



Research Article

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Study of histopathological spectrum of thyroidectomy specimens and their correlation with age and gender

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Abstract

Background: Goiter is defined as the enlargement of the thyroid gland. This might be diffuse in nature nodular or multi-nodular. We planned a retrospective study of 100 histopathologically diagnosed thyroidectomy specimens and evaluated their frequency in relation to age and sex of the patients. **Material and methods:** The study was conducted in the department of Pathology at a tertiary care hospital in Jaipur city. The material included 100 thyroidectomy specimens. In case of thyroidectomy specimens, multiple sections were made up to thickness of 3 to 5 mm. The slice in which tumor appears closest to the resection margin was submitted entirely after dividing into adequate number of sections. All the lesions were grouped into benign and malignant lesions and were correlated to Age and Gender. Histomorphological evaluation of thyroidectomy lesions was done thoroughly to plan a better management of malignant lesions. **Results:** The female: male ratio of 4.2:1. The mean age of patients with thyroid diseases was 40.3 years and the peak incidence (34%) seen in the age group of 31-40 years. Non-neoplastic cases accounted for 51% of the cases and neoplastic cases accounted for 49% of the cases. **Conclusion:** The thyroid gland may be affected with various disorders. Thyroidectomy may have both therapeutic and diagnostic value. Non- neoplastic disorders are more common. Females accounted for 81% of patients with thyroid lesions and the incidence peaked at third to fourth decade. Papillary carcinoma was the most frequent thyroid cancer and follicular adenoma was the common benign tumor.

Keywords: Thyroid histopathology, Thyroidectomy, Multinodular goitre.

INTRODUCTION

Lesions of thyroid are common worldwide and are commonly seen in clinical practice [1]. There are many conditions in which the thyroid gland is affected. Thyroid diseases are manifested by enlargement of the thyroid gland (goiter), alterations in hormone secretion or both [2]. Goiter (diffuse or nodular), hypothyroidism, hyperthyroidism, thyroiditis and neoplasms are the principal diseases of the thyroid gland. Depending on various factors the incidence and prevalence of these thyroid diseases in a given community are variable [3].

Goiter is extremely common and affects more than 200 million individuals throughout the world. It is most prevalent in mountainous areas. Deficiency of iodine is the major cause but goitrogens as well are incriminated. Goiter may appear in early childhood but usually peaks at about puberty or soon after puberty, depending on the severity of iodine deficiency. Females are affected more than males [4]. The surgical excision of the nodule and its histological examination is the only way to differentiate between the more frequent benign and much less frequent malignant nodules as thyroid carcinoma closely resembles its benign counterpart in measurable physiological parameters such as serum T3/T4 levels, ultrasonic characteristics and physical characteristics [5].

The diseases present clinically either as conditions associated with hyperthyroidism/hypothyroidism or as mass lesions. Surgical excision and histopathological evaluation are crucial to establish the diagnosis in the latter scenario [6]. A thorough clinical examination in addition with assessment of the hormone secretion activities of the gland and its morphology is needed for diagnosis of a thyroid disease. A definitive diagnosis is achieved by histopathologic examination [3]. Our study aims to determine the spectrum of histopathological diagnosis encountered in patients undergoing thyroid surgeries, to find out frequencies of different lesions in thyroid and also to correlate these findings with age and gender.

MATERIALS AND METHODS

The study was conducted at a tertiary care hospital in Jaipur city after approval of the institutional ethics committee. The thyroidectomy specimen of the patients was used for samples. Multiple sections were made from the specimens of thickness varying from 3 to 5 mm. The slice in which tumor appears closest to the resection margin was submitted entirely after dividing into adequate number of sections. All the tissues were fixed in 10% formalin and paraffin processed. 3 to 5 micron sections were cut and stained with routine Hematoxylin and Eosin (HE) stain. Inadequate biopsies and poorly preserved thyroidectomy specimens were excluded. Improperly fixed specimens were removed. Patients who refused to give consent and tissue block with extensive necrosis were removed. All the lesions were grouped into benign and malignant lesions and were correlated to age and gender.

RESULTS

A total of 100 samples were studied. 19 patients were male and 81 were females [Figure 1]. The female: male ratio of 4.2:1. The mean age of patients with thyroid diseases was 40.3 years and the peak incidence (34%) seen in the age group of 31-40 years. The histological distribution revealed that majority 23% of the cases were of nodular goitre as depicted in Table 1. Non-neoplastic cases accounted for 51% of the cases and neoplastic cases accounted for 49% of the cases. Table 2 shows the distribution of the thyroid lesions as neoplastic and non-neoplastic. Among the non- neoplastic lesion multinodular goitre (23%) was common followed by colloid goitre (18%) followed by Hashimoto's thyroiditis (6%). Follicular adenoma (20%) was the most common benign neoplasm and Papillary carcinoma (17%) was the most common malignant neoplasm. Figure 2 and Figure 3 depicts the gross and microscopy of specimens.

