

Original Research Article**Clinicopathological Study of Primary Epithelial Malignant Tumours of Thyroid Gland in a Tertiary Care Centre, Kolar****Pradeep Mitra V.¹, Manjula K.², CSBR Prasad³**

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Abstract

Clinicopathological study of primary epithelial malignant tumours of thyroid gland: in a tertiary care centre, Kolar. Introduction Thyroid malignancy is the most common malignancy in endocrine system accounting for 87% of all endocrine gland tumors [1]. The incidence of thyroid cancers has been rising in the past two decades. The increase in incidence may be due to early detection of asymptomatic cases through screening tests [2,3]. These epithelial tumors are characterized by unique clinical, molecular and biological features [2,4]. Hence it is important to know the different histomorphology of these tumors to foresee prognosis and guide the treatment for better outcome. Materials and methods The study was conducted in the department of Pathology, Sri Devaraj Urs Medical College, Kolar constituent college Sri Devaraj Urs Academy of higher education and Research. All the primary malignant epithelial thyroid carcinoma cases were retrieved from the archives of Pathology from January 2010 to December 2016 for the duration of 7 years. Results Total numbers of primary epithelial malignancies were 62 cases (2.5% of all malignant cases). The most common thyroid malignancy was the papillary carcinoma (54 cases, 87%) Conclusions Primary epithelial tumors of thyroid accounted to 100% of thyroid malignancy. Most patients presented with neck mass. Papillary carcinoma accounted to 87% of epithelial carcinoma, more common in females. Anaplastic and follicular carcinoma was seen in older age, were associated with distant metastasis

Keywords: Malignant Epithelial Tumors; Papillary Carcinoma; Medullary Carcinoma; Vascular Invasion.

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Introduction

Thyroid malignancy is the most common malignancy in endocrine system accounting for 87% of all endocrine gland tumors [1]. The incidence of thyroid cancers has been rising in the past two decades. The increase in incidence may be due to early detection of asymptomatic cases through screening tests [2,3].

Most primary thyroid tumors are epithelial tumors that originate from thyroid follicular cells. These epithelial tumors are characterized by unique clinical,

molecular and biological features [2,4]. Most patients may present to the clinician as a solitary nodule, Multinodular goiter or with an enlarged cervical lymphnode[5]. Hence, it is important to know the different histomorphology of these tumors to foresee prognosis and guide the treatment for better outcome.

Aims and Objectives

To study clinical presentation and various pathological parameters of primary epithelial tumors of thyroid gland.

Materials and Methods

The study was conducted in the department of Pathology, Sri Devaraj Urs Medical College, Kolar constituent college Sri Devaraj Urs Academy of higher education and Research. All the primary malignant epithelial thyroid carcinoma cases were retrieved from the archives of Pathology from January 2010 to December 2016 for the duration of 7 years. Available clinical data such as Age, Sex, clinical presentation and other investigation were collected and reviewed. Histopathological Details regarding the size of the tumor, microscopic type, microscopic variant, extra thyroidal extension, tumor margin, extra capsular spread, multicentricity, lymphnode status, grade of the tumor and tumor stage were recorded in the data sheet and analyzed

Results

Total numbers of primary epithelial malignancies were 62 cases (2.5% of all malignant cases). The most common thyroid malignancy was the papillary carcinoma (54 cases, 87%).

Clinical Presentation

The most common age of presentation was in the 3rd decade (44.8%) followed by 4th decade (18.9%). The median age was 36 years with a range of 12 to 80 years. The Male: Female ratio was 1:3.8. The most common clinical presentation was neck mass (52.2%) followed by solitary nodule (28.8%), difficulty in swallowing (13.3%) cervical lymphadenopathy (3.3%) and scalp swelling (2.2%).

