Case Report

Challenging Cytological Findings of A Rare Warthin-like Papillary Thyroid Carcinoma: A Case Report

Jirayu Visanuruk

Abstract

Warthin-like papillary thyroid carcinoma (WLPTC) stands out as a particularly uncommon subtype within the spectrum of papillary thyroid carcinoma, known for its distinctive histological and cytological features. This presentation illuminates a case of WLPTC, highlighting an unusual microfollicular pattern and a restrained lymphoplasmacytic background, which makes it challenging to make a conclusive diagnosis.

Keywords: Papillary thyroid carcinoma, Warthin-like papillary thyroid carcinoma, Cytological findings, Case report

Volume 24, Issue 2, Page 59-63

https://asianmedjam.com

Received: 11 December 2023 **Revised: 9 March 2024** **Accepted: 28 March 2024**

Anatomical pathology department, Buddasothorn Hospital, Chachoengsao, Thailand
* **Corresponding author:** Jirayu Visanuruk, M.D., Anatomical pathology department, Buddasothorn Hospital, Chachoengsao, Thailand, Email: j.visanuruk@gmail.com, Tel: +66 3881 7375 ext.1285

Introduction

Papillary thyroid carcinoma (PTC) stands is out as the most prevalent malignant tumor affecting the thyroid gland, with various subtypes identified based on distinctive histological features. These subtypes encompass classic, encapsulated classic, infiltrative follicular, diffuse sclerosing, solid/trabecular, tall cell, columnar cell, hobnail, clear cell, spindle cell, Warthin-like, oncocytic, and PTC with fibromatosis/fasciitis-like/desmoid-type stroma.[1]

Among these, the Warthin-like subtype (WLPTC) emerges as a rare entity with unique histological characteristics.[2-3] Cytologically, WLPTC typically exhibits numerous papillae and dispersed oncocytic cells, accompanied by a lymphoplasmacytic background and characteristic PTC nuclear features.[4] This report presents a case featuring uncommon oncocytic cells displaying a microfollicular pattern in a patient who was later histologically diagnosed with WLPTC.

Case Presentation

A 35-year-old female presented with a painless right neck nodule that persists for a duration of one year. She exhibited an absence does not have of familial predisposition to malignancy and reported an unremarkable medical history. Revealed the physical examination unveiled a palpable right thyroid nodule measuring 2 × 2 cm, devoid without revealed of tenderness. Ultrasonographic assessments disclosed an enlarged dimension of the right thyroid gland, accompanied by a poorly-defined hypoechoic mass exhibiting mild increased vascularity, measuring 2.9 × 2.2 × 2.1 cm. The results of thyroid function tests demonstrated values within the established normal range. Subsequently, a clinician conducted a fine-needle aspiration (FNA) for the purpose of cytological evaluation.

The FNA cytological findings unveiled showed an increased heightened cellularity within smears, delineated by a predominant microfollicle and clusters with follicular cell patterns, accompanied by rare small lymphocyte impingement in the clean background. The follicular cells exhibited focal oncocytic metaplasia, characterized by abundant amphophilic cytoplasm, mild anisonucleosis, nuclear crowding, mild irregular nuclear contour, finely granular chromatin, and a small distinct nucleolus. The presence of nuclear grooves was an infrequent observation, while very rare intranuclear cytoplasmic pseudoinclusions (INCIs) were rarely detetected. The diagnostic categorization assigned these observations to 2nd edition Bethesda category IV: Suspicious for follicular neoplasm, with the corresponding commentary recognized that although architectural features suggested a follicular neoplasm, specific oncocytic-like and nuclear attributes introduced the prospect of an invasive follicular subtype of PTC, oncocytic subtype of PTC, or NIFTP. Definitive the oncolytic differentiation among these entities proved to be formidable task based on the cytological a formidable specimens. Consequently, the patient underwent a right thyroid gland lobectomy.

