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RESEARCH ARTICLE

POORLY DIFFERENTIATED THYROID CARCINOMA PROBABLY ARISING FROM A PAPILLARY THYROID CARCINOMA: A REPORT OF AN UNCOMMON ENTITY

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ABSTRACT

Poorly differentiated thyroid carcinoma (PDTC) is a rare thyroid cancer histotype, with a reported incidence from 2 to 15% of all thyroid malignancies. It represents a heterogeneous group that lies intermediately between well-differentiated thyroid carcinoma (WDTC) and anaplastic thyroid carcinoma (ATC). Most of the PDTC develop de novo while some of them arisefrom preexisting follicular or papillary carcinoma or from pre-existing nodular goiter.

We hereby report a case of PDTCprobably arising from a papillary thyroid carcinoma, in a 60-year-old female presenting with anterior neck swelling and pain for two months. On examination, the patient had anterior baseline neck swelling, which was non tender, hard in consistency and measuring 8 cm. Computed Tomography scan (CT) showed multinodular and heterogeneous aspect of the right thyroid lobe with suspect ipsilateral cervical lymphadenopathy and thrombosis of the internal jugular vein. Lymph node biopsy showed a massive lymph node metastasis of carcinoma other than papillary thyroid carcinoma.

The decision was to perform subtotal thyroidectomy followed by completion thyroidectomy and radical neck dissection. The diagnosis of PDTCarising from a papillary thyroid carcinomawas made.

PDTC is a heterogeneous group of follicular cell thyroid cancers that has a diagnostic challenge due to its rarity and ambiguous diagnostic criteria. This case support literature data concerning PDTC etiologies.

INTRODUCTION

Poorly differentiated thyroid carcinoma (PDTC) is uncommon follicular cell neoplasm of thyroid with a reported incidence from 2 to 15% of all thyroid malignancies (1). It was introduced in the literature in 1983 by Sakamoto et al.then in 1984 by Carcangiu et al (2-3). This entity is defined as "a follicular cell neoplasm that shows limited evidence of follicular cell differentiation and is morphologically and behaviorally intermediate between differentiated (follicular and papillary) carcinomas and anaplastic carcinoma." (4). Most of the PDTC develop de novo while some of them arisefrom preexisting follicular or papillary carcinoma or from pre-existing nodular goiter (5-6). The knowledge regarding the optimal management of PDTC remains limited because of its rarity, lack of defined diagnostic criteria and intermittent biologic aggressiveness. We hereby report a rare case of PDTCprobably arising from a papillary thyroid carcinoma.

Case presentation

A 60-year-old female presented with anterior neck swelling and pain evolving since two months. On examination, the patient had anterior baseline neck swelling, which was non tender, hard in consistency and measuring 8 cm. Computed Tomography scan (CT) showed multinodular and heterogeneous aspect of the right thyroid lobe with suspect ipsilateral cervical lymphadenopathy and thrombosis of the internal jugular vein (Figure1). The patient had also, multiple pulmonary nodules detected with CT scanning. Lymph node biopsy showed a massive metastasis of carcinoma other than papillary thyroid carcinoma.

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The decision was to perform right loboisthmectomy with frozen section, then completion thyroidectomy with central lymph node dissection.

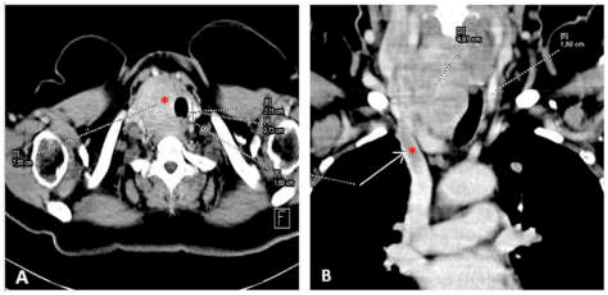

Figure 1 CT scan showing multinodular and heterogeneous aspect of the right thyroid lobe measured 7.55 cm(A),(asterisks)and thrombosis of the internal jugular vein (B),(asterisks).

On gross examination, the specimen of right loboisthmectomy measured 8 x 6 x 4 cm. At the cut, it was occupied by a tumor, with beige color, lobulated and which was infiltrating the capsule (Figure2). The left lobectomy specimen measured 3.5 x 2.5 x 1.2 cm and showed no macroscopic lesions at the cut. Twenty-nine lymph nodes were also received and ranging in size from 0.5 to 1 cm in diameter.

