

Metaplastic squamous cell carcinoma of the breast: A case report and literature review

LUCIANA GRAZIANO¹, PASCHOAL GRAZIANO FILHO¹, ALMIR GALVÃO VIEIRA BITENCOURT^{2*}, DANIEL BERNAL SOTO¹, ALEXANDRE HIRO¹, CÍNTIA CAMILLO NUNES³

¹MD – Radiologist at Gimi Medicina Diagnóstica, São Paulo, SP, Brazil

²PhD – Radiologist at AC Camargo Cancer Center, São Paulo, SP, Brazil

³MD – Pathologist at CDAP – Clínica de Diagnóstico Anátomo-Patológico, São Paulo, SP, Brazil

SUMMARY

Metaplastic tumors are rare and represent a heterogeneous group of neoplasms showing dominant areas of non-glandular differentiation. Etiology and pathogenesis of this type of lesion in the breast is uncertain. The most common sources of metastatic squamous cell carcinoma of the breast are lung, esophagus, cervix, and urinary bladder. Squamous cell carcinomas may present clinically with inflammation and average size greater than breast adenocarcinoma. As for imaging studies, mammography shows no typical findings and ultrasound can show a complicated cyst or an inflammatory process, among the differential diagnoses. Therefore, knowing this pathological entity, its clinical course and imaging findings is important to safely treat such a rare and aggressive disease. We herein report a case of metaplastic carcinoma, squamous subtype, diagnosed by core needle biopsy.

Keywords: breast, breast neoplasms, needle biopsy, carcinoma.

Study conducted at Gimi Medicina Diagnóstica, São Paulo, SP, Brazil

Article received: 7/5/2015

Accepted for publication: 7/6/2015

*Correspondence:

Address: Rua Isabel, 131

São Paulo, SP – Brazil

Postal code: 03647-020

almirgvb@yahoo.com.br

<http://dx.doi.org/10.1590/1806-9282.62.07.618>

INTRODUCTION

Breast cancer is a heterogeneous entity regarding clinical and imaging presentation and biological behavior. The ductal type is the most common, followed by lobular carcinoma. Together they account for over 70% of carcinomas. Metaplastic tumors, in turn, are rare and represent a heterogeneous group of neoplasms showing dominant areas of non-glandular (spindle cell, squamous, and/or mesenchymal) differentiation.

Etiology and pathogenesis of this type of lesion in the breast is uncertain.¹ It is believed that it arises directly from the epithelium of the mammary ducts, while another theory is that the tumor grows from foci of squamous metaplasia within a pre-existing breast adenocarcinoma.² Another theory defended by Stevenson et al. is that the lesion is a disease with varying degrees of squamous metaplasia, representing an extreme form of squamous metaplasia inside the adenocarcinoma.³

Squamous cell carcinoma of the breast is an extremely rare type, representing less than 1% of all invasive breast carcinomas with a mean age for onset among women of 54 years.² When found in the breast, other sites of extra

mammary lesions should be sought, since there is a possibility that this is a metastatic tumor and not a primary lesion. The most common sources of metastatic squamous cell carcinoma of the breast are lung, esophagus, cervix, and urinary bladder. There are no specific clinical and radiological signs for squamous cell carcinoma. For this reason, the nature or origin of the lesion needs to be determined.³

The objective of our study is to report a case of metaplastic carcinoma, squamous subtype, diagnosed by core needle biopsy.

CASE REPORT

Female patient, 59 years old, with a palpable mass in the lateral quadrant of the left breast. She denies having any systemic diseases or any family history of breast or ovary cancer. Physical examination revealed large breasts, with a palpable lesion in the upper-outer quadrant of the left breast, mobile and hard.

Mammography (Figure 1) showed a oval mass without microcalcifications, and presenting circumscribed margins. The ultrasound (Figure 2) revealed a complex cystic and solid mass with internal vascularity on color Doppler.

We performed an ultrasound-guided core needle biopsy (Figure 3), which led to the diagnosis of invasive ductal carcinoma, not otherwise specified (NOS), subsequently treated with neoadjuvant chemotherapy. During treatment, due to reduction in size of the lesion, a new core needle biopsy was requested. The new biopsy revealed a metaplastic squamous cell carcinoma, which was confirmed after surgical resection.

