Original Article

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Frequency of Thyroid Lesions in a Tertiary Care Hospital in Peshawar

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Author`s Contribution

[1,3]Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work, manuscript writing, [2]Drafting the work or revising it critically for important intellectual content, [4]analysis, or interpretation of data for the work, [5,6]Supervised, Final approval of the version to be published,

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ABSTRACT

Objective: To determine the frequency spectrum of all thyroid lesions in terms of histopathological patterns presented to the Pathology Department of the Combined Military Hospital Peshawar.

Methodology: A retrospective observational study was conducted at the Combined Military Hospital, Peshawar, from September 2015 to December 2020. A total of 235 thyroidectomy specimens, over a period of 5 years, were included in the study period. Information was collected on age, gender, clinical presentation, and histopathological diagnosis.

Results: A total of 235 cases were studied over a period of five years, of which 188 (80%) were females and 47 (20%) were males, with a male to female ratio of 1:4. The patients' ages ranged from 14 years to 85 years, with a mean age of 41 years, and the relative peak age of incidence was seen from 21 to 40 years of age. Total 193 cases (82.1%) belonged to the non-neoplastic category out of which adenomatous colloid goiter was the most common (180 cases, 93.3%). The neoplastic lesions (total cases 42) were 17.9% of all of the cases, out of which benign lesions i.e. adenoma comprised 20 cases (47.7%) and malignant lesions were 22 (52.3%). Among the malignant lesions papillary carcinoma was the most common (16 cases) comprising of 73% of all of the malignant lesions.

Conclusion: Thyroid lesions are more common in females, with peak incidence in the second and third decades. The non-neoplastic lesions are more common, with the adenomatous goiter being most prevalent. In the neoplastic lesions, follicular adenoma constitutes the main lesion in the group of benign neoplasms and papillary carcinoma being the most common lesion among the malignant neoplasms.

Key words: Adenomatous colloid Goitre, Papillary carcinoma, Thyroid lesion.

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Introduction

A spectrum of thyroid disease is encountered commonly in South-East Asia and also in our country, Pakistan.[1] Therefore, diagnosing the types of thyroid lesions, whether benign or malignant, is pivotal in the management and counselling of these patients.

The thyroid gland is one of the main endocrine organs, which helps carry out many important physiological functions in the body. All body organs are impacted by thyroid hormones, which are also essential to maintaining body integrity and homeostasis.[2,14] Thyroid gland histology reveals two types of cells: follicular and parafollicular cells. Thyroxine is secreted by follicular cells and has functional effects on numerous systems and general metabolism. The other type, which is parafollicular, or the C cells, is involved in calcitonin production. This hormone helps maintain calcium homeostasis.[3] Geographical differences in the prevalence of thyroid disorders are mostly caused by iodine shortage.[1]

Both the benign and malignant lesions of thyroid are commonly encountered entities in the daily OPDs. These lesions mostly (95%) arise from the follicular cells of the thyroid gland.[4]

Clinically, the presenting features of the patients can include the symptoms of both hypo or hyperthyroidism, whether the lesion is benign or malignant. The clinicians really need the other conjunctive tools to make the correct diagnosis and to treat the underlying cause. Histopathology has got the central role in these cases. The vital ways in which a pathologist can help making the diagnosis is by the use of Fine Needle Aspiration Cytology (FNAC) and histological examination of the surgical specimen directly under the microscope. Studies have proved that microscopic examination of the surgical biopsies is superior as the cytological details on FNAC are also much overlapping in various benign versus malignant lesions.[4]

Another factor that adds to the significance of thyroid lesions is that the incidence of its malignancy has been increasing in the last three decades globally.[5,15] Thyroid cancer mortality range from 0.5 to 10 per 100,000 patients. The male and female percentage, per year, is 6.3% and 7.1% for the white population, 4.3% and 8.4% for the blacks and 3.4% and 6.4% for the population of Asia respectively.[5]

In Pakistan, it has been established that due to the deficiency of iodine, the northern areas have a higher frequency of thyroid diseases. Papillary thyroid carcinoma is the most frequent type of thyroid cancer, accounting for 1.2% of all cancer diagnoses in our country. Pakistan's female to male ratio is 2.2:1, according to reports. [6,13]

The objective of this study is to determine the spectrum of various histopathological diagnoses reported from thyroidectomy specimens in the area where our institution is situated, as it drains patients from the northern areas.