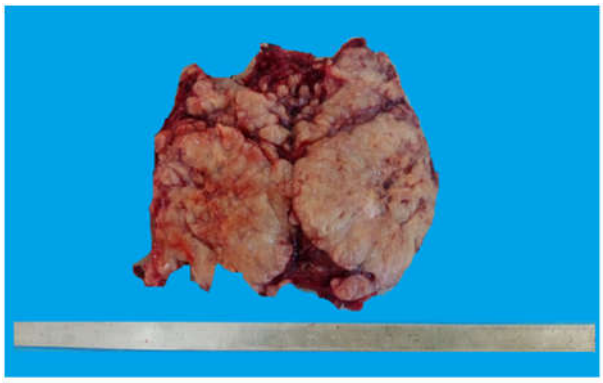

Figure 2 Gross photograph of cut section showing a lobulated tumor with beige color.

Microscopically, the tumor was composed of solid nests, cords and some colloid‑filled micro-follicles. The tumor cells had monomorphic and convoluted nuclei with some mitosis (4 mitoses per 10 high power fields). Focally, there were papillary and follicular growth pattern, showing nuclear features of a papillary thyroid carcinoma (Figure3). The stroma was fibrous and scanty. The tumor showed vascular invasion and focally necrotic areas. It was extending beyond the capsule and infiltrating the peri-thyroid adipose tissue, adjacent striated muscle and circumferential surgical margins. There were 23 metastatic lymph nodes. The left lobe showed no histological lesions.Based on the above features, diagnosis of PDTCarising from a papillary thyroid carcinomawas given. Proceeding from radiological and pathological data, the tumor was classified pT4b N1b M2 (stage IV B). The patient subsequently had Radioactive Iodine (I-131) Therapy, external radiotherapy and chemotherapy for secondary pulmonary lesions.

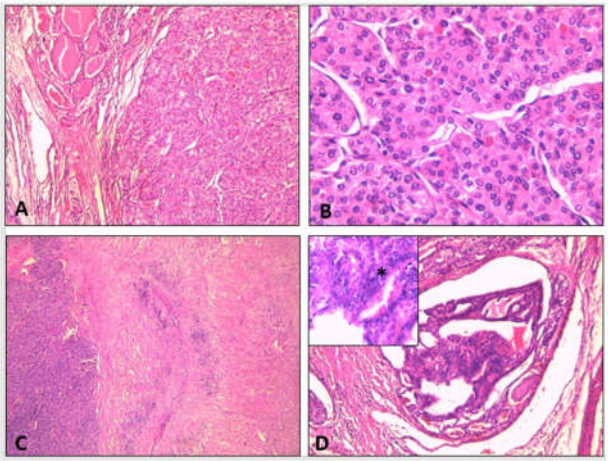

Figure 3 Histological findings, hematoxylin and eosin stain, showing tumor area comprising solid nests along with normal thyroid (A),(x100). (B) The tumor cells are mitotically active with convoluted nuclei (x400). (C) The Tumor shows focally necrotic areas (x100). (D) Papillary growth pattern (x200), showing nuclear features of a papillary thyroid carcinoma(asterisks)(x400).

DISCUSSION

PDTC is uncommon follicular cell neoplasm of thyroid. Much of the confusion and controversy surrounding PDTC comes from the lack of consensus regarding diagnostic criteria (7). The etiology of PDTC may be related to iodine deficiency given the association of poorly differentiated carcinoma with longstanding goiter (5). Some tumors arise as aresult of loss of differentiation (synchronous ormetachronous) of follicular or papillary carcinomas (often of the follicular variant), while others appear de novo (7). Clinically, PDTC presents as large, rapidly growing mass presenting in the fifth decade with a female predominance (8). It tends to present as an advanced disease with high risk of distant metastases, which are reported in about 15% of cases (7). These findings were present in this case. Pathological study shows in the macroscopic examination that PDTC may be partially encapsulated with a median size of 5 cm. It is usually solid with light-brown to grey color and show soft, pale areas of necrosis. The growth margins are often pushing and the extension beyond the thyroid capsule is common (7). The histopathological diagnostic criteria for PDTC are listed in the Turin consensusproposal, which was developed in 2006 during a consensus meeting held in Turin, Italy and it is accepted and integrated in the WHO classification 2017 (9). Indeed, Turin consensus recommends an algorithmic approach to the histopathological diagnosis of PDTC using the following criteria: **"**(I) diagnosis of carcinoma of follicular cell derivation by conventional criteria; (II) a solid, trabecular, or insular growth pattern; (III) absence of the conventional nuclear features of papillary thyroid carcinoma; and (IV) at least one of the following three features: convoluted nuclei, ≥ 3 mitoses per 10 high-power fields and tumor necrosis" (9). Thus, the diagnosis of PDTC can purely be made on morphology according to the above‑mentioned criteria. It is interesting to note thatthe solid, trabecular and insular patterns can coexist with differentiated components of the papillary and follicular types (10), as what was found in the present case. Therefore, meticulous microscopic examination and extensive sampling are crucial to establish an accurate and a relevant histological diagnosis.

