DE GRUYTER OPEN

ARS Medica Tomitana - 2018; 1(24): pag. 15 - 19
doi:10.2478/arsm-2018-0004

ENCAPSULATED FOLLICULAR VARIANT OF THYROID PAPILLARY CARCINOMA - CASE REPORT AND DIFFERENTIAL DIAGNOSIS DISCUSSION

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ABSTRACT

Papillary carcinoma is the most common type of epithelial thyroid cancer in women, especially in the reproductive period, accounting for about 75-80% of well-differentiated cancers at this level. One of its variants, follicular encapsulated thyroid carcinoma, is a well-differentiated malignant tumor with good prognosis which, despite the presence of vascular and capsular invasion, rarely causes metastasis, if fully resected. We present the case of a young patient who presented with dysphagia and a painless cystic nodular lesion of the thyroid, and underwent thyroidectomy. The histopathological diagnosis of the lesion was a challenge, being based on the correlation of clear criteria, given the existence of numerous lesions with follicular pattern in the thyroid.

Keywords: Thyroid papillary carcinoma, follicular, encapsulated, vascular invasion, differential diagnosis

Introduction

Thyroid follicular papillary carcinoma is a type of malignant epithelial tumor characterized by associated aspects of encapsulated carcinoma and follicular pattern of papillary carcinoma, with a very good evolution and prognosis compared to unincapsulated variants (1). It is a very controversial form of cancer, and in medical practice represents some of the cases that are sent for evaluation by second opinion.

Encapsulated form of papillary follicular carcinoma is a microscopical entity of papillary carcinoma with good prognosis or even very good, which rarely give metastases, although these carcinomas are associated with vascular and capsular invasion as in the case presented. When papillary carcinomas cause metastasis, they occur especially in lymph nodes, different from follicular carcinomas. Regardless of the type of metastasis, prognosis of differentiated thyroid cancers is good, as long as tumor resection is complete (3).

Case presentation

We present, in this work, the report of a 43-year-old patient, who was submitted with dysphagia and anterior neck swelling, which,

following the echographic evaluation, was admitted to the Surgery Department, with the diagnosis of right painless thyroid lesion. The patient's medical history was insignificant.

Following the correlation of the clinical manifestations with hormonal determinations and the echographic examination, total extracapsular thyroidectomy was completed in the Department of Surgery.

After histopathological processing of the piece in the laboratory, microscopic images were taken with a HURON Slide Scanner. Immunohistochemistry techniques were required to confirm the diagnosis and exclude other histopathological entities.

Results

Gross examination revealed a 4/2/0.5 cm straight thyroid lobe with a weight of 8 grams, with the presence on the second section of two cystic lesions with diameters of 0.5 and 1 cm (with hemorrhagic fluid content, continuously with a 1 cm, well defined, grayish nodular lesion with macroscopically free surgical resection edges. The edges were colored (upper with red, inferior to black, previously with green), and longitudinal serial sections were made from the lateral to the medial.

The left thyroid lobe with a mass of 7 grams and dimensions similar to the right lobe. It was represented by a 0.5 cm, homogeneous, white-gray, elastic node.

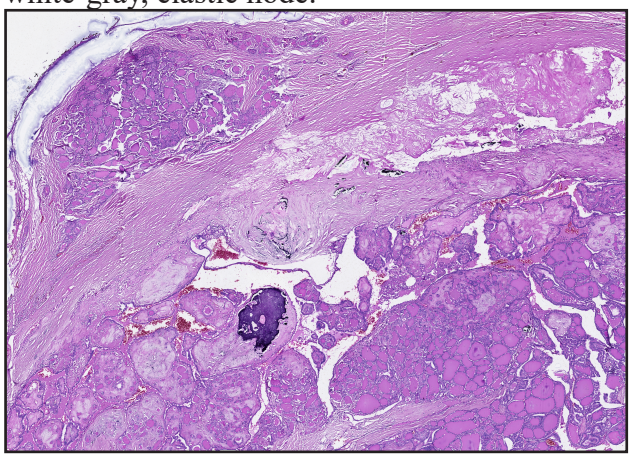

Fig. 1 - Cystic encapsulated node with tumor proliferation with partial follicular and papillary architecture and tumor calcifications, Hematoxylin-Eosin staining

Histopathological examination of the thyroid lobe reveals a cystic encapsulated nodule with solid endochistic proliferation with partially papillary and follicular architecture, with papillary nuclei, rare mitoses, intratumoral calcifications.

