ORIGINAL RESEARCH

Assessment of papillary thyroid carcinoma- A histopathological study

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ABSTRACT

Background: The notion that there is a familial form of thyroid cancer has gained widespread acceptance due to early reports of well-differentiated non-medullary thyroid carcinoma clustering in families and studies using population and hospital data bases showing that such cases occurred in families more often than could be explained by chance. The present study evaluated histopathological features of papillary thyroid carcinoma. **Materials & Methods:** 80 thyroid tissues 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 80 specimens, 38 were of males and 42 were of females. Histopathological variant was papillary in 16, follicular in 32, solid in 8, diffuse-sclerosing in 14 and warthin like in 10 patients. 28 had capsules and 52 had not. Tumor size was 1-10 mm in 30 and 11-50 mm in 50 cases. Pattern was papillary in 21, follicular in 35 and solid in 24 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

INTRODUCTION

The notion that there is a familial form of thyroid cancer has gained widespread acceptance due to early reports of well-differentiated non-medullary thyroid carcinoma clustering in families and studies using population and hospital data bases showing that such cases occurred in families more often than could be explained by chance.[1] Papillary carcinoma, including familial papillary thyroid microcarcinoma, accounts for the majority of documented instances in families. Although a specific genetic defect has not yet been identified, a hereditary basis for this familial non-medullary thyroid cancer is hypothesized. It has been suggested that the disease may arise from a heterogeneous form of inheritance or the interaction of susceptibility genes with unknown environmental factors.[2]

It is now widely known that exposure to external radiation or internal radiation during childhood from iodine-131 (131I) from the Chernobyl nuclear power plant catastrophe on April 26, 1986, increases the risk of thyroid cancer.[3] The participants who were 18 years of age or younger at the time of the accident showed the most rise in thyroid cancer. Due to their smaller thyroid masses, higher rates of milk consumption, the primary route of 131I exposure, and their heightened susceptibility to the carcinogenic consequences of thyroid irradiation in comparison to adults, children got higher thyroid radiation doses on average.[4] The predominant histological type of post-Chernobyl thyroid cancer is called papillary thyroid carcinoma (PTC). The predominant histological type of post-Chernobyl thyroid cancer is called papillary thyroid carcinoma (PTC).[5] The present study evaluated histopathological features of papillary thyroid carcinoma.

MATERIALS & METHODS

The present study was conducted on 80 thyroid tissues obtained in general pathology department.

The diagnosis was made using the World Health Organization's (WHO) categorization system. PTCs were divided into three types based on their histological patterns: solid, follicular, and classic papillary. PTCs were further classified into five basic histological variants: mixed, Warthin-like, follicular, solid, diffuse-sclerosing, and classic papillary. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of specimens

Total- 80		
Gender	**Male**	**Female**
Number	38	42

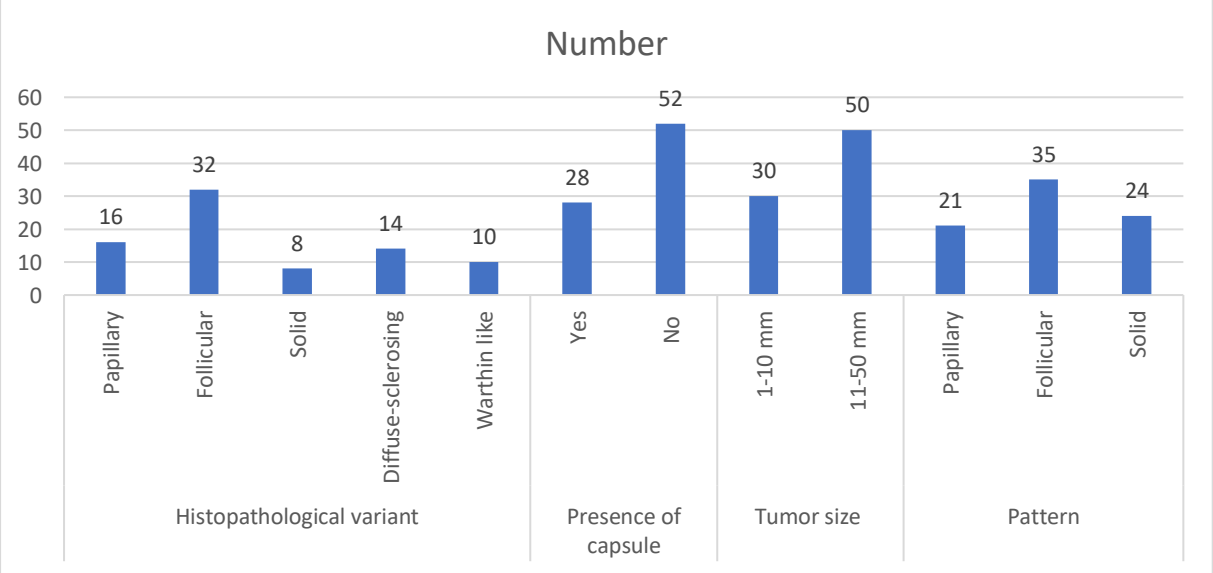
Table I shows that out of 80 specimens, 38 were of males and 42 were of females.

