

Breast Cancer Metastasis to the Thyroid: A Case Study and Literature Review

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ABSTRACT:

Introduction: Thyroid localization of breast cancer is rare and has a poor prognosis. Common metastatic sites of breast carcinoma are lung, liver, and bone. The clinical diagnosis of thyroid metastasis from a malignant tumor is difficult. We report a case of thyroid metastasis of breast origin. We then discuss the diagnostic methods and their particularities in the identification of such a lesion. **Observation:** This was a 47-year-old patient who underwent a left mastectomy with ipsilateral axillary lymph node dissection in 2014 and who consulted 9 years later following the appearance of a thyroid mass and a right spinal lymphadenopathy. Cervical imaging reveals spinal cervical lymphadenopathy and a nodular goiter classified EU-TIRADS 4. A fine puncture of the cervical lymphadenopathy and the thyroid nodule are performed. Cytological examination reveals thyroid metastasis from a breast carcinoma and metastatic cervical lymphadenopathy. The patient underwent surgery (total thyroidectomy) confirming the diagnosis. **Conclusion:** The diagnosis of thyroid metastasis should be suspected in patients with a history of neoplasia in the presence of a nodular goiter. The treatment of these metastases is that of the primary cancer.

Keywords: *Thyroid, metastases, diagnosis, ultrasound; cytopuncture; anatomopathology.*

INTRODUCTION:

The thyroid gland is rarely the site of metastases, representing less than 1% of all thyroid cancers. This rarity is in fact linked to the high iodine content. The clinical and radiological characteristics of an intrathyroidal metastasis are not very specific. They can be indicative of a primary cancer or secondary to neoplasia [1]. The origin of the primary cancer is variable; the kidney, the lung, the stomach, for the breast, it is more rarely described in the literature [2]. The questioning is of capital importance in the search for a history of neoplastic disease.

Observation :

This was a 47-year-old patient who consulted for the management of a right basi-lobar nodular swelling of the thyroid that had been developing for a year and also the appearance of right cervical spinal lymphadenopathy. In her history, she had a left mastectomy and an ipsilateral axillary lymph node dissection 9 years ago. Histological analysis concluded that it was a grade II infiltrating ductal carcinoma of

SBR, healthy BDR, ER 5, RP 6, HER 2 to 1, axillary dissection 02 N +/13. The patient received 6 courses of adjuvant chemotherapy with type 3 Fac/3TXT and radiotherapy and hormonal therapy. During his surveillance, the consequences were simple without local or distant recurrences. During the year 2021/2022, the patient consulted following the appearance of cervical swelling, right lobar basi and the palpation of a right spinal nodule.

Clinical examination of the thyroid noted a hard nodule in the right lobe without signs of local compression associated with cervical lymph nodes. Ultrasound showed a homogeneous hypoechoic right thyroid nodule, with regular contours, without peripheral halos and microcalcifications presenting mixed vascularization on Doppler mode, classified EU-TIRADS 4 (Figure 1). The presence of ipsilateral spinal lymphadenopathy was noted. The thyroid hormone profile was normal. The cytological examination was carried out on the thyroid and spinal nodule which returned in favor for the right basi lobar nodule, a smear of rich cellularity, suggestive of a secondary localization (Figure 2) of a carcinoma and

for that of adenopathy right cervical spinal cord, in favor of a lymph node metastasis of a carcinoma. The patient underwent a total thyroidectomy and lymph node dissection. The anatomopathological study of the

surgical specimen revealed a secondary thyroid localization of a poorly differentiated carcinoma whose immunohistochemical profile argues in favor of breast origin (OR at 90%, RP at 10% and HER 2 to 0).

Figures:

