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A Study of Histopathological Features Associated with Papillary Thyroid Carcinoma

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Abstract--- *Histopathological Papillary thyroid carcinoma diagnosis is based on the main criterion are mostly detected by the pathologist. Therefor aims of our study to provide a information focused on this criterion Features. The percentage of patients with cancer of thyroid gland for last three years (2017,2018 and 2019) was (1.74) and The histopathological section of the thyroid tissue that effect by papillary thyroid carcinoma is the hypochromic nuclei, occurrence of ground glass, as the prominent pattern associated with papillae of the tumor, the true infiltration of the venous vessels and psammoma bodies, the cells of tumor infiltration surrounding the parenchyma, tumor cells containing enlarged, overlapping nuclei high proliferation with irregular counters with enlargement, fine chromatin, thyroid carcinoma characterized by papillary architecture with fibrovascular cores and high proliferation cells characterized by a papillary growth pattern, where the stroma is represented by conjunctiva - vascular fine septa Intranuclear cytoplasmic inclusions with high proliferation cells Ground glass nuclei. Conclusions: the histopathological features of the papillary thyroid carcinoma depend on shape of nuclei and psammoma bodies with high proliferation cells.*

Keywords--- *Histopathological, Thyroid Carcinoma, Psammoma Bodies.*

I. INTRODUCTION

Thyroid cancer is the most common endocrine malignancy with higher mortality rates compared to all other endocrine malignancies **(Unnikrishnan and Menon, 2011).** The recent data from National Cancer Registry Program show that thyroid cancer constitutes 3.96% of total cancers (**NCDIR, 2016).** The incidence of thyroid cancer has risen in recent years In Iraq, annual report for years 2015 for thyroid cancer were 1.7 % of total cancers **(Iraq center board, 2015).** Derived the Thyroid-specific malignant from tow type of the cells the first type is papillary and follicular carcinoma that derived from follicle cells and second type is medullary carcinoma derived from parafollicular calcitonin- producing C-cells **(Tatić, 2003).** Papillary thyroid carcinoma (PTC) being the most common represents 80%–85% of thyroid cancers. **(Kloos *et al.*, 2009).** Many histopathologic studies about on (PTC) Papillary thyroid carcinoma but few of these are prognostic significance. Molecular detection is more accurates (**Hamzah and Hasso, 2019).** The studies on Histopathological features of papillary carcinoma its variants are so far seldom reported in Iraq. Therefore aims of our study to provide a information focused on this criterion Features to prognostic impacts and definitions as pathologic parameters.

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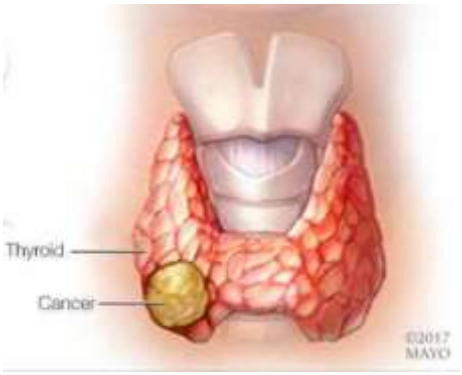

II. METHODS

Experimental

The study consisted of analysis of data collection for patient with thyroid gland cancer for last three years (2017, 2018 and 2019) and study of histopathology slide of thyroid malignancies that take from the thyroid gland affects and diagnosed with Papillary thyroid carcinoma, the slide examination in College of Vet-Medicine, AL-Qasim Green University/Iraq with controlled conditions test similar to Author **(Ameer *et al.*, 2019)**.

Histopathological Examination

Taken from inward organs 1x1x1 cm, including: thyroid gland and fixed tissue with formaldehyde 10% for 72 hours, following the sample was washed with tap water after that processing as routinely done with set of upgrading alcoholic concentration (70%, 80%,90% and 100%) for 2hr. in every concentration to remove water in the tissue after that remove alcoholic by by xylol and after that infiltrated the specimen with semi-liquid paraffin wax at (58 Ċº) on two stages, at that make block shape and sectioned the tissue by rotary microtome at (5µm), then staining the tissue section by Hematoxylin and Eosin stain, and recolor the criterion Features under light microscope **(Luna, 1968).**

III. RESULTS

A total of 6260 Patients infection with different type of cancers in najuf/ Iraq. The Table- 1: shows The percentage of infection with thyroid gland cancer for last three years (2017, 2018 and 2019) was (1.74) from total patient infection with different cancer.

