Morphological Spectrum of Lesions Seen in Thyroidectomy Specimens At A Tertiary Care Institute

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Abstract

Objective: To determine the morphological spectrum of thyroid lesions encountered in thyroidectomy specimens at a tertiary care institute.

Methods: It was a retrospective study conducted in Pathology Department, Allama Iqbal Medical College, Lahore. A retrospective manual collection of data was done from record registers, for the years 2012 & 2013.

Results: A total of 307 cases were retrieved with age range of 16-70 years. Amongst them, 47 were males and 260 were females. Non neoplastic conditions outnumbered the neoplastic lesions as 229(75%) cases were of colloid goiter. Hashimoto thyroiditis was present in 12(3.9%) specimens and associated hyperplastic changes were seen in 15(4.9%) cases. There were 19(6.2%) cases of papillary carcinoma, 3(0.9%) cases of follicular carcinoma, 3(0.9%) cases of medullary carcinoma, 1(0.3 %) case of insular carcinoma and 2(0.6%) anaplastic carcinoma. Papillary microcarcinoma was seen in 4(1.3 %) cases and medullary microcarcinoma in 1(0.3%) case. Follicular adenoma comprised 29(9.4%) cases and Hurthle cell adenoma 3(0.9%) cases. Study data also showed 1(0.3%) rare case of hyalinizing trabecular tumor.

Conclusion: Non neoplastic thyroid diseases are more common as compared to neoplastic lesions. Papillary carcinoma is most common thyroid malignancy encountered in our setting.

Key Words: Thyroidectomy, Colloid goiter, papillary carcinoma

Introduction

The thyroid gland is responsible for secretion of two crucial hormones Thyroxine and Calcitonin.[1] The incidence of thyroid diseases is rising due to increase in aging population and an increased use of cross sectional imaging of head, neck and chest.[2] Effected patients may remain relatively asymptomatic, may present with symptoms of hyperfunction, hypofuction or a mass in front of the neck. Diffuse thyroid lesions involve the entire gland, such as hyperplasia and thyroiditis. Nodular lesions are those disorders that produce a clinically palpable nodule which may be solitary or multiple.[3] Around 10-15% of thyroid nodules turn out to be cancerous on investigations. So it is recommended that all nodules larger than 1-1.5cm must be evaluated. For such patients early detection and treatment are associated with excellent prognosis.[2] Thyroidectomy is mainstay of treatment in malignant thyroid diseases. For benign disorders, surgery resorted to for cosmetic or pressure symptoms.

Objective

To determine the morphological spectrum of thyroid disorders in thyroidectomy specimens recei-ved in department of Pathology of Allama Iqbal Medical College (AIMC), over a period of 2 years.

Methods

It is a retrospective study spanned over 2 years, conducted in Histopathology section of Department of Pathology, AIMC, Lahore. Demographic data was collected from Record Registers for the years 2012 & 2013 for all the thyroidectomy specimens (either total

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Submission Date: 18-08-2020
1st Revision Date: 19-09-2020
Acceptance Date: 25-10-2020

thyroidectomy, partial thyroidectomy or lobectomy). A total of 307 samples of thyroid surgeries were received during this period. Slides were retrieved for verification of the morphological diagnosis. Relevant clinical data was retrieved. In case of a neoplastic diagnosis, second consultation from another Histopathologist in the department was taken. Data was entered and analyzed by using Microsoft excel 2010 and the results were prepared.

Results

Youngest patient included in study was 16 years old and eldest was 70 years old. Maximum 149 (48 %) patients were within age range of 11-30 years, while 131 (43%) patients were in age range of 31-50 years and 27 (9%) patients were in age range of 51-70 years. Out of 307 cases, 47 (15%) were male patients and 260 (85%) were female patients thus making female to male ratio of 5.5:1 as shown in figure 1.

