

Original Article

A Clinicopathological Study of 10 cases of Poorly Differentiated Thyroid Carcinoma

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ABSTRACT:

Background: Poorly differentiated thyroid carcinoma (PDTC) is an aggressive malignancy of thyroid follicular cells. The present study was conducted to determine the clinico- pathological features of poorly differentiated thyroid carcinoma. **Materials & Methods:** The clinical, follow-up and previous fine-needle aspiration cytology (FNAC) information were retrieved from obtained previous records. FNAC smears, hematoxylin and eosin (H and E) stained tissue sections and their immunohistochemical stained slides of all cases were reviewed. The associated histopathology, predominant architectural pattern, vascular invasion and distant metastasis were recorded. **Results:** Out of 10 cases of PDTC, 4 were seen in males and 6 in females. 8 patients anterior neck swelling and in 2 patients nodular anterior neck swelling was observed. FNAC findings was follicular neoplasm (2), suspicious for malignancy (4), benign follicular nodule (3) and colloid goiter suspicious for malignancy (1). The predominant pattern was insular (3), trabecular insular (5) and solid (2). The vascular invasion metastasis to lung was seen in 8 cases and metastasis to pelvic bone was seen in 2 cases. The difference was significant ($P < 0.05$). **Conclusion:** Poorly differentiated thyroid carcinoma (PDTC) is an aggressive malignancy of thyroid follicular cells. The predominant pattern was insular, trabecular insular and solid. Metastasis is common finding.

Key words: Follicular, Thyroid carcinoma, Malignancy.

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INTRODUCTION

Thyroid cancer is cancer that develops from the tissues of the thyroid gland. It is a disease in which cells grow abnormally and have the potential to spread to other parts of the body. Symptoms can include swelling or a lump in the neck. Cancer can also occur in the thyroid after spread from other locations, in which case it is not classified as thyroid cancer.¹

Poorly differentiated thyroid carcinoma (PDTC) is an aggressive malignancy of thyroid follicular cells; which occupies both morphologically and behaviorally an intermediate position between well differentiated (follicular and papillary) carcinoma and undifferentiated (anaplastic) carcinoma.²

In 2004, the World Health Organization (WHO) Classification of Tumours of Endocrine Organs recognized PDTC as a separate entity, defined on the basis of architectural and high-grade features. In 2006, Turin (Italy) consensus conference, attended by an internationally recognized quorum of thyroid pathologists, agreed to a

unified series of diagnostic criteria and terminology, and a diagnostic algorithm for PDTC. These criteria consisted of the presence of a solid/trabecular/insular growth pattern, lack of nuclear features of papillary thyroid carcinoma (PTC), and presence of one of the following features: (i) convoluted nuclei, (ii) tumor necrosis, (iii) 3 or more mitoses per 10 high-power field (HPF).³

Globally as of in 2012, 298,000 new cases occurred. It most commonly occurs between the ages of 35 and 65. Women are affected more often than men. Those of Asian descent are more commonly affected.⁴ The present study was conducted to determine the clinico- pathological features of poorly differentiated thyroid carcinoma.

MATERIALS & METHODS

This retrospective study was performed in the department of pathology. Information such as clinical, follow-up and previous fine-needle aspiration cytology (FNAC) information were retrieved from obtained previous records. FNAC smears, hematoxylin and eosin (H and E) stained

tissue sections and their immunohistochemical stained slides of all cases were reviewed. The associated histopathology, predominant architectural pattern, vascular invasion and distant metastasis were recorded. Results were tabulated and subjected to statistical analysis using chi-square test. P value < 0.05 was considered significant.

RESULTS

Table I shows that out of 10 cases of PDTC, 4 were seen in males and 6 in females. The difference was non- significant (P-0.12).

Graph I shows that in 8 patients anterior neck swelling and in 2 patients nodular anterior neck swelling was observed. The difference was significant (P< 0.05).

Graph II shows that FNAC findings was follicular neoplasm (2), suspicious for malignancy (4), benign follicular nodule (3) and colloid goiter suspicious for malignancy (1). The difference was significant (P< 0.05).

Graph III shows that predominant pattern was insular (3), trabecular insular (5) and solid (2). The difference was significant (P< 0.05).

