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Case Report

Papillary Thyroid Carcinoma with Aggressive Histological Variants Masquerading as a Cystic Lymphangioma: A Case Report

Lita Z, Labib O*, Lahjaouej M, Loudghiri M, Bijou W, Oukessou Y, Rouadi S, Abada R and Mahtar M

ENT Department 20 aout Hospital Casablanca Morocco

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***Corresponding author:** Oussama Labib, ENT department 20 august hospital Casablanca, Morocco

A B S T R A C T

Introduction: Papillary thyroid carcinoma (PTC) is the most common thyroid malignancy and generally carries an excellent prognosis. However, certain histological variants, such as the tall cell and hobnail subtypes, are associated with more aggressive behavior, local invasion, and poorer outcomes. Presentation as a large cystic cervical mass mimicking a benign lesion such as a cystic lymphangioma is exceptionally uncommon and can lead to a substantial diagnostic and therapeutic challenge.

Case presentation: We report the case of a 28-year-old man, with a history of blindness of undetermined etiology since the age of 11, who presented with a progressively enlarging right laterocervical mass evolving over 1 year. Computed tomography revealed a large lobulated mass with mixed cystic and solid components and calcifications, measuring 94 mm, displacing the aerodigestive axis and the thyroid gland, radiologically suggestive of a cystic lymphangioma. Intraoperatively, the mass was found to be firm, fixed, and densely adherent to the aerodigestive axis and adjacent musculature, precluding complete resection. Histopathological examination of the surgical specimen revealed classic-type papillary thyroid carcinoma of high grade, with foci of tall cell and hobnail cell subtypes.

Conclusion: This case underscores that papillary thyroid carcinoma, particularly with aggressive histological variants, can present atypically as a large cystic cervical mass mimicking benign lesion such as cystic lymphangioma. Preoperative radiological findings should not exclude malignancy, and histopathological confirmation remains essential, especially in cases with unusual local invasion.

Keywords: Papillary thyroid carcinoma; Tall cell variant; Hobnail variant; Cystic lymphangioma; Cervical mass

Introduction

Papillary thyroid carcinoma (PTC) is the most common endocrine malignancy and, in its classic form, is generally associated with an excellent prognosis and a 10-year relative survival rate exceeding 95%[1]. However, several histological variants - most notably the tall cell, columnar cell, and hobnail variants - have been recognized as biologically more aggressive, with higher rates of extrathyroidal extension, vascular invasion, lymph node and distant metastases, and reduced disease-free survival compared with classic PTC[1,2].

The tall cell variant is the most frequent aggressive subtype of PTC, defined by the presence of tumor cells at least twice as tall as they are wide in a significant proportion of the tumor, and is associated with a 10-year survival approximately 10% lower than classic PTC[2]. The hobnail variant, more recently individualized, is characterized by loss of cellular polarity, apically placed nuclei, and a micropapillary growth pattern in at least 30% of tumor cells; despite its rarity, it carries a particularly poor prognosis, with frequent extrathyroidal extension and distant metastases[3].

Beyond its histological aggressiveness, PTC can also present in clinically unusual ways. A solitary lateral cervical cystic mass, without a clinically or radiologically evident thyroid lesion, is a well-documented but uncommon presentation, most often corresponding to cystic degeneration of a metastatic lymph node from an occult primary tumor. In such cases, imaging and even cytological findings can be misleading, closely mimicking benign cystic lesions such as branchial cleft cysts or cystic lymphangiomas, occasionally leading to inappropriate preoperative management[4,5].

Through this case report, we aim to illustrate an atypical presentation of high-grade papillary thyroid carcinoma with aggressive tall cell and hobnail features, masquerading as a large cystic cervical mass initially suggestive of a cystic lymphangioma, and to underscore the diagnostic and therapeutic challenges raised by this combination of an unusual clinical presentation and an aggressive histological profile.

Case Presentation

A 28-year-old man, with a history of blindness of undetermined etiology since the age of 11, and no other notable past medical history, presented with a right anterolateral cervical mass evolving over 1 year, with progressive increase in size.

Physical examination revealed a large, firm, mobile right laterocervical swelling.

Preoperative laboratory workup was unremarkable.

Computed tomography (CT) showed a lobulated right laterocervical mass with mixed cystic and solid components and calcifications, measuring 94 mm in greatest dimension, displacing the aerodigestive axis and the thyroid gland to the contralateral side **(Figure 1)**.

The patient underwent exploratory cervicotomy. Intraoperatively, the mass was firm, fixed, and densely adherent to the aerodigestive axis and adjacent musculature. Given this extensive adherence, resection was incomplete, and the surgical specimen was sent for histopathological analysis.

Histopathological examination revealed classic-type papillary thyroid carcinoma of high grade, with foci of tall cell and hobnail cell subtypes.