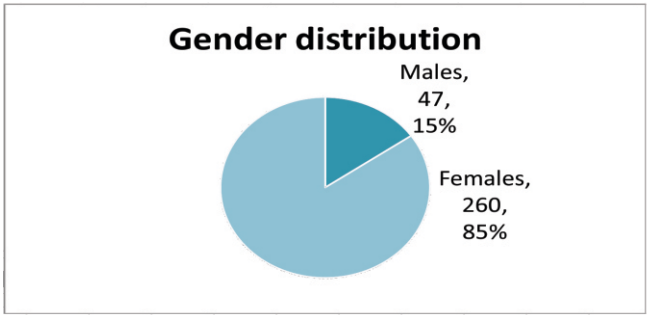

Fig.1: *Gender Distribution of Thyroid Diseases*

Histopathology revealed non neoplastic lesions in 241(78.5%) specimens and neoplastic lesions in 66(21.5%) cases. Amongst non neoplastic entities, majority 229(95%) cases comprised of colloid goiter and 12(5%) cases showed histologic evidence of Hashimoto thyroiditis.

Out of these 66 neoplastic lesions, there was equal contribution of benign 33 (50%) and malignant 33(50%) cases. Diagnosed benign entities were follicular adenoma 29 (88%) cases, Hurthle cell adenoma 3(9%) cases and there was 1(3%) rare case of hyalinizing trabecular tumor (Table 1).

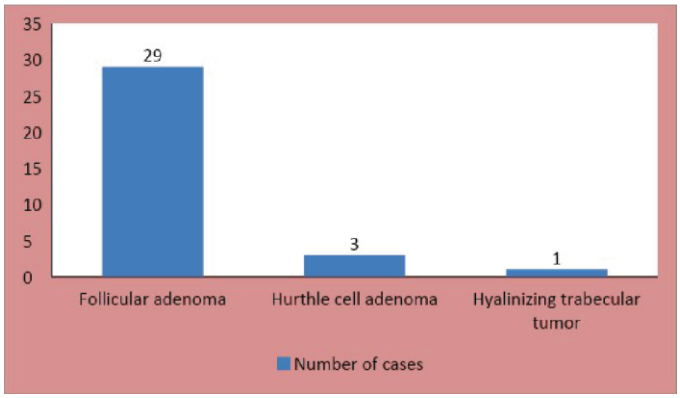

Fig. 1: *Benign Neoplastic Thyroid Lesions*

Malignant thyroid cases diagnosed during the period were as follows (Table 2); papillary carcinoma 19(58%), papillary microcarcinoma 4(12%), follicular carcinoma 3(9%), medullary carcinoma 3(9%), anaplastic carcinoma 2(6%), insular carcinoma 1(3%), and medullary microcarcinoma 1(3%).

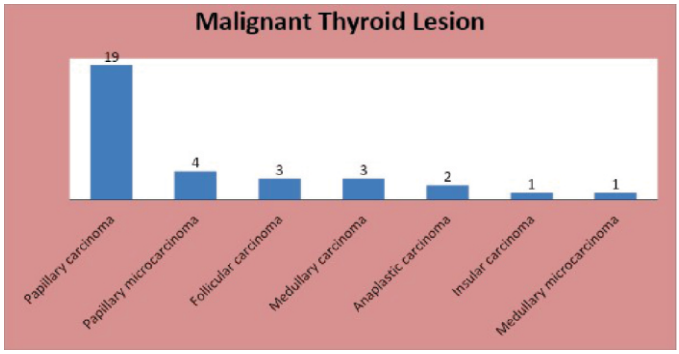

Fig. 2: *Malignant Thyroid Lesions*

Papillary carcinoma was seen in all age groups with maximum number of cases[6] seen in age group of 16-30 years. Follicular and anaplastic carcinoma were seen in age group of 46-60%. Insular carcinoma was seen in 61-75 years of age while follicular adenoma also showed maximum number in younger population. Table 3 shows correlation of age with various benign and malignant thyroid diseases.

