

A RETROSPECTIVE STUDY OF HISTOPATHOLOGICAL PATTERN OF THYROID LESIONSDr. Abdul Wahab Zia¹, Dr. Sheza Aslam² and Dr. Saba Ishfaq^{*3}¹(PGR Medicine Department CMH Lahore).²(Khair Ul Fazal Welfare Trust Hospital).³(Nishtar Medical University).***Corresponding Author: Dr. Saba Ishfaq**

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ABSTRACT

Thyroid lesions/nodules may be non-neoplastic to neoplastic in nature. It is one of the most common endocrine disorder effecting general population. The pattern of thyroid disorders depend on various risk factors including sex, age, ethnic and geographical patterns. The objective of this study is to see the histopathological pattern of enlarged thyroid lesion in thyroidectomy specimens received after thyroid surgery in the pathology department at a tertiary care unit. It is retrospective study done at Pathology Department of CMH, Lahore. We collected past three years (from January 2016 to December 2018) Histopathological results of thyroid gland specimen sent for biopsy in pathology department. The biopsy results were reviewed and different lesions were characterized according to age groups, gender, neoplastic and non-neoplastic lesions. We studied 455 patient's file and biopsy reports of past three years from pathology department. In this data we concluded that 363 were females and 92 males. Male to female ratio was 1:3.9. We studied patient from the age of 25-65 years with mean age of 40.92±7.34. We resulted that there were 336 cases were non-neoplastic and 119 neoplastic. Multinodular goiter was the most common neoplastic lesion i.e. 263 (57.8%) followed by Hashimoto thyroiditis 24 (5.2%), Colloid Goiter 23 (23%), Benign cyst 20 (4.3%), lymphocytic thyroiditis 4 (0.08%) and Reidal Thyroiditis 2 (0.04%). Among neoplastic lesions Papillary carcinoma was found to be most common lesion i.e. 50 (10%) followed by Follicular adenoma 25 (5.4%), Follicular carcinoma 14 (3%), Lymphoma 13 (2.8%), Poorly differentiated carcinoma 8 (1.7%), Medullary 6 (1.3%) and Anaplastic carcinoma 3 (0.06%). Overall most common lesion among neoplastic and non-neoplastic combined was Multinodular goiter and least common was Reidal Thyroiditis. Non-neoplastic thyroid lesions were more common than neoplastic ones. Non-neoplastic MNG was the commonest lesion of the thyroid gland while papillary carcinoma was the most common malignant tumor of thyroid gland and Follicular adenoma was most common benign neoplastic lesion.

KEYWORDS: Colloid goiter, follicular adenoma, thyroid carcinoma, papillary carcinoma Multinodular goiter, Neoplastic, Non-neoplastic.

INTRODUCTION

Thyroid gland is an important endocrine gland of human body develops from base of tongue, descends down in the neck and settle anterior and below the larynx.^[1] It directly or indirectly effects general body metabolism and almost every vital organ of the body i.e. Brain, Heart, Alimentary tract etc. Thyroid disorders are one of the common problem encountered in clinical practice. Clinical acknowledgement of thyroid diseases are important as most of the diseases are curable by either medical or surgical management. Among these disorders, enlargement of gland is most common problem. The enlargement of thyroid gland called "goiter" may be diffuse, nodular or multi-nodular, neoplastic and non-neoplastic. Most common cause of thyroid enlargement is iodine dietary deficiency worldwide.^[2] World Health

