IJPRP

Indian Journal of Pathology: Research and Practice
Volume 7 Number 9, September 2018
DOI: http://dx.doi.org/10.21088/ijprp.2278.148X.7918.3

Original Research Article

Spectrum of Histopathological Patterns of Thyroid Lesions: A 2 Year Retrospective Study

K Florence Nightingale[1], D Amaravathi[2], Rasheed Fatima[3]

[1]Associate Professor [2]Postgraduate [3]Associate Professor, Department of Pathology, SVS Medical College and Hospital, Yenugonda Mahabubnagar, Telangana 509001, India

Corresponding Author:
Rasheed Fatima, Associate Professor, Department of Pathology, SVS Medical College and Hospital, Yenugonda Mahabubnagar, Telangana 509001, India.

E-mail: drrasheedfatima786@gmail.com

Received on 30.07.2018,

Accepted on 17.09.2018

Abstract

Introduction: Thyroid is a readily palpable gland in the anterior inferior neck. Thyroid pathologies are common worldwide and are commonly encountered in clinical practice. Diseases of the thyroid are of great importance because most of them are amenable to medical and surgical management. Thyroid enlargement is a common problem especially in young population causing pressure symptoms and cosmetic deformity. Thyroid lesions may be developmental, inflammatory, hyperplastic and neoplastic. Though FNAC has taken a prominent role on the evaluation of thyroid lesions, thyroid carcinoma closely resembles its benign counterpart making histopathology the gold standard in the diagnosis. Aim of the study is to evaluate the different patterns of thyroid lesions. *Methods:* Two years retrospective study carried out from July 2015 to June 2017 at SVS Medical college and hospital, Mahabubnagar on 115 biopsy specimens received in the department of pathology. *Results:* Total number of 115 cases were studied histopathologically out of which 85 were non neoplastic lesions and 30 were neoplastic.Among the non neoplastic lesions multinodular goitre was the most predominant and papillary carcinoma of thyroid in the neoplastic cases.

Keywords: Thyroid Lesions; Goitre; Adenoma; Papillary Carcinoma.

Introduction

Thyroid gland is unique among the endocrine glands in having wide spectrum of diseases ranging from functional enlargement to neoplastic lesions. Thyroid pathologies are common worldwide and are commonly encountered in clinical practice. These diseases are associated with hyperthyroidism, hypothyroidism and mass lesions of the thyroid[(1)]. Diseases of the thyroid are of great importance because most of them are amenable to medical and surgical management [2]. Thyroid enlargement is a common problem especially in young population causing pressure symptoms and cosmetic deformity.Though FNAC has taken a prominent role on the evaluation of thyroid lesions, thyroid

carcinoma closely resembles its benign counterpart making histopathology the gold standard in the diagnosis [3].

Objective of the study is to evaluate the different patterns of thyroid lesions and it's age and gender distribution.

Materials and Methods

Two years retrospective study carried out on 115 cases, from july 2015 to june 2017 in SVS Medical college, Mahabubnagar. The material for this study includes all lobectomy, hemi thyroidectomy, subtotal and near total thyroidectomy specimens received in our department. All the thyroid specimens received were fixed in 10% formalin for 24 hrs. (The regular practice followed in the department).

Gross features of specimen as entered in records were noted. Usually multiple sections are processed depending on size and nature of the lesion. Routine tissue processing was done and sections were stained with hematoxylin and eosin. After detailed study of the sections under the light microscope the final diagnosis was given.

The lesions were classified based on the histological diagnostic features into: Goitres(colloid/nodular), Inflammatory, Neoplastic lesions.

Immunohistochemistry was done on all cases of papillary carcinomas & the single case of medullary carcinoma. The cases diagnosed as papillary carcinoma were stained for CK7 and CK20. The casediagnosed as medullary carcinoma was stained with CEA. Autolysed specimens and inadequate biopsies were excluded from this study. The data was analysed and results were studied.

Results

A total number of 115 thyroid specimens received over two years period. There were 105 females (91.3%) and 10 males(8.3%) giving a female to male ratio of 10.5:1(Table 1).

In total 63 cases belongs to age group 20-40 years (Table 2). The non neoplastic lesions were 73.9%, neoplastic lesions were 26.1% (Table 3).

Among the non neoplastic lesions the most common diagnosis was multinodular goiter (45.8%) (Table 4)(Figure 1).

Among the neoplastic lesions the most common diagnosis was papillary carcinoma (56.7%). Immunohistochemistry showed that all cases of papillary carcinoma thyroid (17) stained positive for CK7 and negative for CK20. The case of medullary carcinoma was immunoreactive for CEA (Table 5) (Figure 2 & Figure 3).

