, subtotal thyroidectomy and total thyroidectomy. Formalin fixed specimens were routinely processed and paraffin embedded. Sections were stained with hematoxylin and eosin. Lesions were classified on the basis of light microscopy as congenital, goiter, inflammatory and neoplastic lesions. Neoplastic lesions were classified according to WHO classification of thyroid tumours.

RESULTS

A total of 301 specimens of thyroid were received in department of histopathology during the period from August 2016 to December 2017. The total age of patient was 301 aged 0≥71 years, age distribution of the patients where most of the patients (28.23%) belong to 31-40 years age group. In this study, male to female ratio was 1:3.85. The age of the patients ranged from 3 years to 75 years. Distribution of study population according to sex where 62(20.6%) patients had male and 239(79.4%) was female. Most of the patients (n= 85; 28.24) were between 31 – 40 years of age. Follicular adenoma (n= 7; 2.33%) was the most common benign tumour. Papillary (n= 103; 34.22) was the commonest malignant tumour followed by medullary carcinoma (n= 6; 1.99). No case of follicular carcinoma or lymphoma was found. Nodular goiter was the most common lesion encountered which accounted for 54(22.59%) were female, 22(35.48%) were male. Multi nodular goiter encountered which accounted for 82(34.31%) were female, 9(14.51%) were male. Thyroglossal duct cyst encountered which accounted for 4(1.67%) were female, 3(4.83%) were male. Chronic Lymphocytic thyroiditis encountered which accounted for 6(2.51%) were female, 1(1.61%) were male. Subacute granulomatous thyroiditis encountered which accounted for 1(0.41%) were female, 1(1.61%) were male. Benign neoplasm encountered which accounted for 7(2.91%) were female, 1(1.61%) were male and Malignant neoplasm encountered which accounted for 85(35.56%) were female, 15(24.19%) were male. Follicular adenoma was the common lesion encountered which accounted for 6(2.51%) were female, 1(1.61%) were male. Hurthle cell adenoma encountered which accounted for 1(0.41%) were female. Papillary carcinoma encountered which accounted for 82(34.30%) were female, 21(33.87%) were male. Medullary carcinoma encountered which accounted for 3(1.25%) were female, 3(4.84%) were male and Anaplastic carcinoma encountered which accounted for 1(1.61%) were male.

Table I: Demonstrate and distribute of the study according to age

Age Distribution	n=301	%
0-20	32	10.63
21-30	72	23.92
31-40	85	28.23
41-50	68	22.59
51-60	32	10.63
61-70	11	3.65
≥71	1	0.33

Table II: Demonstrate and distribute of the study according to sex

Sex Distribution	n=301	%
Male	62	20.6
Female	239	79.4

Table III: Demonstrate and distribute of the study of nonneoplastic lesions according to sex

Types	n=301			
	Male (n=62)	%	Female (n=239)	%
Nodular goiter	22	35.48	54	22.59
Multi nodular goiter	9	14.51	82	34.31
Thyroglossal duct cyst	3	4.83	4	1.67
Chronic Lymphocytic thyroiditis	1	1.61	6	2.51
Subacute granulomatous thyroiditis	1	1.61	1	0.41
Benign neoplasm	1	1.61	7	2.91
Malignant neoplasm	15	24.19	85	35.56

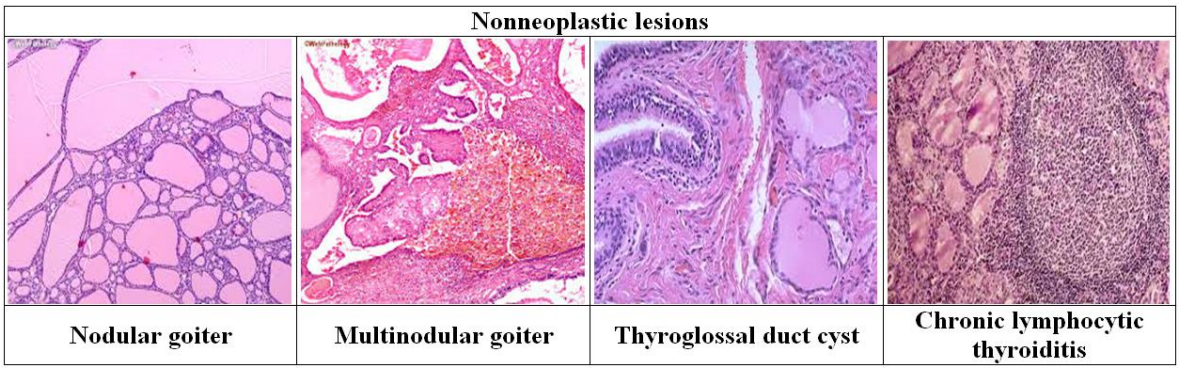

Fig. I: Different types of nonneoplastic lesions

Table IV: Demonstrate and distribute of the study of Thyroid neoplasm according to sex

