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A Rare Case of the Warthin-Like Papillary Thyroid Carcinoma

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1. Abstract

Warthin Like Papillary Thyroid Carcinoma (WLPTC) is a rare subtype of papillary carcinoma that in approximately 80% of the cases is associated with Hashimoto's thyroiditis. In this report we present a patient who was diagnosed as WLPTC in final pathologic diagnosis with a detailed discussion of clinical, radiologic and pathologic aspects of this rare entity.

2. Introduction

Papillary thyroid carcinoma (PTC) is the most frequently histopathologic subtype of differentiated thyroid cancers [1]. The most common presentation of the disease is a painless mass in thyroid region. However, depending on the size and extent of local invasion by the tumour, symptoms such as dyspnea or dysphagia may also be present. At the time of presentation, the majority of patients are euthyroid [2].

Beside physical examination, thyroid ultrasonography is the primary choice of imaging modality for initial evaluation of suspicious nodules. PTC typically appears on ultrasound as a solid, hypoechoic nodule with irregular margins and can demonstrate microcalcifications and increased internal vascularity. Features such as "taller-than-wide" shape and heterogenous echo texture further support malignant suspicion [3].

In cases where retrosternal extension is suspected as in our case, in presence of suspicious metastatic lymph nodes or extrathyroidal invasion magnetic resonance imaging (MRI) may be utilized for further assessment.

According to the current WHO classification and major clinicopathological series, the most common subtypes of papillary thyroid carcinoma are the classic subtype, follicular-patterned subtype, and tall cell subtype [4,5]. Warthin-like papillary thyroid carcinoma that first described in 1995 by Apel et al. due to its similarity to Warthin tumour of salivary gland is one of the rarest subtypes of PTC [4,6] It comprises approximately 0.2–1.9% of all papillary thyroid carcinomas [7].

In this study, we reported a case which was diagnosed as WLPTC and reviewed clinical and pathologic aspects of this rare subtype.

3. Case Presentation

A 73-year-old female patient presented with a painless left thyroid mass gradually increasing in size over the past two years. Her medical history was unsignificant except hypertension and chronic kidney disease. There was no history of radiation exposure or family history of thyroid malignancy.

On physical examination, a left sided firm, non-tender mobile mass measuring approximately 5 × 6 cm with smooth surface. No palpable cervical lymphadenopathy was detected. The remainder of head and neck examination was normal.

Laboratory investigations revealed subclinical hyperthyroidism with a decreased thyroid-stimulating hormone (TSH) level of 0.01 mIU/L (reference range: 0.35–4.94 mIU/L), normal free triiodothyronine (FT3) of 2.60 ng/dL (reference range: 1.58–3.91 ng/dL), and free thyroxine (FT4) of 1.20 ng/dL (reference range: 0.70–1.48 ng/dL) levels.

Neck ultrasonography (USG) revealed multiple nodules with microcalcifications in both lobes. The largest nodules measured 27x37 mm heterogeneous nodule in the right lobe and a 58x71 mm heterogeneous nodule in the left lobe. A fine-needle aspiration biopsy (FNAB) of the left lobe nodule was performed and reported as atypia of undetermined significance (Bethesda category III).

Magnetic resonance imaging (MRI) revealed a 50x55x67 mm nodule in the inferior aspect of the left thyroid lobe, extending retrosternally, exhibiting peripheral and heterogeneous contrast enhancement, diffusion restriction and containing areas of cystic degeneration. The nodule narrowed the trachea from the left lateral side.

Considering the size of the nodules, cytological findings and patient's history; the patient was scheduled for a total thyroidectomy. The operation was uneventful. Postoperatively RLN functions and calcium levels were within normal limits and she was discharged on postoperative fourth day.