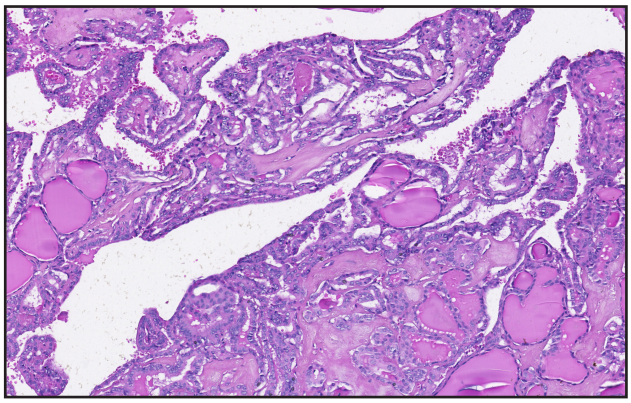

Fig. 2 - nuclei with papillary characters, Hematoxylin-Eosin staining

The special stain van Gieson for collagen allows a better visualization of the capsule, capsular and vascular invasion. Capsular and extracapsular invasion were present. Vascular invasion was present. Parathyroid tissue without tumor invasion. A non-macroscopically benign, benign hyperplastic nodule was associated.

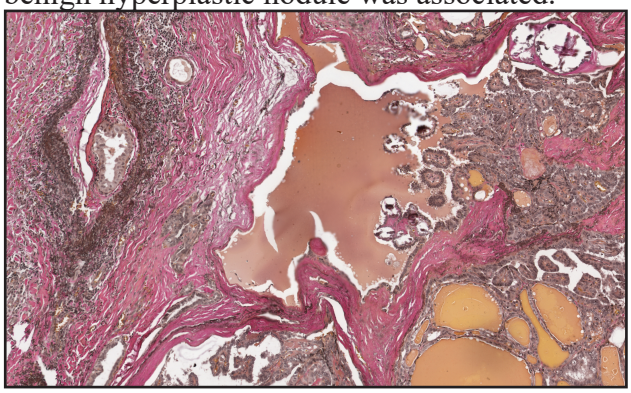

Fig.3 - van Gieson Special stain for Collagen, highlighting the capsule and vascular invasion

Examination of the left thyroid lobe revealed a benign architecture and cytology, although macroscopically a node was visualized.

Immunohistochemical examination was required.

The application of monoclonal antibodies (BIOCARE), Plymer/HRP/DAB method, highlighted the following:

- Intense positive reaction for CK19 in neoplastic cells (100%), weakly

positive in rare nuclei of the normal tyroid and negative in the benign follicular hyperplastic nodule;

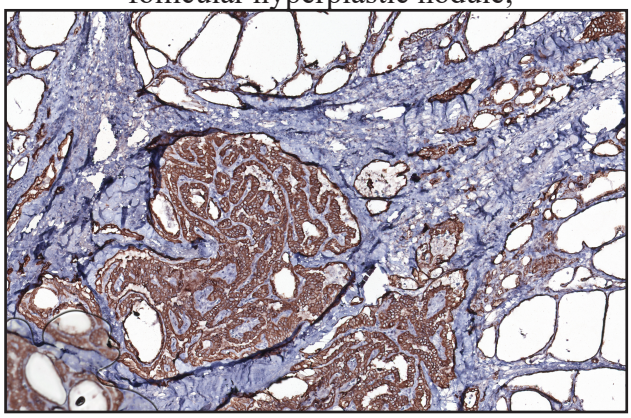

Fig.4 - Intense positive reaction for CK19 in membranes of neoplastic cells

- Intense positive reaction for Tyroglobulin in neoplasic proliferation and in non-tumoral thyroid tissue;

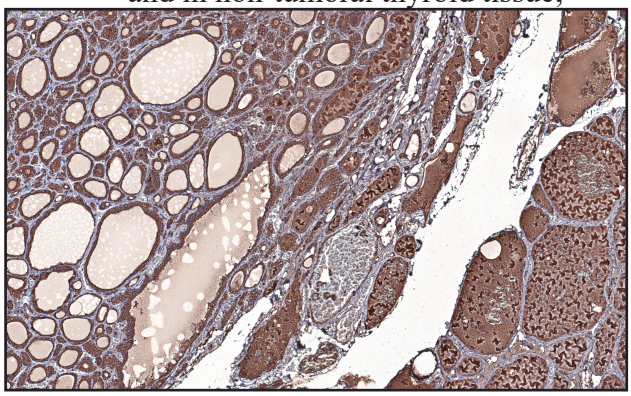

Fig.5 - Intense positive reaction for Tyroglobulin in neoplastic and non-neoplastic thyroid tissue

- Ki 67 positive in proportion of 5% of tumoral nuclei.

