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Extensive Chest Wall Metastasis Revealing Follicular Thyroid Carcinoma

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ABSTRACT **Published Online: January 27, 2024**

Introduction: Chest wall tumors are a heterogeneous group of rare lesions, arising from any soft tissue or bony structure in the thoracic cavity. They may present as primary or metastatic tumors. Metastatic chest wall tumor from a primary thyroid carcinoma is extremely rare.

Case report: We report a challenging case of a 69 years-old female patient, with a follicular thyroid carcinoma revealed by chest wall tumor measuring 81 x 64 x 64 cm. The patient underwent a biopsy of the chest wall mass concluding to thyroid tumoral origin, then she had a total thyroidectomy and lymph node dissection. A tumorectomy of the chest wall lesion is planned before RAI therapy.

Conclusions: The case of a metastatic lesion originating from a primary thyroid carcinoma not previously known is one manifestation of the condition defined as occult thyroid carcinoma. Metastatic follicular thyroid cancer has poor prognosis, especially when metastases are the first manifestation revealing the diagnosis, which is a sign of advanced disease stage with limited chances of achieving remission.

KEY WORDS: Chest wall metastasis - Hematogenous metastasis - Occult thyroid carcinoma – Follicular thyroid carcinoma.

INTRODUCTION

Thyroid carcinoma is the most common endocrine malignancy. Follicular thyroid cancer is the second most common thyroid cancer, accounting for around 10% of all thyroid cancers, and has a favorable prognosis [1,2,3].

Follicular thyroid carcinoma usually presents as a solitary thyroid nodule. It tends to metastasize hematogenously, and may spread distantly to the lungs, bones, brain, skin and adrenal glands; metastases to the chest wall are extremely rare.

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The reported incidence of distant metastases is between 11 and 25%, but the initial presentation is rarely associated to a metastatic lesion [1,2,4].

Here we present the case of a 69 years-old female patient, with a follicular thyroid carcinoma revealed by chest wall metastasis, and we discuss diagnosis and management challenges of this case.

CASE REPORT

A 69-year-old female patient, with no particular pathological antecedent, presented with a lump on the left side of her chest positioned towards the left mammary gland, evolving for over a year with a gradual enlargement. The patient reported intermittent pain without other signs. Clinical examination showed a slightly painful, fixed mass on the inferior part of the

left breast of around 10 cm, no peripheral lymphadenopathy was found, no thyroid nodules or goiter were observed. CT-scan was performed and demonstrated a rounded, expansile, lytic mass of 81 x 64 x 64 cm involving the right fifth rib with cortical disruption, as well as local soft tissue invasion, no lung or hepatic lesions were identified (Figure 1). The patient underwent a biopsy of the mass, anatomopathological analysis showed cubed tumor cells with hyperchromatic nuclei, the tumor had positive staining for thyroid transcription factor (TTF)-1 and PAX 8, these findings are compatible with a thyroid origin of the tumor. We therefore considered the possibility of metastasis of thyroid carcinoma to the chest wall. Neck-ultrasound was performed and noted multinodular goiter with the most voluminous and suspicious nodule measuring 2.9 x 2.4 cm classified Tirads 5. The patient underwent a total thyroidectomy and bilateral central lymph node dissection. The histological examination concluded to a 2 cm follicular thyroid carcinoma in its oncocytic variant, no lymph node metastases were found. Thyroglobulin was above 500 ng/ml with negative anti-thyroglobulin antibodies. The patient started Thyroid-hormone-suppressive therapy with levothyroxine at a dose of 125 ug per day. A tumorectomy of the chest wall mass is planned before Radio-iodine I131 ablative therapy.

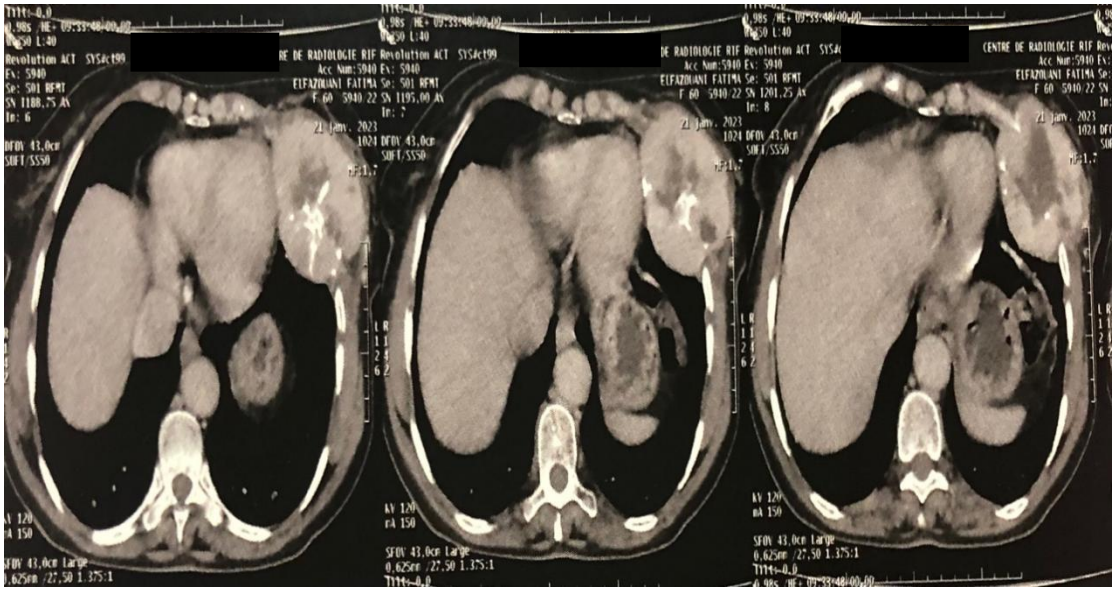

Figure 1: Transversal chest CT-scan section showing the left metastatic chest wall tumor in our patient.