DISCUSSION

Squamous cell carcinomas may present clinically with inflammation and average size greater than breast adenocarcinoma.⁴ As for imaging studies, mammography shows no typical findings and ultrasound can show a compli-

cated cyst or an inflammatory process, among the differential diagnoses.¹

At diagnosis, lesions are large (greater than 4 cm) and predominantly cystic in over 50% of cases.⁵ They present lymphatic dissemination less frequently than adenocarcinomas, in which the range is from 40 to 60%. In 10 to 30% of cases there is infiltration of lymph nodes at surgery and about 30 to 33% of patients develop distant metastases.^{1,3,5} Positron emission tomography (PET-scan) is an imaging method that can be used to search for distant metastases or a primary site of tumor cells.¹

The pathological criteria for establishing a secure diagnosis of squamous cell carcinoma of the breast include: (a) origin of the tumor does not depend on the

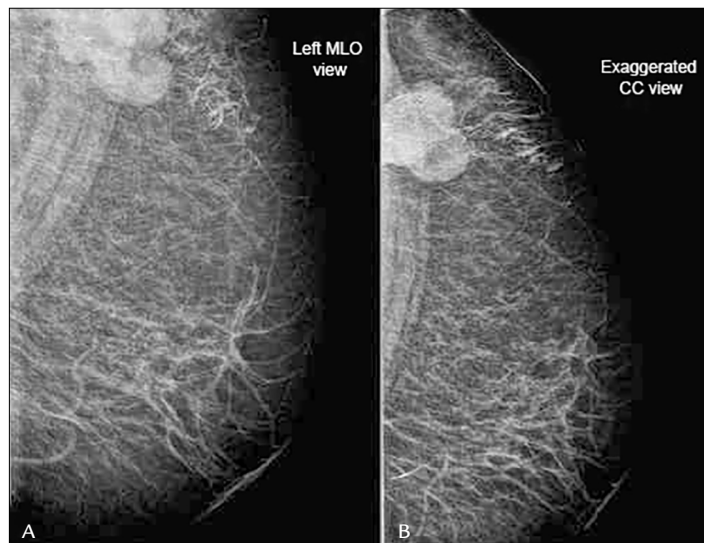


FIGURE 1 Left mammogram shows oval mass without microcalcifications and with circumscribed margins.

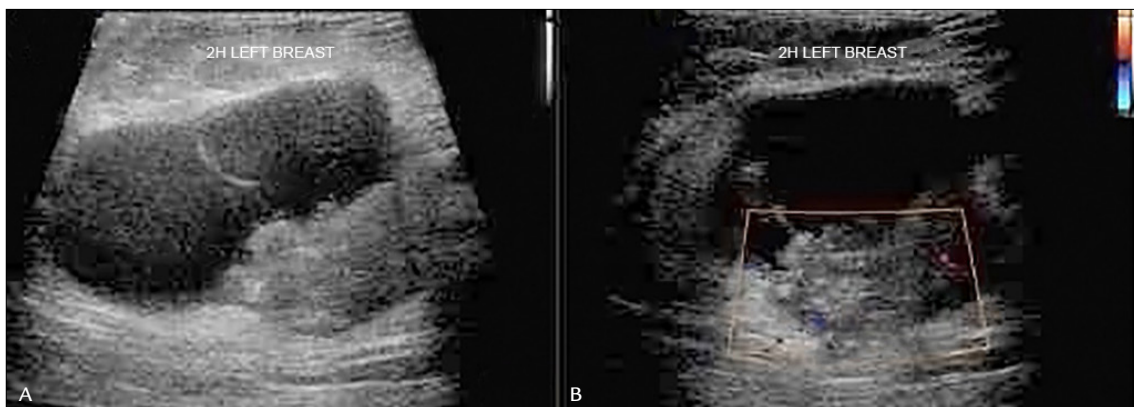


FIGURE 2 Ultrasound revealed a complex cystic and solid mass with internal vascularity on color Doppler, located in the upper-outer quadrant of the left breast.

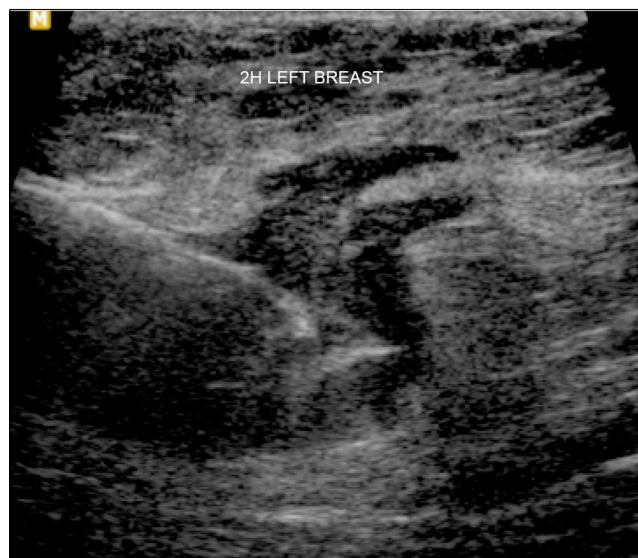


FIGURE 3 Ultrasound-guided core needle biopsy of the lesion.