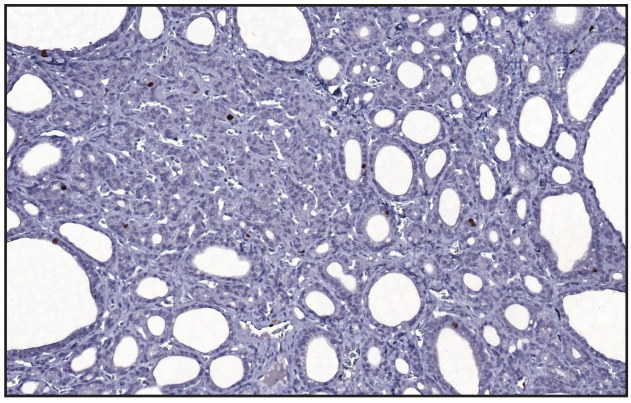

Fig.6 - Ki 67 positive in proportion of 5% of neoplastic cell nuclei.

Immunohistochemical tests, correlated with conventional histopathological examination supports the diagnosis of invasive encapsulated thyroid papillary carcinoma, follicular variant, histological grade 2 (vascular invasion), pT1b stage, thyroid lobe, maximum diameter 2 cm, with low proliferation index.

Discussions

Papillary carcinoma represents the most frequent type of epithelial thyroid cancer in women, especially in the reproductive period, accounting for approximately 75-80% of well-differentiated cancers at this level (4,5).

Microscopically, it is typical the presence of a follicular architecture based on distinct nuclear papillary cytological features, invasive appearance and / or metastasis in the lymph nodes (6). The architectural aspects are represented by the formation of true papillae, but also large and small follicles, trabeculae, solid areas and bright or dark red colloids may also be present. A distinct element is the presence of psammoma bodies, although it is not a pathognomonic aspect (7). Immunohistochemical, this lesion has positive immunostaining to cytokeratin, thyroglobulin and TTF1 (8).

The nuclei have several features of increased volume, with crowded aspect, dispersed glass chromatin or optically clear appearance (also called Orphan Annie eyes nuclei), irregular contours, nuclear grooves, prominent nucleoli, and also cytosolic eosinophilic inclusion at the intranuclear level (9).

Several types of papillary carcinoma have been described, of which the follicular variant has no classical papillary appearance in the tumor, being predominantly consisting of different sizes follicles, without the papilae and being encapsulated.

Encapsulated follicular type of papillary carcinoma have fewer fibrosis in the tumor, extrathyroid extension, invasion of surgical resection margins, and metastasis in lymph nodes, compared to unincapsulated carcinomas (10). Also in encapsulated forms, vascular or capsular invasion are more aggressive (10,11). It has been observed that in encapsulated tumor, the mutation of the RAS gene is missing and BRAF mutation is more common in infiltrating cancers (12,13).

In this case, are mandatory some differential diagnosis considerations with follicular pattern of malignant proliferation, such as follicular carcinoma, well differentiated thyroid cancer with uncertain malignant potential, but also with benign lesions, like follicular adenoma and hyperplastic nodules.

Thyroid follicular carcinoma is the second malignant tumor of the thyroid, diagnosed in a group of older women (fourth and sixth decades) compared to papillary form and differentiated from the follicular adenoma by the presence of capsular and vascular invasion in this case. Unlike the encapsulated follicular variant of papillary carcinoma, follicular carcinoma is associated with a poor prognosis and distant metastasis, especially on haematogenic route, therefore differentiation is based on clear criteria (14,15,16,17) is important.

From a histopathological point of view, there is a variable follicular architecture, nuclear atypia and mitosis, but with the absence of nuclear aspects encountered in papillary carcinoma. This lesion associate the thickening and irregular shape of the capsule with invasion at this level as well as vascular invasion (18).

Thyroid adenoma presents as a tumor with follicular architecture, encapsulated, but without the invasion of the capsule or vessels and no papillary cytologic appearance. It is usually smaller in size compared to follicular carcinomas, prognosis is very good and treatment consists of lobectomy. Another lesion that requires differential diagnosis is the hyperplastic nodule with central cystic degeneration, in which papillary appearance is present in a cyst, but in which there are missing nuclear characteristic of papillary carcinoma (19).

If not all of the diagnostic criteria are met in an encapsulated follicular variant of papillary carcinoma, or the invasive aspects are missing, the diagnosis of follicular adenoma or a well differentiated neoplasm with uncertain malignant potential will be considered.

Conclusions

Follicular encapsulated type of thyroid papillary carcinoma is a malignant differentiated tumor with good prognosis which, despite the presence of vascular invasion and capsular, rarely causes metastasis, in case of complete resection, therefore, it is imperative early. Diagnosis of histopathological certainty is a challenge given the existence of a follicular pattern well represented by lesions in the thyroid, in which the important aspects for diagnosis are the histopathological ones, in addition with immunohistochemical tests.

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