

Case Report

Surgical Treatment of Proximal Femur Metastasis of Breast Cancer 5 years since Primary Diagnosis

Pawel Łęgosz*, Krzysztof Pakosiński, and Sylwia Sarzyńska

Department of Orthopaedics and Traumatology, Medical University of Warsaw, Poland

*Corresponding author

Pawel Łęgosz, Department of Orthopaedics and Traumatology, 1st Faculty of Medicine, Medical University of Warsaw, Lindleya 4, 02-005 Warsaw, Poland, Tel: 48 501-230-328; Email: p.legosz@gmail.com

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Abstract

Treatment of a patient with breast cancer with bone metastases remains a challenge for orthopaedic surgeons and oncologists. Problem is especially important since breast cancer is still the most common cancer in women and bone metastases are most common metastatic site. We present a case report where treatment of proximal femur metastasis five years after primary breast cancer diagnosis not only relieved patient from symptoms, increased patient life quality, but also had great impact on systemic tumor treatment due to histopathological examination of metastasis to proximal femur.

ABBREVIATIONS

PR receptor: Progesterone Receptor; ER receptor: Estrogen Receptor; HER2 receptor: Human Epidermal Growth Factor Receptor 2; AC: Doxorubicin, Cyclophosphamide Chemotherapy; NRS: Numerical Rating Scale; HHS: Harris Hip Score; MRI: Magnetic Resonance Imaging; CT: Computed Tomography; PET: Positron Emission Tomography

INTRODUCTION

Research shows that approximately 50% of patients with breast carcinoma will develop metastatic disease, and 6-10% has metastases at the time of initial diagnosis. 65-75% of metastatic breast cancer patients develop bone metastases. Proximal femur is one of the most common site to be affected by metastases [1]. Joint reconstruction in these cases is well recognized as a treatment option, giving patient ability to fully weight bearing after operation [2].

A multi-disciplinary approach is necessary in the management of metastatic breast cancer with metastases to the bone. Surgical treatment only supports oncological treatment, and the choice of systemic therapy depends in breast cancer mainly on PR, ER and HER2 receptors status [3]. Although it is expected that metastases should have the same receptor expression as in primal tumor, discordance in the receptor status is well documented. Expression of estrogen and progesterone receptors in metastatic breast cancer can be discordant in up to 40% of patients [3]. Guidelines suggests that decisions regarding systemic therapy should consider only primal tumor receptor status [4]. Clinical practice however, in many cases take in to account also metastatic receptor status, which like in this case, can change the systemic therapy.

CASE PRESENTATION

A 40-year old patient was diagnosed with infiltrating ductal carcinoma of left breast [T1N1M0]. Initially patient underwent

partial mastectomy with sentinel lymph node excision, and subsequently mastectomy with axillary lymph node dissection. The carcinoma was PR, ER, HER2 receptor negative according to first histopathological evaluation. Four cycles of adjuvant AC and 12 cycles of Paclitaxel chemotherapy and radiotherapy in total dose of 50 Gy were administered with good tolerance.

After one year patient underwent breast reconstruction using tissue expander – without success due to local infection. Another attempt of breast reconstruction with fat transfer technique ended up with good cosmetic result.

After 5 years from primal diagnosis patient started to complain about right hip pain. Progression of symptoms made patient in short time unable to walk without crutches, with presence of persistent pain 6/10 NRS. In HHS, which evaluates hip related disability, patient got 23 out of 100 points, where score below 70 is considered a poor result. Appropriate studies were made including scintigraphy, MRI, CT and PET scan. MRI image of tumor is showed in Figure 1. Patient was diagnosed with multiple bone metastases: in spinal column, ribs, and femur. Proximal femur metastasis was extended 17 cm into femur shaft with high risk of fracture. Patient was qualified for surgical treatment with modular endoprosthesis system. Surgery was performed in prone position through anterolateral approach. The metastasis resection was carried out following oncological principles, which resection of 19 cm of femoral shaft counting from the tip of greater trochanter. Several tissue samples were collected for histopathological evaluation. Cemented acetabular and femoral component were used. X - Ray after surgery is showed on Figure 2.

Patient was mobilized and encouraged to partially weight bearing the day after surgery. At the time of discharge from the hospital after 2 weeks' patient was walking with 2 crutches, with recommendation to start full weight bearing after another 4 weeks.

Postoperative radiation was administered.

Results from histopathological evaluation of intraoperatively taken samples showed high progesterone receptor expression. Oncologist decided to apply targeted therapy with Tamoxifen and Goserelin and additionally bisphosphonates therapy with zoledronic acid.

In follow-up after 6 months from operation patient was walking without crutches, almost pain free [patient complained about pain after long walking or standing]. In HHS, this time patient got 83 points, which stands for a good result. Patient was able to go back to work. Unfortunately, CT scan after 6 months showed progression in bone metastases with new focuses in lumbar, thoracic spine and left acetabulum – for now without symptoms.

DISCUSSION

The management of metastatic breast cancer always requires personalized treatment. To optimize it, essential is

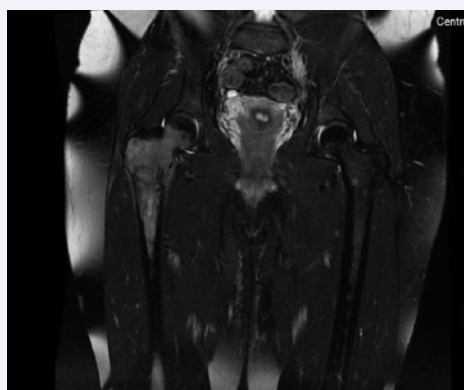


Figure 1 MRI image of proximal femur metastasis.



Figure 2 Postoperative X - Ray.

accurate PR, ER, HER 2 expression assessment [3]. Whenever possible, in patients with metastases, histopathological receptors expression confirmation should be obtained [5]. As mentioned before, possibility of discordance in receptor status in primal and metastatic breast carcinoma is well known. We know also that evaluation of receptor status can be influenced by many factors. Taking that into account, we need to be cautious when interpreting a change in receptor status, and although there is no to many data to justify the change in therapy, it seems appropriate in patients with change from negative to positive receptor expression.

The aims of orthopaedic operations in patients with bone metastases are to relieve pain and restore or maintain function. In our patient with proximal femur metastasis endoprosthesis replacement meet the expectations. Use of modular endoprosthesis gives a possibility to adapt to many reconstructive situations. Despite well recognized complications like dislocation, infection, aseptic loosening etc. it seems a better option than the bed rest and palliative radiation [6,7].

Although metastatic breast cancer is incurable [median survival range 24-48 months] with still increasing treatment options [for example: prophylactic stabilization, reconstructive techniques, chemotherapy, hormonal therapy, pain management, radiotherapy, anti-resorption drugs] we should be trying to ensure patient a pain free, active, independent life as long as possible [8].

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