DISCUSSION

Chest wall tumors are a heterogeneous group of challenging lesions to diagnose and treat. These neoplasms constitute less than 5% of thoracic malignancies, and can arise from any soft tissue or bony structure in the thoracic cavity. They may present as primary or metastatic tumors [2].

Primary malignancies include a variety of tumors such as chondrosarcoma and fibrosarcoma, but more than half of chest wall malignancies are metastases, most often manifesting as hematogenous, lymphogenous or transdiaphragmatic spread. In addition, needle biopsy of a primary intrathoracic or intra-abdominal tumor can result in metastatic implantation of the tumor into the chest wall [2,5].

CT-scan guided needle biopsy is useful for diagnosis, but it is often hard to obtain an appropriate sample with this approach. Therefore, if possible, a surgical biopsy should be carried out to determine the diagnosis and define the optimal therapeutic strategy [5].

Follicular thyroid carcinoma is the second most frequent type of thyroid cancer (10%) following papillary carcinoma. It is usually diagnosed in people over the age of 40. It is characterized by hematological dissemination rather than lymphatic spread, with increasing age being an important risk factor. Metastases occur mainly in the lungs (49%) and bones (7-28%). The spine is the most frequent site of bone metastases (33.9%), followed by the pelvis (30.5%), skull (27.1%), long bones (16.9%)... [1,3,6,7,8], intra-abdominal organs metastases are rare [4].

Metastatic chest wall tumors resulting from thyroid carcinomas have been reported [2]. Estévez-Ramírez et al [9] in their Colombian study including 241 patients, reported among the total patients with thoracic metastasis from thyroid cancer,

86.79% of cases had lung metastases, 3.77% had mediastinal metastases, 1.9% had pleural metastases, 3.77% had chest wall metastases and 3.77% had airway involvement.

Reports regarding metastatic disease as the first manifestation of follicular thyroid carcinoma are limited [1,6]. In rare cases, the presence of distant metastases may be the only initial presentation of thyroid cancer without clinically apparent disease in the thyroid region [1]. The incidence is around 3-4% according to previous studies, Emerick et al. reported two patients (3.6%) with distant metastases at the time of presentation [1,6].

The case of a metastatic lesion originating from a primary thyroid carcinoma not previously known is one manifestation of the condition defined as occult thyroid carcinoma. This entity can be classified as follows: thyroid carcinoma or thyroid microcarcinoma discovered incidentally in thyroidectomized specimens for benign disease or at autopsy, thyroid papillary microcarcinoma detected incidentally on imaging studies, clinically apparent metastasis of a clinically undetectable thyroid malignancy and thyroid cancer localized in ectopic thyroid tissue [10].

Our patient presented an extensive chest wall tumor revealing oncocytic variant of follicular thyroid carcinoma. The presence of this histology is associated to higher level of aggressiveness and poor prognosis with a high risk of metastasis and a low survival rate [11,12,13].

Management of metastatic tumors from differentiated thyroid carcinoma is challenging. Surgery is the main treatment for resectable metastatic tumors, followed by I131 ablation and suppressive hormonal therapy (L-thyroxin) [6].

Complete surgical excision of metastases offers the best chance for prolonged survival and is recommended by the majority of authorities as large tumors and bone metastases are factors that indicate a poor response to RAI therapy [3]. However, if surgery is not an option, other modalities should be considered: external radiotherapy, immunotherapy... When metastases have osteolytic effects on bone, the anti-osteoclastic activity of bisphosphonates may have a beneficial effect [2,6]. Wu et al reported that patients with bone metastases of differentiated thyroid cancer, receiving RAI therapy with other combined treatments, had more favorable survival rates than patients treated with RAI alone [2].

In general, differentiated thyroid carcinoma that is initially metastatic or whose metastases are discovered during follow-up has a poor prognosis.

Follicular thyroid carcinoma generally carries a favorable prognosis with 10-year survival rates of 80–81 % [14]. The ten-year survival rate drops down to 3-21% in the presence of bone metastasis [3], with a 5-year mortality risk as high as 25% [2].

CONCLUSION

Metastatic follicular thyroid cancer has poor prognosis, especially when metastases are the first manifestation revealing the diagnosis, which is a sign of advanced disease stage with limited chances of achieving remission. Metastatic tumors revealing a follicular thyroid cancer are not exceptional; In fact, metastases can lead to a variety of extremely misleading situations in which thyroid disease is only discovered secondarily as our reported case of chest wall metastatic tumor.

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