Organization in 2007 reported that about 2 billion individuals had insufficient iodine and most of them are school going children (De Benoist *et al.* 2008).^[3] The areas of the world includes; Western Pacific, South-East Asia, Africa, China and Kazakhstan, where soil, food and water are naturally iodine deficient. And northern areas of Pakistan is also one of them.^[4] In northern mountainous rural areas of Pakistan, low socioeconomic status, lack of public awareness and sparse health facilities delay patient visit to the hospital. This results in long standing, huge goiter over a period of time, thus making the surgical procedure more difficult. Further, long standing Goiter is strongest risk factor of malignancy (Gandalf *et al.* 2004; Tolling *et al.* 2000).^[5] Thyroid malignancy is a relatively rare malignancy representing only about 1.5% of all malignancies, but at

the same time is the commonest endocrine cancer accounting for 92% of all endocrine malignancies.^[6] Follicular adenoma is the common benign tumor of thyroid where papillary carcinoma is the most common thyroid cancer followed by follicular, medullary and anaplastic carcinoma. It has been observed that women are more affected than men. The aim of this study is to identify the histopathological patterns of thyroid lesions in thyroidectomy specimens and their frequency in relation to age and sex of the patients.

METHOD

It is retrospective study done at Pathology Department of CMH, Lahore. We collected past three years (from January 2016 to December 2018) Histopathological results of thyroid gland specimen sent for biopsy in pathology department. For each case, the laboratory request form and duplicate copy of the histological report were retrieved and relevant clinical information such as age, sex and the histological type of thyroid disease were extracted. The biopsy results were reviewed and different lesions were characterized according to age groups, gender, neoplastic and non-neoplastic lesions. Cases of thyroid malignancy presenting for follow up and recurrent MNG were not included in this study. The study proposal was reviewed and accepted by the hospital ethical committee. Statistical analysis was done using the frequency distribution table in Microsoft Excel Office.

Table 2: Distribution of Non-neoplastic and Neoplastic lesions among different genders.

Thyroid lesion N=455	Male Frequency	Female Frequency	Percentage out of total 455 patients	Percentage out of non- neoplastic lesion. n=336
MNG (263)	38	225	57.8%	78.2%
Hashimoto Thyroiditis (24)	5	19	5.2%	7.1%
Benign Cyst (20)	10	10	4.3%	5.9%
Colloid Goiter (23)	8	15	5%	6.8%
Lymphocytic thyroiditis (4)	1	3	0.08%	1.1%
Reidal thyroiditis (2)	0	2	0.04%	0.05%
Neoplastic lesions				
Follicular adenoma (25)	7	18	5.4%	21%
Follicular carcinoma (14)	4	14	3%	11%
Papillary carcinoma (50)	7	43	10%	42%
Poorly differentiated carcinoma (8)	3	5	1.7%	6.7%
Anaplastic carcinoma (3)	0	3	0.06%	2.5%
Medullary carcinoma (6)	2	4	1.3%	5%
Lymphoma (13)	7	6	2.8%	10%

DISCUSSION

Diseases of the thyroid gland are among the most abundant endocrine disorders worldwide second only to diabetes. According to WHO seven percent of world population predominantly from developing countries is suffering from enlarged thyroid.^[7] In Pakistan it is particularly prevalent in Northern Areas of the country which are iodine deficient areas. Thyroid diseases have historically been known primarily to affect female sex. In this retrospective study, a total of 455 cases of thyroid

RESULTS

We studied 455 patient's file and biopsy reports of past three years from pathology department. In this data we concluded that 363 were females and 92 males. Male to female ratio was 1:3.9. We studied patient from the age of 25-65 years with mean age of 40.92±7.34. We resulted that there were 336 cases were non-neoplastic and 119 neoplastic. Multinodular goiter was the most common neoplastic lesion i.e. 263 (57.8%) followed by Hashimoto thyroiditis 24 (5.2%), Colloid Goiter 23 (23%), Benign cyst 20 (4.3%), lymphocytic thyroiditis 4 (0.08%) and Reidal Thyroiditis 2 (0.04%). Among neoplastic lesions Papillary carcinoma was found to be most common lesion i.e. 50 (10%) followed by Follicular adenoma 25 (5.4%), Follicular carcinoma 14 (3%), Lymphoma 13 (2.8%), Poorly differentiated carcinoma 8 (1.7%), Medullary 6 (1.3%) and Anaplastic carcinoma 3 (0.06%). Overall most common lesion among neoplastic and non-neoplastic combined was Multinodular goiter and least common was Reidal Thyroiditis.