skin, nipple or adnexal elements of the skin; (b) more than 90% of the tumor must be squamous; (c) there can be no other neoplastic invasive elements, ductal or mesenchymal, on the entire sample, and other sites of primary tumor must be ruled out.⁶ To determine whether the tumor is a metaplastic carcinoma with squamous differentiation or a squamous cell carcinoma, a large sample of the lesion is required. However, it should be noted that the distinction between a primary tumor and a metastatic squamous cell carcinoma is unlikely to be solved by needle biopsy.³

In the case presented, the imaging findings were not classic invasive ductal carcinoma. The core needle biopsy represented only a small sample of the lesion and the representative elements of the first procedure indicated an invasive ductal tumor. However, keep in mind that the metaplastic elements can progress from one type to another after induction chemotherapy.⁴

Squamous cell carcinoma of the breast is usually a high-grade and hormone receptor-negative tumor. This means that the hormone-based therapy may not be efficacious in these tumors. Additionally, HER2 is usually not overexpressed or amplified in this disease. The high frequency of EGFR positivity is interesting and can be exploited in the development of future treatments.⁵ Treatment of this type of tumor does not differ from other histologic types common in the breast and may involve surgery, chemotherapy, hormonal therapy, and radiotherapy. The therapeutic regimen most suitable for this rare disease is still unclear.⁵

Therefore, knowing this pathological entity, its clinical course and imaging findings is important to safely treat such a rare and aggressive disease.

RESUMO

Carcinoma metaplásico espinocelular da mama: relato de caso e revisão da literatura

Os tumores metaplásicos são raros e representam um grupo heterogêneo de neoplasias que mostram áreas dominantes de diferenciação não glandular. A etiologia e patogênese desse tipo de lesão na mama é incerta. As causas mais comuns de carcinoma metastático de células escamosas na mama são o pulmão, o esôfago, o colo uterino e a bexiga urinária. Os carcinomas espinocelulares podem apresentar-se clinicamente com inflamação e tamanho médio maior do que o do adenocarcinoma da mama. A mamografia não apresenta achados típicos, e a ultrassonografia pode mostrar um cisto complicado ou um processo inflamatório, entre os diagnósticos diferenciais. Conhecer essa entidade patológica, seu curso clínico e os achados de imagem é importante para um manejo seguro, pois trata-se de entidade rara e agressiva. Este trabalho relata um caso de carcinoma metaplásico, subtipo espinocelular, diagnosticado por biópsia com agulha grossa.

Palavras-chave: mama, neoplasias da mama, biópsia por agulha, carcinoma.

REFERENCES

1. Flikweert ER, Hofstee M, Liem MSL. Squamous cell carcinoma of the breast: a case report. *World J Surg Oncol*. 2008; 6:135.
2. Hennessy BT, Krishnamurthy S, Giordano S, Buchholz TA, Kau SW, Duan Z, et al. Squamous cell carcinoma of the breast. *J Clin Oncol*. 2005; 23(31):7827-35.
3. Guerriero G, Zagami MG, Montesano M, Primavera A, Carino R, Battista C, et al. Squamous cell carcinoma of the breast diagnosis by vacuum-assisted core biopsy. *Tumori*. 2005; 91(5):418-20.
4. Liu J, Yu Y, Sun J, He S, Wang X, Yin J, et al. Clinicopathologic characteristics and prognosis of primary squamous cell carcinoma of the breast. *Breast Cancer Res Treat*. 2015; 149(1):133-40.
5. Murialdo R, Boy D, Musizzano Y, Tixi L, Murelli F, Ballestrero A. Squamous cell carcinoma of the breast: a case report. *Cases J*. 2009; 2:7336.
6. Behranwala KA, Nasiri N, Abdullah N, Trott PA, Gui GPH. Squamous cell carcinoma of the breast: clinico-pathologic implications and outcome. *Eur J Surg Oncol*. 2003; 29(4):386-9.