

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/radcr

Case Report

A 53-year-old female with a large breast sarcoma: A case report from Hong Kong[☆]

Max K.H. Yam, MBChB, FRCR

North District Hospital, 9 Po Kin Road, Sheung shui, the New Territories, Hong Kong

ARTICLE INFO

Article history:

Received 27 March 2022

Revised 16 May 2022

Accepted 19 May 2022

Keywords:

Breast sarcoma

Breast cancer

Mastectomy

ABSTRACT

Breast sarcomas are very rare and are aggressive tumors associated with a poor prognosis. We present a case of a 53-year-old female who presented to the hospital after noticing a palpable mass in the right breast. Mammography, ultrasound, and MRI investigations were done. The patient was treated with radical mastectomy combined with both neoadjuvant and adjuvant chemoradiotherapy. Undifferentiated pleomorphic breast sarcoma was later diagnosed.

© 2022 The Authors. Published by Elsevier Inc. on behalf of University of Washington.

This is an open access article under the CC BY license

(<http://creativecommons.org/licenses/by/4.0/>)

Introduction

Breast sarcoma is a rare but aggressive entity, accounting for less than 1% of all breast cancer cases, and core biopsy is required for diagnosis [1]. Tumors typically spread through local invasion or hematogenous spread [2]. Breast sarcoma typically affects patients aged 55–59 years [3]. Based on the clinical and imaging results, it is difficult to differentiate breast sarcoma from other types of breast cancer [4].

Case report

A 53-year-old female was admitted to the hospital due to a bloody discharge from the right nipple. A physical examination revealed a large, firm, and fixed mass in her right breast.

The mammogram showed breast asymmetry with a large high-density mass occupying the right breast. It was associated with architectural distortion and skin thickening (Fig. 1).

Subsequent breast ultrasound revealed a large, heterogeneous echotexture located in the right breast. It had increased vascularity and internal cystic areas. The border was relatively circumscribed. US-guided core biopsy was performed using a 14G Maxcore needle with local anesthesia (Fig. 2).

Subsequent magnetic resonance imaging (MRI) revealed that the mass of the right breast was a huge contrast enhancing lesion with a circumscribed margin measuring 17.4 × 10.2 × 18 cm (TSxAPxCC). It appeared to be isointense on T1-weighted images with areas of hemorrhage and heterogeneous signal on T2-weighted images with areas of cystic change (Fig. 3).

DWI showed areas of restricted diffusion (Fig. 4). Dynamic post contrast scan showed areas of early arterial enhancement in the superior anterior aspect with a type II (plateau) kinetic curve (Fig. 5). Features were suspicious of malignant

[☆] Competing Interests: All authors declare no conflict of interest.

E-mail address: ntecradiology@gmail.com

<https://doi.org/10.1016/j.radcr.2022.05.051>

1930-0433/© 2022 The Authors. Published by Elsevier Inc. on behalf of University of Washington. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>)

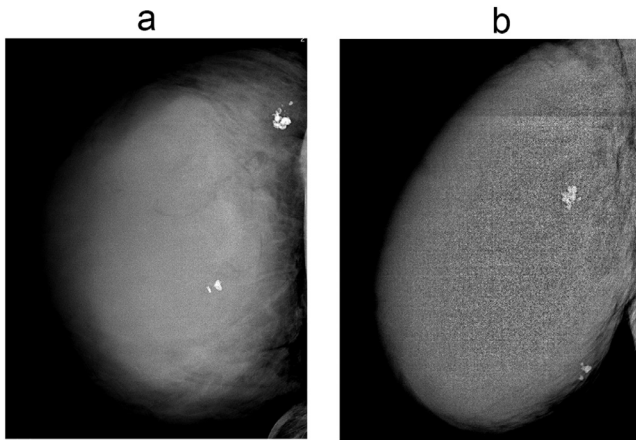


Fig. 1 – Craniocaudal view (Left) and mediolateral oblique view (Right) of a mammogram. A high-density mass in the right breast.

lesions. There was however no definite evidence of dermal, underlying pectoralis muscle or nipple invasion.