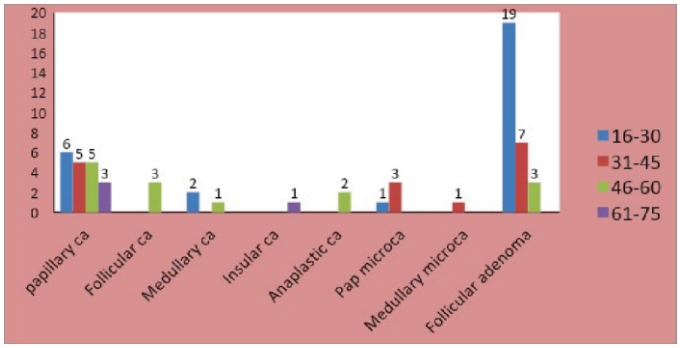

Fig.3: *Correlation of Age with Histopathologic Categories*

Discussion:

Thyroid gland is amongst the most common endocrine gland inflicted by various pathologies. Thyroid mass lesions may be diffuse or nodular, caused by a variety of benign and malignant lesions. Prevalence of palpable thyroid nodule in general population is reported as 4-7 %, rising to 10-41%, when discovered incidentally on ultrasonography.[4,5] Thyroid diseases mostly effect younger population as seen in our study where the maximum number of cases (48%) were within age range of 11-30 years. This is similar to cases reported by Itagi et al in which maximum number of patients with thyroid nodules were seen in age range of 21-30 years.[6]

Thyroid lesions predominantly affect females. In our study 85% were female patients and only 15% were male patients thus making female to male ratio of 5.7:1. This is similar to that reported by Singh et al in India.[7] Musani et al had 78% of females in their study while there was strong female predominance (89%) in a study conducted by Fatima et al.[3,8]

After detailed histopathologic examination, 78.5% of specimens showed non neoplastic entities while 21.5% had neoplastic lesions. Sanjeeva et al had more number of non neoplastic entities amounting to 91% in their study conducted in India in 2015.[9] In our study, multinodular colloid goiter (Figure 2) was the commonest non neoplastic enlarged thyroid entity (95%). Hashimoto thyroiditis was detected in 5 % cases on histopathology.

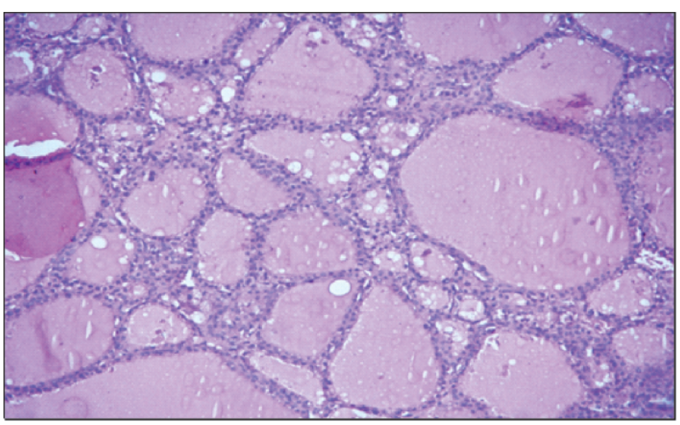

Fig.4: *Microscopic Picture Showing Multinodular Colloid Goiter with Multiple Colloid Filled Cystic Spaces and Benign Histology*

In neoplastic benign entities follicular adenoma was commonest accounting 88% of cases. This is followed by 9% cases of Hurthle cell adenoma, which has been reported as variably between 3-10% in literature.[10] There was a minor contribution by one rare case of hyalinizing trabecular tumor diagnosed in a young 28 years old female. (Figure 3) Literature shows variable reports on this rare entity ranging from 0.44-1.3% of all thyroidectomies.[11]