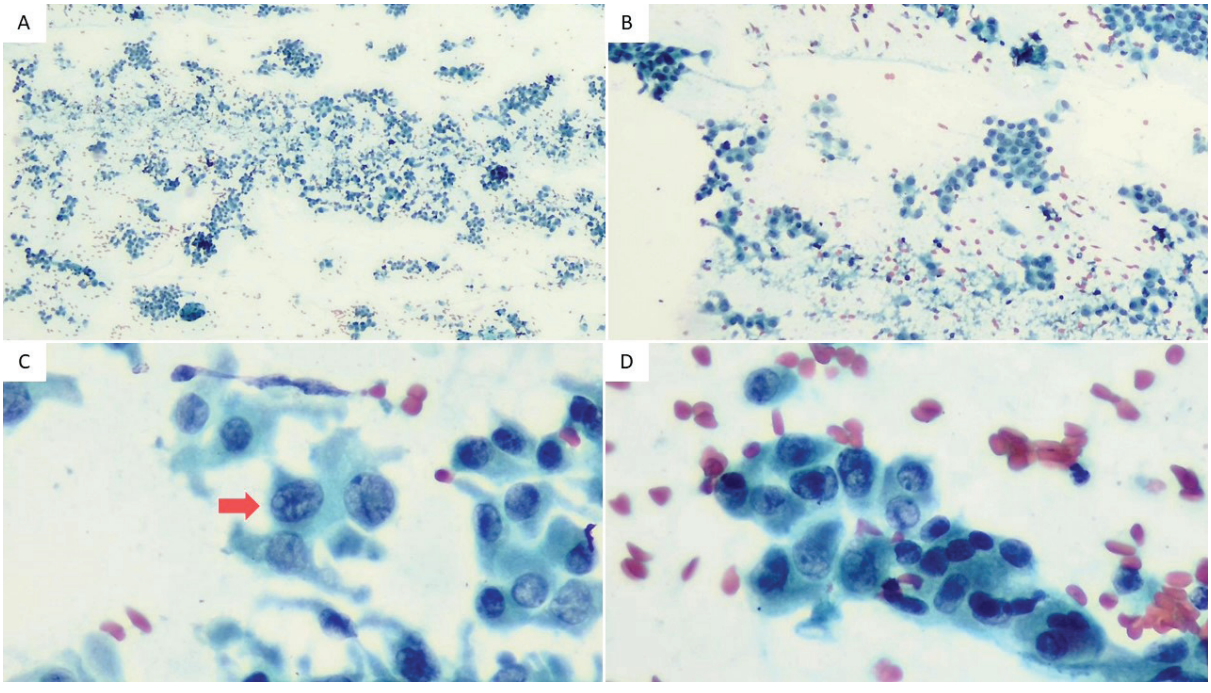

Figure 1 Cytological findings (A) Cytologically, low-power field shows hypercellularity with a predominantly microfollicles and cluster of follicular cells with clean background, (B) The follicular cell arranged in the clusters and microfollicles, (C-D) Some follicular cells exhibit anisonucleosis, nuclear atypia, and rare intranuclear cytoplasmic pseudoinclusions. (red arrow)

Macroscopically, the dimensions of the thyroid gland were quantified at 5.5 × 4.0 × 3.0 cm, with a corresponding weight of 13.0 grams. A serial sectioning process revealed a well-circumscribed, unencapsulated, firm, white-tan mass measuring 3.5 × 2.5 × 2.3 cm, predominantly occupied in the upper pole. Furthermore, the examination encompassed scrutiny of two isthmic lymph nodes.

The histopathological analysis unveiled a well-defined mass characterized by numerous papillae configurations lined by oncocytic cells, which presents a distinctive cell border, abundant eosinophilic granular cytoplasm, and nuclear clearing. Moreover, discernible features such as nuclear grooves and INCIs were readily observed. The papillae core exhibited conspicuous lymphoplasmacytic cells, impartinga visual resemblance to a Warthin tumor commonly found in the salivary gland. Significantly, indication of angioinvasion and lymphatic invasion were noted. Additionally, observed the presence of metastatic carcinoma was confirmed in two isthmic lymph nodes. The residual thyroidal parenchyma manifested diverse-sized follicles, accompanied by diffused lymphoplasmacytic cell aggregation and the formation of germinal centers.