Types	n=301			
	Male (n=62)	%	Female (n=239)	%
Follicular adenoma	1	1.61	6	2.51
Hurthle cell adenoma	-	0.0	1	0.41
Papillary carcinoma	21	33.87	82	34.30
Medullary carcinoma	3	4.84	3	1.25
Anaplastic carcinoma	1	1.61	-	0.0

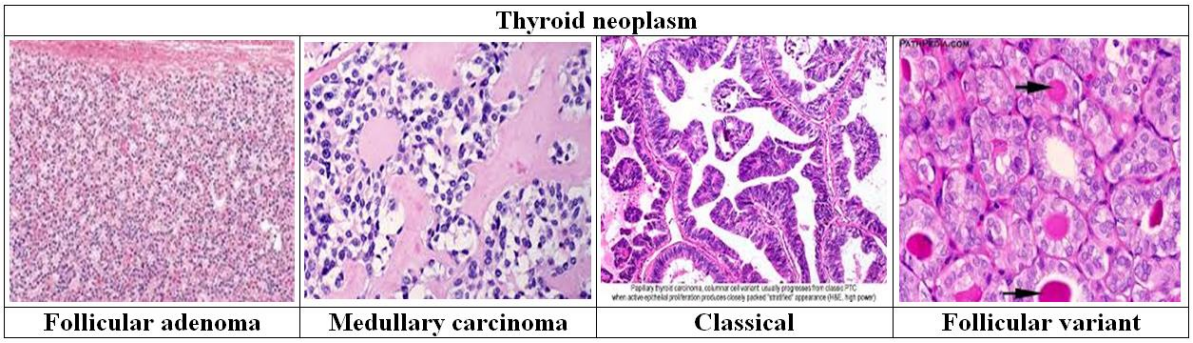

Fig. II: Different types of Thyroid neoplasm

DISCUSSION

Thyroid enlargement is one of the most common disorders of endocrine system. The incidence of benign and malignant lesion in surgically treated cases shows geographic and regional variation [8-10]. The total age of patient was 301 aged 0≥71 years, age distribution of the patients where most of the patients (28.23%) belong to 31-40 years age group. In this study, male to female ratio was 1:3.85. The age of the patients ranged from 3 years to 75 years. Peak incidence was seen in 30-40yrs. These results are similar to Raphea Solomal *et al.*, studies [11]. Thyroid lesion affects both the sexes with female preponderance which was also seen in all the lesions in our study except thyroglossal cyst [12].

Multi nodular goiter encountered which accounted for 82(34.31%) were female, 9(14.51%) were male. Thyroglossal duct cyst encountered which accounted for 4(1.67%) were female, 3(4.83%) were male. Chronic Lymphocytic thyroiditis encountered which accounted for 6(2.51%) were female, 1(1.61%) were male. Subacute granulomatous thyroiditis encountered which accounted for 1(0.41%) were female, 1(1.61%) were male. Benign neoplasm encountered which accounted for 7(2.91%) were female, 1(1.61%) were male and Malignant neoplasm encountered which accounted for 85(35.56%) were female, 15(24.19%) were male. The toxic hyperplasia accounted for 7% this finding is similar to mid-east studies. Thyroiditis is seen in 3% of thyroid lesion, [14] Female preponderance seen in this lesion was similar to a study by Raham *et al.*, [1] The only congenital lesion seen in our study is thyroglossal duct cyst was seen in 4% of the cases [11]. It is the most common congenital lesion of thyroid. This lesion are said to have neither sex predilection nor hereditary predisposition. However in our study the lesion had male preponderance.

Thyroid neoplasm was found in 18% of the cases most common were, benign follicular adenoma accounted for 16% of the total cases 88.8% of total neoplastic lesions. This is the second most common benign thyroid neoplasia, as also seen in other studies [1, 11, 13]. Females are more commonly affected and mean age group was 30-40years. Thyroid cancer is rare,

accountingfor0.5-1% of all cancer worldwide. But it is the most frequently encountered endocrine malignancy with variable geographic incidence. In our study follicular adenoma was the common lesion encountered which accounted for 6(2.51%) were female, 1(1.61%) were male. Hurthle cell adenoma encountered which accounted for 1(0.41%) were female. Papillary carcinoma encountered which accounted for 82(34.30%) were female, 21(33.87%) were male. Medullary carcinoma encountered which accounted for 3(1.25%) were female, 3(4.84%) were male and Anaplastic carcinoma encountered which accounted for 1(1.61%) were male this result was similar to studies [15]. However papillary carcinoma of thyroid was most common in Raphael Solomon & Raham *et al.*, studies and Seleye –Fubara *et al.*, [16].

CONCLUSIONS

The histological pattern of thyroid diseases in the thyroidectomy specimens in our study is similar to that seen around the globe and the region. Non-neoplastic thyroid lesions are more common than neoplastic ones, with multinodular goiter being the most common lesion.

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