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Original Article

Histopathological Analysis of papillary thyroid carcinoma

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ABSTRACT:

Background: The increased risk of thyroid cancer following childhood exposure to external radiation or internal radiation due to iodine-131. The present study evaluated histopathological features of papillary thyroid carcinoma. **Materials & Methods:** 74 thyroid tissues were obtained from surgery department. PTCs were classified into histological pattern into three groups: classic papillary, follicular, or solid. PTCs were subdivided into main histological variants as classic papillary, follicular, solid, diffuse-sclerosing, Warthin-like or mixed. **Results:** Out of 74 samples, 30 were of males and 44 were of females. 26 had capsules and 48 had not. Tumor size was 1-10 mm in 32 and 11-50 mm in 42 cases. Pattern found to be papillary in 20, follicular in 36 and solid in 18 cases. Histopathological variant was papillary in18, follicular in 34, solid in 6, diffuse-sclerosing in 10 and warthin like in 6 cases. The difference was significant ($P< 0.05$). **Conclusion:** Follicular pattern was observed in maximum specimens. In most of the cases, 11-50 mm size was observed.

Key words: Follicular, Thyroid cancer, Warthin

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INTRODUCTION

Early reports of well-differentiated non-medullary thyroid carcinoma clustering in families, and studies utilizing population and hospital data bases demonstrating that such cases occurred in families more often than could be explained by chance have led to the general acceptance of the existence of a familial form of the disease.[1] Most reported familial cases are papillary carcinoma, including familial papillary thyroid microcarcinoma. A hereditary basis for this familial non-medullary thyroid cancer is postulated, but no specific genetic defect has been established as yet, and the suggestion has been made that the disease may result from a heterogeneous form of inheritance or the interaction of susceptibility genes with unidentified environmental factors.[2]

The increased risk of thyroid cancer following childhood exposure to external radiation or internal radiation due to iodine-131 (^{131}I) from the Chernobyl nuclear power plant accident on 26 April 1986 is now well established. The largest increase in thyroid cancer was observed among subjects 18 years or younger at the time of the accident.[3] Children received higher thyroid radiation doses on average due to their smaller thyroid mass and higher rates of milk consumption, the main route of ^{131}I exposure, and their increased sensitivity to the carcinogenic effects of thyroid irradiation compared with adults.[4] Papillary thyroid carcinoma (PTC) is the main histological type of post-Chernobyl thyroid cancer. Papillary thyroid carcinoma (PTC) is the main histological type of post-Chernobyl thyroid cancer.[5] The present study evaluated histopathological features of papillary thyroid carcinoma.

MATERIALS & METHODS

The present study was conducted on 74 thyroid tissues obtained from surgery department. The study was approved from institutional ethical committee.

World Health Organisation (WHO) classification was followed for the diagnosis. PTCs were classified into histological pattern into three groups: classic papillary, follicular, or solid. PTCs were subdivided into main histological variants as classic papillary,

follicular, solid, diffuse-sclerosing, Warthin-like or mixed. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of samples

Total- 74		
Gender	**Male**	**Female**
Number	30	44

Table I shows that out of 74 samples, 30 were of males and 44 were of females.

Table II Histopathological characteristics

Parameters	Variables	Number	P value
Presence of capsule	Yes	26	0.01
	No	48	
Tumor size (mm)	1-10	32	0.05
	11-50	42	
Pattern	Papillary	20	0.01
	Follicular	36	
	Solid	18	
Histopathological variant	Papillary	18	0.02
	Follicular	34	
	Solid	6	
	Diffuse-sclerosing	10	
	Warthin like	6	

Table II shows that 26 had capsules and 48 had not. Tumor size was 1-10 mm in 32 and 11-50 mm in 42 cases. Pattern found to be papillary in 20, follicular in 36 and solid in 18 cases. Histopathological variant was papillary in18, follicular in 34, solid in 6, diffuse-sclerosing in 10 and warthin like in 6 cases. The difference was significant (P< 0.05).

DISCUSSION

Thyroid carcinoma (TC) is the most frequent endocrine malignancy, accounting for approximately 3.8% of all newly diagnosed cancer.[6] The incidence of TC has increased rapidly in recent 30 years with a female to male ratio of 3:1.[7,8] Papillary thyroid carcinoma (PTC), medullary thyroid carcinoma (MTC), follicular thyroid carcinoma (FTC), and anaplastic thyroid carcinoma (ATC) are the four main types of thyroid carcinoma. In addition, papillary thyroid microcarcinoma (PTMC) belongs to PTC. According to the histological classification of thyroid tumors by the World Health Organization (WHO), PTMC is defined as tumors with a maximum size of 10 mm or smaller.[9] PTC is also the most familiar type of thyroid carcinoma, accounting for nearly 90% of all thyroid carcinomas with excellent prognoses. The general 10-year survival rate for middle-aged person with PTC is about from 80 to 95%, which is also related to an indolent clinical course.[10] The present study evaluated histopathological features of papillary thyroid carcinoma.

