

Case Report

Thyroid Gland Metastasis from Breast Cancer as Sixth Site of Disease: A Case Report

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ABSTRACT

Intra-thyroid metastases are uncommon in clinical practice. Although, the possibility of a metastasis from non-thyroid cancers to the thyroid gland is rare it should be taken into account, because it is not as infrequent as widely believed. Thyroid metastases are not frequent in breast cancer, but a new thyroid mass should be considered as a metastasis of breast carcinoma in any patient with a former history of this malignancy. Breast metastatic cancer is evaluated at ca.16.0 to 32.0% in postmortem examinations, but only 4.0-9.0% cases are encountered in clinical papers. We report a case of metastatic lesion in the thyroid from breast carcinoma, already metastasized in five other locations, recognized in a fine-needle aspiration (FNAB) biopsy followed by histopathological confirmation and immunohistochemical examination.

Keywords: breast cancer, metastasis, thyroid gland.

INTRODUCTION

In spite of its rich vasculature, the thyroid gland is rarely the site of metastatic disease [1,2] Most commonly, the primary tumor is located in breast, bronchi, gastrointestinal system and kidneys. Usually, metastatic thyroid disease is identified upon autopsy and only sporadic cases are encountered in clinical material.

CASE REPORT

A 55-year-old woman was diagnosed with thyroid gland metastases in the left lobe of the thyroid. In present case, metastasis to the thyroid gland occurred 10 years after diagnosis of the primary disease. The thyroid was the sixth site of distant lesions. Ten years earlier she had been diagnosed with carcinoma in the right

breast classified as infiltrating lobular carcinoma (T2N2M0) for radical mastectomy and lymphadenectomy (April 2004). Estrogen receptors were 90% positive, Progesterone 20%, Ki 67 20% and HER2/neu was negative at immunohistochemistry. The patient subsequently received six cycles of adjuvant chemotherapy with ET protocol, containing Epirubicin and Docetaxel, and radiant therapy. She has also performed hormone therapy for five years (until October 2009) with Anastrozole (instead of Tamoxifen for endometrial thickness of 7mm) and Triptorelin. The disease was asymptomatic, no local or distal recurrence was found, until the beginning of May/June 2013, when bones, liver, lung, lymph-nodes and pleural metastases were diagnosed. The patient, therefore, received

radiotherapy on right iliac wing/ipsilateral hip joint and six cycles of therapy with INN-Paclitaxel (until October 2013) and Diphosphonates which continued in association with Fulvestrant (from January 2014 to November 2014) for the persistence of bones metastasis become symptomatic, and radiotherapy on left iliac wing/ ipsilateral hip joint(November 2014).In November 2014, the disease reevaluation showed a further progression of disease to lung, liver, pleura, bones, lymph-nodes, and voluminous nodule formation in the left lobe of the thyroid partly cystic and partly solid. Fine needle aspiration biopsy (FNAB) (Fig 1) showed metastatic breast cancer cells in thyroid gland tissue. The diagnosis of metastatic carcinoma was confirmed by lobectomy and made based on immunostaining data for the Progesterone receptor (fig 2), Estrogen receptor (fig 3), HER2/neu 1+ (fig 4). The tests for Thyroid Transcription Factor-1 (fig 5), Thyroglobulin (TG), Calcitonin and Chromogranin, which are expressed in the thyroid gland but not in breast cancer tissue, were negative. Due to the state of health and disease (with wide spread metastases), the patient underwent new scheme of therapy with Eribulin (February 2015). After the first dose the patient died for toxicity

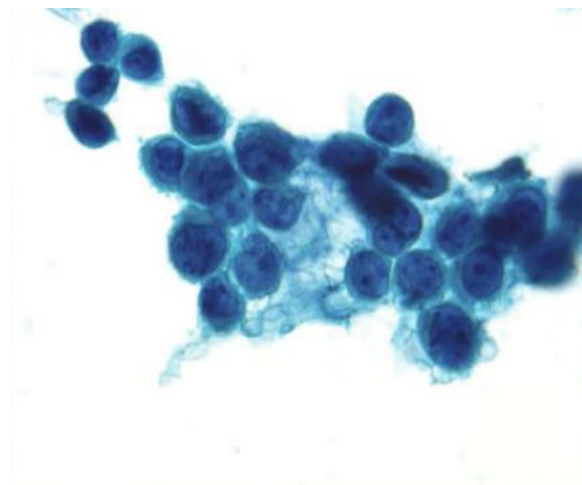


Fig.1: FNA of thyroid. Malignant cells with enlarged nuclei with scant cytoplasm,irregular nuclear contours, and clumped chromatin with several prominent nucleoli (Papanicolaou stain,600X)

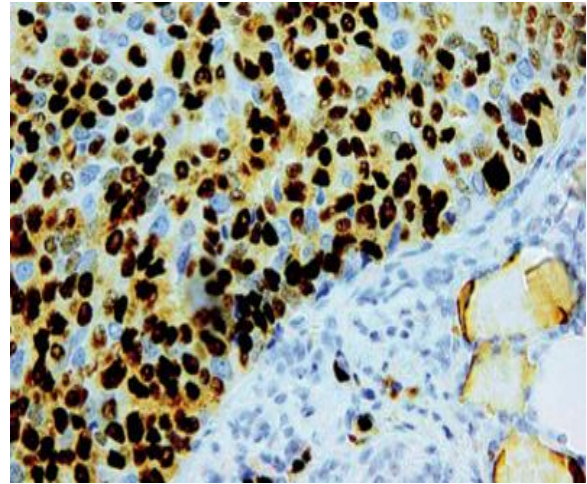


Fig. 2: IHC staining for PgR (20X) in the metastatic lesion in thyroid from breast cancer. Positive reaction is observed in 75% of nuclei cells evaluated.