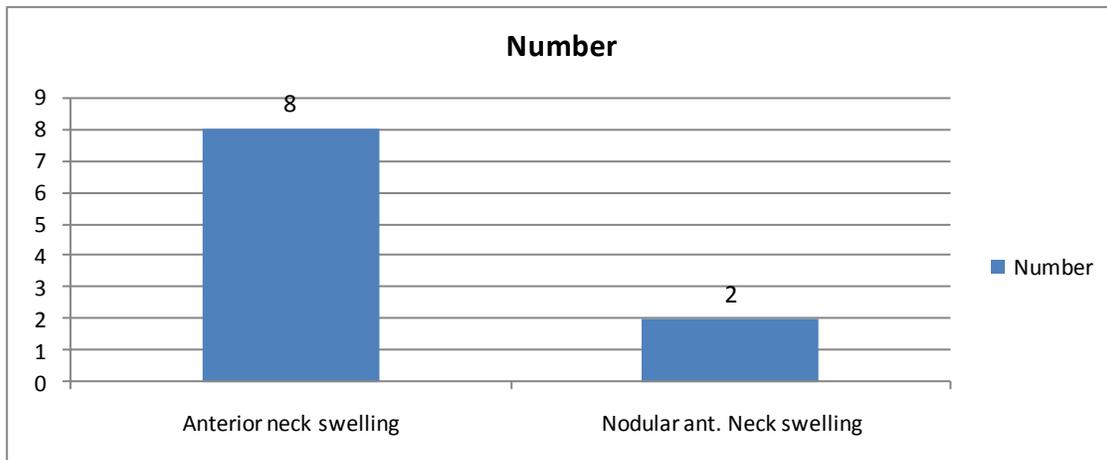
Graph III shows that predominant pattern was insular (3), trabecular insular (5) and solid (2). The difference was significant (P< 0.05).

Graph IV shows that vascular invasion metastasis to lung was seen in 8 cases and metastasis to pelvic bone was seen in 2 cases. The difference was significant (P< 0.05).