In present study, out of 74 samples, 30 were of males and 44 were of females. Choi et al[11] included 299 consecutively registered patients with pathologically proven papillary thyroid carcinoma. The diagnostic accuracies of ultrasound, CT, and the combination of ultrasound and CT in the evaluation of primary tumors and lymph node metastasis were compared. Ultrasound was more accurate than CT in prediction of the presence of extrathyroidal tumor extension and of malignant disease in both thyroid lobes ($p < 0.05$) for overall lesions and for the two subgroups. In prediction of central node (neck level VI) metastasis, CT had greater sensitivity than ultrasound alone ($p = 0.04$) for overall lesions. Although the combination of ultrasound and CT had greater sensitivity than ultrasound alone in prediction of the presence of central node metastasis in the two subgroups, the sensitivity of the combination of ultrasound and CT did not reach statistical significance for papillary thyroid microcarcinoma. Ultrasound alone and ultrasound with CT had greater sensitivity than CT in prediction of lateral node (levels II–V) metastasis, but there was no significant difference in diagnostic value between ultrasound and the combination of ultrasound and CT for overall lesions or for the two subgroups ($p > 0.05$).

We found that 26 had capsules and 48 had not. Tumor size was 1-10 mm in 32 and 11-50 mm in 42 cases. Pattern found to be papillary in 20, follicular in 36 and solid in 18 cases. Histopathological variant was papillary in18, follicular in 34, solid in 6, diffuse-sclerosing in 10 and warthin like in 6 cases. Kujomon et al[12] valuated and established the diagnostic significance of each nuclear feature in PTC among the thyroidectomy specimens received in the department of pathology, only the PTC cases were chosen. Multiple sections were studied from the tumor by two different pathologists with a special emphasis on

morphological and nuclear features. Forty-one PTC cases were studied. Many H and E-stained slides of the tumor were studied by two different pathologists, and average of both observers was analyzed with special reference to nuclear features in classical and other variants of PTC. The study evaluated that the ground glass nuclei, nuclear grooving, and nuclear overcrowding were the most common features seen in all (100%) cases though percentage of cells exhibiting these features varied from tumor to tumor. Other features mentioned above were less frequently encountered (42%-95%). Conclusion: In PTC, especially in variants, nuclear features are of utmost importance as they have to be differentiated from other thyroid diseases presenting with similar architectural morphology. Hence, more tissue sections have to be screened.

CONCLUSION

Authors found that follicular pattern was observed in maximum specimens. In most of the cases, 11-50 mm size was observed.

REFERENCES

1. Rosai J. Papillary carcinoma thyroid: A root and branch rethink. Am J Clin Pathol 2008;130:683-86.
2. Chan JK, Saw D. The grooved nucleus. A useful diagnostic criterion of papillary carcinoma of the thyroid. Am J Surg Pathol 1986;10:672-9.
3. Livlosi VA. Papillary thyroid carcinoma: An update. Mod Pathol 2011;24:1-9.
4. Mai KT, Laundry DC, Thomas J, Burns BF, Commons AS, Yazdi HM, et al. Follicular adenoma with papillary architecture: A lesion mimicking papillary thyroid carcinoma. Histopathology 2001;39:25-32.
5. DeLellis RA, Lloyd RV, Heitz PU, Eng C. WHO histological classification of tumors of thyroid and parathyroid. In: DeLellis RA, Lloyd RV, Heitz PU, Eng C, editors. Pathology and genetics of tumors of Endocrine Organs. Lyon: IARC Press; 2005. p. 49.
6. Chan JK. Tumors of thyroid and parathyroid glands. In: Fletcher CD, editor. Diagnostic Histopathology of Tumors. Philadelphia: Elsevier; 2007. p. 997-1081.
7. Lee TK, Myers RT, Bond MG, Marshall RB, Kardon B. The significance of nuclear diameter in the biologic behavior of thyroid carcinomas: A retrospective study of 127 cases. Hum Pathol 1987;18:1252-5.
8. Al-BrahimN. Papillary thyroid carcinoma: An overview. Arch Pathol Lab Med 2006;130:1057-62. 3. Baloch ZW, LiVolsi VA. Cytologic and architectural mimics of papillary thyroid carcinoma. Am J Clin Pathol 2006;125:135-44.
9. Hunt JL, Barnes EL. Non-tumour-associated psammoma bodies in the thyroid. Am J Clin Pathol 2003;119:90-4.
10. LiVolsi VA. Papillary neoplasms of the thyroid-pathologic and prognostic features. Am J Clin Pathol 1992;97:426-1.
11. Choi JS, Kim J, Kwak JY, Kim MJ, Chang HS, Kim EK. Preoperative staging of papillary thyroid carcinoma: comparison of ultrasound imaging and CT. American Journal of Roentgenology. 2009 Sep;193(3):871-8.
12. Kunjumon DT, Upadhyaya K. Histopathological features of Papillary Thyroid Carcinoma with special emphasis on the significance of nuclear features in their diagnosis. Arch Med Health Sci 2014;2:16-22.