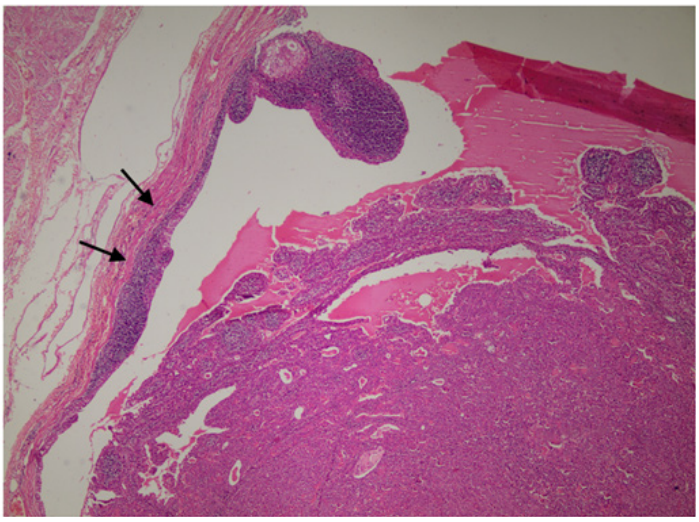

Figure 1 H&E x4

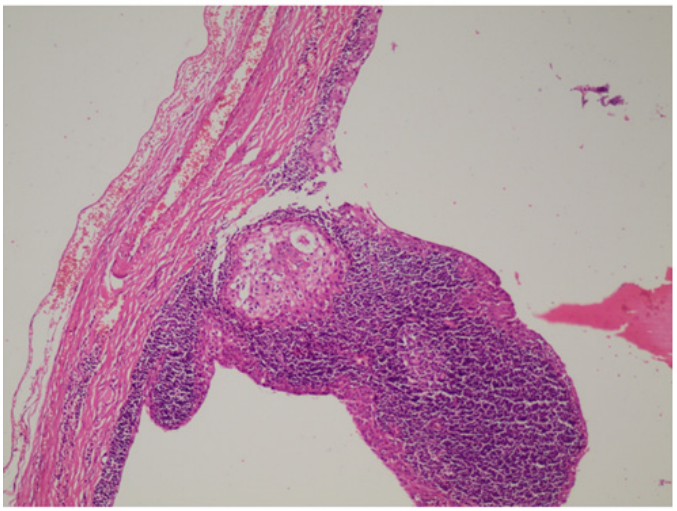

Figure 2 H&E x10.

Figure 1,2: Papillary thyroid carcinoma, Warthin-like variant: papillae with diffuse lymphocytic infiltration and lymphoid follicle.

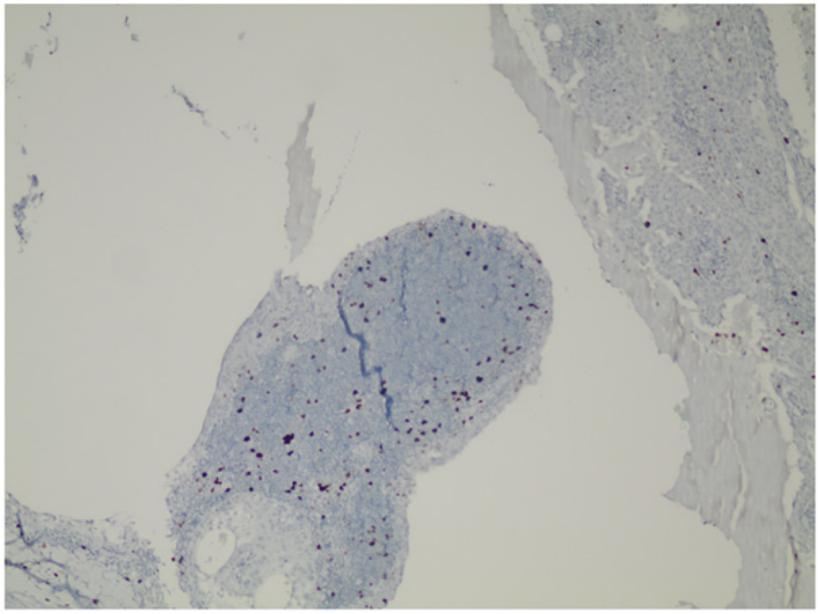

Figure 3: Papillary thyroid carcinoma, Warthin-like variant: low Ki67 index in cancer cells, almost all positive cells are stromal lymphocytes.