Table 1: Frequency of nature of Thyroid lesion. n=455.

	Frequency	Percentage
Non-neoplastic lesion	336	73.8%
Neoplastic	119	26.2%
Total	455	100%

lesions were studied in detail that had been presented in a tertiary care hospital during a period of last three years. In this study the age range of the patients was from 25-65 years with mean age of 40.92±7.34. In other studies conducted by Albasri *et al.*,^[8] Fahim *et al.*,^[9] Chukudebelu *et al.*,^[10] and Hussain *et al.*,^[11] the age range was 14-95 mean 39.7 years, 10-70 years mean 32, 13-80 years mean 42.6 and 12-70 years respectively. In this study female to male ratio was 3.9: 1 where is in study conducted by Albasri *et al.*⁸ 3.7:1, Fahim *et al.*,^[9] 2.4:1 and Rehman *et*

al,^[12] 5.2:1. We evaluated that most common lesions presented were multinodular goiter, followed by papillary carcinoma and benign follicular adenomas. Multinodular goiter is the commonest cause of thyroid enlargement followed by thyroid tumors,^[13] Although malignant were also observed they comprised a quite less proportion as compared to inflammatory and benign lesions. Most of the findings were almost same as already reported literature because many researchers have reported a high prevalence of benign multinodular goiter followed by papillary thyroid carcinoma. Ariyibi and Duduyemi in Ibadan reported very much similar results that papillary carcinoma as the most common malignant thyroid neoplasm (41.8%).^[14] Hussain, et al,^[11] in Karachi reported very high rate of 77.9% for papillary carcinoma as compared to our study and 12.6% for follicular carcinoma similar to the findings in this study. The reported incidence of both benign & malignant lesions in surgically treated thyroid swellings varies widely between different geographical areas of the world due to association with iodine deficiency. In the United States, papillary carcinoma is the most common thyroid neoplasm and accounts for 75% to 85% of cases, followed by follicular carcinoma which accounts for 5%,^[15] The global trend in the preponderance of papillary carcinoma over other thyroid carcinoma was demonstrated in our findings. We found non-neoplastic lesions with a frequency of 73.8% as compared to 26.2% neoplastic lesions. These results are similar with studies of Lahore and Yemen.^[16] In Northern areas of Pakistan a relatively low frequency (10.5%) of neoplastic lesions was reported as compared to our review. This is due to iodine deficiency & a significant number of the cases of multinodular goiter in these areas as compared to the coastal areas. Some other local studies reported a significantly high incidence of thyroid malignancies, observed in about 26% to 36.6% of patients respectively. Non-neoplastic Multinodular goiter was followed by 5.2% cases of Hashimoto thyroiditis and 5% cases of colloid goiter in this study, whereas Khadilkar et al¹⁷ and Rehman et al show a lower incidence i.e. 3.0% and 3.7%. Reidel's thyroiditis and lymphocytic thyroiditis were almost same to the other studies. All the other malignant lesions including follicular carcinoma 3%, poorly differentiated carcinoma 1.7%, medullary carcinoma 1.3% and anaplastic carcinoma 0.06% were rare similar to other studies. We found follicular adenoma as the third common cause of goiter with 5.4% as compared to findings of, Abu-Eshy et al⁴ Hussain et al,^[11] and Qureshi et al,^[6] where it was second common cause. This finding is consistent with the observation of Suster⁷ and Bouq⁹ but in contrast Virk et al,^[10] showing follicular adenoma to be more common than colloid goiter (65% Vs. 30%). The observation in the present study may be considered as a baseline data of thyroid diseases in Lahore and a more elaborate prospective study carried out on a large scale throughout country will contribute more to project the exacting profile of thyroid diseases. Such a study will also help in outlining the plans for

early detection, diagnosis and management of the thyroid diseases.

