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Breast cancer after multiple myeloma treatment

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ABSTRACT

Breast cancer is the most common cancer in women. In addition, it is the second leading cause of death after lung cancer.[1,2] The prevalence of epidemiological studies in previous studies is 22%-26%. The risk of mortality due to breast cancer is around 18%.[3,4]

Multiple myeloma (MM) is a malignant disease of differentiated plasma cells. It is also the most common hematological neoplasm after lymphoma. Thirty five percent of MM patients are under the age of 65, 28% are between 65 and 74 of age and 37% are over the age of 75.[5] Pathophysiological mechanisms of MM include abnormal plasma cells (myeloma cells) occupying bone marrow, producing monoclonal immunoglobulin (M protein, M-component, and paraprotein) and increased bone destruction.[6]

Breast cancer cases diagnosed concurrently with myeloma have been reported in previous case reports. There is also a patient diagnosed with myeloma following breast cancer chemotherapy. In our case, the patient was first diagnosed with MM. And then autologous bone marrow transplantation was performed following 3 cycles of chemotherapy. This presentation is unique, because in literature there is no breast cancer case after myeloma in literature review.

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Introduction

Breast cancer is the most common cancer in women. In addition, it is the second leading cause of death after lung cancer.[1,2] The prevalence of epidemiological studies in previous studies is 22%-26%. The risk of mortality due to breast cancer is around 18%.[3,4]

MM is frequently seen among hematological malignancies. Multiple myeloma (MM) is a malignant disease of differentiated plasma cells. It is also the most common hematological neoplasm after lymphoma. Thirty five percent of MM patients are under the age of 65, 28% are between 65 and 74 of age and 37% are over the age of 75 age.[5] Pathophysiological mechanisms of MM include abnormal plasma cells (myeloma cells) occupying bone marrow, producing monoclonal immunoglobulin (M protein, M-component, and paraprotein) and increased bone destruction.[6]

There are rare cases where 2 malignancies occur simultaneously. There are rare cases in which both malignancies are seen together. This article describes a patient developing breast cancer after myeloma treatment.

Case report

A 55-year-old female patient was diagnosed as myeloma with bone marrow aspiration biopsy performed with the preliminary diagnosis of plasma cell dyscrasia while investigating the etiology of proteinuria. L3 vertebral fracture was found in the patient's lumbar magnetic resonance imaging and density decrease was observed in the bone structures. Three cycles of VAD (vincristine-doxorubucine-dexamethasone) chemotherapy were given to the patient. And then autologous bone marrow transplantation was performed. The patient is stable for myeloma for 2 years. The patient has no history of breast cancer in her first degree relatives. Although she did not have a history of menarche, she had entered menopause at the age of 45. The patient had 3 children and she was 22 years old when her first child was born. The patient did not use alcohol or smoking, no intake of birth control pills, and no history of radiotherapy. In addition, the patient's BMI is 39.5 and she has an obese appearance.

A 28×23 mm mass lesion was detected in the patient's routine mammography scan (BI-RADS 5). The result of tru-cut bıopsy performed by general surgery has been concluded as invasive breast cancer. Patient underwent a modified radical mastectomy and lymph node dissection. Pathology result was of invasive ductal cancer, tumor diameter 3.2 cm, estrogen receptor (−) progesterone receptor (−) cerbB2 (+3), Ki-67 25%, lymphovascular invasion (+), perineural invasion (+) surgical margins intact, no nipple and breast skin involvement, 8 lymph nodes (8/27) reported as metastatic. Four cycles of adjuvant AC (cyclophosphamide adriamycin) was planned for every 21 days.

Discussion

Breast cancer is one of the most common malignancies in the world and is also the most common female cancer. Despite the high prevalence of breast cancer, mortality rates have recently declined due to improvement in screening and treatment regimens.[7-11]

In a previously published case report, MM developed under the treatment of breast cancer.[12] Breast cancer was first found in all case presentations with MM and breast cancer association. In addition, bone lesions detected in these cases were initially considered as a sign of metastasis of breast cancer. In our case, autologous KIT was performed after taking 3 cycles of VAD chemotherapy for MM. Then breast cancer was detected in a 2-year remission after myeloma. In some studies, these malignancies were defined simultaneously. In a case presented by Vennepudreddy et al. MM, breast cancer, and monoclonal B cell lymphocytosis were detected simultaneously.[13]

As a result of screening in our case, no metastatic involvement of breast cancer was detected. However, vertebral metastasis and collapse fracture were detected in the examinations performed in 2016 when MM was diagnosed. In another case report by Khefani et al., breast cancer metastasis and MM involvement were detected at the same vertebra.[14] In another case report, bone lesions were evaluated in favor of metastasis in a patient with breast cancer. Clinicians accepted the patient as metastatic breast cancer and chemotherapy was started. Patient was diagnosed as MM while dehydration and renal failure was observed after chemotherapy.[15]

In another case report, the patient diagnosed with medullary breast cancer received neoadjuvant chemotherapy. The patient was operated after neoadjuvant chemotherapy and there was also a history of postoperative radiotherapy. This patient was diagnosed with MM after bone pain, anemia, and high globulin levels.[16]

In a previous literature review, solid organ malignancies were investigated after bone marrow transplantation. 19,229 patients were included in the study, although there was a slight increase in the risk of breast cancer. However, it is expected to be seen after a long latent period.[17]

In addition, we have not been able to detect a breast cancer case after VAD chemotherapy in our literature review.

Our case is important because it is the first in the literature in terms of the development of breast cancer after myeloma treatment.

Supplementary material

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.currproblcancer.2019.01.004.

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