CLINICAL VIGNETTE

Metastatic Breast Cancer in a Node-Negative Patient

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Introduction

Each year, 200,000 new cases of invasive breast cancer are diagnosed in the United States and about 40,000 of these patients will die from the disease.[1] Stage 2 breast cancer is defined as breast cancer that is contained within the breast or has spread only to local lymph nodes. Stage 2 breast cancer can be further divided into stage 2a and 2b depending on size and number of lymph nodes involved. Both sub-stages offer a similar prognosis with about a 93% five year survival rate, but it has been shown that 20-30% of node negative patients will develop distant metastases within 18 years.[2] Treatment for stage 2 breast cancer includes surgical excision, radiation therapy, and hormonal therapy with adjuvant chemotherapy shown to be beneficial in certain cases based on prognostic factors.[3,4] This is a case of a node negative patient presenting with metastatic breast cancer less than 2 years after diagnosis.

Case Report

A 48-year-old woman with no significant medical history presented with a right breast mass in 2013. At that time, a mammogram was performed with negative results. In May of 2013, a biopsy was performed, which revealed invasive ductal carcinoma. Following this diagnosis, the patient underwent a left prophylactic mastectomy, a right mastectomy, and sentinel lymph node biopsy. Pathology showed a 3.3cm invasive ductal carcinoma with clear margins, Bloom-Richardson score 9 of 9, 0 and 0/1 sentinel lymph nodes involved. No other nodes were present on surgical specimen from mastectomy. Pathology also revealed estrogen and progesterone receptor positive and HER2 negative. The patient then underwent radiation therapy but declined hormonal therapy for fear of side effects. She was not offered chemotherapy.

Following surgery and radiation therapy, the patient relocated to Los Angeles to continue treatment. She presented to UCLA 18 months after her initial diagnosis. She was seen by oncology who again recommended hormone therapy, and the patient declined. The patient subsequently presented to the internal medicine clinic for her annual physical. On review of systems, patient complained of worsening of her chronic lower back pain. She had been in a car accident several years prior and had suffered a compression fracture of the lumbar spine, which led to chronic back pain. For approximately one month, she had been experiencing worsening of this pain but stated that pain was not significantly affecting her quality of life. On exam, she had mild tenderness on palpation over the lumbar

Spine, but no other abnormalities were noted. A neurologic exam was performed and was normal. Given that the patient had history of breast cancer with new worsening back pain and tenderness on exam, she was sent for an MRI of the L spine, which showed marrow replacing lesions involving L1 and L5 concerning for metastasis. Subsequent biopsy showed metastatic carcinoma consistent with breast primary, ER and PR positive, and HER2 negative.

Discussion

Due to increased screening as well as earlier and improved treatment options, the death rate from breast cancer has declined about 20% over the past 10 years.[2] Standard treatment for stage 2 breast cancer includes modified mastectomy, radiation therapy, and hormonal therapy.[4] Hormonal therapy is a grade 1A recommendation regardless of whether chemotherapy is given. Survival rate has been shown to be increased with radiation and chemotherapy combined than with radiation therapy alone. [4]

Adjuvant systemic therapies are useful in early stage breast cancers to prevent cells that have escaped the primary tumor from growing into metastatic disease. These therapies include endocrine therapy, chemotherapy, and molecularly-targeted therapy against a protein (such as HER2).

For patients with hormone receptor positive breast cancer, adjuvant chemotherapy is indicated in cases with involved lymph nodes, large tumor size (generally more than 0.5 to 1cm), high tumor grade, presence of lymphovascular invasion, and/or high recurrence score (>31 on the 21 gene recurrence assay). This is a grade 2B recommendation. Other prognostic factors that are examined are age at diagnosis, ethnicity, and hormone receptor status.[5]

Studies show that anywhere from 20-30% of node negative patients will develop distant metastatic disease within 18 years. This is likely due to occult micrometastatic disease being present at the time of surgery that is not detected on pathology and therefore leads to under-staging.[6,7]

Summary

Chemotherapy is an important component of treating early stage breast cancer and has been proven to reduce mortality. The decision to start adjuvant chemotherapy should be based on individual patient's history and specific risk factors. Adjuvant online is a web-based program that helps to determine both recurrence risk and probability of survival based on population-wide data and can be used in discussing the need for adjuvant chemotherapy with patients.[8]

Metastatic disease can occur in 20-30% of node negative patients. A thorough history and physical, as well as appropriate blood work and imaging, should be done at each follow-up visit. It is important to maintain a high suspicion for recurrence of breast cancer and metastatic disease to ensure early and appropriate treatment.

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