ISSN 2689-8268 | Volume 9

American Journal of Surgery and Clinical Case Reports

Case Report Open Access

Carcinoma Triple Negative Metaplastic Breast Cancer in A Young Woman: A Case Report Locally Advanced and Literature Review

G Bassir*, K Fadil, Y Bencherifi, M Benhassou, M Ennachit, M El Kerroumi

Centre Mohammed 6 of cancer treatment Casablanca, Morocco

***Corresponding author:**
G Bassir,
Centre Mohammed 6 of cancer treatment
Casablanca, Morocco

Received: 24 June 2025
Accepted: 16 July 2025
Published: 22 July 2025
J Short Name: AJSCCR

Citation:

G Bassir. Carcinoma Triple Negative Metaplastic Breast Cancer in A Young Woman: A Case Report Locally Advanced and Literature Review. Ame J Surg Clin Case Rep. 2025; 9(1): 1-4

Keywords:

Metaplastic Carcinoma; Breast Cancer; Triple Negative; Breast Surgery;Rare Tumor

1. Summary

Metaplastic breast carcinoma is a rare entity, representing less than 5% of breast cancers. It is characterized by histological heterogeneity, an often-aggressive course, and a poor response to standard treatments. We report the case of a 38-year-old patient with no significant medical history who presented with a rapidly growing, ulcerated left breast mass measuring more than 20 cm. Imaging studies demonstrated an infiltrating mass classified as BI-RADS 4c. Histological examination concluded that it was a triple-negative metaplastic carcinoma.Extension workup was negative for distant metastases. The patient underwent a radical Patey mastectomy with axillary dissection. Short-term follow-up revealed no recurrence. Through this case, we discuss the clinical, histopathological, and therapeutic features of this tumour, highlighting the diagnostic challenges and current limitations of management.

2. Introduction

Metaplastic breast carcinoma (MSC) is a rare and heterogeneous form of breast cancer, representing approximately 0.2 to 5% of all malignant breast tumours. It is distinguished from usual invasive breast carcinomas by specific clinical, radiological, histological and molecular characteristics. Histologically, these tumours present non-glandular differentiation, often squamous or mesenchymal, and can include several subtypes such as squamous cell, Aden squamous, spindle cell or mixed forms. Clinically, MSC presents as a rapidly evolving breast mass, often large at the time of diagnosis, and aggressive in behaviour. Molecularly, it is frequently triple negative, overexpressing neither hormone receptors (ER, PR) nor HER2, which limits targeted therapeutic options. Its prognosis is generally poor, particularly due to its chemoresistance and metastatic potential, even in the absence of lymph node involvement. The rarity of this entity, its atypical clinical presentation and its aggressive biological behavior underline the importance of better understanding it. Through the observation of a case of CMS diagnosed in a young woman in a locally advanced stage, we propose an updated discussion on the diagnostic, therapeutic and prognostic aspects of this still poorly defined pathology.

3. Observation

This is Mrs. MK, 38 years old, with no notable personal or family history, in her reproductive years. She consulted the gynaecology-obstetrics department of the Ibn Rochd University Hospital in Casablanca in June for a mass in her left breast, which had appeared several months earlier and was discovered by self-examination.Clinical examination revealed a swollen, neglected left breast with a poorly defined, hard, deep-fixed mass measuring 20 x 20 cm, painful to palpation. The overlying skin was inflamed, erythematous, thickened with an orange peel appearance, with areas of superficial skin necrosis, and no nipple discharge (Figure 1). A 1 cm fixed, painless ipsilateral axillary lymphadenopathy was found. Examination of the supraclavicular lymph node areas was normal. The mammogram showed a left breast of heterogeneous density (ACR type C), the site of a large multinodular mass, occupying the entire breast parenchyma, without microcalcifications, with invasion of the muscular and cutaneous planes. The right breast was normal.On ultrasound, the tumour appeared as a heterogeneous, solid, cystic mass, vascularized on Doppler, associated with 6.3 mm axillary lymphadenopathy. The overall appearance was

classified BI-RADS 4C.Turcotmicro biopsy demonstrated an invasive breast carcinoma of the metaplastic type, Scarff -Bloom-Richardson grade III. Immunohistochemical study revealed a triple negative profile (ER 0%, PR 0%, HER2–, Ki67 at 30%).The extension assessment (thoraco-abdomin-pelvic CT and PET scan) showed a large mass in the left breast associated with homolateral axillary adenopathy's, without visceral or bone metastases (Figure 2).Given the local extension, tumour size and biological profile, radical surgical management was undertaken. The patient underwent a total mastectomy with Patey -type axillary lymph node dissection.Pathological examination of the surgical specimen confirmed the diagnosis of grade II metaplastic squamous cell carcinoma, without in situ components or vascular emboli. The surgical margins were healthy. All lymph nodes examined were clear.Adjuvant chemotherapy based on anthracyclines and taxes (AC-T regimen) was initiated. Radiotherapy was not included in the initial therapeutic protocol.The postoperative outcome was favourable. At 6 months of follow-up, the patient had neither local recurrence nor distant metastasis.