A few prominent to mildly enlarged (up to 1.3×1.8 cm) were noted in the right axilla; nodal involvement could not be excluded.

Histological examination revealed the tumor to be composed of malignant cells that are spindled, with extensive areas of necrosis and hemorrhage, and other areas were vascular. Mitoses were numerous. In the absence of morphological and evidence of epithelial differentiation within the extensively sampled tumor, the diagnosis of metaplastic carcinoma or malignant phyllodes tumor were unlikely. A diagnosis of undifferentiated pleomorphic sarcoma was made.

The patient was treated with radical mastectomy combined with both neoadjuvant and adjuvant chemoradiotherapy. Unfortunately, the patient enjoyed a year-long disease-

free survival before emigration to the Philippines and was unable to follow-up after one disease-free year.

Discussion

Breast sarcomas are rare with an annual incidence of 4.6 cases in 1,000,000 women, representing less than 1% of all breast malignancies. These tumors can be primary or secondary (after previous treatment for breast cancer). There are several histological subtypes, the most common of them being angiosarcoma and malignant phyllodes tumor.

Breast ultrasound, mammography or MRI can be useful. These investigations may provide information regarding local aggressiveness, current lymph node status.

The tumors usually present as an oval hyperdense tissue that can be either circumscribed or indistinct, without calcification, on mammography [5]. Most primary breast sarcomas at sonography are oval solid hypoechoic masses with posterior acoustic enhancement that may mimic phyllodes tumors. In the appropriate clinical context, breast radiologists should be alerted of this overlap in imaging features.

The tumors are commonly present as hyperintense on T2-weighted images on MRI, with indistinct margins and heterogeneous enhancement [6].

Immunohistochemistry may be useful for distinguishing breast sarcomas from nonmesenchymal malignant tumors. In the present case, the final diagnosis was made by excluding other breast cancer types.

Due to the rarity and heterogeneity of this type of neoplasm, the treatment is not well established. Depending on the tumor stage, preoperative chemotherapy, radiotherapy, and chemoradiation, associated with surgery and adjuvant chemotherapy, are recommended for soft-tissue sarcoma treatment [7].

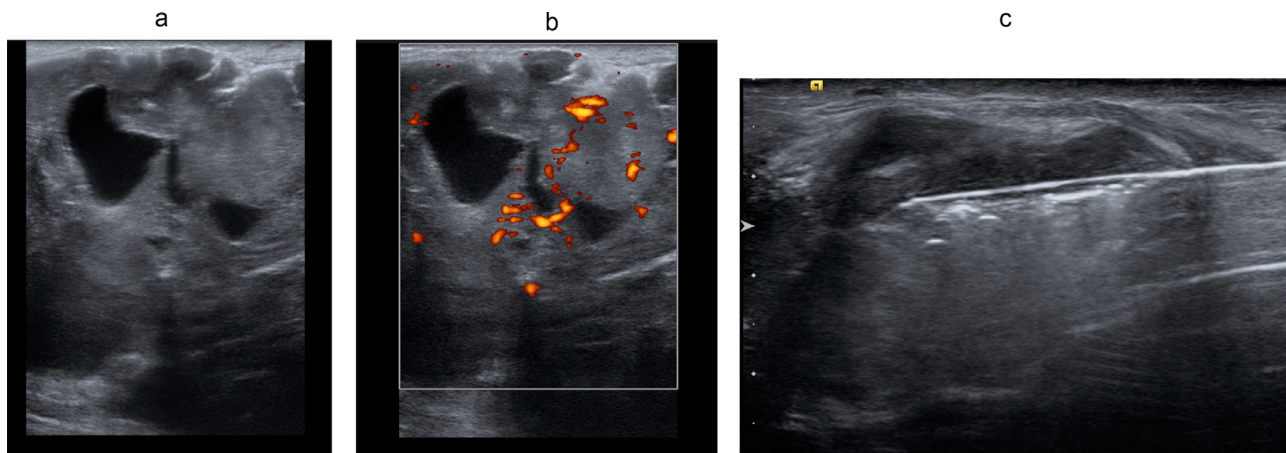


Fig. 2 – Ultrasound images of the right breast. A huge heterogeneous mass in the right breast (Left), with increased vascularity (Middle) and internal cystic areas. The border is circumscribed. Ultrasound-guided core biopsy performed using a 14G Maxcore needle (Right).