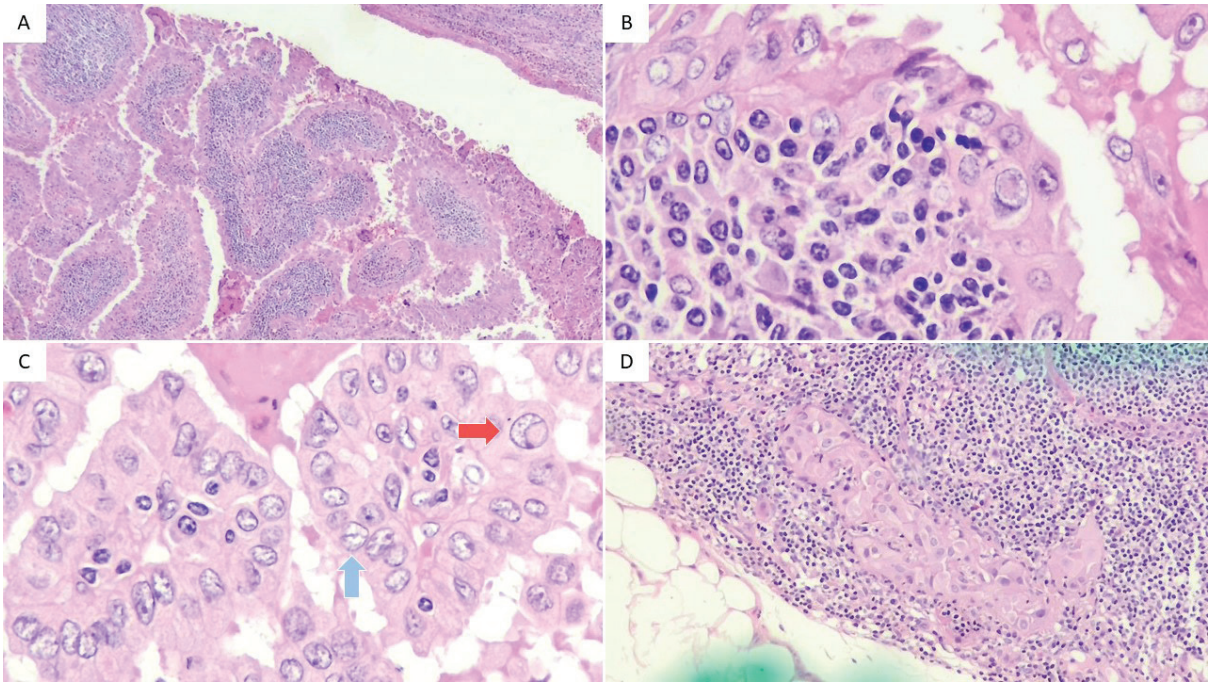

Figure 2 Histological findings (A) Microscopically, the tumor has a broad and hierarchy papillary configuration with dense lymphoid papillary cores, (B) The papillae are lined by dysplastic columnar cell showing oncocytic appearance and the lymphoid stroma comprises lymphoplasmacytic cells, (C) The dysplastic oncocytic cell shows some nuclear crowding, elongation, pleomorphism, nuclear groove (blue arrow), and INCIs (red arrow), (D) The isthmic lymph node reveals nests of metastatic cells.

The conclusive pathological diagnosis was a papillary thyroid carcinoma, precisely of the Warthin-like subtype, concomitant with two lymph node metastases. The pathological according to staging, as per the 8th edition AJCC,delineated the condition as pT2a N1. Subsequent to this determination, a complete thyroidectomy was executed, performed which elucidated chronic lymphocytic thyroiditis as the exclusive finding in the definitive histopathological examination. Following the surgical intervention, the patient underwent I131 radioiodine therapy. Currently for, she is undergoing routine follow-up, with a year having transpired, and is shows exhibiting favorable clinical outcome.

