

## An unusual metastatic site of bone chondrosarcoma

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### Abstract

Metastases of extramammary malignancies into the breast is very unusual. Chondrosarcoma most commonly metastasizes to the lung or the skeleton, and metastatic chondrosarcoma to the breast is extremely rare, with only a few publication of metastasis from extraskeletal myxoid chondrocarcoma. In this article, we present the findings of a 50-year-old female patient with breast metastasis of bone chondrosarcoma. To our knowledge no previous case was reported in literature.

### Keywords

breast cancer; bone; tumor

### Introduction

Breast cancer is the leading cause of death from cancer in women. Metastatic tumor to the breast represents 1-2% of all breast tumors. Common tumors that metastasize to the breast include those from controlateral breast carcinoma, malignant melanoma, lymphoma, lung cancer, ovarian carcinoma, soft tissue sarcoma as well as gastrointestinal and genitourinary tumors [1]. In women with known malignant disease, we must correlate between the histology of the primary and the breast tumor to avoid unnecessary mastectomy and to implement an appropriate systemic treatment [2]. Rare cases of bone sarcoma (osteosarcoma, Ewing-sarcoma) metastatic to the breast were reported in literature [3,4].

We describe an original case of a woman suffering from a pelvic chondrosarcoma who developed a single breast metastasis eight years after the initial diagnosis. To our Knowledge no case of skeletal chondrosarcoma metastatic to the breast was previously reported.

### Case Report

A 50-year-old asymptomatic premenopausal woman was referred to the surgical departement of Salah Azaiez Institute of oncology after discovering a tumor of the left breast. the patient has a medical history of grade II locally advanced right pelvic Chondrosarcoma diagnosed 8 years ago and treated with inter-ilio-abdominal amputation (figure 1 a/1b). Post-operative histopathological findings of the resected tumor showed free margins with no metastatic extension in the follow up imaging. Chemotherapy was recommended, but not delivered since the patient has been lost to follow up for 5 years. Three months ago she noticed a palpable rounded breast masse that growed rapidly. On physical examination a rough, but mobile lump of about 40 mm was palpable in the outer lower quadrant of the left

breast, close to the areolar border. There was no nipple discharge and no axillar nodes. Mammograms were significant for a solitary irregular marginated mass of 35\*25mm (figure 2a/2b). Breast Ultrasonography showed a 42\*24 complex cystic breast mass with anechoic and echogenic components. The lesion was classified as BI-RADS 4. Fine needle aspiration removed a mucoid fluid. Differential diagnosis of the lesion included primarily metastases because of the patient's history but also complicated cyst, and medullary or mucinous carcinoma. The patient underwent lumpectomy of the breast mass (figure 3). Pathologic examination confirmed the diagnosis of breast metastasis from the pelvic chondrosarcoma (figure 4a,4b,4c,4d). Histological features of the breast lesion were found to be identical to those of the primary. Then, the patient was referred to medical oncologists. A computed tomography scan performed a month after breast surgery showed the appearance of pulmonary nodules confirming an asymptomatic lung metastasis. Systemic chemotherapy with anthracycline-containing regimen (doxorubicin + cisplatin + ifosfamide) was resumed. After two cycles, she developed a new 4 \*3.5 cm soft tissue mass anterior to the left tibia. She completed 6 cures with progression of pulmonary nodules. She had 4 cycles of gemcitabine-docetaxel based-chemotherapy with stabilization. Following aggressive systemic chemotherapy, she was unable to overcome the aggressive metastatic course of the primary tumor and expired one year after her initial diagnosis.

## Discussion

Metastases into the breast from extramammary malignant neoplasms are unusual. They may be detected during treatment for a known malignancy, or they can be the first manifestation of a malignant disease. The first case of metastatic lesion to the breast is thought to have been reported by Trevithick in 1903 [1,2].

Breast metastasis can occur in two different forms: Blood borne and lymphatic. Lymphatic metastases mostly arise from contralateral primary breast carcinoma. Melanoma is the most common source of blood borne metastases into the breast. The next most common sources are lung carcinoma and the lymphoma [3].