Table 1: Gender wise distribution of Thyroid lesions

Gender	Number of Cases	Percentage of Cases(%)
Male	10	8.7
Female	105	91.3
Total	115	100.0

Table 2: Age wise distribution of Thyroid lesions

Age (In Years)	Number of Cases	Percent of Cases(%)
0-20	5	4.3
20-40	63	54.8
40-60	41	35.7
>60	6	5.2

Table 3: Distribution of thyroid lesions

	Number of Cases	Percent of Cases(%)
Neoplastic	30	26.1
Non Neoplastic	85	73.9
Total	115	100.0

Table 4: Distribution of non neoplastic Lesions of thyroid

Thyroid Lesions	Number of Cases	Percent of Cases(%)
Multinodular Goiter	39	45.8
Adenomatous Goitre	1	1.2
Colloid Goitre	25	29.4
Auto Immune Thyroiditis	6	7.1
Hashimotos Thyroiditis	14	16.5

Table 5: Distribution of neoplastic Lesions of thyroid

Thyroid Lesions	Number of Cases	Percent of Cases(%)
Follicular Adenoma	11	36.7
Papillary Carcinoma	17	56.7
Follicular Carcinoma	0	0
Medullary Carcinoma	1	3.3
Anaplastic Carcinoma	1	3.3

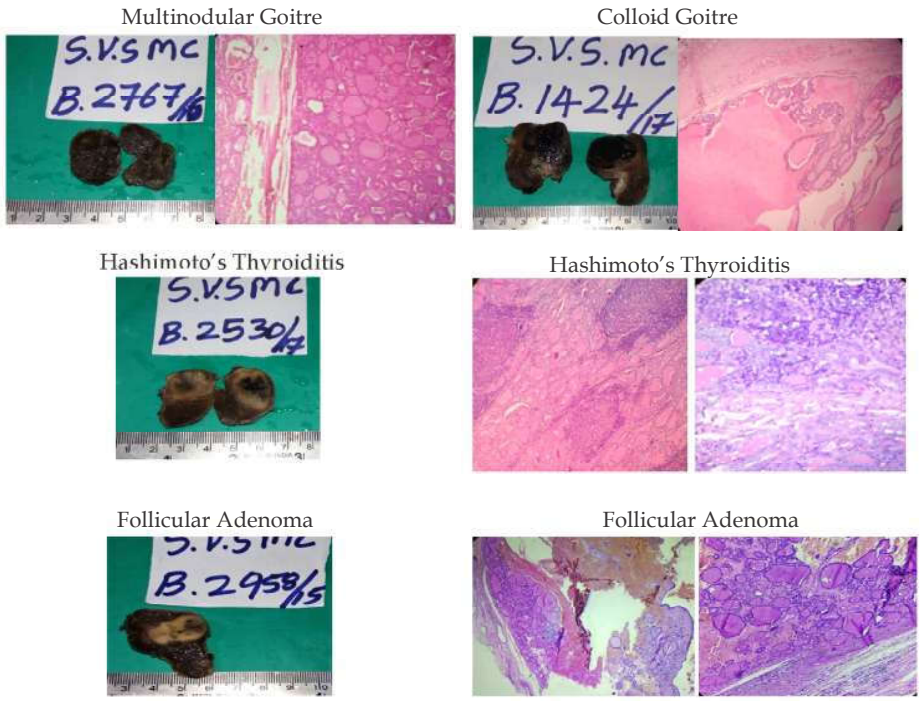

Fig. 1: Samples and immunohistochmistry of multinodual goitre, colloid goitre, hashimoto's thyroiditis, follicular adenoma, and follicular adenoma.

