

## A Case of Multiple Bone Fractures Mimicking Bone Metastases in a Patient with Breast Cancer in Remission

Rokhsi Soukaina<sup>1\*</sup>, Adioui Tarik<sup>1</sup>, Berrag Sanaa<sup>1</sup>, Nejari Fouad<sup>1</sup>, Tamzaourte Mouna<sup>1</sup>

<sup>1</sup>Department of Gastroenterology 1, Mohammed V Military Training Hospital, Rabat, Morocco

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\*Corresponding author: Rokhsi Soukaina

Department of Gastroenterology 1, Mohammed V Military Training Hospital, Rabat, Morocco

### Abstract

### Case Report

We present the case of an 88-year-old female patient who was admitted to our department due to major asthenia. The patient had a medical history of hypertension, diabetes, and Alzheimer's disease. In 1984, she was diagnosed with right breast cancer and had undergone surgery followed by chemotherapy and radiotherapy, achieving a stable remission. However, her recent clinical presentation raised concerns about possible disease recurrence. This case report highlights the importance of thorough evaluation and multidisciplinary discussions in reaching an accurate diagnosis.

**Keywords:** Bone fractures, Bone metastases, Breast cancer, Major asthenia.

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## INTRODUCTION

Major asthenia, along with a history of breast cancer, prompted the need for further investigation in our elderly patient. Although bone metastases were initially suspected, careful evaluation and multidisciplinary discussions were crucial in reaching an alternative diagnosis.

## CASE PRESENTATION

An 88-year-old female patient with a history of hypertension, diabetes, and Alzheimer's disease presented with major asthenia. She had previously been treated for right breast cancer in 1984, which had been followed by surgery, chemotherapy, and radiotherapy. On admission, the patient reported a fall at home one month prior, without any apparent consequences. However, five days before admission, she experienced asthenia associated with pain and functional impotence in the right lower limb. Additionally, extreme anorexia and a documented 10% weight loss were observed. Physical examination revealed dehydration, abdominal tenderness, and functional impotence of the left lower limb, along with sensitivity to pubic palpation.

### Investigations and Findings

Laboratory findings showed normocytic normochromic anemia, hyponatremia, hypocalcemia, and elevated C-reactive protein (CRP) levels. These results prompted further imaging examinations. Various imaging modalities, including Bodyscan,

chest/abdominal CT scans, MDP-Tc99m bone scintigraphy, mammography, breast magnetic resonance imaging, and PET-CT scan, were performed. Initial imaging revealed diffuse breast infiltration and multiple secondary bone locations involving the left sternoclavicular joint, left anterior arch of K4, vertebral body of D12, left sacroiliac joint, left ischio pubic ramus, and left ilio pubic ramus.

### Biopsy and Final Diagnosis

Bone biopsies were performed on the left iliopubic wing, which revealed bone tissue with hemorrhagic remodeling but no signs of malignancy on histological examination or immunolabeling with anti-CKAE1/AE3 antibodies. These findings contradicted the initial suspicion of tumor recurrence with extensive bone metastases.

### Treatment and Outcome

The patient was managed with painkillers and physical therapy, allowing her to regain the ability to sit and stand with assistance. Following multidisciplinary discussions involving gastroenterologists, oncologists, radiologists, and nuclear medicine specialists, a re-evaluation of imaging and scintigraphy was conducted, taking into account the histological results. Eventually, the diagnosis was revised to multiple bone fractures mimicking bone metastases in a patient with breast cancer in remission. The patient continues to receive physical therapy and is experiencing positive long-term outcomes.

## DISCUSSION

The case presented here highlights the diagnostic challenges faced when evaluating an elderly patient with a history of breast cancer and new-onset symptoms suggestive of disease recurrence. Initially, the clinical picture, along with imaging findings of diffuse breast infiltration and multiple bone lesions, raised suspicion of bone metastases [1]. However, further investigations, including bone biopsies and multidisciplinary discussions, led to an alternative diagnosis of multiple bone fractures mimicking bone metastases in a patient with breast cancer in remission.

The differentiation between bone metastases and benign fractures is crucial for appropriate treatment planning and patient management. Several studies in the literature have addressed similar diagnostic dilemmas and have provided valuable insights into this clinical scenario [2]. A study by Lee *et al.*, reported cases of benign fractures mimicking bone metastases in breast cancer patients. They found that bone scintigraphy, although sensitive, may not always be specific for distinguishing between these two conditions [3]. They emphasized the importance of histological confirmation through bone biopsies, which aligns with our findings.

Another study by Tin *et al.*, highlighted the significance of multidisciplinary discussions and re-evaluation of imaging findings in cases of suspected bone metastases. They reported instances where fractures were misinterpreted as metastases based on initial imaging, leading to unnecessary treatment interventions [4]. Similar to our case, they stressed the importance of considering the patient's clinical history, imaging results, and histological findings to reach an accurate diagnosis.

The literature suggests that in cases where bone metastases are suspected, additional imaging modalities such as MRI, PET-CT scan, and bone biopsies can aid in achieving a definitive diagnosis [5]. In our case, the PET-CT scan was performed to evaluate the extent of disease, but subsequent bone biopsies played a pivotal role in ruling out malignancy. These findings are consistent with a study by Carpintero P *et al* which emphasized the complementary role of PET-CT and histological analysis in differentiating bone metastases from benign bone lesions [6].

Moreover, the case presented here highlights the significance of considering other factors contributing to the patient's symptoms, such as the presence of comorbidities and age-related conditions. In our patient, the combination of major asthenia, functional impotence of the limbs, extreme anorexia, and weight loss warranted a comprehensive evaluation. These nonspecific symptoms could be attributed to

various causes, including frailty, sarcopenia, and age-related changes, which should not be overlooked in elderly patients.

## CONCLUSION

The case report described here demonstrates the importance of meticulous evaluation and multidisciplinary discussions in complex clinical scenarios involving suspected bone metastases in patients with a history of cancer. It highlights the limitations of imaging modalities alone and emphasizes the significance of histological confirmation through bone biopsies. The findings from this case align with existing literature, which stresses the importance of considering the patient's clinical history, imaging results, and histological findings to prevent misdiagnosis and guide appropriate management decisions.

It is essential for clinicians to remain vigilant and consider alternative diagnoses, especially in elderly patients who may have multiple comorbidities and age-related conditions contributing to their symptoms. Future research and larger studies are warranted to further explore the diagnostic challenges in this patient population and to develop more accurate and reliable diagnostic approaches for distinguishing between bone metastases and benign fractures.

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