Palliative treatment for breast cancer with cutaneous metastases - a case report

Nicolae Bacalbaşa¹, Irina Bălescu², Vladislav Braşoveanu³, Dana Tomescu⁴

Corresponding author:

Nicolae Bacalbaşa, MD
No. 2, Dimitrie Racoviţă Street,
Bucharest, Romania
E-mail: nicolae_bacalbasa@yahoo.ro

¹"Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

²"Ponderas" Hospital, Bucharest, Romania

³"Dan Setlacec" Center of Gastrointestinal Disease and Liver Transplantation,
"Fundeni" Clinical Institute, Bucharest, Romania

⁴Department of Anaesthesia and Critical Care III, Fundeni Clinical Institute, Bucharest, Romania

ABSTRACT

Skin metastases from breast cancer account for up to 20% of all cutaneous malignancies and are usually a sign of poor prognosis due to the fact that their presence is the sign that the underlying tumor has already infiltrated the lymphatics or the adjacent blood vessels. However, in all these cases the most efficient therapeutic approach remains neo-adjuvant chemotherapy followed by radical surgery. We present the case of a 43 year old patient diagnosed with ductal invasive breast cancer with cutaneous metastases in which this therapeutic protocol was successfully applied.

Key words: skin metastases, breast cancer, radical mastectomy

INTRODUCTION

Cutaneous metastases account for up to 9% of all distant metastases from various malignancies; although malignant melanoma is the most frequent carcinoma which metastasizes to the skin, in clinical practice the highest proportion of skin metastases originates from breast cancer (1-4). It has been demonstrated that skin metastases from breast cancer accounts for up to 20% of all cutaneous malignancies (2,3,5-7). The presence of cutaneous metastases usually indicates that the underlying tumor has already infiltrated the blood vessels or the lymphatics and is considered as a poor prognosis sign (8).

CASE REPORT

We present the case of a 43-year-old patient who presented for the apparition of a cutaneous reddish, hemorrhagic lesion of almost 4 cm on the left arm associated with a large tumoral mass at the level of the left breast which was observed by the patient almost one year before but it was neglected. The

clinical examination revealed the presence of an indurated hemorrhagic and ulcerated area associated with the presence of a tumoral lesion with at the ipsilateral breast measuring 6/7/5 cm (*figure 1*). The lesion was painful and entirely modified the shape of the breast. The contralateral breast was normal while in the axillary area no palpable adenopathy was found. The imagistic studies confirmed the presence of a mammary tumor measuring 5/6/5 cm. The lesion was biopsied and the histopathological study revealed the presence of a poorly differentiated ductal invasive carcinoma so the patient was referred to the oncology clinic where she was submitted to neo-adjuvant radio-chemotherapy. After ending six cycles of Doxorubicin and cyclophosphamide she was submitted to Madden radical mastectomy; the cutaneous lesion was also excised (*figure 2-4*). The histopathological findings confirmed the result of the biopsy; ten of the 14 excised axillary lymph nodes were positive and five of them presented a ruptured capsula; the immuno-histochemical studies showed the presence of estrogen receptors in up to 60% of tumor cells, progesterone receptors in 75% of tumor cells and the absence of HER2 neu; Ki 67 was present in up to 75% of tumor cells. The histopathological study of the skin lesion revealed the presence of anaplastic cells in the dermal structure with lymphatic emboli of large malignant cells. Post-operatively the patient was readressed to the oncology clinic where she underwent adjuvant radiation therapy followed by hormone therapy with Tamoxifen.

DISCUSSIONS

Breast cancer continues to be a significant health problem worldwide, being the second most common malignancy in women (8). The presence of cutaneous metastases is more frequently seen in patients with breast cancer than in any other malignancy and is usually associated with poor prognosis especially due to the fact that their presence is in fact the sign that the malignant cells have already reached the systemic blood or lymphatic flow (9). While most skin metastases are thought to have hematogenous origin, cutaneous metastases from breast cancer seem to be more related to the lymphatic pattern of spread (10).