Table II Assessment of histopathological findings

Parameters	Variables	Number	P value
Histopathological variant	Papillary	16	0.75
	Follicular	32	
	Solid	8	
	Diffuse-sclerosing	14	
	Warthin like	10	
Presence of capsule	Yes	28	0.02
	No	52	
Tumor size	1-10 mm	30	0.03
	11-50 mm	50	
Pattern	Papillary	21	0.05
	Follicular	35	
	Solid	24	

Table II, graph Ishows that histopathological variant was papillary in 16, follicular in 32, solid in 8, diffuse-sclerosing in 14 and warthin like in 10patients. 28 had capsules and 52 had not. Tumor size was 1-10 mm in 30 and 11-50 mm in 50 cases. Pattern was papillary in 21, follicular in 35 and solid in 24 cases. The difference was significant (P< 0.05).

Graph I Assessment of histopathological findings



DISCUSSION

Thyroid carcinoma (TC), which makes up around 3.8% of all newly diagnosed cancer cases, is the most common endocrine cancer. In the last 30 years, the incidence of TC has dramatically increased, with a 3:1 female to male ratio.[6] The four primary forms of thyroid carcinoma are follicular thyroid carcinoma (FTC), medullary thyroid carcinoma (MTC), anaplastic thyroid carcinoma (ATC), and papillary thyroid carcinoma (PTC). Furthermore, PTC includes papillary thyroid microcarcinoma (PTMC).[7] The World Health Organization (WHO) has classified thyroid cancers histologically, and PTMCs are tumors that have a maximum size of 10 mm or less. With about 90% of thyroid carcinomas having good prognoses, PTC is also the most common kind of thyroid carcinoma.[8,9] The overall 10-year survival ratefor middle-aged person with PTC is about from 80 to 95%, which is also related to an indolent clinical course.[10,11]The present study evaluated histopathological features of papillary thyroid carcinoma.

We observed that out of 80 specimens, 38 were of males and 42 were of females. Katoh et al[12] in their study multiple thyroid involvement (MTI) in papillary thyroid carcinoma was clinicopathologically studied

in 105 non-selected, consecutive patients. Whole thyroids resected by total thyroidectomy were sectioned at intervals of 2-3 mm (mean number of slices per gland, 19.2) and histologically reviewed. The intraglandular cancer foci, other than the tumor regarded as the primary focus, were demonstrated in 82 (78.1%) of 105 patients. The foci were usually small (less than 4 mm) and were not accompanied by sclerotic fibrous stroma or by a fibrous capsule. These small foci were distributed around the primary lesion and also were found frequently (61.0%) in the opposite lobe as bilateral disease. In the opposite lobe, a similar incidence (approximately 30%) of disease was obtained in each of the three parts (upper, middle, and lower). The mean number of foci in patients with MTI was statistically correlated to age, the presence of lymph node metastases, and the presence of solid areas or psammoma bodies in the primary tumor. It was concluded that MTI could be regarded as one of the most striking and important biologic characteristics of papillary thyroid carcinoma.

We observed that histopathological variant was papillary in 16, follicular in 32, solid in 8, diffuse-sclerosing in 14 and warthin like in 10 patients. 28 had capsules and 52 had not. Tumor size was 1-10 mm in 30 and 11-50 mm in 50 cases. Pattern was papillary in 21, follicular in 35 and solid in 24 cases. 299 consecutively registered patients with pathologically confirmed papillary thyroid cancer were included in Choi et al.'s study.[13] In order to assess primary tumors and lymph node metastases, the diagnostic accuracy of CT, ultrasound, and the combination of CT and ultrasound was examined. When predicting the presence of malignant illness and extrathyroidal tumor extension in both thyroid lobes, ultrasound was more accurate than CT for both the total number of lesions and the two subgroups. CT was more sensitive than ultrasound alone in predicting the metastases of the central node (neck level VI) in terms of total lesions. The sensitivity of the combination of ultrasound and CT did not reach statistical significance for papillary thyroid microcarcinoma, despite the fact that it was more sensitive than ultrasound alone in predicting the presence of central node metastasis in the two subgroups. There was no statistically significant difference in the diagnostic value between ultrasound and the combination of ultrasound and CT for the total lesions or for the two subgroups ($p > 0.05$). However, ultrasound alone and ultrasound with CT had higher sensitivity than CT in the prediction of lateral node (levels II–V) metastasis.

CONCLUSION

Authors found that the majority of the time, a size of 11–50 mm was noted.Maximum specimens showed follicular pattern.

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