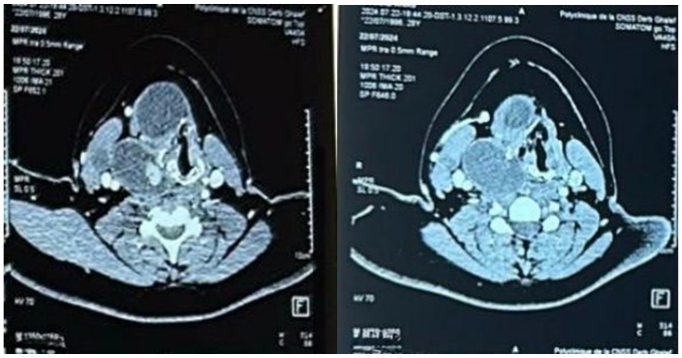

Figure 1: Axial contrast-enhanced CT scan showing a large lobulated right laterocervical mass with mixed cystic and solid components and calcifications, displacing the aerodigestive axis toward the contralateral side.

Discussion

This case illustrates two distinct but converging diagnostic challenges: an atypical radiological and intraoperative presentation mimicking a benign cystic lesion, and an aggressive histological profile combining tall cell and hobnail features within an otherwise classic papillary thyroid carcinoma.

A solitary, large, predominantly cystic lateral cervical mass in a young adult, without a clinically evident thyroid nodule, is a well-recognized but uncommon trap in head and neck surgery. Such lesions are most often benign - branchial cleft cysts, cystic lymphangiomas, or reactive lymphadenopathy - which explains why a cystic lymphangioma was initially suspected in our patient. However, several series have shown that a cystic neck mass can correspond to the cystic degeneration of a metastatic lymph node from an occult, sometimes microscopic, papillary thyroid carcinoma, with imaging and even fine-needle aspiration cytology occasionally failing to raise suspicion of malignancy preoperatively[4,5]. In one reported case, both ultrasound and MRI were initially interpreted as consistent with a lymphangioma, with the correct diagnosis only established after histopathological examination of the resected specimen - a diagnostic trajectory strikingly similar to that of our patient[5].

In our case, the extensive size of the mass (94 mm), its dense adherence to the aerodigestive axis and adjacent musculature, and the impossibility of complete resection are atypical for a simple metastatic cystic lymph node and instead suggest locally advanced primary disease with direct extrathyroidal extension - a pattern more commonly associated with aggressive histological variants[1]. This underscores that intraoperative findings inconsistent with a presumed benign diagnosis, such as marked fixation and infiltration of surrounding structures, should prompt an intraoperative decision to halt an unsafe dissection and await histopathological confirmation, exactly as was done in this case, rather than proceeding with a potentially incomplete or hazardous resection.

The histopathological findings in this case - classic-type papillary thyroid carcinoma with foci of tall cell and hobnail cell subtypes - carry significant prognostic weight. The tall cell variant, the most common aggressive subtype of PTC, is associated with more frequent vascular invasion, extrathyroidal

extension, and lymph node and distant metastases, translating into a 10-year survival approximately 10% lower than classic PTC[2]. The hobnail variant, although rarer, is associated with even more unfavourable outcomes: a recent systematic review and meta-analysis reported extrathyroidal extension in half of cases, lymph node metastasis in two-thirds, and distant metastasis in nearly a quarter of patients, with tumor size and older age as significant predictors of mortality[3]. The coexistence of both aggressive subtypes within the same tumor, as observed in our patient, likely compounds this unfavorable biological behavior and supports the extensive local invasion and technically unresectable presentation encountered intraoperatively.

This combination of an atypical, misleading clinical presentation and an aggressive underlying histology carries important practical implications. First, it reinforces that radiological feature suggestive of a benign cystic lesion, including calcifications and mixed cystic-solid architecture, should not exclude malignancy, particularly when the mass is large or exerts significant mass effect on adjacent structures[4,5]. Second, it highlights the value of a staged surgical approach - incomplete, safe resection with histopathological confirmation followed by multidisciplinary discussion - when intraoperative findings raise concern for malignancy in a technically unresectable or high-risk lesion, allowing subsequent management to be tailored to the confirmed diagnosis and its aggressive histological features.

Conclusion

This case illustrates that papillary thyroid carcinoma, particularly when combining aggressive histological subtypes such as tall cell and hobnail variants, can present atypically as a large, predominantly cystic cervical mass mimicking a benign lesion such as a cystic lymphangioma. Neither imaging features nor intraoperative appearance can reliably exclude malignancy in such presentations, and histopathological confirmation remains indispensable. When intraoperative findings suggest unresectability or malignancy, halting dissection in Favor of histopathological diagnosis allows for safer, better-informed subsequent management tailored to the tumor's true biological aggressiveness.

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