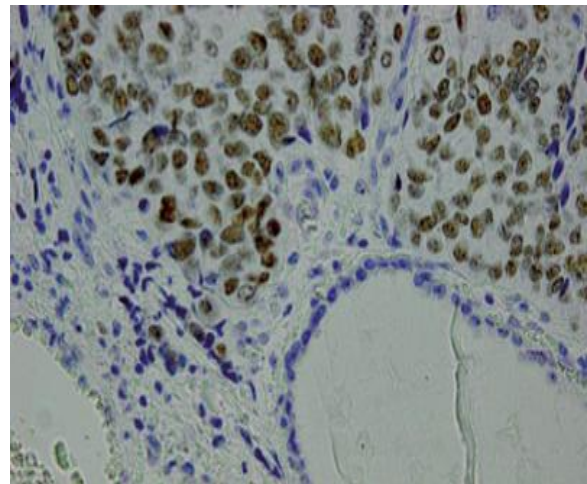


Fig. 3: IHC staining for ER (20X) in the metastatic lesion in thyroid from breast cancer. Positive reaction is observed in 75% of nuclei cells evaluated.

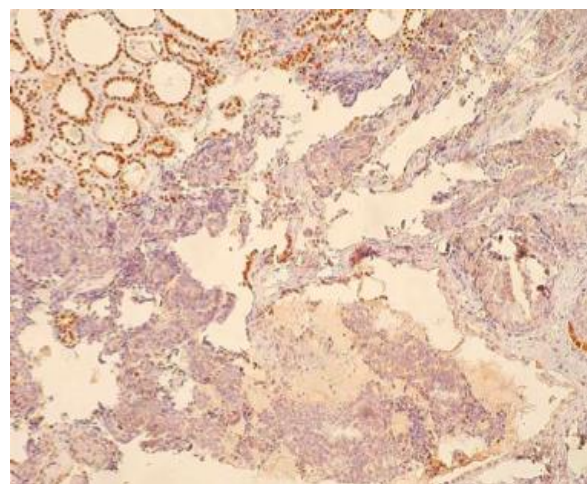


Fig. 4: erb2 receptor (HER2/neu) immunocytochemical staining (score 1)

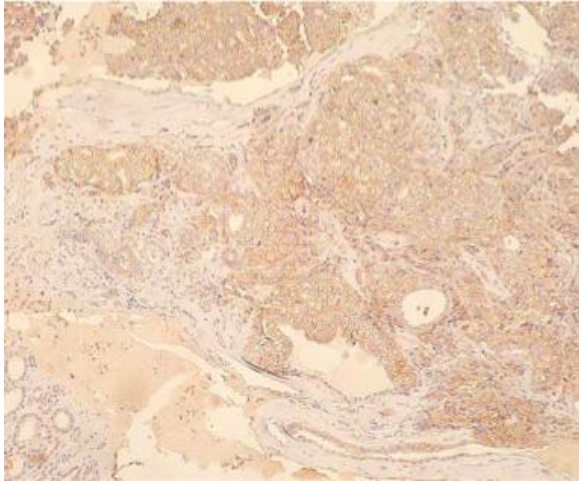


Fig. 5: Tumor tissue negative, surrounding the thyroid gland tissue positive (immunocytochemical staining for thyroid transcription factor-1).

DISCUSSION

Most common sites of breast cancer metastasis included: bone, liver, lung. This case report shows an uncommon metastatic site (thyroid gland) of breast carcinoma in a patient with a ten-year history of breast cancer with metastasis to liver, lung, bone, patient with a ten-year history of breast cancer with metastasis to liver, lung, bone, pleura and lymph-nodes. In this study it is shown how not only the metastasis to the thyroid gland are rarely observed in breast cancer but also how diagnosis of thyroid metastasis from breast carcinoma may be difficult, both in relation to the long interval between the primary cancer and subsequent thyroid metastases, and in relation to the fact that it is the sixth site of metastasis in breast cancer after liver, lung, bone, pleural and lymph-nodes metastasis. A diagnosis of metastatic disease should be considered when new aggregates are identified in the thyroid glands of patients with a long-term history of breast cancer. In a small percentage of patients, early diagnosis and aggressive surgical or medical therapy may lead to a prolongation of survival [3-5] In patients with metastases, low performance status and poor prognosis, fine needle aspiration biopsy (FNAB) can be used to detect an unsuspected malignancy and to avoid

unnecessary thyroidectomy [6] Based on the present case, we emphasized the importance of detailed examination of any new onset of thyroid swelling, especially in a patient with previous history of malignant disease. In this patient, the complete clinical history is extremely useful, and immunohistopathological analysis should be performed to confirm the diagnosis of metastatic breast cancer.

Negative immunohistochemical staining for TG, TTF-1, Calcitonin and Chromogranin [7] in the thyroid lesions and similar staining results for ER, PR and CerB-2 in breast and thyroid lesions may aid the diagnosis of thyroid carcinoma derived from metastatic breast cancer.

Conflict of interest: None declared.

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