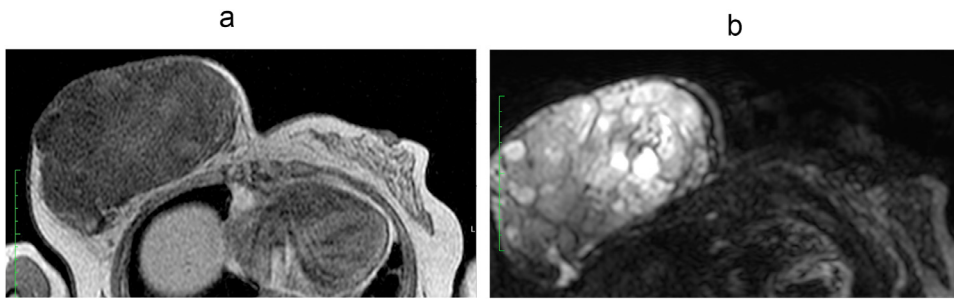


Fig. 3 – There is a huge contrast enhancing lesion with a circumscribed margin measuring 17.4 x 10.2 x 18 cm (TSxAPxCC) occupying the right breast. It appears isointense on T1-weighted image (Left) with areas of hemorrhage and heterogeneous signal on T2-weighted image (Right) with areas of cystic change.

