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RADIOLOGICAL ASPECT OF PHYLLODES BREAST SARCOMA: A CASE REPORT AND LITERATURE REVIEW

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Summary

Phyllodes sarcoma of the breast is rare and aggressive. It is most commonly observed in women, primarily affecting the right breast, and has an average size of 6 cm. Clinically, it can present as a mobile and firm mass or as a large breast mass with skin distension. On imaging, it typically appears as an irregular mass on mammography, a hypoechoic mass with irregular contours on ultrasound, and shows intense and heterogeneous contrast enhancement on MRI. The treatment of phyllodes sarcoma of the breast involves surgery, radiotherapy, and possibly chemotherapy. The prognosis of this tumor is poor. This article highlights the importance of imaging in the diagnosis and management of phyllodes sarcoma of the breast, providing information on the radiological characteristics of this rare and aggressive tumor.

INTRODUCTION

Phyllodes tumors of the breast are classified into three categories according to the 2017 World Health Organization (WHO) classification: benign, intermediate (or borderline), and malignant. Malignant phyllodes tumors of the breast, also known as grade 3 phyllodes sarcomas, are extremely rare and represent the most aggressive histological subtype. Imaging plays a crucial role in the screening, diagnosis, staging, and follow-up of phyllodes tumors. The most commonly used imaging modalities include mammography, ultrasound, and magnetic resonance imaging (MRI). The objective of this article is to present the imaging aspects of a case of phyllodes sarcoma of the breast, which is the rarest and most aggressive type of phyllodes tumors.

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Case Presentation

We present the case of a 41-year-old female with no personal or family history of breast cancer, who presented with a swelling in the right breast that had been evolving for 7 months. On clinical examination, a mobile, lobulated, regular, firm, well-defined mass measuring approximately 37 cm in diameter was observed in the lower outer quadrant of the left breast, without axillary lymphadenopathy. The contralateral breast and axilla were normal. The patient underwent mammography coupled with breast ultrasound.

Mammography revealed a high-density mass with a lobulated shape, measuring 4 cm in the longest axis, without pleomorphic microcalcifications, in the lower outer quadrant of the left breast, classified as BI-RADS 4 by the American College of Radiology (ACR) (Fig. 1).

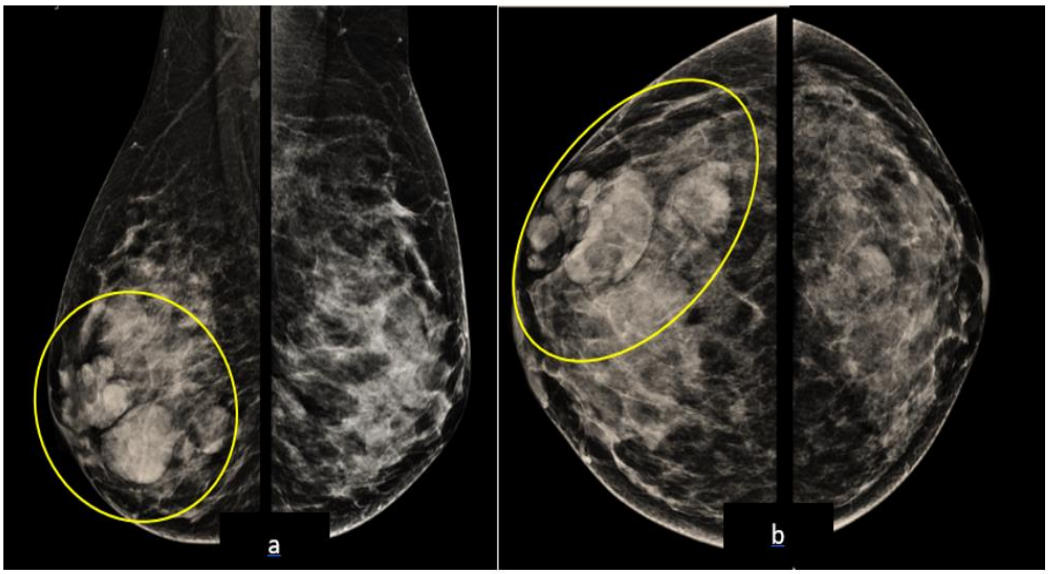

Figure 1: Bilateral mammograms. Oblique external (a) and craniocaudal (b) views. Lobulated mass with well-defined contours, homogeneous, located in the right lower outer quadrant.