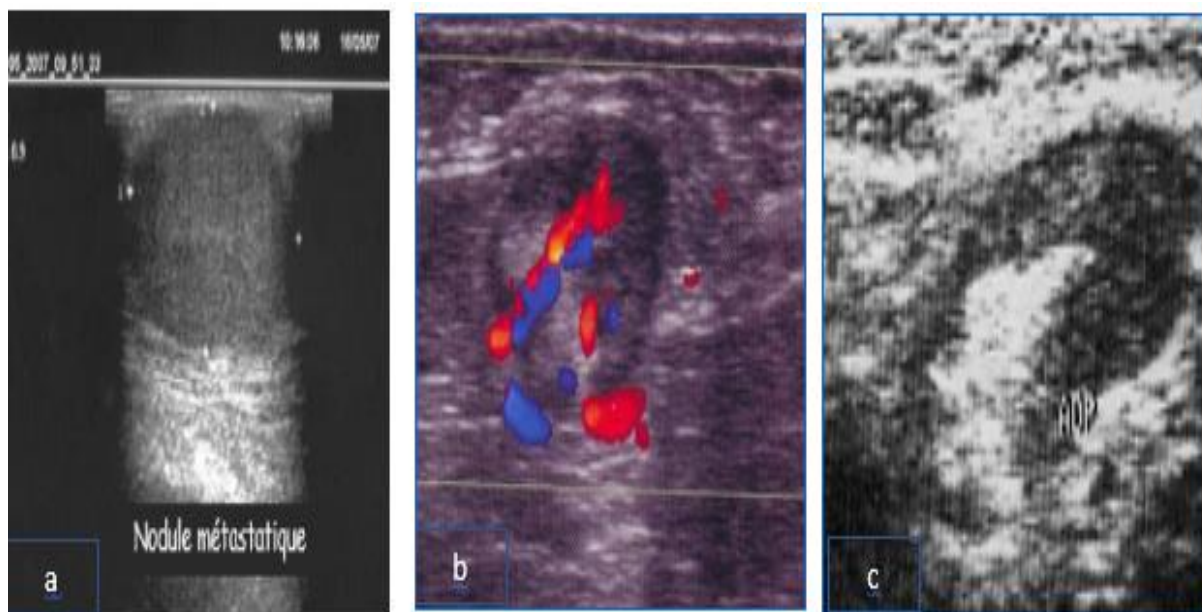


Figure 1. Image échographique. a- le nodule droit très hypoéchogène aux contours nets réguliers. b. Vascolarisation Mixte centrale et périphérique au doppler c Adénopathie spinale métastatique , hypoéchogène , à cortex épais excentré .

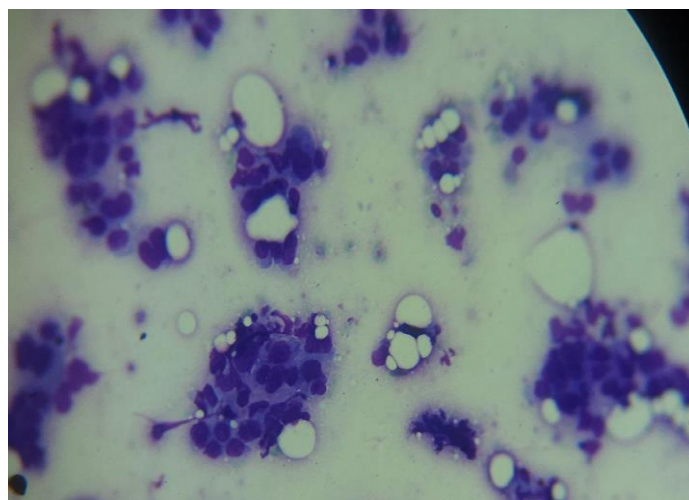


Figure 2. Images cytologique : Aspect microscopique de métastase thyroïdienne d'un cancer mammaire .

DISCUSSION:

The frequency of intrathyroidal metastases is estimated at between 1 and 4% of all neoplastic thyroid conditions [2]. Intrathyroidal metastases are rarely observed in clinical practice. Ultrasound is not specific. It can find localized hypoechoic lesions, single or multiple, sometimes calcified, unilateral or bilateral more or less suspicious, or a hyperechoic appearance linked to an inflammatory or necrotic rearrangement, however all authors agree on the imperfect sensitivity of the imaging in the diagnosis of intrathyroidal metastases [3,4,5,6]. The thyroid

laboratory test is most often normal, however rare cases of hyperthyroidism have been reported [7]. Cytological examination has low sensitivity outside of a neoplastic context with a very high specificity exceeding 90% in the literature [4]. An immunohistochemical study (IHC) of the surgical specimen is necessary and can strongly point towards the tumor. primitive [8]. IHC will provide proof of the diagnosis and identify the primary tumor even if the latter was occult.

CONCLUSION:

The diagnosis of an intrathyroidal metastasis must always be considered when faced with a thyroid nodule with suspicious ultrasound semiology, especially in the presence of a history of cancer. This investigation must be completed by a fine aspiration and by carrying out a precise and complete assessment of local and distant extension.

Declaration of links of Interest:

The authors declare that they have no conflicts of interest.

Contribution of the authors

All authors contributed to the writing of this manuscript and have read and approved the final version.

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