INTRODUCTION

Metastatic spread of extra-mammary malignancies to the breast is a rare phenomenon and representing about 2% of tumors diagnosed in the breast. (1). Lymphoma, leukemia, malignant melanoma and lung carcinoma are the most common sources but ovarian cancers, carcinomas and carcinoid of gastrointestinal origin, transitional-cell carcinoma of the urinary bladder, prostatic, thyroid, liver, pancreas carcinoma and extremely rarely hepatoma and neuroblastoma of the retroperitoneum can also metastasize to the breast (1, 2, 3, 4, 5, 6, 7).

Case report:

Our patient was a sixty five years old woman with non-operable lung adenocarcinoma diagnosed in 2007. The diagnosis was confirmed by cytological examination of transtho-

**Fig. 1.** Cytology of transthoracally fine - needle aspiration biopsy material (MGG, magnified 400).

Cancers metastasis to the breast are often superficial, well circumscribed, solitary masses with a predilection for the upper outer quadrant. Multiple lesions, bilateral involvement and diffuse disease are less common (3). Involvement of the axillary lymph nodes is also common (3, 4, 8, 9). Metastases can also simulate primary inflammatory carcinoma of the breast (8,10,11) but this manifestation is extremely rare (12).
Chemotherapy treatment was started with gemcitabine-cisplatin protocol. After administration of four cycles, the treatment was changed to second line paclitaxel-cisplatin regimen. Because of allergic reaction the protocol was interrupted after first administration. The proposed third line chemotherapy with erlotinib or gefitinib the patient refused. Percutaneous irradiation of the mediastinum was also done.

In May 2009 she was admitted to the surgery with enlarged, painful, warm left breast and skin erythema with peau d’orange (Fig 3) and axillary lymph node enlargement. No palpable mass was detected in the breast parenchyma.

Mammography and US examination of the breasts showed neither detectable mass lesion nor microcalcifications. The patient refused the proposed further examinations (CT and MR mammography).

To confirm the supposed diagnosis of inflammatory breast cancer excisional biopsy of the skin and axillary lymph node was done. Microscopic examination of the HE slides of the skin showed intracutaneous lymphatic and perivascular invasion by tumor tissue. The examined axillary lymph node contained metastasis of a moderately differentiated partly papillary adenocarcinoma (Fig. 4).

The immunophenotype of the tumor was demonstrated using the following antibodies: TTF1, CDX2, ER, Napsin A, and Surfactant B. The tumor cells showed TTF1 positivity, Surfactant B positivity, Napsin A positivity, indicating pulmonary origin of the adenocarcinoma. ER negativity and CDX2 negativity favored a primary site outside the breast and GI tract.

**DISCUSSION**

Breast metastases from extra mammary malignancies, especially that mimicking primary inflammatory breast carcinoma are extremely rare. Metastatic lesions of the breast only account for 0.4% to 6.6% of all breast malignant tumors and this difference is due to the inclusion or exclusion of hematopoietic malignancies and increased incidence in autopsy vs. clinical series (1, 3, 16). Metastatic deposits from extramammary tumors may mimic primary benign and malignant neoplasmas of the breast. (11, 13). A correct diagnosis of metastasis to the breast is of considerable importance since the treatment of primary and secondary malignancies of the breast is different.

Lung cancer is the second most common type of malignancy and the leading cause of death from cancer. The most common histological type is adenocarcinoma, followed by squamous cell carcinoma, small cell carcinoma, large cell carcinoma, and bronchial carcinoid. Frequent metastatic sites for lung cancer include hilar nodes, adrenal glands, liver, brain, and bone. Cutaneous metastases from lung cancer are rare. Thus, lung cancer with spreads to any of the above mentioned places are responsible also for the majority of skin metastases in man and is second only to breast cancer as the source of skin metastases in woman (14,15).

We demonstrated a rare case of metastatic lung adenocarcinoma presenting with typical clinical and radiological signs of inflammatory breast carcinoma. The metastases appeared two years after the primary tumor was diagnosed. Such interval period is reported from other authors (4). Beside clinical, radiological examination and standard HE staining, immunohistochemistry was performed to confirm the correct diagnosis.

The prognosis of metastatic inflammatory breast tumor is poor and according to the literature all patients died within 12 months or less after the diagnosis (3). Our patient died three months after the metastatic breast cancer was diagnosed.

In conclusion, the histological diagnosis of metastasis to the breast is more difficult than that of primary breast cancer. Immunohistochemistry has a crucial role in confirming the diagnosis.

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Abstract

Metastatic spread of extra-mammary malignancies to the breast is a rare phenomenon, lymphoma, leukemia, malignant melanoma and lung carcinoma being the most usual sources. The clinical and radiological manifestation of the disease corresponds to a rapidly growing palpable mass in most cases. Involvement of the axillary lymph nodes is also common. Metastasis can also simulate primary inflammatory carcinoma of the breast, but this manifestation is extremely rare.

A 65-year-old patient presented with enlarged, painful, warm left breast and skin erythema two years after that her non-operable lung adenocarcinoma was diagnosed. She was treated with four cycles of gemcitabine - cisplatin chemotherapy protocol, with one cycle of paclitaxel - cisplatin regimen, and percutaneous mediastinal irradiation. Because of the clinical findings typical of metastatic carcinoma, mammography and ultrasound examination of the breasts were performed showing no detectable mass lesion or microcalcifications. Microscopic examination of the HE slides of the excision biopsy of the skin showed intracutaneous lymphatic and perivascular invasion. The examined palpable axillary lymph nodes contained metastasis of a moderately differentiated partly papillary adenocarcinoma. The immunophenotype of the tumor was demonstrated using the following antibodies: TTFI, CDX2, ER, Napsin A and Surfactant B. The tumor cells showed TTFI, Surfactant Band NapsinA positivity indicating pulmonary origin of the adenocarcinoma, while ER and CDX2 negativity favored a primary site outside the breast and gastrointestinal tract.

A rare case of metastatic lung adenocarcinoma presenting with typical clinical and radiological signs of inflammatory breast carcinoma is demonstrated. Immunohistochemistry had a crucial role in confirming the diagnosis.

REFERENCES


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