Chondrosarcoma is a common primary bone tumor subsequent to osteosarcoma in frequency. It has been classified based on histological appearance into slow growing, benign and malignant grade I to grade III. Distant metastases account for 10% of grade II and, 71% of grade III, commonly occurring to the lungs, other bones, and liver, resulting in a 5-year survival of 18 % [5].

Rare cases of primary chondrosarcoma of the breast were described in litterture. In this cases a non-mammary primary site has to be excuded clinically and histologically [6]. However we believe we report the first case of bone chondrosarcoma metastatic to the breast. In our review of publication written in English, we found 2 papers reporting mammary metastasis from a extra skeletal myxoid chondrosarcoma [7,8].

In contrast to primary breast cancer, metastases are often found in the subcutaneous fat and do not cause retraction or discharge of the nipple because of their extraductal location [9]. In our case, the patient presented clinically with a palpable, rough, but mobile lump. No skin thickening, skin- or nipple-retraction was seen clinically. On mammography, unlike primary breast involvement, metastases usually appear as round masses with circumscribed or ill-defined borders, in most cases multiple and bilateral,

not associated with speculations or micro calcifications .On ultrasound, metastatic masses tend to have circumscribed margins with low-level internal echoes and, occasionally, posterior acoustic enhancement. Color Doppler interrogation most often shows increased vascularity [10,11].

Metastasis to the breast signifies disseminated metastatic disease [1]. In a patient with a known malignancy and an enlarging breast mass, even with a benign radiological appearance, we should perform a biopsy. Metastatectomies in this setting have a limited role other than palliation. The main form of treatment for these patients is systemic treatment, eventhough, bone chondrosarcoma are relatively chemo- and radiotherapy resistant [5,12].

The aim of this article is to highlight the fact that though breast metastasis is extremely rare in primary osseous chondrosarcoma, the presence of a mammary mass merits further investigations.

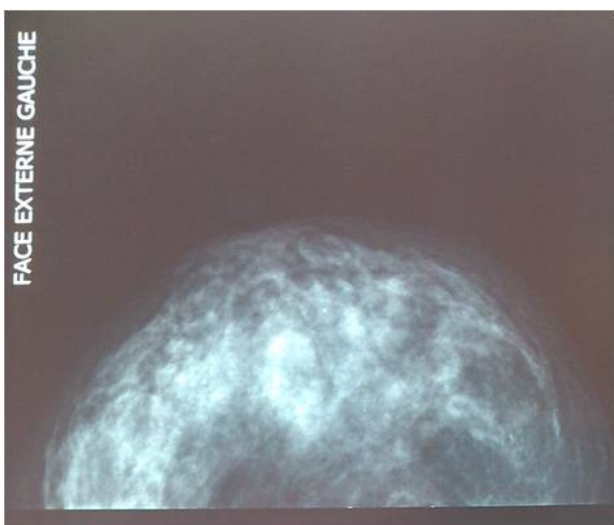
**Figures**



**Figure 1a:** Pelvic MRI (Coronal ) showing a 25 cm sized mass of the right pelvic bone.



**Figure 1b:** Pelvic MRI (axial section) showing a 25 cm sized mass of the right pelvic bone.



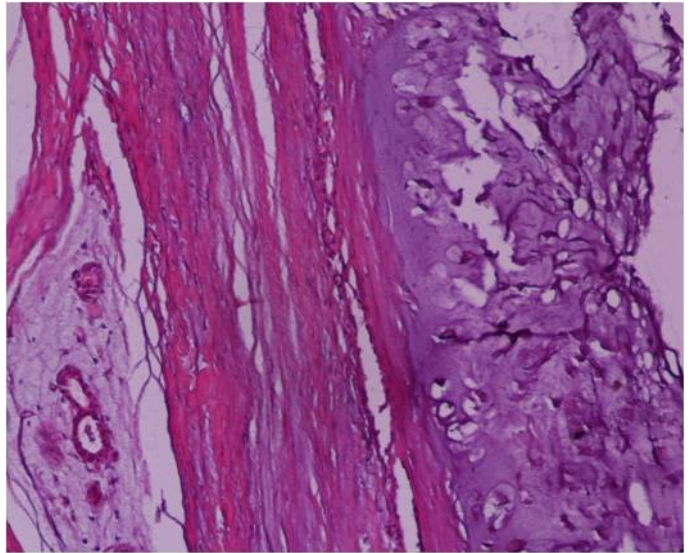
**Figure 2a:** left mammogram: A solitary irregular margined mass of 35\*25mm, BI-RADS 4