Methodology

This study has been undertaken from retrospective computer based data, collected at the Histopathology Department of the Combined Military Hospital, Peshawar. From 15 September 2015 to 31 December 2020, records of histopathology laboratory reports were retrieved. Ethical approval was taken by ethical committee of CMH, Peshawar. Non-probability consecutive sampling was used as the sample method. Patients who underwent hemithyroidectomy, subtotal thyroidectomy, and total thyroidectomy were included in the study, and specimens were send to histopathology department for tissue diagnosis. All recurrent tumours were excluded from the study. A total of two hundred and thirty-five (235) cases fulfilled the inclusion criteria and also reviewed by the two histopathologists to overcome any bias. Histopathological diagnosis, age and gender of the patients were noted. All the cases were divided into two categories i.e. Neoplastic and non-Neoplastic. Neoplastic category was further divided into benign and malignant categories. This data was then analyzed on Statistical Package for Social Sciences (SPSS) version 26.0

Results

A total of 235 cases were studied over a period of five years out of which 188 (80%) were females and 47 (20%) were males. The ratio of male to female is 1:4. The patients ages ranged from 14 years to 85 years with a mean age of 41 years and the relative peak age of incidence was seen from 21 to 40 years of age (Figure 1).

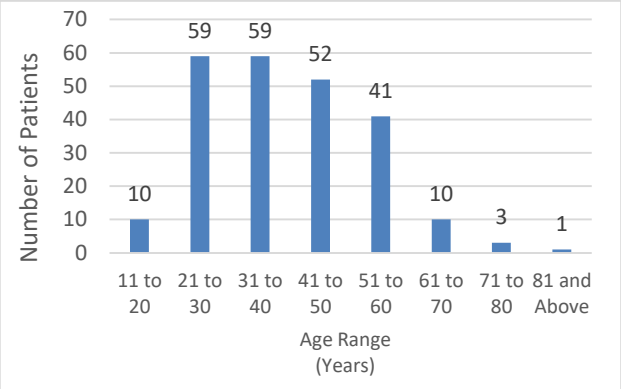

Figure 1. Distribution of patients according to the age (years)

Total 193 cases (82.1%) belonged to the non-neoplastic category. out of which adenomatous colloid goiter was the most common 180 cases (93.3%). 10 (5.2%) cases of thyroiditis were seen (8 lymphocytic thyroiditis, 1 Riedel's thyroiditis, 1 Subacute granulomatous thyroiditis) and 3 (1.5%) cases of dyshormonogenetic goiter were also observed. The breakdown of these lesions is also shown in table I.

The neoplastic lesions (total cases 42) made 17.9% of all the cases. Out of which benign lesions i.e. adenoma comprised of 20 cases (47.7%) and malignant lesions were 22 (52.3%). Among the benign lesions 19 cases were Follicular adenoma and only 1 was Hurthle cell adenoma as shown in figure 2

Table 1: Breakdown of Non-Neoplastic lesions according to the histological diagnosis	
Adenomatous Colloid Goiter	180
Thyroiditis	
Lymphocytic Thyroiditis	8
Riedel's Thyroiditis	1
Sub-Acute Granulomatous Thyroiditis	1
Dyshormonogenetic Goiter	3
Total number of the Non-Neoplastic cases	**193**

Among the malignant lesions, papillary carcinoma 16 cases (72.7%) was the most common followed by medullary and insular carcinoma 2 (9.1%) cases each respectively. Then came the Follicular and anaplastic carcinoma 1(4.5%) case each respectively), as shown in Figure 3.