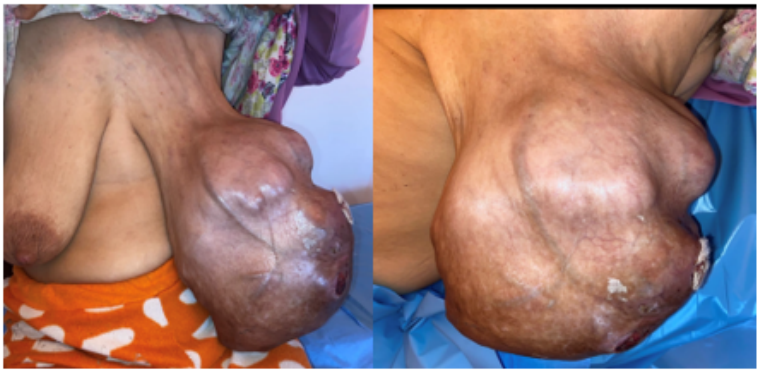

Figure 1: Clinical appearance.

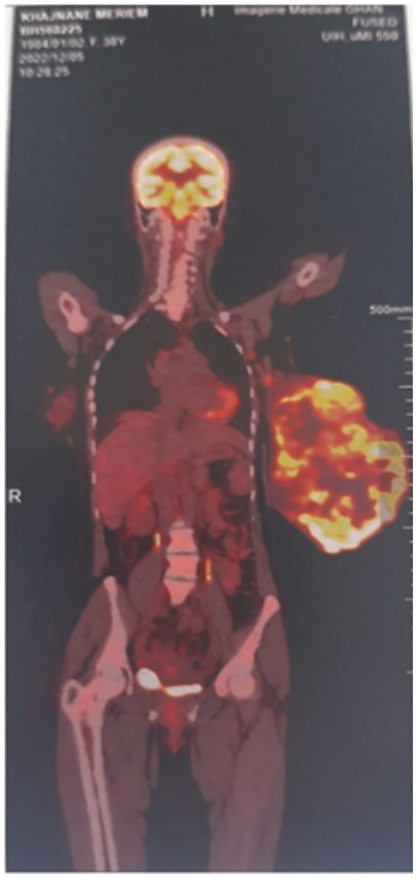

Figure 2: PET scan.

4. Discussion

Metaplastic breast carcinoma (MBC) is a rare entity, representing approximately 0.2 to 5% of invasive breast cancers [1,2]. It is characterized by non-glandular differentiation, including squamous, mesenchymal or mixed elements, which clearly distinguishes it from classic forms of ductal carcinomas infiltrating. Due to its rarity and histological diversity, CMS poses a diagnostic and therapeutic challenge.

The WHO (2019 classification) distinguishes several subtypes:

- Purely epithelial carcinomas (squamous, spindle cell, adenosquamous);
- Mixed carcinomas with a mesenchymal component (cartilaginous, bone, rhabdomyoid);
- And undifferentiated forms or those associated with carcinoma in situ [3].