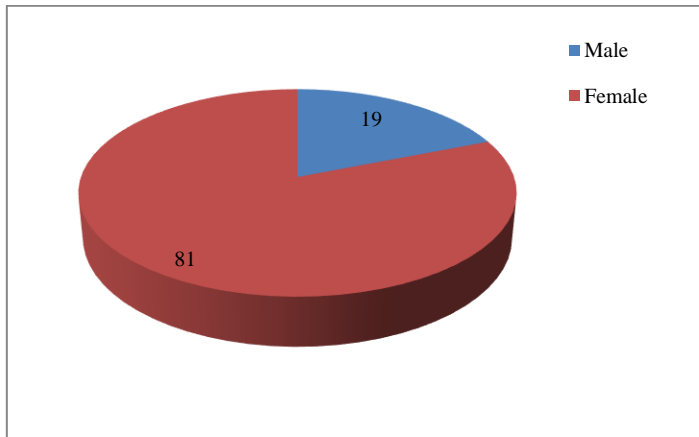


Figure 1: Distribution of samples according to gender

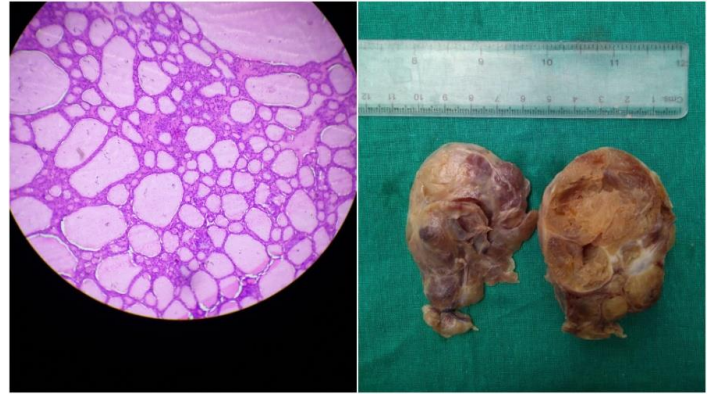


Figure 3: Gross and microscopy of colloid goiter

Table 1: Histological distribution of thyroidectomy specimens

Diagnosis	Number of cases (n=100)	Percentage of cases (%)
Colloid Goiter	18	18
Colloid cysts	03	3
Follicular adenoma	20	20
Hurthle cell adenoma	01	1
Hashimoto thyroiditis	06	6
Nodular goiter	23	23
Follicular carcinoma	07	7
Papillary carcinoma	17	17
Anaplastic carcinoma	01	1
Medullary carcinoma	02	2
Follicular variant of papillary	02	2

Table 2: Distribution of thyroid lesions as neoplastic and non-neoplastic

Non neoplastic		Number of cases	Percentage of cases
	Colloid Goitre	18	18
Colloid cysts	03	03	
Nodular goiter	23	23	
Hurthle cell adenoma	01	01	
Hashimoto thyroiditis	06	06	
Neoplastic	Follicular adenoma	20	20
	Follicular carcinoma	07	07
	Papillary carcinoma	17	17
	Anaplastic carcinoma	01	01
	Medullary carcinoma	02	02
	Follicular variant of papillary	02	02

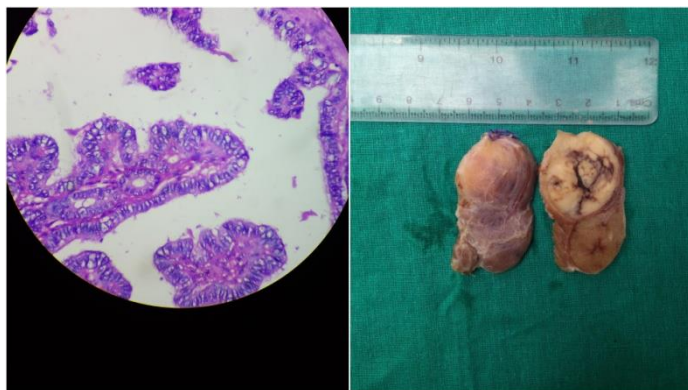


Figure 2: Gross and microscopy of papillary thyroid carcinoma

DISCUSSION

This study was conducted in the department of Pathology, at a tertiary care hospital. For this study, 100 thyroid specimens were studied by detailed history and histopathological examinations.

Depending upon iodine deficiency status, both the neoplastic and non-neoplastic diseases of thyroid are common all over the world, with a varying frequency and incidences^[7]. About 42 million people suffer from thyroid diseases in India^[8].

Historically female preponderance has been found in thyroid diseases owing to the presence of estrogen receptors in the thyroid tissue^[9]. There were 81% female cases and 19% male cases in our study with a female:male ratio of 4.2:1. Similar results have been found in the studies conducted by Beigh *et al* (2018), Ashwini *et al* (2014), Gupta A *et al* (2016), Salama *et al.* (2009), Fahim *et al* (2012), and Mandal S *et al* (2011)^[10-15].