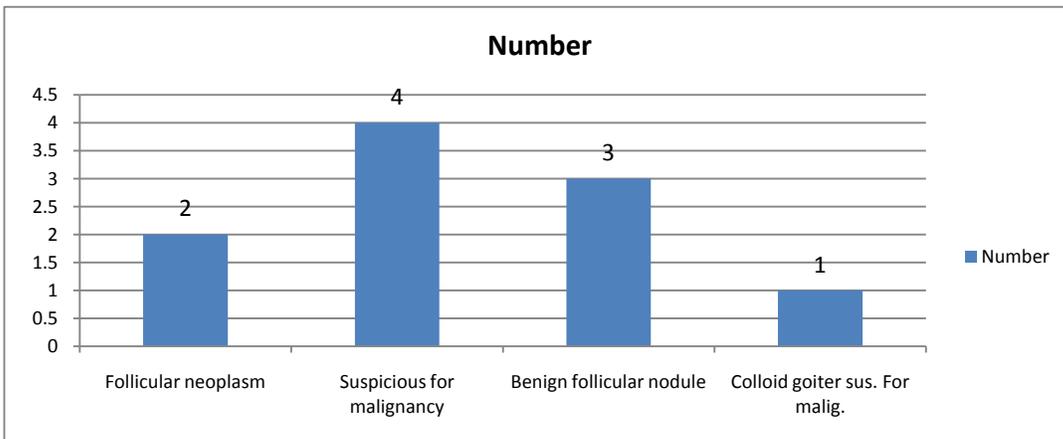
Table I Distribution of cases

Total - 10		
Males	Females	P value
4	6	0.12

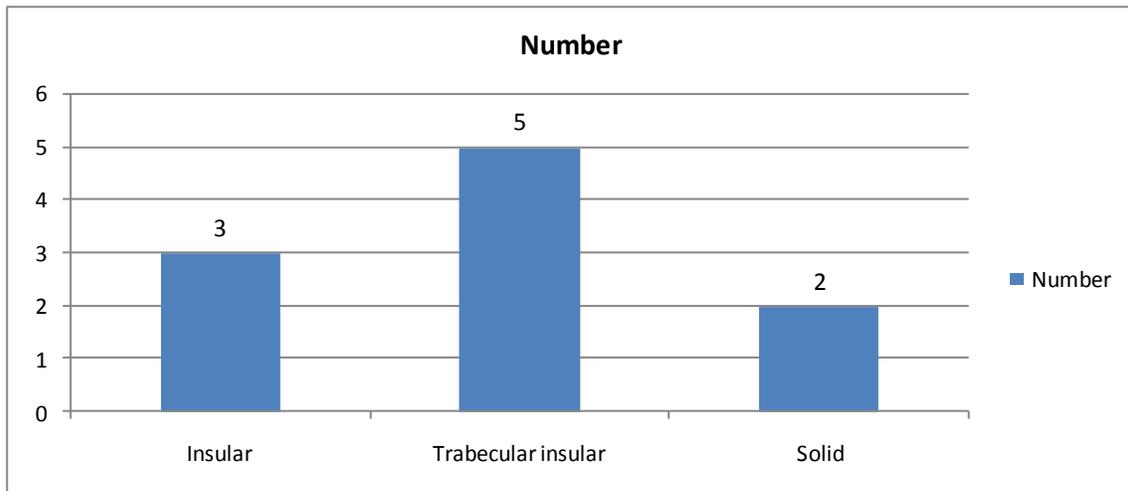
Graph I Associated symptoms in Cases



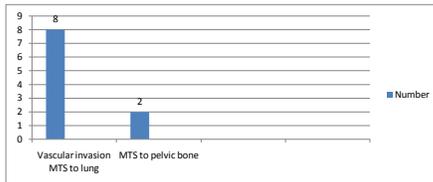
Graph II FNAC findings in cases



Graph III Predominant pattern



Graph IV Vascular invasion/ Distal metastasis



DISCUSSION

PDTC may be associated with well-differentiated components of either follicular thyroid carcinoma (FTC) or PTC, and less frequently with anaplastic carcinoma. Although it is a rare type of thyroid malignancy, diagnosis of PDTC is important for pathologists, clinicians and oncologists as it may need additional therapeutic strategies. It was first described as “wuchernde Struma” by Langhans⁵ in 1907 due to its characteristic nesting pattern. Carcangiu et al.⁶ reinterpreted it as PDTC (insular carcinoma) because of its frequent histologic growth pattern, formation of solid clusters (insulae) of uniform tumor cells, together with the presence of mitotic activity, necrotic foci, and capsular and vascular invasions. The present study was conducted to determine the clinico- pathological features of poorly differentiated thyroid carcinoma.

We found that out of 10 cases of PDTC, 4 were seen in males and 6 in females. In 8 patients’ anterior neck swelling

and in 2 patients nodular anterior neck swelling was observed. This is in agreement to Volante et al.⁷

We observed that FNAC findings were follicular neoplasm, suspicious for malignancy, benign follicular nodule and colloid goiter suspicious for malignancy. This is similar to Dettmer et al.⁸ The predominant pattern was insular, trabecular insular and solid. This is similar to Othman et al.⁹ Dettmer et al. reported that the presence of even minor amounts of poorly differentiated areas in a thyroid carcinoma ($\geq 10\%$) has similar prognostic significance as having a major component.

The histopathological findings are presence of small cells with round nuclei and scant cytoplasm with a diffuse solid pattern, round or oval nests (insulae) or in trabeculae, solid growth and presence of microfollicles, some of which contain dense colloid, extrathyroidal extension and blood vessel invasion, foci of necrosis and larger than 5 cm in greatest diameter at diagnosis.

It is generally accepted that PDTC may develop through three pathogenetic pathways: (i) by partial dedifferentiation of PTC, (ii) by partial dedifferentiation of FTC (including oncocytic type) and (iii) de novo, without a preexisting well-differentiated carcinoma precursor. Most of the PDTC develop de novo although some of them arise from preexisting well-differentiated thyroid carcinoma. In some area of endemic goiter, most of the PDTC had a history of goiter.¹⁰

CONCLUSION

Poorly differentiated thyroid carcinoma (PDTC) is an aggressive malignancy of thyroid follicular cells. The predominant pattern was insular, trabecular insular and solid. Metastasis is common finding.

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