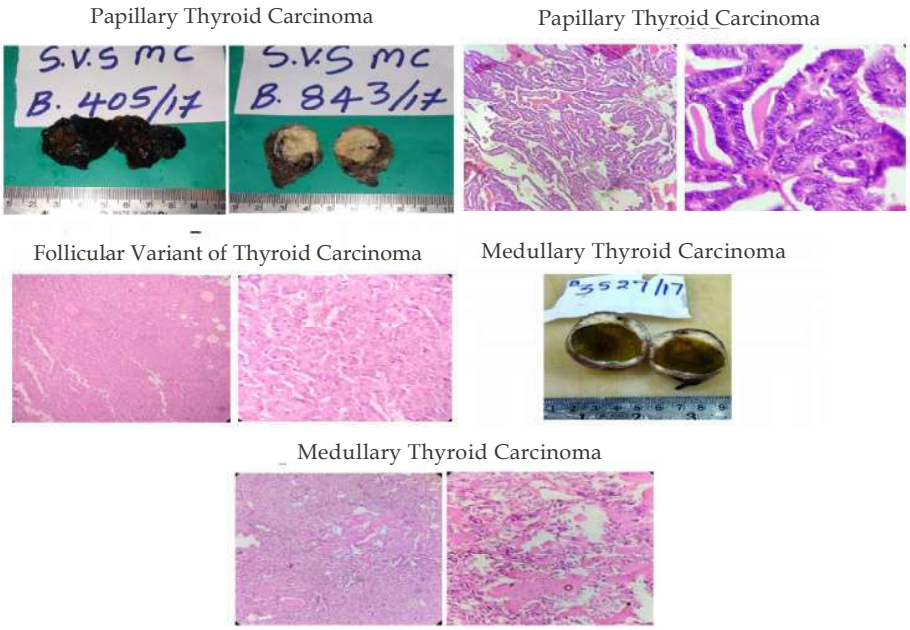

Fig. 2: Samples and immunohistochmistry of papillary thyroid carcinoma, follicular variant of papillary thyroid carcinoma, and medullary thyroid carcinoma.

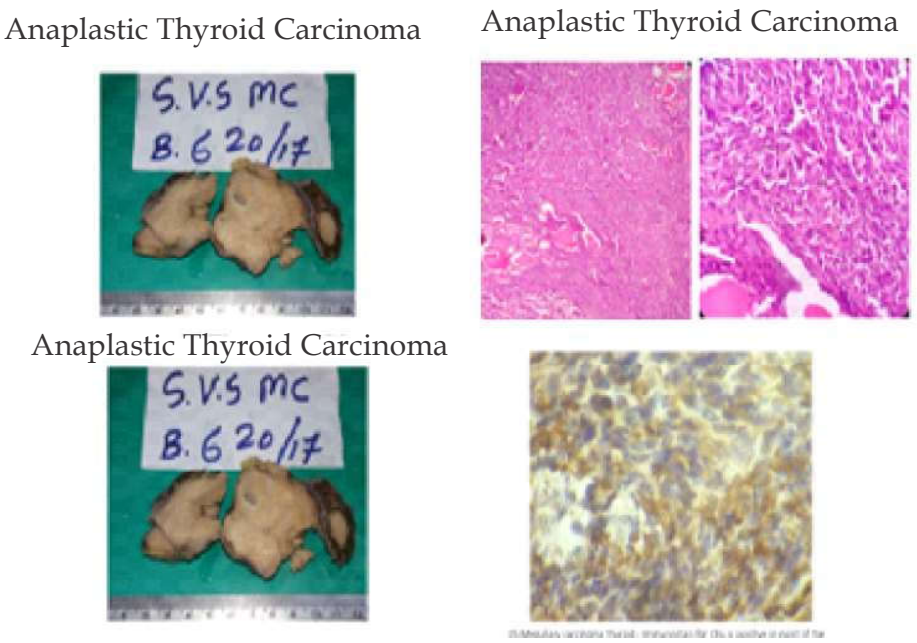

Fig. 3: Samples and immunohistochmistry of anaplastic thyroid carcinoma.

Discussion

Diffuse or localized swelling of thyroid region is commonly presenting clinical symptom which requires early diagnosis and treatment. In the present study, total number of cases were 115 over a period of 2 years. The pattern of these lesions varied from non- neoplastic lesions like multinodular goiter, hashimoto's thyroiditis, autoimmune thyroiditis, colloid goiter to neoplastic lesions. Though FNAC is the first line of investigation, thyroid carcinoma closely resembles its benign counterpart making histopathology gold standard diagnosis. In our study, most common age group involved was 20-40years, similar to Anushree et al. [4], Roopasolomal et al. [5] and VL Ramesh et al. [6]. Thyroid lesions affect both sexes with female preponderance. In our study female to male ratio was 10:1, where as in Singh P et al. [7], it was 4.7:1 and in Mandal S, et al. [8], it was 5:1. It was due to the fact that thyroid disorder was female prone, due to the presence of estrogen receptors in thyroid tissue. In the present study, non-neoplastic lesions were predominant over neoplastic lesions, similar to Sankaran study [9] and VL Ramesh et al study. In our study, among the non-neoplastic lesions multinodular goiter (45.8%), in contrast to Meachim & Young [10](49.18%), Arora & Gupta [11] (15.95%) and sankaran study(36%) where colloid goiter was predominant. In our study thyroid carcinoma more common in females with mean age of 48 years, in contrast to study conducted by Merchant [12], where mean age was 42years. In the present study, among the neoplastic lesions papillary thyroid carcinoma was the most predominant, similar to Seleye-fubara et al. [13], woolner et al. study [14], Burn & Taylor [15] and Thomas study [16].