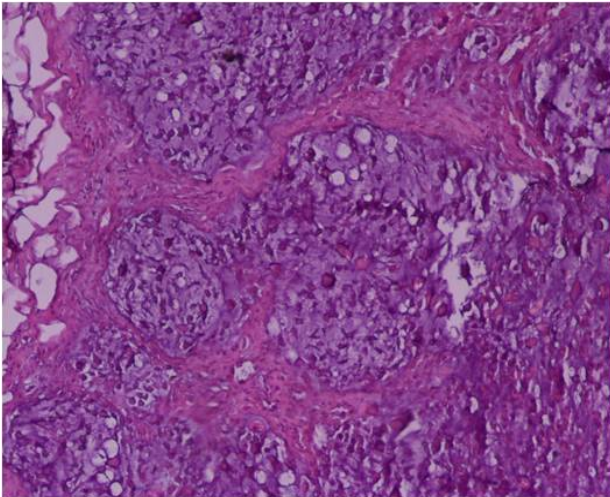
**Figure 2b:** Left mammogram: A solitary irregular margined mass of 35\*25mm, BI-RADS 4



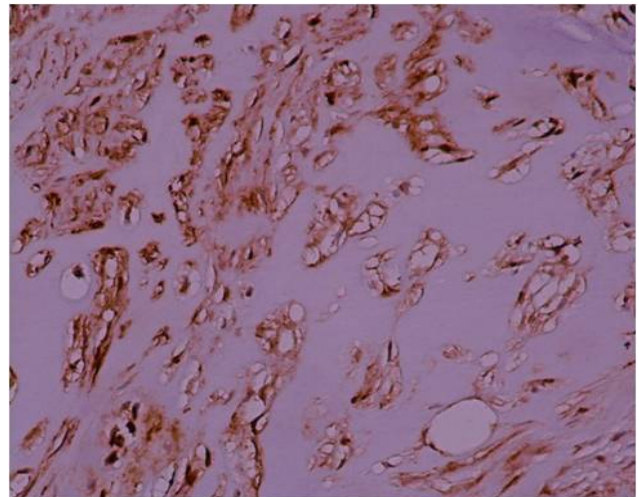
**Figure 3:** Gross specimen showing a lobulated tumor with both mucoid and necrotic zone.



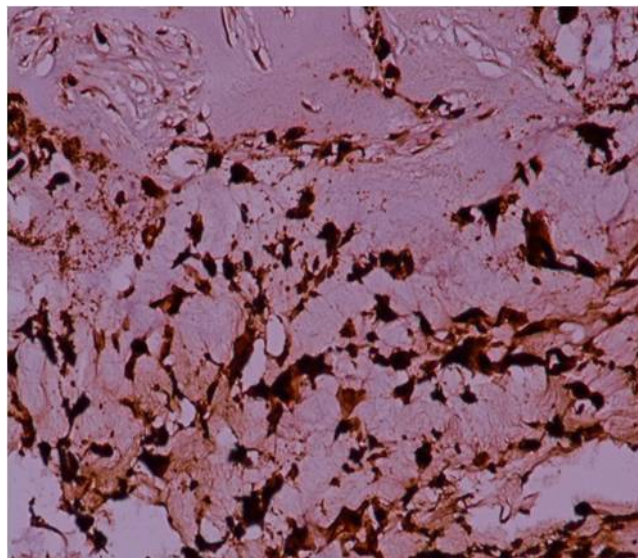
**Figure 4a:** Microscopic examination of the resected specimen showing a mesenchymal proliferation dissociating normal mammary gland tissue (HE x 250).



**Figure 4b:** Tumoral cells are organised in cartilaginous lobules .Nuclear atypia is noted (HE x 100).



**Figure 4c:** Tumoral cells are organised in cartilaginous lobules .Nuclear atypia is noted (HE x 100).



**Figure 4d:** Immunohistochemically cells are CD99(+) (IHC x 250).

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