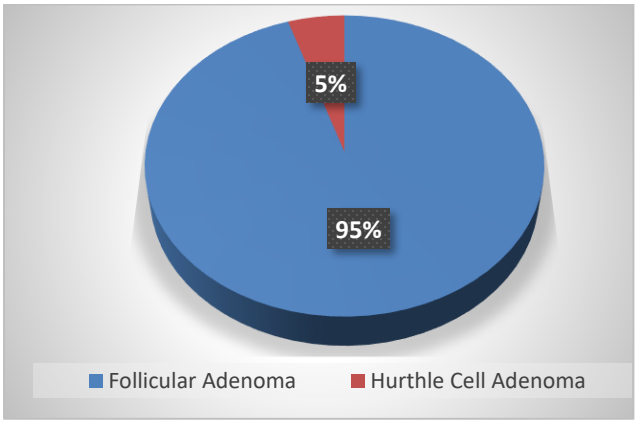

Figure 2: Percentages of the cases of benign neoplasms (neoplastic cases) n = 20

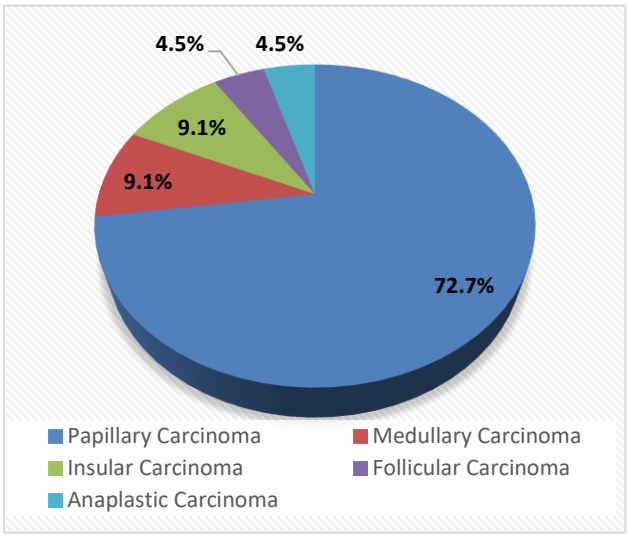

Figure 3 Percentages of the malignant lesions according to the histological diagnosis.

Discussion

The diseases related to the thyroid gland are commonly seen among all of the endocrine disorders. Whether the international incidence level or the incidence level of Pakistan is taken into account, it has been clearly seen in the previous studies that thyroid lesions are endemic in areas with low levels of iodine in water.[7] Other causative factors also include radiations, sex, age, ethnic and geographical patterns.[8]

In our study total 235 cases were taken which showed the male to female ratio of 1:4. This shows the coherence to the results of previously done study in Lahore where they documented 1:4.5 male to female ratio.[9]

Our study also showed that thyroid diseases were more prevalent in the age range of 20 to 40 years which is also similar to the results found in a previous study.[11,12] In our study, the non-neoplastic diseases were more frequent than the neoplastic lesions, showing the frequency of 82% and 18% respectively. This finding is again consistent with a recent study on thyroidectomy specimens, showing that non-neoplastic lesions are more frequent than neoplastic lesions.[10,16]

Among the non-neoplastic lesions, Adenomatous Goiter was the most common (93.3%) in our study. While in the neoplastic variety, follicular adenoma (95%) was the most common among the benign neoplasms and Papillary carcinoma (72.7%) was the most common among the malignant neoplasms. These results again correspond to the results in the previous studies.[9,11]

Conclusion

The present study concluded that thyroid lesions are more common in the females of our population, with peak incidence in the young ages i.e. second and third decades. The non-neoplastic lesions are more common, with the adenomatous goiter being most prevalent. In the neoplastic lesions, follicular adenoma constitutes the main lesion in the group of benign neoplasms and papillary carcinoma being the most common lesion among the malignant neoplasms.

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