Immunohistochemically, the cells of papillary carcinoma are reactive for pan-keratin stains. Their usual profile is CK7+/CK20- [17]. The case of medullary carcinoma was immunoreactive for CEA. CEA is a reliable marker for the diagnosis of Medullary carcinoma thyroid with a higher sensitivity than calcitonin. Calcitonin is lost in differentiation of MTC whereas CEA expression is retained by these lesions [18].

Conclusion

Thyroid swelling is the common presentation in most of the thyroid lesions.Thyroid lesions are more common in females. Majority of the patients are between 2nd and 4th decade. Non-neoplastic lesions are more common than neoplastic lesions. Among the non- neoplastic lesions multinodular goitre is the most common. Among the neoplastic lesions papillary thyroid carcinoma is the most common lesion. Paapillar carcinomas are CK7+ /CK20-. Medullary carcinomas express CEA strongly. The present study was undertaken to review histomorphological patterens with an

insight of IHC of thyroid and to correlate type of thyroid lesion with age and gender of the patient.

References

1. Kumar V, Abbas AK, Fausto N, Aster JC. Robbins and Cotran pathologic basis of disease, professional edition e-book. elsevier health sciences; 2014.
2. Rahman MA, Biswas MA, et al: Histomorphological Pattern of Thyroid Lesion; Dinajpur Med Col J 2013 Jul;6(2):134-40.
3. 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;4:1204-8.
4. Anushree CN et al:Histomorphological patterns of thyroid lesions: A study from a Tertiary Care Teaching Hospital of Dr BR Ambedkar Medical College. Indian Journal of Pathology and Oncology, October-December 2017;4(4):529-32.
5. Raphael Solomon1, YawaleIliyasu et al: Histopathological pattern of thyroid lesions in Kano, Nigeria: A 10-year retrospective review: Nigerian Journal Of Basic and Clinical Sciences 2015;12:55-60.
6. VL Ramesh et al. Patterns of Thyroid Lesions: A HistomorphologicalStudy. Global Journal of Medical research:C Microbiology and Pathology 2014;14(6 Ver 1.0).
7. Singh P, Chopra R, Calton N, Kapoor R. Diagnostic Accuracy of Fine Needle Aspiration Cytology of Thyroid lesions. Journal of Cytology. 2000;17(3):135-9.
8. Mandal S, Barman D, Mukherjee A, Mukherjee D, Saha J, Sinha R. Fine needle aspiration cytology of thyroid nodules-evaluation of its role in diagnosis and management. J Indian Med Assoc. 2011;109(4):258-61.
9. Sankaran V. Swelling of the thyroid. J Ind Med Assoc 1960;34:484–88.
10. Meachim G, Young MH. De Quervain's subacute granulomatous thyroiditis: Histologic indentification and incidence. J Clin Pathol 1963;16: 189–99.
11. Arora HL, Gupta DP. Geographic pathology of thyroid diseases in Rajasthan. J Ind Med Assoc 1967;48:424-28S.
12. Merchant D. Demographic review, clinical and histological presentation of patients with primary thyroid carcinoma presenting at tertiary care hospital. The Health. 2012;3(1):7-9.
13. Seleye-Fubara D, Numbere N, Etebu EN. Pathology of common diseases of the thyroid gland in Port Harcourt. Port Hart Med J 2009;3:312-17.
14. Woolner LB, Beahrs OH, Black BM, Mc konahey WM, Keating FR. Classification and prognosis of thyroid carcinoma. Am J Surg 1961;102:354-86.
15. Burn JI, Taylor SF. Natural history of thyroid carcinoma-A study of 152 treated patients. Brit Med J 1962.pp.1218-23.
16. Thomas PA. Thyroid adenoma. J Ind Med Assoc 1966;46:189-93.
17. Goldblum JR, Lamps LW, McKenney JK, Myers JL. Rosai and Ackerman's Surgical Pathology E-Book. Elsevier Health Sciences; 2017.
18. Sandra Fischer, Sylvia L. Asa. Application of immunohistochemistry to thyroid neoplasms. Arch Pathol Lab Med. 2008;132:359-72.