The mean age of patients with thyroid diseases in this study was 40.3 years and the peak incidence (34%) seen in the age group of 31-40 years. These results are consistent with findings of Edino ST *et al*, which reported a median age of 36.5 years and peak age prevalence between 30 and 39 years and Fahim *et al* (2012)^[16].

Non-neoplastic cases accounted for 51% of the cases and neoplastic cases accounted for 49% of the cases. Among the non- neoplastic lesion multinodular goiter (23%) was common followed by colloid goiter (18%) followed by hashimoto thyroiditis (6%). Follicular adenoma (20%) was most common benign neoplasm and Papillary carcinoma (17%) was most common malignant neoplasm. This is consistent with findings of Indhuja *et al*^[17] and Narayanappa *et al*^[18].

CONCLUSION

The thyroid gland may be affected with various disorders. Thyroidectomy may have both therapeutic and diagnostic value. Non- neoplastic disorders (multinodular goiter) were more common. Females accounted for 81% of patients with thyroid lesions and the incidence peaked at third to fourth decade. Papillary carcinoma was the most frequent thyroid cancer and follicular adenoma was the common benign tumor.

REFERENCE

1. Tsegaye B, Ergete W. Histopathologic pattern of thyroid disease. East Afr Med J. 2003;80: 525-28.
2. Wartofsky, L. Diseases of the thyroid in Fauci, A.S., Braunwald, E. *et al* ed: Principles of internal medicine 14th edition. 1998; 2: 2012-2035
3. Bayliss Ris. Thyroid disease. The fact, Oxford University press, New York, Toronto, 1982.
4. Cotran, R.S. Kumar, V. and Robins, S.I. The thyroid in Robins, SI. ed. Pathological bases of disease. Philadelphia W. B.Saunders Company 5th edition 1994.
5. Ananthakrishnan N, Rao KM, Narasimhans R, Veliath, Smilet SR, Jagadish S. The Single Thyroid Nodule: A South Indian Profile of 503 Patients with Special Reference to Incidence of Malignancy. Indian J Surg. 1993; 55(10):487-92.
6. Beigh A, Amin J, Junaid S, Wani LAh, Farooq S, Farooq S. Histopathological study of thyroid neoplastic lesions in a tertiary care hospital - a 5 year study. International Journal of Contemporary Medical Research 2018; 5(4):D4-D7.
7. Vanderpump MP. The epidemiology of thyroid disease. Br Med Bull 2011; 99:39-51.
8. Gopalakrishnan A, Unnikrishnan, Usha VM. Thyroid disorders in India: An epidemiological perspective Indian Journal of Endocrinology and Metabolism 2011;15:78-81.
9. Krukowski ZH. The thyroid gland and thyroglossal tract. In: Williams NS, Bulstrode CJK, O'Connell PR, eds. Baily and Love's short practice of surgery. 24th ed. London. Hodder education. 2004:776-804.
10. Ambreen Beigh, Jibrán Amin, Sheikh Junaid, Lateef Ah. Wani, Summyia Farooq, Suhail Farooq. Histopathological study of thyroid neoplastic lesions in a tertiary care hospital - a 5 year study. International Journal of Contemporary Medical Research 2018;5(4):D4-D7.

11. Ashwini K, Anitha B, Letha P, Trupti Joshi, Jayasree, Samith Ahmed, Harish Naik. Pattern of thyroid disorder in thyroidectomy specimen Int. J. Med. Sci., Public Health. 2014;3:1446-1448
12. Gupta A, Jaipal D, Kulhari S, Gupta N. Histopathological study of thyroid lesions and correlation with ultrasonography and thyroid profile in western zone of Rajasthan, India. Int J Res Med Sci. 2016;4:1204-1208
13. Salama SI, Abdullah LS, Al-Qahtani MH, Al-Maghrabi JA. Histopathological pattern of thyroid lesions in western region of Saudi Arabia. New Egyptian JMedicine 2009;40:580-5.
14. Fahim A, Qureshi A, Alvi H, Azmi MA. Clinical Presentation and Evaluation of Histopathological Patterns of Hospital-based Frequency of Thyroidectomic Biopsies. Medical Forum 2012;9: 1-6.
15. Mandal S, Barman D, Mukherjee A, Mukherjee D *et al*. Fine needle aspiration cytology of thyroid nodules evaluation of its role in diagnosis and management. J Indian Med Assoc. 2011;109:258-61.
16. Edino ST, Mohammed AZ, Ochicha O. Thyroid diseases in Kano. Niger Postgrad Med J. 2004;11:103-6.
17. Bharathidhasan I, Goneppanavar M, Dhaka RS. Changing trends in the incidence of thyroid lesions in coastal regions of South India. International Journal of Health Sciences & Research. 2015; 5(6):134-140.
18. Shiroorkar N, Kumar P, Singh R, Joseph NR. Emerging trends in thyroid diseases in tsunami hit coastal areas of Puducherry and Cuddalore, India. Journal of Evolution of Medical and Dental Sciences. 2012; 1(5): 857-863.