Table 1: Percentage of Infection with Cancer

no	Type of cancer	Percentage %
1	Different type of cancer	98.26 %
2	Thyroid gland cancer	1.74 %

Histopathological Examination

Features of Thyroid Carcinoma

The result of Histopathological section of the thyroid tissue that effect by papillary thyroid carcinoma is hypochromic nuclei, occurrence of ground glass, psammoma bodies, often associated with papillae as the prominent

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pattern of the tumor and the true infiltration of the venous vessels, the tumor cells infiltration into the surrounding parenchyma, tumor cells containing enlarged, overlapping nuclei high proliferation with irregular counters (figure 1), with enlargement, fine chromatin (figure 2), thyroid carcinoma characterized by papillary architecture with fibrovascular cores and high proliferation cells (figure3), characterized by a papillary growth pattern, where the stroma is represented by conjunctiva -vascular fine septa Intranuclear cytoplasmic inclusions with high proliferation cells with Ground glass nuclei (figure 4).

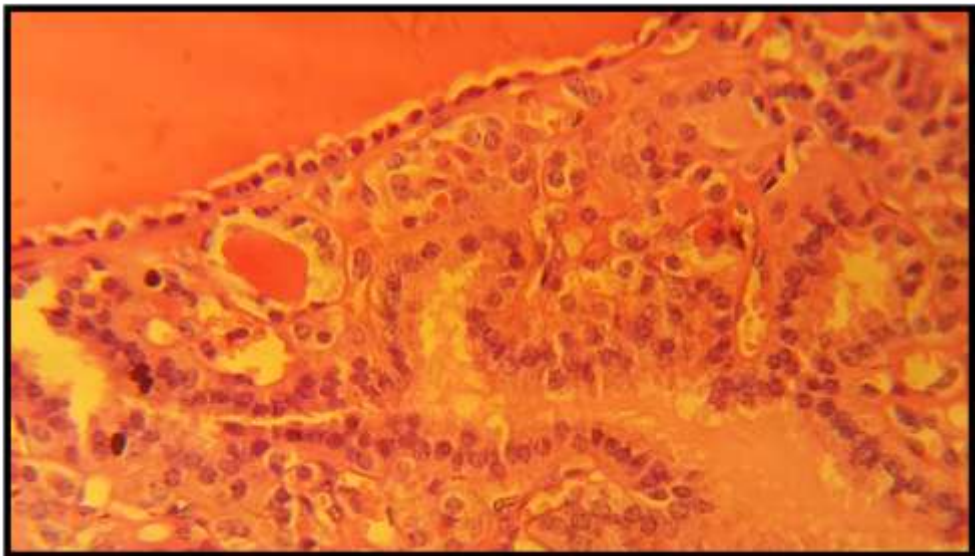

Figure 1: Histopathological section in the thyroid tissue that effect by papillary thyroid carcinoma show tumor cells containing enlarged, overlapping nuclei high proliferation and psammoma bodies with irregular counters (H&E stain).

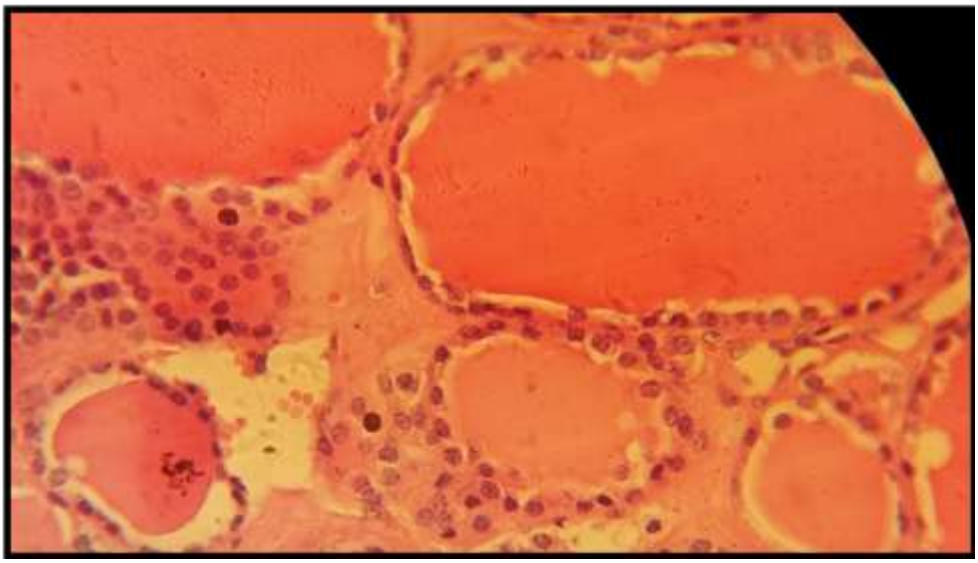

Figure 2: Histopathological section in the thyroid tissue that effect by papillary thyroid carcinoma show psammoma bodies and high proliferation cells with enlargement and overlapping of nuclei, fine chromatin (H&E stain).