CMS most commonly occurs in postmenopausal women with a mean age of 53 years [4]. Our patient, aged 38, therefore represents an unusual case of occurrence in a young woman, without any particular risk factors. Clinically, CMS frequently presents as a large, rapidly growing mass, often initially confused with a benign tumour or abscess, as in our observation. Inflammatory signs, skin necrosis, or even ulcerations may be present [5]. Breast imaging (mammography, ultrasound, MRI) is often nonspecific. On mammography, the absence of microcalcifications and the appearance of a hyperdense mass are suggestive but not pathognomonic. Ultrasound generally shows a heterogeneous, mixed solid-cystic mass, with frequent necrotic changes [6,7]. Histological study is essential for diagnosis. CMS can mimic a phyllodes tumor, a sarcoma or a primitive mesenchymal tumour. In our case, it was a metaplastic squamous cell carcinoma, confirmed by immunohistochemistry (triple negative). Approximately 64 to 96% of CMS are ER-/PR-/HER2-, which makes them ineligible for hormonal treatments or herceptin [1,8]. High Ki-67 (often >30%) indicates high proliferative activity. Expression of basal markers (CK5/6, p63, EGFR) is common and can guide the diagnosis. Evolutionarily, CMSs have a tendency towards local invasion and recurrence, with lymph node involvement present in only 6 to 26% of cases [1]. In our case, the lymph nodes were free despite a locally very advanced tumour. The rate of distant metastases (lung, bone, liver, brain) is higher than in classic ductal carcinomas, with a maximum risk in the first 5 years [9].Treatment is mainly based on surgery, often radical. Mastectomy is frequently indicated due to the large tumour size at diagnosis. Lymph node dissection is generally performed as a matter of principle, even if lymph node involvement is rare. Conservative treatment is possible in limited forms [10].Adjuvant chemotherapy is often proposed, but CMS are known for their chemoresistance. Classical regimens based on anthracyclines and taxanes remain in use, despite their limited efficacy. Radiotherapy is discussed on a case-by-case basis; it is mainly indicated after conservative treatment or in cases of insufficient margins [8].The development of targeted treatments is a promising avenue. The frequent overexpression of EGFR in CMS has opened the way to the evaluation of tyrosine kinase inhibitors (anti-HER1 TKIs), with results that are still exploratory [10]. Similarly, the use of platinum salts, PARP inhibitors (in case of BRCA mutation), or even immunotherapy (anti-PD-L1) are currently being investigated in clinical trials [11,12].Finally, recent molecular biology has highlighted basal- like transcriptomic signatures , close to certain aggressive triple-negative cancers. This proximity justifies the inclusion of CMS in personalized research protocols.Our case illustrates several characteristic aspects: the appearance in a young patient, the large inflammatory tumour, the necrotic appearance, the triple negative profile, the absence of lymph node invasion despite an advanced stage, and the need for radical surgical treatment.

5. Conclusion

Metaplastic breast carcinoma is a rare, aggressive, and heterogeneous entity that differs markedly from classic forms of breast cancer both histopathologic ally and therapeutically. Its diagnosis is based on rigorous morphological analysis, often supplemented by immunohistochemistry.Treatment is primarily based on surgery, most often radical, due to the tumour size at diagnosis. The response to conventional adjuvant treatments is limited, justifying the exploration of new targeted and personalized therapeutic approaches.This clinical case highlights the importance of early diagnosis, multidisciplinary management and translational research to improve the prognosis of patients with this pathology.

References

1. Song. Unique clinicopathological features of metaplastic breast carcinoma compared with invasive ductal carcinoma and poor prognostic indicators. World Journal of Surgical Oncology. 2018;11:129.
2. Barnes PJ, Boutilier R, Chiasson D, Rayson D. Metaplastic breast carcinoma: clinical-pathologic characteristics and HER2/neu expression. Breast Cancer Research and Treatment. 2015;91(2):173-178.
3. Fattaneh A, Tavassoli, Peter Devilee, editors. World Health Organization Classification of Tumours. Pathology and Genetics of Tumours of the Breast and Female Genital Organs. Lyon: IARC Press. 2003.
4. Penault-llorca F, Mishellany F. Diagnostic pitfalls in breast pathology - Case no. 7: spindle cell carcinoma of the breast or metaplastic carcinoma. Annals of pathology. 2009;29 (3):223-227.
5. Günhan-Bilgen I, Memi A, Ustün EE. Metaplastic carcinoma of the breast: Clinical, mammographic, and sonographic findings with histopathologic correlation. AJR Am J Roentgenol. 2002;178:1421-5.
6. Greenberg D, McIntyre H, Bierre T. Metaplastic breast cancer. Australasian Radiology. 2014;48(2):243-247.

7. Yi-Chen Lai, Chih-Yi Hsu, Yi-Hong Chou, Chui-Mei Tiu, Ling-Ming Tseng. Sonographic presentations of metaplastic breast cancers. Journal of the Chinese Medical Association. 2012;75(11):589-594.
8. Luini A, Aguilar M, Gatti G, Fasani R, Botteri E, Brito JA. Metaplastic carcinoma of the breast, an unusual disease with worse prognosis: the experience of the European Institute of Oncology and review of the literature. Breast Cancer Res Treat. 2007;101(3):349-53.
9. Foschini MP, Dina RE, Eusebi V. Sarcomatoid neoplasms of the breast: proposed definitions for sarcomatoid mammary carcinoma biphasic and monophasic. Semin Diagnosis Pathol. 2003;10: 128-36.
10. Gauchotte G, GauchotteE, Bressenot A. Metaplastic carcinomas of the breast: a morphological and immunohistochemical study. Annals of pathology. 2011; 31 (1):18-27.