Histopathological Parameters

The most common primary epithelial malignancy was papillary thyroid carcinoma (54 cases, 87%) followed by medullary carcinoma (2 cases, 3.3%), follicular carcinoma (3 cases, 5%) anaplastic carcinoma (2 case, 3.2%), and hurthle cell carcinoma (1 case, 1.6%) (Table 1.)

Microscopic variants of papillary carcinoma were Classical (61.1%), Follicular (22.2%), Micropapillary (11.1%), Tall cell variant (1.85%), Well differentiated carcinoma NOS (1.85%) and Encapsulated warthin like variant (1.85%). (Table 2).

Average size of the tumor was 3.8 cms. Tumor stage was available for 59 cases of which T1-10 cases, T2-18 cases, T3- 25 cases, T4- 5 cases. Extra thyroidal extension was seen in 12 cases (13.7%). 9 cases are of papillary thyroid carcinoma, 2 anaplastic carcinoma and one case of follicular carcinoma. Vascular invasion was seen in 4 cases (6.89%), 2 cases are anaplastic carcinoma and 2 are follicular carcinoma. Surgical resected margin was positive in one case of anaplastic carcinoma (1.72%). Cervical Lymphnode resection was available in 45 cases of which 33 cases showed papillary carcinoma tumor deposits, 3 were medullary carcinoma and 1 was anaplastic carcinoma. 2 cases of papillary carcinoma showed distant metastasis to scalp.

Discussion

In the present study, primary epithelial malignant tumors of thyroid accounted to 100% of all thyroid cancers. The median age of presentation was 36 years; maximum cases were seen in 3rd decade. Studies done by Niazi S [5] et al. and ALAmri AM [1] also reported

Table 1: Primary epithelial malignant tumors of thyroid gland

Tumor type	No of cases	%
Papillary thyroid carcinoma	54	87
Medullary carcinoma	2	3.2
Follicular carcinoma	3	4.8
Hurthle cell carcinoma	1	1.6
Anaplastic carcinoma	2	3.2
Total	62	100%

Table 2: Variants of papillary thyroid carcinoma

Variant of Papillary thyroid carcinoma	No of cases	%
Classical	33	61.1
Follicular	12	22.2
Micropapillary	6	11.6
Tall cell variant	1	1.85
Well differentiated carcinoma NOS	1	1.85
Encapsulated warthin like	1	1.85
Total	54	100%

malignancy of thyroid more common in 3rd decade. The male: female ratio was 1:3.8 and it has been well documented in the literature that thyroid disorders are more common in females than in males. Hence, thyroid disorder or enlargement in males should be considered with higher degree of suspicion [6].

In other studies male to female ratio shows variation (Table 3) and are different, with male predominance in Saudi Arabia [7]. The most common clinical presentation was of swelling in front theneck (neck mass) similar to other studies. Rare presentation in our study was two patients presenting with scalp swelling, later histopathological examination showed metastatic follicular carcinoma and papillary carcinoma.

Papillary carcinoma of thyroid was the most common malignant primary epithelial tumor of thyroid accounting to 87%. The classical histomorphological features (Figure 1) are the presence of papillae with central fibrovascular core, ground glass nuclei, nuclear grooves, nuclear molding and overlapping and pseudo inclusions. Different variants of Papillary Carcinoma thyroid includes Classic, follicular, cribriform, micropapillary, tall cell like, encapsulated warthin like, diffuse Sclerosing, oncocytic and clear cell type. In the present study, classical variant of papillary carcinoma thyroid was the most common histological variant. Table 4 compares variants of papillary carcinoma with other studies.

Lymph node metastasis was seen in 33cases (53%). Studies have shown that more than 50% of patients of papillary carcinoma may show nodal metastasis. Patients may come with only cervical lymph node

enlargement [11,12,13]. One case was an incidental finding presented to us with scalp swelling. Most of the cases were in T₂ and T₃ stage and vascular invasion was seen in 2 cases.