PDTC is a follicular thyroid epithelium‑derived tumor that shows general features intermediate between thoseof well-differentiated and anaplasticcarcinomas.

Immunohistochemically, the tumor cells express thyroglobulinand thyroidtranscription factor‑1 (9). The positivity for thyroglobulin excludes the diagnosis of anaplastic carcinoma.

Due to rarity of this tumor, it is difficult to draw conclusions from the literature as to the best treatment option for PDTC (11). The principal treatment approach of this entity is the surgical management with thyroidectomy and radical neck dissection (12). The use of radioactive iodine, chemotherapyor external radiation therapy is still controversial.

The prognosis for PDTC is worse than well-differentiated thyroid carcinomas but it is better than anaplastic carcinoma with 50-60% as an overall 5‑year survival rate (9). Response to radioiodine treatment is generally poor. Prognosis depends on lymph node involvement, distant metastasis, completeness of surgery, and responsiveness to radioiodine therapy (4). According to WHO classification 2017, the most robust prognostic factors are stage and patient age (9).

CONCLUSION

We hereby report a rare case of PDTC arising probably in papillary thyroid carcinoma based on the histopathological diagnosis. PDTC is an aggressive thyroid cancer histotype, which remain a diagnostic challenge due to its rarity and ambiguous diagnostic criteria. It is therefore important to recognize and ascertain this entity for appropriate management and better prognosis.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Authors' contributions

Seifeddine Ben Hammouda: designed and wrote the article. Amel El Korbi: specimen contribution. Nouha Ben Abdeljelil, AbdelfattehZakhama and Rim Hadhri: conceived and design of the article; also coordination and helped to draft the manuscript. AhlemBellalah and ManelNjima: collected clinical information and prepared the figures. All authors read and approved the final manuscript.

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References

1. Sanders EM, Jr., LiVolsi VA, Brierley J, Shin J, Randolph GW. An evidencebased review of poorly differentiated thyroid cancer. World journal of surgery 2007; 31:934-945.
2. Sakamoto A, Kasai N, Sugano H. Poorly differentiated carcinoma of the thyroid. A clinicopathologic entity for a high-risk group of papillary and follicular carcinomas. Cancer 1983; 52:1849-55.
3. Carcangiu ML, Zampi G, Rosai J. Poorly differentiated ("insular") thyroid carcinoma. A reinterpretation of Langhans' "wuchernde Struma". Am J SurgPathol 1984; 8:655-68.
4. Tallini G. Poorly differentiated thyroid carcinoma. Are we there yet? EndocrPathol 2011; 22(4):190-4.
5. Yasuoka H, Nakamura Y, Hirokawa M, Yoshida K, Anno K, Tori M et al. A rare case of poorly differentiated thyroid carcinoma probably arising from a nodular goiter. BMC Clinical Pathology. 2017;17(1).
6. Ginesa et al. Poorly differentiated thyroid carcinoma: an evolving entity. Diagnostic Histopathology. 2011; 17(3):114-115.
7. Sobrinho-Simoes M A-SJ, Tallini G, Santoro M, Volante M, Pilotti S, Carcangiu ML et al. Poorly differentiated carcinoma. In: Pathology and genetics of tumors of endocrine Organs. Edited by De Lellis RA LR, Heitz PU, Eng C., 3rd edn. Lyon: IARC Press; 2004: 73-76.
8. Volante M, Landolfi S, Chiusa L, Palestini N, Motta M, CodegoneA,et al. Poorly differentiated carcinomas of the thyroid with trabecular, insular, and solid patterns: A clinicopathologic study of 183 patients. Cancer 2004; 100:950‑7.
9. Lloyd RV, Osamura RY, Klöppel G, Rosai J. (Eds): WHO classification of tumours of endocrine organs, 4thedn. Lyon: IARC;2017; 10:100-103.
10. Volante M, Fornari A, Rapa I, Papott M. Poorly differentiated carcinoma of the thyroid gland. Pathol Case Rev 2009; 14:219‑23.
11. Dettmer M, Schmitt A, Komminoth P, Perren. A. Poorly differentiated thyroid carcinoma: an underdiagnosed entity. Der Pathologe 2019; 40:227–234.
12. Wreesmann VB, Ghossein RA, Patel SG, et al. Genome-wide appraisal of thyroid cancer progression. Am J Pathol. 2002; 161:1549-1556.