Discussion

Currently, the fifth WHO classification of Endocrine and Neuroendocrine tumors systematically classifies the subtypes of papillary thyroid carcinoma (PTC) into thirteen discrete subtypes, as previously delineated. The inception of Warthin-like papillary thyroid carcinoma (WLPTC) in the medical literature dates back to 1995 when Apel et al. formally introduced it.[2] This particular subtype acquired its nomenclature owing to its distinctive papillary configuration, characterized by the amalgamation of oncocytic cells displaying PTC nuclear features and a lymphoplasmacytic stroma, evoking the histological characteristics of the Warthin tumor commonly observed in the salivary gland. Furthermore, studies indicate that the prevalence of WLPTC is higher among females in the fourth decade of life.[5]

The cytological findings in WLPTC typically mirror those observed in classic PTC, characterized by an elevated presence of oncocytic cells and a discernable lymphoplasmacytic background.[4-5] However, it is imperativeto distinguish WLPTCL from other PTC subtypes that exhibit oncocytic cells alongside Hashimoto thyroiditis. In cases of polymorphic Hashimoto

thyroiditis, an abundance of polymorphous lymphoid cell populations is often evident, accompanied by oncocytic cells arranged in flattened sheets or isolated cells. In this specific case under consideration, the cytological examination unveils an unusually hypercellular smears, marked by numerous microfollicles and densely packed clusters of follicular cells manifesting focal oncocytic changes, questionable PTC nuclear features, and a constrained lymphoplasmacytic background.

The determination of reporting results, in adherence to the 2nd edition Bethesda system, pivots on distinguishing among CAT IV (subdivided into 2 categories): follicular neoplasm, and follicular neoplasm with Hurthle cell type, or CAT V: suspicious of PTC. Initially, the exclusion of CAT V was warranted due to the predominant microfollicle pattern and the presence of a few PTC-like nuclear features. Subsequently, CAT IV: follicular neoplasm, Hurthle cell type, ensued as only a focal oncocytic change was dismissed. Finally, the cytological report was documented as CAT IV: follicular neoplasm with a corresponding comment "Even though, the architectural features suggested a follicular neoplasm. There were some oncocytic-like and nuclear features that raise the possibility of an invasive follicular subtype of PTC, oncocytic subtype of PTC, or NIFTP. The definite distinction among these entities was not possible on the cytological specimens".

The complexities in this case arise from the limited presence of microfollicular patterns and INCIs, unlike what is typically observed in other previous studies.[3,5] However, definitively excluding the possibility of PTC still remains challenging. In order to preempt potential diagnostic inaccuracies, it is imperative for that cytologists and pathologists to exercise careful discernment when interpreting slides and formulating diagnoses within the framework of the Bethesda system. The inclusion of supplementary comments in diagnostic reports to explicate potential considerations proves to be of considerable significance. This practice not only amplifies the efficacy of communication with the operating physician but also functions as a proactive measure against erroneous diagnoses. Emphasizing the didactic purpose of this case report underscores the importance of proactively implementing measures to guarantee precise diagnoses and uphold the standards of optimal patient care.

Financial Support: None

Conflict of Interest: None to declare

Acknowledgment: The author would like to thank ChatGPT for language editing.

References

1. WHO Classification of Tumours Editorial Board. Endocrine and neuroendocrine tumours [Internet]. Lyon (France): International Agency for Research on Cancer; 2022 [cited 2023 Dec 25]. (WHO classification of tumours series, 5th ed.; vol. 10). Available from: https://tumourclassification.iarc.who.int/chapters/53. Published February, 2022. Accessed December 25th, 2023.
2. Apel RL, Asa SL, LiVolsi VA. Papillary Hurthle cell carcinoma with lymphocytic stroma: "Warthin-like tumor" of the thyroid. *American Journal of Surgical Pathology.* 1995;19(7): 810-814.
3. Missaoui AM, Hamza F, Belabed W, et al. Warthin-like papillary thyroid carcinoma: a case report and comprehensive review of the literature. *Front Endocrinol.* 2023; 14:1210943. Doi: 10.3389-fendo. 2023. 1210943
4. Cibas ES, Ali SZ. The 2017 Bethesda System for Reporting Thyroid Cytopathology. *Thyroid.*2017;27(11):1341-1346. doi: 10.1089 thy.2017.0500. PMID: 29091573
5. Wajahat M, Jeelani T, Gupta K, Bashir N. Warthin like papillary carcinoma - a rare variant of papillary carcinoma thyroid. *Hum Pathol: Case Rep.* 2018;13:21-23. http://dx.doi.org/10.1016/j.ehpc.2018.03.008