Ultrasound confirmed the presence of a lobulated mass with well-defined contours, hypoechoic, heterogeneous, containing microcystic spaces, with necrotic areas, measuring 42 x 28 mm, located in the right mid-outer quadrant of the breast. No suspicious left axillary lymph nodes were observed. The lesion was classified as BI-RADS 4 by the ACR (Fig. 2).

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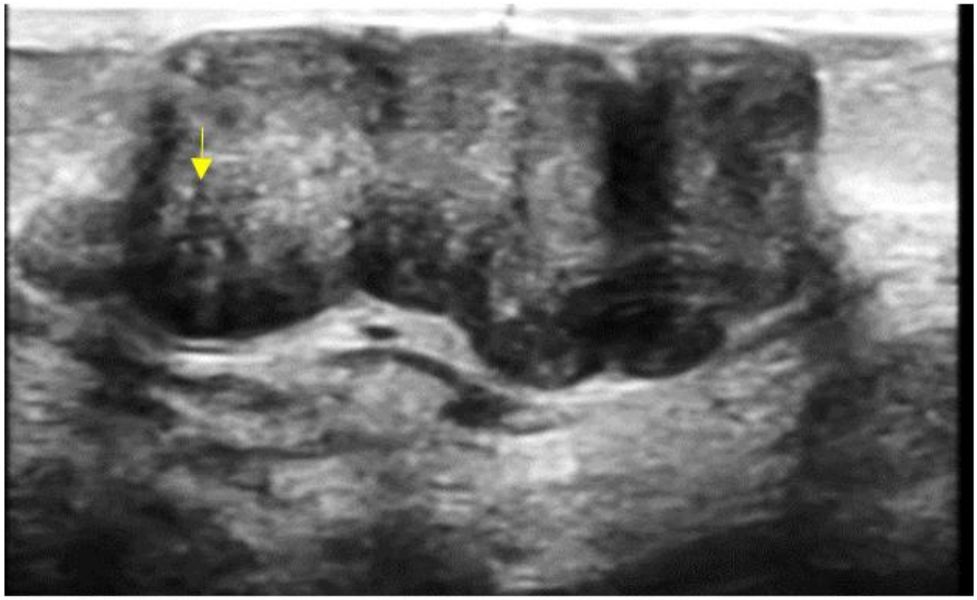

Figure 2: Breast ultrasound. Hypoechoic, lobulated mass with well-defined contours, heterogeneous due to the presence of microcysts.

A breast biopsy guided by ultrasound was performed, which suggested a grade II phyllodes tumor (Fig. 3).

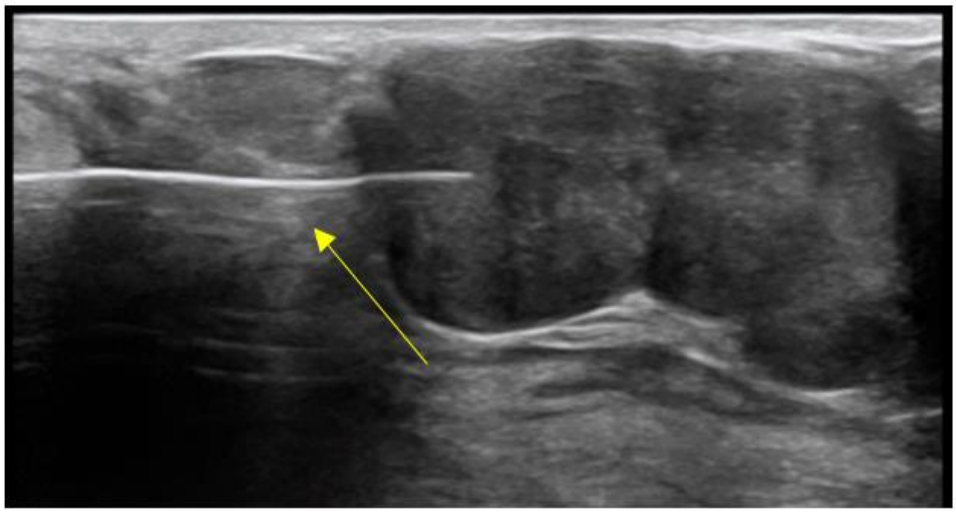

Figure 3: Microscopic biopsy of the mass classified as BI-RADS 4 by the ACR.

