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Intrathyroid Metastases from Breast Cancer: A Case Report

Bouchra Amaoui[1], Nawal Bouih[2], Said Tachfine[2], Abdellatif Bouih[2], Ghizlane Ennibi[1], Abdallah El Farouqi[3], Slimane Semghouli[4*]

[1]Regional Center of Oncology, Agadir, Morocco
[2]Al Kindy Treatment Center of Oncology and Diagnosis, Casablanca, Morocco
[3]Faculty of Pharmacy and Medicine, Ibn Zohr University, Agadir, Morocco
[4]Higher Institute of Nursing Professions and Health Techniques Agadir, Morocco

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***Corresponding author:** Slimane Semghouli

Abstract **Case Report**

Intrathyroid metastases are very rare and their mammary origin is exceptional. In this work, we report a case of intrathyroid metastasis in a patient who was treated for right breast cancer and who developed dysphonia forty months later. The diagnosis of thyroid metastasis was guided by PET/CT; the fine-needle aspiration and was confirmed by immunohistochemistry on the surgical sample. The patient was treated with chemotherapy, partial thyroidectomy and radiotherapy on the tumour bed. However, the appearance of diffuse visceral metastases caused the death. Intrathyroid metastases of breast cancer are very rare. A multidisciplinary approach is essential for the diagnosed, their management and prognosis would depend on the underlying breast cancer.

Keywords: Thyroid metastases, breast cancer, diagnosis, treatment.

INTRODUCTION

Intrathyroid metastases are very rare and account for only 1.3% of thyroid cancers [1]. Theyare clinically manifested by a thyroid nodule without dysthyroidia or by dysphonia and or dysphagia [1]. Currently, more and more cases are diagnosed thanks to developments in diagnostic means including PET/CT and the fine-needle aspiration [2]. A series of autopsies showed that 13.5% of patients who died from neoplastic pathology had thyroid metastases [4]. According to this series, pulmonary origin was the most common (33.3%) followed by breast cancer and kidney 8.33% each [4]. On the other hand, in the small retrospective series, the renal origin is the most frequent and it represents almost half of the cases [2]. For the thyroid metastases the mammary origins come in the fourth position.

This work aims to present a rare case of thyroid metastasis in a patient followed up for breast cancer at El Kindy Oncology Center, Casablanca.

OBSERVATION

58-year-old patient followed up since August 2008 for a tumour, right breast, classified T3N1M0. The initial extension assessment based on thoraco-abdominopelvic CT, bone scintigraphy and CA 15-3 tumour marker was normal. The patient had a total mastectomy type Patey. The pathological study confirmed the diagnosis of 6 cm SBR III invasive carcinoma of no special type with intraductal component. Hormonal receptors were positive (ER = 40%, RP = 15%) as well as HER 2, confirmed by the CISH test. The patient used to receive adjuvant chemotherapy every 21 days with 3 courses of FEC 100 followed by 3 courses of Docetaxel 80 mg/m^2 - Trastuzumab 6 mg/kg followed by 15 courses of Trastuzumab 6 mg/kg. Cobalt 60 radiotherapy started three weeks after the completion of the six courses of chemotherapy.The dose delivered was 50 Gy in 25 fractions of 2Gy on the supra and subclavicular lymph nodes, the internal mammary chain and the chest wall. Then, hormone therapy based on anti-aromatase started to be applied. The follow-up in consultation was regular on 3 months basis with an annual thoraco-abdominopelvic CT and echo-mammography of the left breast every two years. Forty months after surgery, the patient had a dry cough with dysphonia. Thoraco-abdominopelvic CT and brain MRI were normal. PET/CT showed several jugulo-carotid adenopathys, mediastinal adenopathys and a thyroid hyper-metabolic focus (SUV 7.4) (Figure-1). It also found bone foci in the C6-C7 cervical spine and the right iliac wing suggestive of bone metastases. Anti-thyroglobulin and anti-thyroperoxidase antibodies were normal. The thyroglobulin dosage raised to 613 mg/ml. The

Ultrasound/Thyroid cytology couplet was compatible with the diagnosis of breast metastases. Lymph node biopsy with immunohistochemical study confirmed the diagnosis of metastases of an invasive carcinoma of non-special grade III SBR and triple negative. The patient had first-line chemotherapy with Paclitaxel 80 mg/m^2 weekly, Carboplatin AUC 6 every 21 days and a bisphosphonate 4 mg every 28 days. The PET/CT of the control confirmed the progression of the disease after six months of chemotherapy (Figure-2). Following a meeting of multidisciplinary consultations, it was decided to conduct a thyroidectomy with neck dissection. The histopathological study with immunohistochemistry confirmed the mammary origin with a hyper expression of HER2.Thereafter, conformational radiotherapy (50Gy in 25 fractions of 2Gy) was performed on the tumour bed and the upper mediastinum. After, asecondline chemotherapy with trastuzumab 6 mg/kg every 21 days, capecitabine 1000 mg/m^2 twice a day for 14 days and 4 mg bisphosphonate every 28 days was repeated. This chemotherapy was repeated until the appearance of liver and brain metastases. The patient died from the progression of visceral metastases with a survival of 59 months.

Fig-1: 18F-FDG PET/CT(13/06/2012) shows hypermetabolic foci in the thyroid, cervical ganglion areas and bone foci

Fig-2: 18F-FDG PET/CT (11/12/2012) after 6 cycles of chemotherapy showed progression of metastatic disease with the appearance of new hyper-metabolic bone foci

DISCUSSION

Thyroid metastases are often metachronous. They occur after a very variable delay. This delay is very common for lung cancer (average of 4.5 months) and longer for sarcomas (average of 75 months) [2]. For breast cancer, it is from 1 to 96 months with an average of 25 months [1]. In our case, the delay of onset of thyroid metastasis was 40 months.The non-special type invasive carcinoma is the most incriminated histological type. The invasive lobular is exceptionally related to this metastasis [4]. Clinically, intrathyroid metastases are often asymptomatic and occur in a state of athyroidism. As the case of our patient, rare cases are revealed by locoregional symptomatology namely dysphagia, dysphonia and respiratory disorders [1]. Cervical lymph node involvement is often associated with thyroid involvement. It would be the most common way of extension to the thyroid. On the other hand, the blood path is rarely retained because of the high intrathyroid blood flow [5]. Ultrasonography and thyroid scintigraphy most often reveal solid nodulehypofixant [1]. The use of PE/CT has increased the chance discovery of thyroid metastases. However, there is no consensus on the standard value of the SUV to suspect or exclude this diagnosis [6]. To confirm the diagnosis, fine-needle aspiration, which allows diagnosis in 90% of cases, is recommended [7]. On another said, non-special type invasive carcinoma may resemble primary papillary, follicular or even medullary thyroid carcinoma, hence the importance of the immune-histochemical study with TTF1, PAX8, GATA3 [8]. Total or partial thyroidectomy is a controversy. It is indicated especially when there is a major comorbidity due to thyroid metastasis. According to the majority of published cases, surgery had no

impact on overall survival except in localized forms where it allowed local control and disease-free survival [1, 8-11]. On the other hand, chemotherapy remains the standard treatment. The prognosis of the disease is generally related to the primary disease and the death occurs following the evolution of the associated visceral metastases [11].

CONCLUSION

Thyroid metastases of often asymptomatic breast cancer may be common, but their diagnosis is problematic. PET/CT allowed the diagnosis of infra-clinical cases. The prognosis of this disease is usually very bad.

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