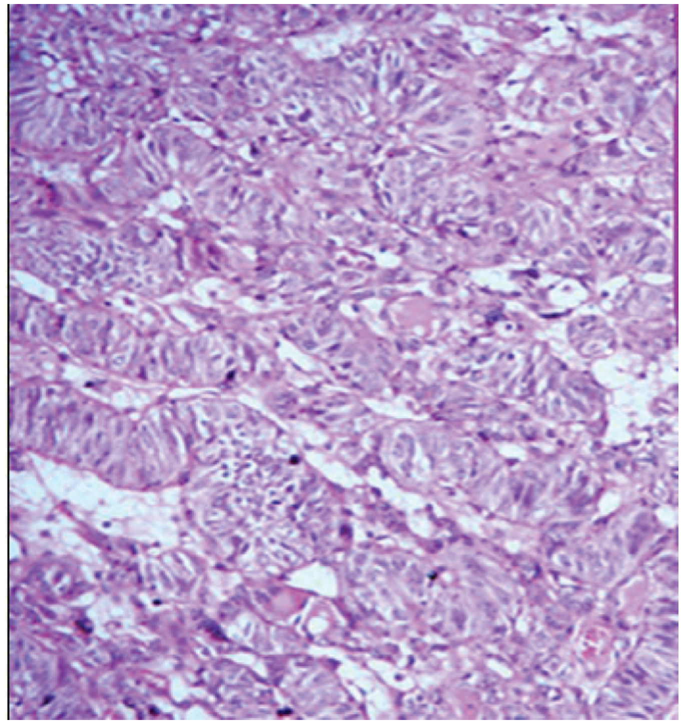

Fig.5: *Microscopic Morphology of Rare Hyalinizing Trabecular Tumor of Thyroid*

In malignant thyroid lesions, papillary carcinoma outnumbered other malignancies reaching a toll of 58% in our study (Figure 4).

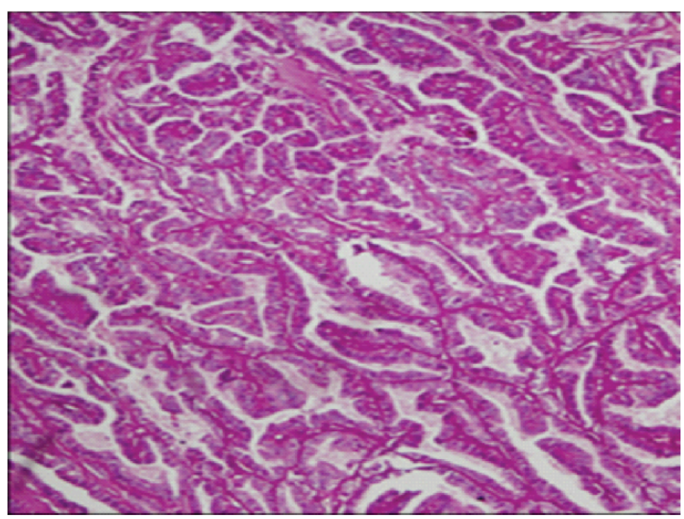

Fig.6: *Papillary Thyroid Carcinoma*

This is comparable to study by Burgess et al who reported 65% papillary thyroid carcinoma in their

large study including 3452 patients.[12] Follicular and medullary carcinoma contributed as 9% each in our study as compared to Bukhari et al who reported 2% cases of follicular carcinoma and 4.5% cases of medullary carcinoma in a large study from Karachi including 998 patients.[13] Papillary microcarcinoma was seen in 12 % of thyroidectomies performed for malignancy and medullary microcarcinoma contributed as 3% of all malignant cases. Microcarcinomas are smaller tumors with diameter less than 1 cm. Literature reports papillary microcarcinoma ranging between 7.1-16.3% and medullary microcarcinoma around 2%.[14,15]

Conclusions

To conclude, thyroid gland diseases affect females more commonly in younger age group and non neoplastic lesions are more common than neoplastic lesions. Papillary thyroid carcinoma is the most common thyroid malignant tumor and hyalinizing trabecular tumor is a rare benign thyroid tumor.

Author's Contribution

INR: Author
SS: Conceived and designed the analysis, reporting of cases
SI: Data Collection, data analysis
TA: Data collection, reporting of cases

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Conclusions

To sum up thyroid gland diseases are more common in younger age group and in females. Non neoplastic lesions are far more common than neoplastic lesions. Papillary thyroid carcinoma is the most common thyroid malignant tumor and hyalinizing trabecular tumor is a rare benign thyroid tumor.

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