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Breast cancer and synchronous multiple myeloma as a diagnostic challenge: Case report and review of literature

Marcin Sokołowski, MD[a], Grzegorz Mazur, MD, PhD[b], Aleksandra Butrym, MD, PhD[b,*]

[a]*Department of Oncology, Specjalistyczny Szpital im. A. Sokołowskiego w Wałbrzychu, 58-309 Wałbrzych ul. Sokołowskiego 4, Wałbrzych Poland*
[b]*Department of Internal Diseases, Occupational Medicine, Hypertension and Clinical Oncology, Wroclaw Medical University, Wroclaw, Poland*

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ABSTRACT

Multiple myeloma is a hematological malignancy, which sometimes creates difficulties in diagnosis, based on the presence of monoclonal protein in serum/urine and plasmocyte infiltration in the bone marrow, and on the other hand, synchronous cancers are also a diagnostic challenge. We present a case report of a patient with concurrent breast cancer and multiple myeloma.

A 68-year-old woman was admitted to the hospital with diagnosis of left breast cancer in first stage of the disease. In the past, she had had several episodes of thrombocytopenia, leucocytosis, and mild anaemia, which were followed by hematologist in outpatient setting. She was operated and started adjuvant chemotherapy. During treatment, episodes of hematological abnormalities were observed. After completion of the chemotherapy for breast cancer, the patient was observed and short time after that multiple myeloma was diagnosed as a synchronous cancer. Patient was first treated for breast cancer, then subsequently for multiple myeloma (2 lines therapy: CTD and VMP). We describe diagnostic problems with multiple myeloma; however, they could be caused by curation of breast cancer, which might

*Corresponding author: Aleksandra Butrym, MD, PhD, Deptartment of Internal Diseases, Occupational Medicine, Hypertension and Clinical Oncology, Wroclaw Medical University, Borowska 213 Str, 50-556, Wroclaw, Poland.
E-mail address: aleksandra.butrym@gmail.com (A. Butrym).

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have supressed the proliferation of plasmocytes and could delay the diagnosis. All symptoms of multiple myeloma were interpreted as a secondary effect of chemotherapy. Review of the literature shows the clinical approaches in such situations.

Introduction

Multiple myeloma is the third of the most common diagnosed hematological malignancies in Poland,[1] but many patients create a diagnostic challenge. Breast cancer is now first, in terms of cancer incidence, in population of women in Poland.[2] After surgical treatment, patient frequently needs an adjuvant chemotherapy or radiochemotherapy, which often are complicated with hematological toxicities. Oncologists are accustomed to consider changes in blood tests as secondary to the therapy. They rarely think about synchronous neoplasms, especially hematological ones. Below we present a case report of a patient diagnosed with breast cancer and multiple myeloma.

Case report

A 68-year-old woman with hypertension, type 2 diabetes, and myocardial infarction in the past was admitted to the hospital with tumor of left breast. For 1 year before admitting to the hospital, she had had thrombocytopenia, leucocytosis, and mild anemia. These aberrations had been diagnosed in hematological ambulatory in other medical centre. The therapy for breast cancer started with simple mastectomy with biopsy of sentinel lymph node (SLN). Final pathological diagnosis was invasive ductal cancer with all margins more than 1 cm, Bloom-Richardson 7 pt., without metastases in SLN, ER−, PR−, and Her2-Neu +++. Pathological staging—pT1c, pN0, pMx, pR0, pL0, pV0.

Six weeks after the surgery, patient had undergone first part of adjuvant chemotherapy with AC regimen (doxorubicine + cyclophosphamide, every 3 weeks). Blood tests indicated the patient to have continued leucocytosis and thrombocytopenia. After first AC cycle, the number of platelets decreased, which caused delay in chemotherapy.

The next part of adjuvant chemotherapy contained PXL-regimen (12 courses of paclitaxel every week), with persisting anaemia and leucocytosis in blood tests. The patient was controlled by the hematologist. Increased level of beta-2-microglobuline and hypergammaglobulinemia in IgG class was detected in the sample of serum. In the bone marrow aspirate, increase in plasmocytes was observed (7% of analysed cells). Patient continued the therapy of PXL, with persisting thrombocytopenia and leucocytosis, which complicated subsequent cycles. Finally, patient achieved complete response to therapy of breast cancer. The patient has not been treated with HER-2 directed therapy due to hematological abnormalities, which are exclusion criteria when considering such therapy in Poland.

Owing to persisting hematological abnormalities, patient has been seen by hematologist. Extended blood tests again demonstrated increased level of beta-2-microglobulins and IgG. Trephine biopsy of the bone marrow has been re-taken. Slight bone marrow plasmocyte proliferation (4%) was found, but without fulfilling criteria for multiple myeloma. She was followed-up in hematology outpatient ambulatory every 3 months.

Seven months after last dose of adjuvant chemotherapy, lab tests revealed again increased number of white blood cells, hypergammaglubulinemia in IgG class and higher beta-2microglobulin. Third bone marrow biopsy showed increasing plasmocytes (10%). Cytogenetic analysis of the bone marrow revealed normal karyotype. Serum protein electrophoresis showed monocolonal protein spike. Immunofixation documented the presence of IgG lambda monoclonal protein. Level of free