The decision made during the multidisciplinary consultation was to perform a tumor excision. However, the patient was lost to follow-up. The patient returned after 2 years with a large total mammary mass, collateral circulation, and no suspicious axillary lymph nodes (Fig. 4).

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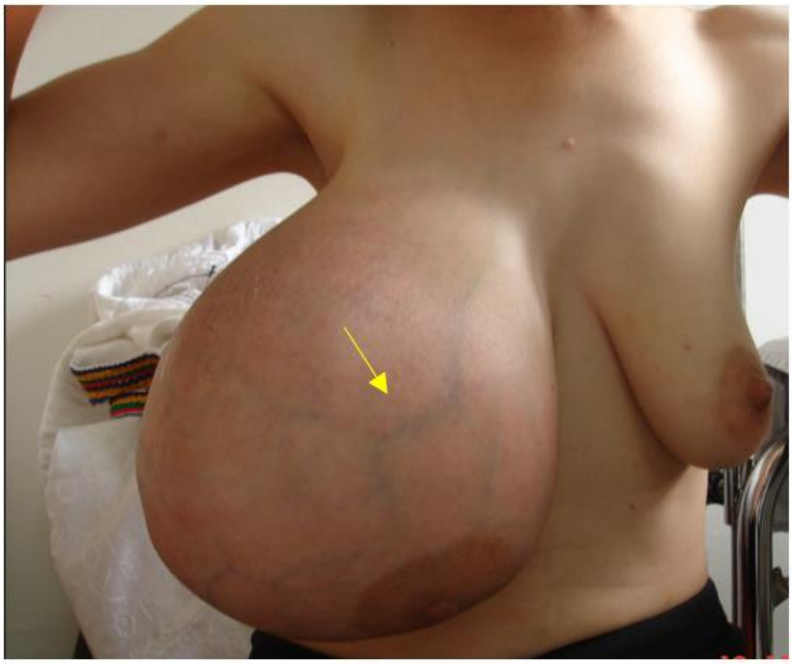

Figure 4: Large right total mammary mass with collateral circulation (arrow) and skin stretching.

A breast ultrasound was performed using a deep probe, revealing a large solid-cystic mass, hypoechoic, heterogeneous, with irregular contours, measuring over 24 cm in diameter. The lesion was classified as BI-RADS 4 by the ACR. No suspicious ipsilateral axillary lymph nodes were observed (Fig. 5).