Most commonly cutaneous metastases from breast cancer are located on the chest skin although other locations such as abdomen, neck, upper limb and even scalp were reported (11,12). In all these cases establishing the right diagnosis might be a real challenge due to the fact that breast cancer cutaneous

Figure 1 - Initial aspect: large tumor deforming the left breast associated with a hemorrhagic lesion on the left shoulder

Figure 2 - The aspect after total radical mastectomy

Figure 3 - The specimen of total radical mastectomy

metastases have a similar clinical aspect to other diseases such as lymphedema, cellulitis, targetoid lesions, erysipiel or even radiation dermatitis (13-16). Macroscopic aspect can widely vary between indurated cutaneous lesions, erythematous solid papules or tiny ulcerated skin (11). Other local modifications might

Figure 4 - Resection of the cutaneous lesion

suggest the presence of a carcinoma erysipeloides, carcinoma telangiectatum or carcinoma en cuirasse (17). Carcinoma erysipeloides is an inflammatory skin metastases accounting for less than 1% of the total metastases and is usually associated with the intra-ductal histopathological subtype (18). It presents sharply demarcated erythematous plaques and patches; the microscopical studies reveal the presence of malignant cells predominantly in the dermal vessels. The mechanism of formation of these lesions consists of the apparition of tumor emboli which obstruct the lymphatic vessels and produce a lesion with erysipeloid aspect (10). Another aspect of the cutaneous metastases is termed “carcinoma telangiectoides” and develops due to the presence of malignant cells in the dermal capillaries where they proliferate leading to the enlargement of these vessels (10). Histopathological examination of the cutaneous lesions can also have various aspects including glandular, Indian pattern of malignant cells situated between collagen fibers, embolization of the malignant cells with tumoral lymphatic nests or epidermotropic patterns (3). In order to confirm the malignant origin of the skin lesion, histopathological studies should be associated with immunohistochemical staining especially with cathepsin D, pan cytokeratins, epithelial membrane antigen or carcinoembryonic antigen; immunoreactivity of the metastatic tumor to androgen receptor is another clue which can orientate the diagnosis (3,18,19).

When it comes to the clinical aspect of the problem, the presence of skin involvement in breast cancer classifies the lesion as an IVB breast cancer.

As for the long term prognosis, patients with cutaneous metastases originating from breast cancer have a better outcome when compared to those with skin lesions originating from other primaries (12,19,20). In the study conducted by Lookingbill et al involving 4020 patients with metastatic disease, 10% of them had cutaneous metastatic lesions; the main primaries were breast cancer and malignant melanoma; when studying the long term outcomes, the mean overall survival ranged between 1 months and 34 months depending on the tumor type; for cases with cutaneous metastases from breast cancer a mean overall survival of 31 months was reported (19).

In a similar study conducted by Schoenlaub et al in the Laboratoire d'Histo-pathologie Cutanée of Strasbourg between 1950 to 1996, 228 patients with cutaneous metastasis were introduced. The median survival after cutaneous metastasis was 6.5 months. Median survival was calculated according to the primary malignancy and was 13.8 months for breast carcinoma, 13.5 months for melanoma and only 2.9 months for lung carcinoma. The outcome of patients with cutaneous metastasis of lung carcinoma was worse than those with melanoma ($p < 10^{-4}$) and breast cancer ($p < 10^{-4}$) (20).

In the study conducted by Hu et al in 2008 involving 141 patients with cutaneous metastases, 51 patients had skin lesions originating from breast cancer. For patients with breast cancer with skin metastases only group the 1-, 3-, 5-, and 10-year cumulative overall survival rates were 79%, 51%, 37% and 11%, respectively. In the same subgroup the median survival is 42.15 months while the mean survival is 57.43 months (12).

Similarly to our case, Harrison et al reported the case of a 56 year old patient diagnosed with inflammatory breast cancer with skin metastases to her back and contralateral breast. She was submitted to neo-adjuvant chemotherapy followed by bilateral modified radical mastectomy and radiation therapy; postoperatively she remained disease free based on PET imaging one year after the initial diagnosis (21).

CONCLUSIONS

Although the presence of synchronous cutaneous metastases is a sign of poor prognosis for patients with breast cancer, neoadjuvant chemotherapy followed by radical surgery and radiation therapy might be performed with good results. Contrarily to other malig-

nancies which can develop cutaneous metastases, breast cancer with skin involvement has a better outcome, with significantly higher overall survival rates.

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