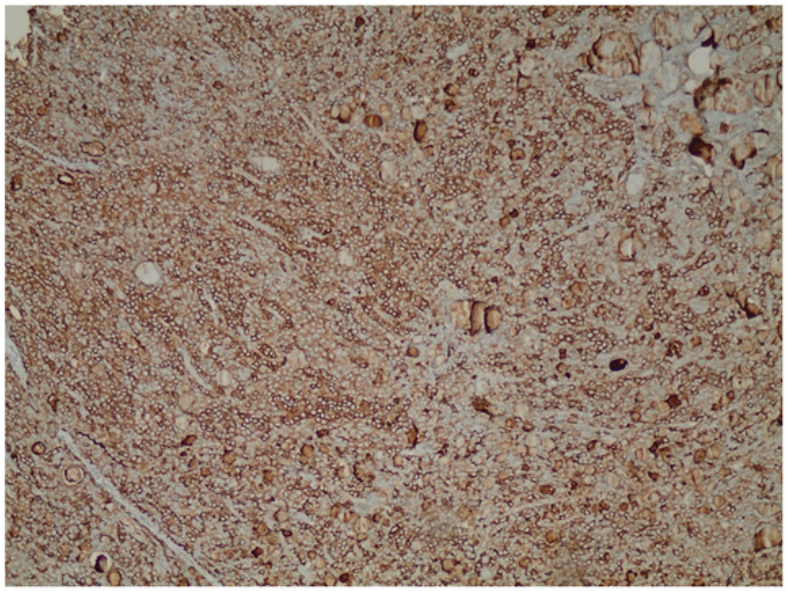

Figure 4 HBME1.

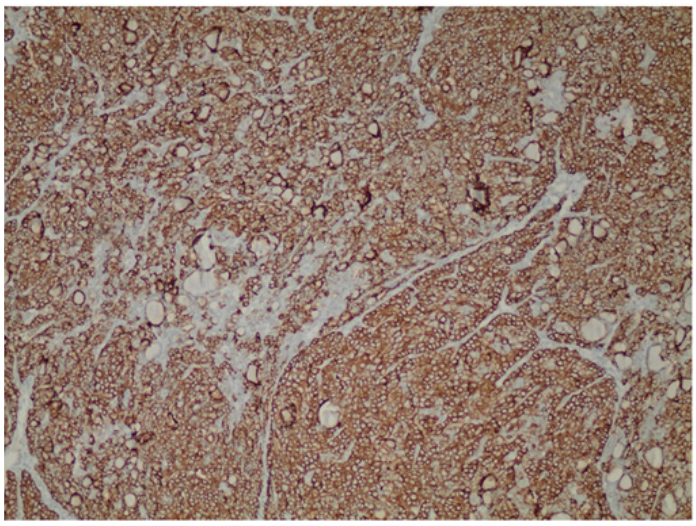

Figure 5 CK19

3.1. Histopathology

Histopathological evaluation of the nodule in the left lobe

It was identified as WLPTC. The tumour was consisted of pleomorphic oncocytic cells with abundant granular eosinophilic cytoplasm and prominent nuclei, developing in a papillary pattern in places. Dense lymphoplasmacytic infiltration was detected in the fibrovascular cores of the papillae. Tumour cells showed nuclear enlargement, overlapping, and chromatin clearing, and formed focal follicular structures. Immunohistochemical analysis of the tumours included expression testing for HBME1, Galectin 3, and CK19. Loss of CD56 expression was observed. Ki-67 proliferative activity was approximately 3-4% in the hot spot region. The presence of background lymphocytic thyroiditis is confirmed.