CONCLUSION

Non-neoplastic thyroid lesions were more common than neoplastic ones. Non-neoplastic MNG was the commonest lesion of the thyroid gland while papillary carcinoma was the most common malignant tumor of thyroid gland and Follicular adenoma was most common benign neoplastic lesion.

REFERENCE

1. Anwar K, Din G, Zara B, Shahabadi I The Frequency of Malignancy in Nodular Goiter- a Single center Study. *J Postgrad Med Ins.*, 2012; 26: 96–101.
2. Berkeley A, Osman M Goiter in a teaching hospital in North Western Ethiopia. *East and Cent A J Surg*, 2006; 11: 21–27.
3. Bhatia SC, Seth MK, Shah AM, Das S, Beera R, Holder AH Evaluation of Incidence of Malignancy in Multi-nodular Goiter. *J of Evolution of Med and Dent Sci.*, 2014; 3: 165–172.
4. Botrugno I, Lovisetto F, Cobianchi L, Donta S, Kersey C, Valatie A et al. Incidental Carcinoma in Multi-nodular Goiter: Risk factors. *Am Surg*, 2011; 77: 1553–1558?
5. UNICEF. The State of the World's Children 2011: adolescence: an age of opportunity. New York: United Nations Children's Fund; 2011 WHO, UNICEF, ICCIDD. Assessment of iodine deficiency disorders and monitoring their elimination. A guide for programme managers. 3rd ed. Geneva: WHO, 2007.
6. Sarfraz T, Khalilullah, Muzaffar M. The frequency and histological types of thyroid carcinoma in Northern Pakistan. *Pak Armed Forces Med J*, 2000; 50: 98-101.
7. Ahmed M, Ahmed M, Malik Z, Jajuan SA. Surgical audit of solitary thyroid nodule. *Pak Armed Forces Med J*, 2001; 51: 106-110.
8. Qureshi N, Jaffa R, Ahmed N, Ngai WA. Causes of goiter. A morphological analysis. *Biomedical*, 1996; 12: 54-6.
9. Hussain, Nazr, et al. "Pattern of surgically treated thyroid diseases in Karachi." *Biomedical*, 2005; 21(1): 18-20.
10. Sister, Saul. "Thyroid tumors with a follicular growth pattern: problems in the differential diagnosis." *Archives of Pathology and Laboratory Medicine*, 2006; 130(7): 984-88.
11. Abitibi, O. O., et al. "Histopathological patterns of thyroid neoplasms in Ibadan Nigeria: a twenty-year retrospective study." *International Journal of Tropical Disease and Health*, 2013; 3(2): 148-56.
12. Ionone, E. A., et al. "Histopathological review of thyroid diseases in southern Nigeria-a ten year retrospective study." *Journal of Medicine Medical Sciences*, 2014; 5(6).

13. Abdul Kareem, Kassie Faze. "Surgical pathology of thyroid biopsies: A prospective study." *This War Medical Journal*, 2010; 4(2): 47-52.
14. Virk NM, Azeem M, Babar M, Cheema LM. The pattern of thyroid disease in non-toxic solitary thyroid nodule. *Ann King Edward Med Cull*, 2001; 7: 245-6.
15. Qureshi N, Jaffa R, Ahmed N, Ngai WA. Causes of goiter. A morphological analysis. *Biomedical*, 1996; 12: 54-6.
16. Al-Hamid SAA, Ali Reza M, Al-Sheri G. The pattern of surgically treated thyroid diseases in the Bashar Region of Saudi Arabia. *Ann Saudi Med*, 2002; 5: 409-10.
17. Naiad HA, Oyo OS, Adelusola KO. A histopathological analysis of thyroid diseases in Alewife, Nigeria. A review of 274 cases. *Niger Postgrad Med J*, 2008; 15: 47-51.