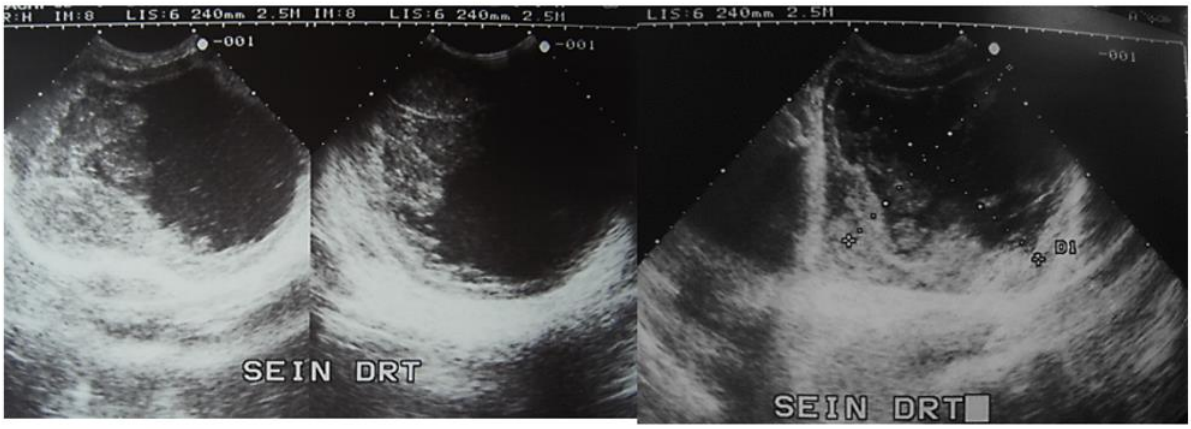

Figure 5: Large solid-cystic mass, hypoechoic, heterogeneous, with irregular shape and contours, measuring over 24 cm in diameter.

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DISCUSSION

A breast biopsy was performed, confirming the diagnosis of phyllodes sarcoma. Thoracoabdominopelvic computed tomography (CT) was performed for distant staging, which confirmed the local extent of the disease. Bone scintigraphy showed no abnormalities. The patient underwent mastectomy followed by radiotherapy

Phyllodes sarcoma of the breast is the rarest and most aggressive type of phyllodes tumor, predominantly found in women compared to men, representing approximately 5% of sarcomas [1]. Our patient is relatively young compared to the average age of 57 years reported in studies by Marchal [2]. Phyllodes tumors usually affect the right breast and have an average size of 6 cm, which is consistent with our patient's case, as reported in the literature review [3,4]. Clinically, phyllodes tumors can present as a rounded, lobulated, or bosselated mass, which is mobile, firm, and well-defined, resembling a fibroadenoma or a cyst. In some cases, they can manifest as a large, total breast mass with skin distension, collateral circulation, skin ulceration, and deep fixation [5,6,7].

The average size of these tumors is 5 cm, but they can reach up to 49 cm. In our case, mammography was not feasible due to the volume of the breast [8]. Mammography typically shows an irregular, spiculated mass with heterogeneous density in phyllodes sarcoma of the breast. It is often associated with coarse, pleomorphic, or clustered microcalcifications resembling invasive carcinoma [9]. On ultrasound, phyllodes sarcoma appears as a hypoechoic mass with irregular or spiculated margins and internal or peripheral vascularity. It often exhibits necrotic, hemorrhagic, or cystic areas, as well as internal calcifications, as observed in our patient [10].

On MRI, phyllodes sarcoma manifests as an intermediate signal mass on T1-weighted images, high signal on T2-weighted images, and shows intense and heterogeneous enhancement in the arterial and portal phases. It often demonstrates persistent enhancement in the delayed phase, indicating tumor neoangiogenesis. MRI is also useful for evaluating the tumor extension to the nipple, skin, or pectoral muscle, as well as the presence of multifocal or bilateral lesions. However, in our case, MRI was not feasible due to the breast's size limitations within the dedicated breast coil [11]. Histologically, phyllodes sarcoma is a high-grade tumor with a high mitotic index and a proliferation index (Ki-67) exceeding 20%. It is often associated with in situ carcinoma, such as comedo-type ductal carcinoma in situ, or invasive carcinoma of the basal-like subtype [12].

The treatment of phyllodes sarcoma of the breast is similar to that of non-specific invasive carcinoma of the breast. It involves surgery, which can be either conservative or radical depending on the stage and tumor size, followed by radiotherapy. Neoadjuvant or adjuvant chemotherapy is often indicated due to the high-grade nature and metastatic potential of these tumors. Targeted therapy with anti-HER2 agents may be considered if the HER2 receptor is overexpressed. Hormonal therapy is not effective since these tumors are typically negative for hormonal receptors. The prognosis of phyllodes sarcoma of the breast is generally poor [13].

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CONCLUSION

Degenerated phyllodes tumor remains a rare but clinically significant entity in breast pathology. Accurate diagnosis and appropriate management are crucial for achieving better outcomes for patients. A multidisciplinary approach involving surgeons, oncologists, and radiologists is essential to determine the optimal therapeutic strategy for each case. Further studies are needed to deepen our understanding of this rare disease and develop more targeted and effective treatment strategies.

Conflict of Interest: The authors have not declared any conflicts of interest in relation to this article.

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