4. Discussion

The Warthin-like variant of papillary carcinoma is an uncommon variant of papillary carcinoma thyroid (PTC) [1]. The variant was first described by Apel et al. in 1969 as the histopathological features closely resemble Warthin tumour of the salivary gland [6].

Similar to classic PTC, WLPTC affects women more commonly than men, and the most frequently affected age group is 30-50 years-old. The clinical presentation is the same as that for other differentiated thyroid tumours [8].

There are no specific radiological findings for diagnosing WLPTC [9]. Ultrasound findings are similar to other differentiated thyroid malignant nodules [10]. US findings such as marked hypo echogenicity, micro lobulated or irregular margin, presence of microcalcifications, and taller-than-wide shape nodule [11].

FNAB may also result in inconclusive findings [9]. In our case, FNAB was reported as atypia of undetermined significance (Bethesda category III). The histopathological diagnosis of WLPTC is characterized by a papillary architecture with fibrovascular stalks that are infiltrated by lymphoid tissue and lined by tumour cells showing oncocytic change and the nuclear features of papillary thyroid carcinoma. The surrounding non-neoplastic thyroid parenchyma is also typically associated with lymphocytic infiltration [12].

The WLPTC variant is strongly associated with Hashimoto's thyroiditis in 80% of cases [13]. Hashimoto's thyroiditis represents a histological manifestation of a humoral and cytotoxic T cell-mediated immune response against PTC that acts as a protective mechanism controlling tumor growth [14]. This is believed to restrain neoplastic progression [8].

Proper diagnosis is important since the prognosis and treatment may be different for each histological variant. The differential diagnosis of WLPTC includes Hashimoto's thyroiditis, Hurthle cell neoplasm, classical subtype PTC arising in a thyroiditis background, tall cell subtype, and oncocytic subtype of PTC [13]. Differentiating WLPTC from other PTC subtypes is critical, as some, such as the tall cell variant, have more aggressive behaviour and require different management [9].

WLPTC generally has a similar prognosis to PTC that it seems to be less aggressive when associated with Hashimoto's thyroiditis the presence of which is considered a good prognostic factor [15]. Lymphoid tissue is thought to slow down neoplastic progression [8]. Yeo et al. showed that there were no significant differences between WLPTC and classical PTC in clinicopathological factors (age, gender, multifocality, pT stage, extrathyroidal spread, and lymph node metastasis) except for tumour size, HT, and BRAF changes [13]. They compered WLPTC and classic PTC with HT only, there were no significant differences in age, sex, multifocality, pT stage, extrathyroid extension, lymph node metastasis. They found that the tumour size in WLPTC cases was slightly larger than in classical PTC cases. However, no evidence was presented to substantiate the claim that this finding is indicative of a poor prognosis. They suggested that the pathologic and clinical behaviours of WLPTCs are similar to those of classic PTC, especially classic PTC with HT [13].

The management of WLPTC is similar to the standard treatment used in classic PTC, which has similar staging and risk category.

Treatment typically involves lobectomy or total thyroidectomy;

the procedure is determined by the size of the tumour, the extent of its spread, and the presence of a suspicious nodule in the opposite lobe. Postoperative radioactive iodine ablation may be considered for higher-stage cases [8]. WLPTC generally has a favourable prognosis, with low rates of recurrence, extrathyroidal extension, and distant metastasis [15].

5. Conclusion

The Warthin-like papillary thyroid carcinoma is an uncommon subtype of papillary thyroid carcinoma that comprises between 0.2 and 1.9% of all cases. It is frequently associated with Hashimoto's thyroiditis. On the basis of its unique morphology which is noted as a resemblance to Warthin tumours of the salivary glands is the key factor for diagnosis of this rare entity. The surgical and postoperative management of this condition is consistent is similar to the approach in the surgical treatment of classic differentiated thyroid cancer. The prognosis appears to be favourable as in its classic PTC. It is important to differentiate WLPTC from other PTC subtypes to ensure an accurate diagnosis and effective treatment.

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