Metastatic Breast Cancer. Occurrence After Autologous Hematopoietic Stem Cell Transplantation for Multiple Myeloma: Case Report

Multiple Myeloma (MM) is a systemic malignancy of plasma cells that is highly treatable but rarely curable. Autologous hematopoietic stem cell transplantation (AH SCT) is the therapy of choice for the treatment of MM patients. Although recurrence of disease remains the major cause of failure following AH SCT with relapse rates approaching 80%, secondary malignancies have been recognized with increasing frequency (1.6-4.5%), especially myelodisplastic syndrome (MDS) and acute myelogenous leukemia (AML). It has also been suggested that high dose therapy may play a direct role in the development of second solid tumors following AH SCT, although much less information has been published on the risk factors for second solid tumor development. Herein we report the first case of a metastatic breast cancer occurring after AH SCT for a multiple myeloma patient in remission for 6 years. This case report serves to demonstrate that clinicians should consider metastatic breast cancer as a cause of lytic bone lesions mimicking relapse of multiple myeloma.

**Key Words:** Multiple myeloma; breast neoplasms

**ÖZET** Multiple miyelom (MM) plazma hücrelerinin, yüksek oranda tedavi edilebilen fakat nadiren kür sağlanabilen, sistemik bir malinitesidir. Otolog hematopoetik kök hücre nakli (OHKHN) MM hastalarının tedavisinin esas unurlarından biridir. OHKHN sonrasında tedavi başarısızlığının esas nedeni %80’ere ulaştığı oranda hastalık relapsı olmasıdır. Tedavinin geç komplikasyonu olan ikinci maliniterlerin, özellikle myelodisplastik sendrom (MDS) ve akut miyeloblastik lösemi (AML), sikliği da artmaktadır (%1.6–4.5). Yüksek doz tedavinin kendisinin de OHKHN sonrasında ikinci solid tümör gelişmesinde rolü olabileceğini öne sürülmektedir. Biz burada OHKHN yapılmış olan ve 6 yıldır remisyonda olan multipl miyelomlu bir hastada gelişen ilk meme kanserini olguunu sunuyoruz. Bu olgu aynı zamanda multipl miyelom relapsını taklit eden litik kemik lezyonlarının, klinik terapide metastatik meme kanserini düşündürümesi gerektiğini de göstermektedir.

**Anatür Kelimeler:** Multipl miyelom; meme kanseri

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Information has been published on the risk factors for second solid tumor development.4 Herein we report the first case of a metastatic breast cancer occurring after AHSC for a MM patient in remission for 6 years. This case report serves to demonstrate that clinicians should consider metastatic breast cancer as a cause of lytic bone lesions mimicking relapse of MM.

**CASE REPORT**

In October 2000 a 57-year-old women was admitted with a recently occurred history of severe back pain, fatigue and weight loss. Thoracolumbar magnetic resonance imaging (MRI) showed osteolytic lesions on Th12 and L1 vertebra body. Bone marrow biopsy showed 70-75% plasma cell infiltration (Figure 1). Serum IgA: 3400 mg/dL (8 times higher than normal) and renal function tests was normal. The patient was diagnosed with stage IIIA MM. After radiotherapy of Th12 and L1 vertebra the patient received 5 cycles of vincristine, Adriamycin...
and dexamethasone chemotherapy. In June 2001 after high dose melphalan AHSCST was performed. With monthly pamidronate (then switched to zoledronic acid) she was in complete remission until February 2006 when she admitted again with back pain. Direct radiography of thoracolombar spine showed collapse of Th11-12, L1-2 vertebra (Figure 2). MRI showed lytic lesions in Th11 and L1 vertebra suspecting relapse of the disease. But protein electrophoresis and serum IgA level was normal range. Bone marrow biopsy showed a tumoral infiltration, that was filling intertrabecular areas. Tumor was in epithelial morphology with a desmoplastic stroma (Figure 3). Immunohistochemically, neoplastic cells were expressing estrogen and progesterone receptor, keratin 19, keratin 7. But, there was not positivity for keratin 20. Mammography and computed tomography was performed for detecting the primary tumor. Mammography showed 1.5 x 1 cm malign microcalcified masses, one in the central and the other in the inferior middle part of left breast. Sterotactic biopsy was performed and infiltrating ductal carcinoma of the breast was diagnosed with positive staining for estrogen and progesterone receptors and negative staining for c-erb B2 (score 0) (Figure 4). Thorascic computed tomography showed multiple milimetric bilateral paracimal metastatic nodules in the lung. In imaging studies no other metastatic region was found except lung and bone. After six cycles of paclitaxel and capecitabine chemotherapy she was followed on aromatase inhibitor and zoledronic acid therapy. The patient is relapse free for over a year regarding both malignancies.

**DISCUSSION**

Because MM had been diagnosed in this patient, the imaging studies and her clinical findings 5 years after AHSCST pointed to the relapse of the disease. But after evaluations secondary metastatic breast cancer was diagnosed. After AHSCST especially MDS and AML was seen as secondary malignancies, but secondary solid tumors was seen rarely (0.5-2%) in the literature.1,3,5 The risk for secondary malignancies increases by time. After AHSCST the incidence for developing second malignancies varies between 2.2-4% for 10 year, 6.7-11% for 15 year and median time 50-68 months.2,3,6,7 In our case 61 months after AHSCST breast cancer was seen. The largest series of stem cell transplant patients (autologous and allogeneic) reported that those patients who were less than 10 years of age at the time of transplantation have accumulated a 60-fold higher risk of developing any secondary malignancy and a 33-fold higher risk of that tumor being a nonhematopoietic solid tumor. The risks all remained significantly elevated for each age group, with the exception of the risk for solid tumor in individuals who were more than 40 years old at the time of transplantation.6 Our case was 58-year-old at time of transplantation, so may be a co-incidence of myeloma and breast cancer.

The bone metastasis of breast cancer can resemble the bone involvement of MM. There are 5 cases of metastatic breast cancer patients who were diagnosed with MM after follow up, but one patient had both tumors synchronously in the literature.8-11 In our patient breast cancer developed after MM. There is a case of breast cancer that developed 68 months after AHSCST for a Hodgkin lymphoma patient.3 This is the first case report of a metastatic breast cancer occurring after AHSCST for MM patient, and its presentation mimicking myeloma relaps merits consideration.