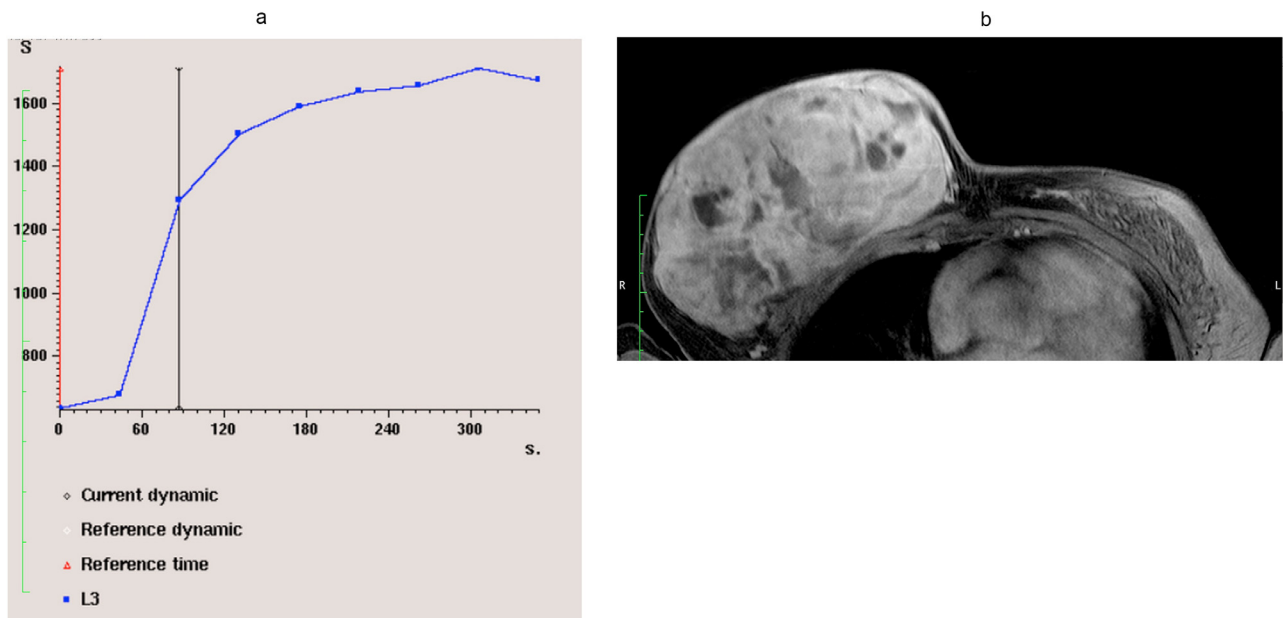


Fig. 4 – Diffusion-weighted image (Right) and ADC map (Left) showed areas of restricted diffusion.

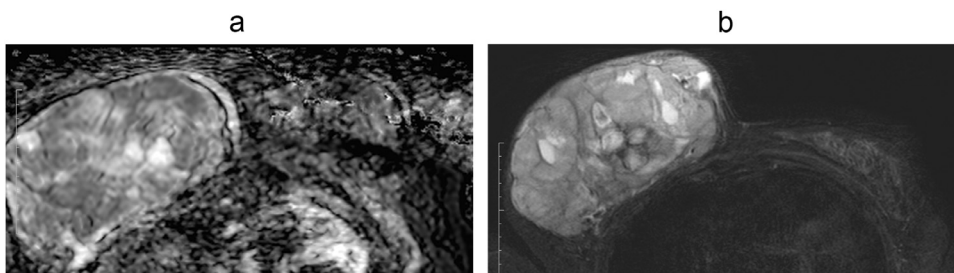


Fig. 5 – Dynamic postcontrast scan showed areas of early arterial enhancement (Right). Type II (plateau) kinetic curve (Left).

Breast sarcomas have a high recurrence rate and poor prognosis [8]. The overall 5-year survival rate is approximately 50% in patients with undifferentiated pleomorphic sarcoma [9].

Patient consent

Informed consent has been taken from the patient described in this case report.

REFERENCES

-
- [1] Hassan S, Adari G. Primary breast sarcoma: case report. *East Afr Med J* 2004;81(7):375–7.
 - [2] Trent JC 2nd II, Benjamin RS, Valero V. Primary soft tissue sarcoma of the breast. *Curr Treat Options Oncol* 2001;2(2):169–76.
 - [3] Yin M, Mackley HB, Drabick JJ, Harvey HA. Primary female breast sarcoma: clinicopathological features, treatment and prognosis. *Sci Rep* 2016;6:31497.
 - [4] Li N, Cusidó MT, Navarro B, Tresserra F, Baulies S, Ara C, et al. Breast sarcoma, a case report and review of literature. *Int J Surg Case Rep* 2016;24:203–5.
 - [5] Matsumoto RAEK, Hsieh SJK, Chala LF, de Mello GGN, de Barros N. Sarcomas of the breast: findings on mammography, ultrasound, and magnetic resonance imaging. *Radiol Bras* 2018;51(6):401–6.
 - [6] Smith TB, Gilcrease MZ, Santiago L, Hunt KK, Yang WT. Imaging features of primary breast sarcoma. *AJR Am J Roentgenol* 2012;198(4):W386–93.
 - [7] von Mehren M, Randall RL, Benjamin RS, Boles SH, Bui MM, Ganjoo KN. Soft tissue sarcoma, version 2.2018, NCCN clinical practice guidelines in oncology. *J Natl Compr Cancer Netw* 2018;16(5):536–63.
 - [8] Ramalho I, Campos S, Rebelo T, Figueiredo-Dias M. A scary onset of a rare and aggressive type of primary breast sarcoma: a case report. *Case Rep Oncol* 2016;9(3):796–801.
 - [9] Jeong YJ, Oh HK, Bong JB. Undifferentiated pleomorphic sarcoma of the male breast causing diagnostic challenges. *J Breast Cancer* 2011;14(3):241–6.