Symptomatic Bone Marrow and Leptomeningeal Metastasis in Invasive Lobular Carcinoma: A Case Report

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Introduction

- Breast cancer is the most commonly diagnosed cancer worldwide and is the leading cause of cancer death in women.
- Approximately 20% of those with operable breast cancer experience relapse following treatment, and, of that, approximately 70% occurs as distant metastasis.
- The most common site of first distant metastasis in early-stage breast cancer is bone (41.1%), followed by lung (22.4%), liver (7.3%), and brain (7.3%).
- Multiple studies note the close association of bone marrow and bone parenchyma metastases, as shown by the presence of lesions on x-rays or scintigraphy as well as bone marrow biopsies.

Case Description

- A 54-year-old female presented with a two-year history of a progressively enlarging right breast mass.
- She underwent biopsies and imaging, showing metastatic stage 4 invasive lobular carcinoma with an ER+/PR+/HER2- profile (Figure 1).
- The patient underwent several cycles of palliative chemotherapy to completion with good tolerance, but became noncompliant with Anastrozole treatment a few months later.
- Two years following initial diagnosis, CT scans showed metastasis to her liver, necessitating further chemotherapy. After this treatment, the patient developed progressive anemia and thrombocytopenia prompting further workup.
- She underwent multiple bone scans following her initial presentation that showed no evidence of metastasis to her bones; however, bone marrow biopsy revealed metastatic carcinoma consistent with a primary breast carcinoma (Figures 2 & 4).
- A few months later, the patient began experiencing headaches with photophobia and blury vision.
- She was admitted and a brain MRI showed evidence of leptomeningeal metastasis (Figure 3).
- The patient passed soon after.

Discussion

- While breast cancer commonly metastasizes to the bone and brain in general, bone marrow and leptomeningeal metastases are very rare, especially in combination.
- As these malignancies are often occult in their presentation, a high level of suspicion is necessary to provide adequate care for afflicted patients.
- A consideration of these rare pathologies is crucial in the management of breast cancer patients who present with CBC abnormalities and neurological symptoms.
- Currently, no standard of care exists for the management of leptomeningeal or bone marrow metastasis, making prompt diagnosis even more crucial.

Conclusion

- Cancer is very unpredictable - There are documented differences in metastatic patterns between metastasis to bone parenchyma vs bone marrow, with bone parenchyma metastasis being more common.
- There are no recommended treatments available for bone marrow or leptomeningeal metastatic cancer - Further treatment strategies should be developed for these rare metastatic patterns.
- When a patient with a history of cancer presents with anemia, thrombocytopenia, and other symptoms of bone marrow failure, bone marrow metastasis should be considered.

References