We had two medullary carcinomas (3.2%) in our study, incidence was comparatively low. In other studies incidence varies from 3.5% to 9.7% [5,8,12]. Medullary carcinoma arises from the C cells of ultimobranchial body of neural crest and secretes calcitonin. There are most commonly sporadic than familial. Histological features (Figure 2) include Round, plasmacytoid, polygonal or spindle cells with coarsely clumped chromatin and indistinct nucleoli. Amyloid deposits from calcitonin are frequently present in the stroma.

There were 3 cases of follicular carcinoma (4.8%) with follicles of varying sizes (microfollicular, normofollicular or macrofollicular), showed capsular or vascular invasion. One case presented with distant metastasis to scalp and femur.

Anaplastic carcinoma in our study comprised of 2 cases (3.2%). Incidence and age of presentation is similar to other studies [5,8]. Both patients were more than 50years, females, presented with difficulty in swallowing. Tumor showed extrathyroidal extension. Microscopically (Figure 3) composed of highly pleomorphic cells arranged in clusters and sheets with squamous foci. Vascular invasion was seen.

We had one case of hurthle cell carcinoma (1.2%) presented as neck mass in 40 years female. This tumor (Figure 4) was composed of cells with abundant granular cytoplasm. Cells were arranged in sheets, trabeculae,

Table 3: Comparison of present study with other studies

	Al-amriAM. ¹ (SaudiArabia)	Niazis Et al ⁵ (Lahore)	GillandFD et al ⁸ (USA)	Present study
total number of cases	143	170	15698	62
male : female ratio	1:7.2	1:3.25	1:2.9	1:3.8
age group	3 rd decade	3 rd decade	4 th decade	3 rd decade
papillary carcinoma thyroid	51.7%	68.23%	75.5%	87%
Follicular carcinoma	9.7%	14.11%	16.9%	4.8%
anaplastic carcinoma	3.49%	5.88%	1.5%	3.2%
medullary carcinoma	0	6.47%	3.2%	3.2%
lymphnode metastasis	20%	27.5%	-	25.3%

Table 4: Variants of papillary carcinoma thyroid

	MuzaffirM et al ⁹ (Rawalpindi)	Girardi et al ¹⁰ (Brazil)	Niazis et al ⁵ (Lahore)	Present study
Classical	58(70.7%)	164(62.3%)	83(71.5%)	33(61.1%)
Follicular	13(15.9%)	83(31.5%)	17(14.6%)	12(22.2%)
columnar cell variant	6(7.3%)	1(0.3%)	0	0
tall cell	3(3.7%)	1(0.3%)	0	1(1.85%)
encapsulated	1(1.2%)	0	8(6.8%)	1(1.85%)
Occult	1(1.2%)	0	0	0
Oncocytic	0	10(3.8%)	0	0
warthin like	0	4(1.5%)	0	1(1.85%)

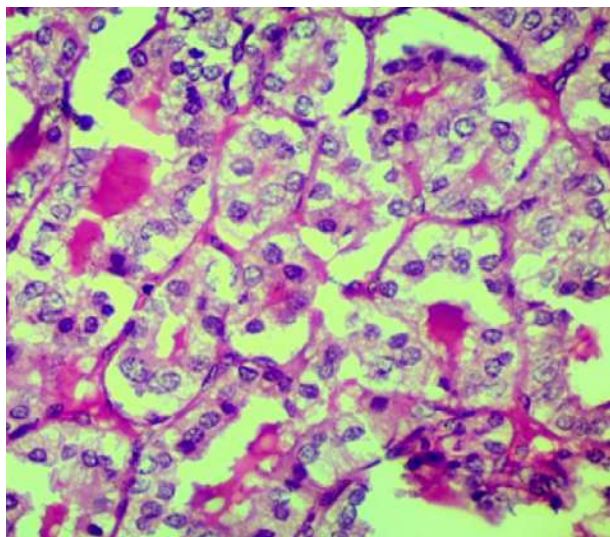


Fig. 1: Papillary carcinoma (Hand E, X400)