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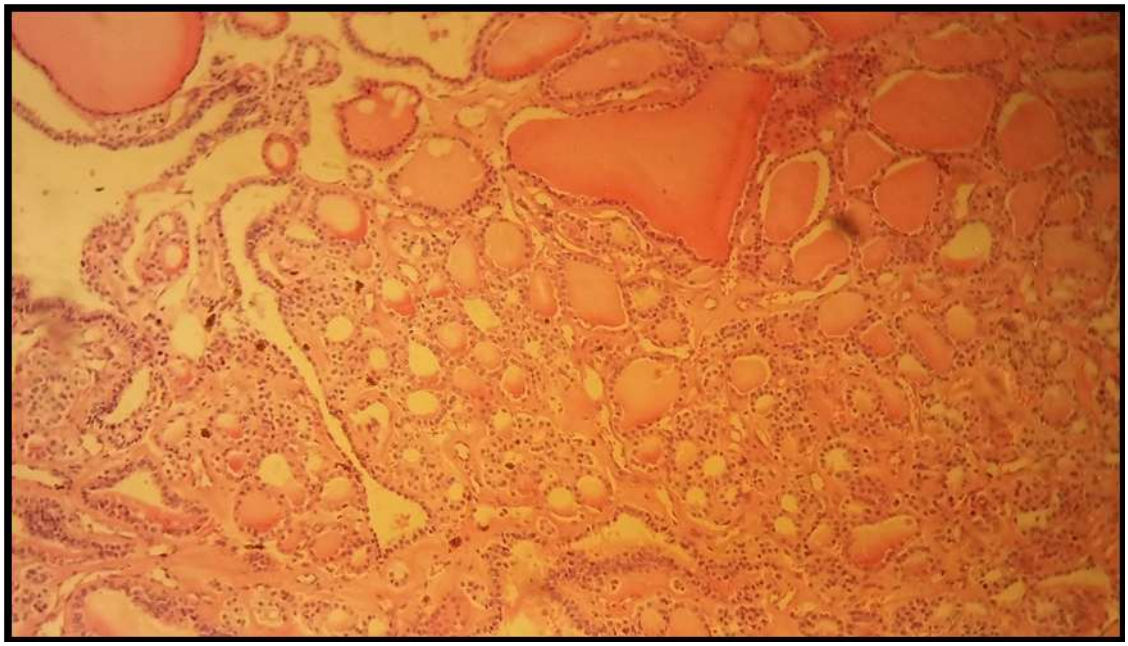

Figure 3: Histopathological changes in the thyroid tissue that effect by papillary thyroid carcinoma show thyroid carcinoma. That characterized by papillary architecture with fibrovascular cores and high proliferation cells (H&E stain)

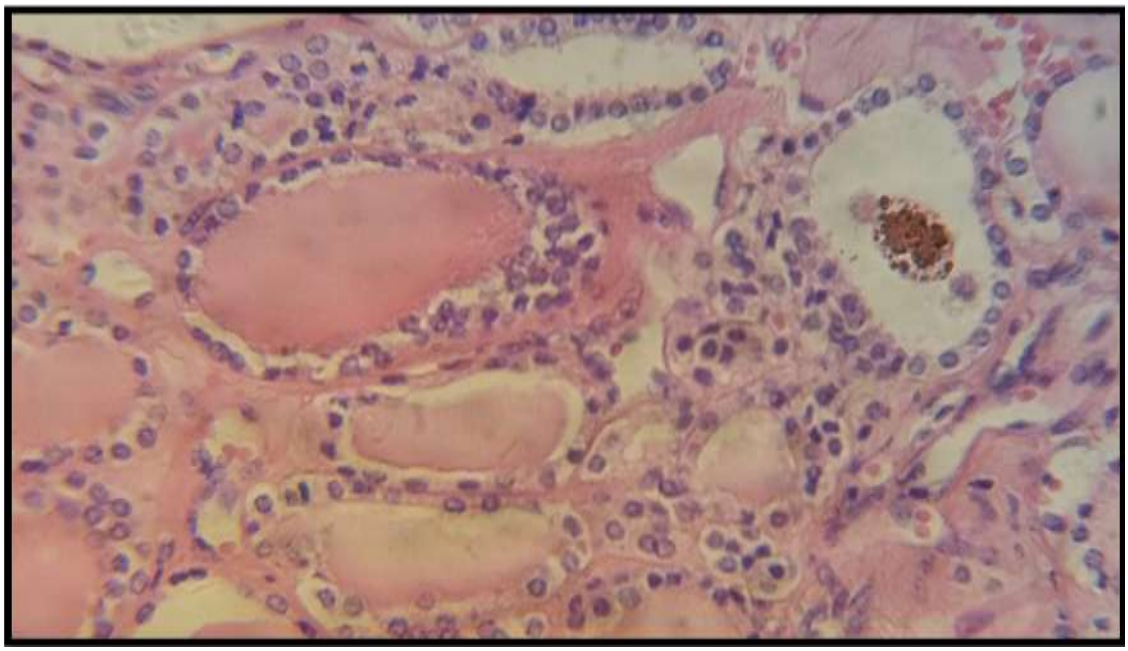

Figure 4: Histopathological section in the thyroid tissue that effect by papillary thyroid carcinoma characterized by a papillary growth pattern, where the stroma is represented by conjunctiva -vascular fine septa Intranuclear cytoplasmic inclusions with high proliferation cells with Ground glass nuclei (H&E stain).

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IV. DISCUSSION

In the word and Iraq the incidence increased at an annual rate of affect by papillary thyroid carcinoma **(Davies *et al.*, 2010 and Iraq center board, 2015)**. And this agree with present study that show the percentage of patients with cancer of thyroid gland for last three years (2017, 2018 and 2019) was (1.74). therefore we focus on the Histopathological Features associated with papillary thyroid carcinoma, a recent study in diagnosed and identified of PTCs depend on a significant several Features association with tumor invasiveness and individual **(Zablotska *et al.*, 2015).**

The our result of Histopathological section of the thyroid tissue that effect by papillary thyroid is the hypochromic nuclei, occurrence of ground glass, as the prominent pattern associated with papillae of the tumor, the true infiltration of the venous vessels and psammoma bodies, the cells of tumor infiltration outside the capsule of tumor (fungus-like) surrounding the parenchyma, tumor cells containing enlarged, overlapping nuclei high proliferation with irregular counters with enlargement, fine chromatin, thyroid carcinoma characterized by papillary architecture with fibrovascular cores and high proliferation cells characterized by a papillary growth pattern, where the stroma is represented by conjunctiva -vascular fine septa Intranuclear cytoplasmic inclusions with high proliferation cells Ground glass nuclei.

This result it is agreement with several authors that observed the lesion common and repeat in this tumor therefore we consider it characteristics of papillary thyroid carcinoma. and this characteristics are the psammous bodies are Specific cellular complexes that initiated from calcium **(Johannessen & Sobrinho-Simoes, 1980)**, lymphatic/vascular invasion that common association with tumor invasiveness **(Bogdanova *et al.*, 2015),** while Ground glass nuclei are consider major pathological change pattern finding in the diagnosis of PTCs that appear only in histological sections in paraffin-embedded and not appear cytological or frozen sections **(Kiyono *et al.*, 1994), which show as** oval to round structure**,** enlarged **however the PTCs in thyroid tissue** surround by a collagenous capsule **or** encapsulated **with** large infiltration venous vessels outside and inside the capsule **(Biersack, H. J., & Grünwald, 2005; Hasso and AL-Janabi, 2019)**, vascular invasion or lymphatic invasion presence in types tumor and PTCs (**Haugen *et al.*, 2016 and Haddad *et al.*, 2019)** Additionally, Hitzik *et al.*, (2006), reported the high mitotic count with absence of the architectural pattern or nuclear features in PTC. The Capsular invasion it is not consider clinical management guidelines a parameter **(Nikiforov *et al,* 2016)** Distinguishing vascular invasion from lymphatic invasion it is clinical management guidelines for malignant thyroid carcinom **(Ghossein *et al.*, 2019;Haugen et al., 2016).**

V. CONCLUSION

The histopathological features of papillary thyroid carcinoma it is (1) tumor cells containing enlarged, overlapping nuclei high proliferation with irregular counters with enlargement, fine chromatin, (2) Intranuclear cytoplasmic inclusions with high proliferation cells Ground glass nuclei. (3) Found psammoma bodies (4) high proliferation cells characterized by a papillary growth pattern (5) the stroma is represented by conjunctiva-vascular fine septa. (5) infiltration of the venous vessels.

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