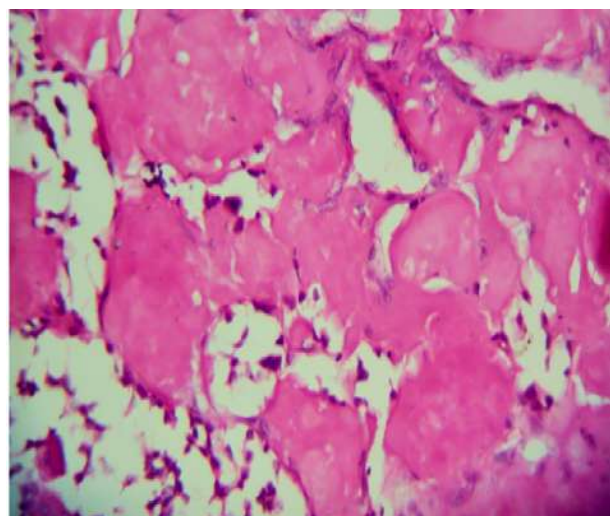


Fig. 2: Medullary carcinoma (Hand E, X400)

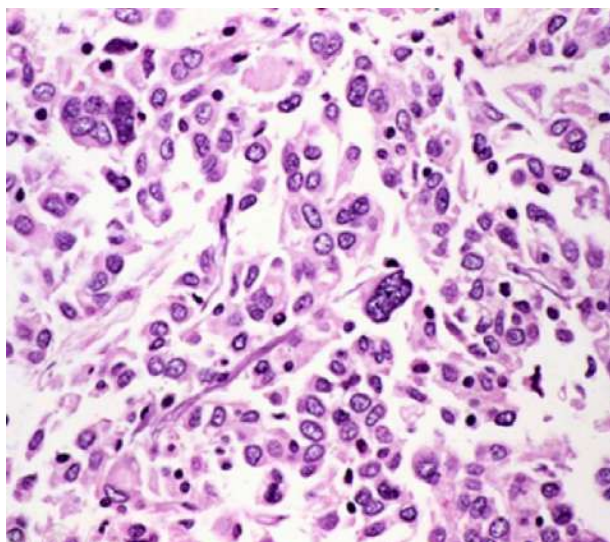


Fig. 3: Anaplastic carcinoma (Hand E, X400)

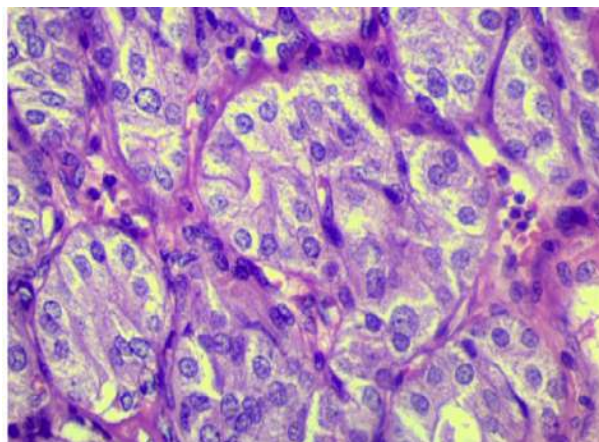


Fig. 4: Hurthle cell carcinoma (Hand E, X400)

small follicles. Showed areas of infarction, which may be due to fine needle aspiration. Some authors consider hurthle cell neoplasm as a variant of follicular neoplasm instead of a separate entity [14,15]. Criteria of malignancy are same as follicular tumors, but they differ in prognosis and treatment modalities [14].

Conclusions

Primary epithelial tumors of thyroid accounted to 100% of thyroid malignancy. Most patients presented with neck mass. Papillary carcinoma accounted to 87% of epithelial carcinoma, more common in females. Anaplastic and follicular carcinoma was seen in older age, were associated with distant metastasis

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