Journal Homepage: - www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/15098
DOI URL: http://dx.doi.org/10.21474/IJAR01/15098

RESEARCH ARTICLE

METAPLASTIC BREAST CANCER: ACASEREPPORT AND LITERATURE REVIEW OF BREAST CARCINOSARCOMA

A. Oubid[1], A. Cherkaoui[1], Y. Gourja[1], M. Benhassou[2], M. Ennachit[2] and M. Elkarroumi[3]

1. Residentat the Mohammed VI center for the treatment of cancers, pole of gynecologicaloncology; IBN ROCHD UniversityHospital Center, Faculty of Medicine and Pharmacy, Hassan 2 University Casablanca.
2. AssociateProfessor in Mohammed VI Center for the Treatment of Cancer, Pole of GynecologicalOncology; IBN ROCHD UniversityHospital Center, Faculty of Medicine and Pharmacy, Hassan 2 University Casablanca.
3. AssociateProfessor, Head of Service of the Mohammed VI Center for the Treatment of Cancer, Pole of GynecologicalOncology; IBN ROCHD UniversityHospital Center, Faculty of Medicine and Pharmacy, Hassan 2 University Casablanca.

Manuscript Info

Manuscript History
Received: 30 May 2022
Final Accepted: 30 June 2022
Published: July 2022

Key words:-
Metaplasticbreastcarcinomas, Breastcarcinoma, Metaplastic Changes, Glandular Replacement

Abstract

Metaplasticbreastcarcinomas are rare tumours. They constitute a heterogeneous group of tumors defined according to the World Health Organization as being an infiltrating ductal carcinoma but comprising areas of metaplastic changes (of squamous cell type, withspindlecells, chondroid and bone or mixed), which vary from a few foci microscopic to complete glandular replacement. The clinical and radiological aspects are not specific.The treatmentismainlysurgical, radiotherapy and chemotherapy retain a considerable place. Hormone therapy has no place. The prognosis is grim. Histopathology combined with immunohistochemistry makes it possible to make a sure diagnosis. We report a rare case of metaplasticcarcinoma in a young patient already treated for bilateral breast carcinoma and through the analysis of data from the literature, we focus on the different aspects of this type of breastcarcinoma.

Introduction:-

Metaplasticcarcinomas of the breast are rare tumors that are particularly interesting because of their difference, clinical, radiological, anatomopathological and therapeuticcompared to those of the usualform of breast cancer.Weconductedthis article to assess the management and prognosticfactors in a patientwithMetaplasticbreastcarcinomas

Observation:-

Mrs. J.T, 34 years old, with a family history of mammaryneoplasia: sisterwhodied of breast cancer. The patient was treated at the age of 24 for bilateral invasive breast carcinoma; multifocal on the right for which she had a radical treatment and a conservative treatment on the left on a 1.5 cm nodule. The immunohistochemistry profile wasluminal B HER2 negative in both breasts. The patient received an adjuvant treatment consisting of chemotherapy, radiotherapy and hormone therapy.

Corresponding Author:- A. Oubid
Address**:-** Residentat the Mohammed VI Center for the Treatment of cancers, Pole of Gynecologicaloncology; IBN ROCHD UniversityHospital Center, Faculty of Medicine and Pharmacy, Hassan 2 University Casablanca.

Currently, The patient consults for mass of the left breastwhoseclinicalexaminationfinds a tumefaction of the leftbreastwith an underlying hard mass taking up the entire breast measuring 7 cm*6 cm, poorly limited, hard, fixed and painful (Figure 1). Examination of the right mastectomy scar and the bilateralaxillarylymphnode areas were normal.

The mammographyfindsincreasedopacity in the leftsuperoexternal quadrant in the prepectoral area, with the presence in the lower external quadrant of a large popcorn-shapedmacrocalcificationassociatedwith a cluster of adjacent round calcifications, with the presence of a small focus of architectural disorganization in the lower quadrants, and localized skin thickening (Figure 2).

On breastultrasound, the lesion is rounded in shape, with irregular contours, heterogeneous, solid and cystic, measuring 77x46mm (Figure 3, Figure 4). This echo-mammographic aspect is classified as BI-RADS 5 of the ACR.

Tru-cutmicrobipsiesrevealedmesenchymalproliferation of essentiallyfuso-cellular architecture with the presence of chondroid and bone components.

The extension assessmentincluding the chest X-ray, and a TAP CT showed a locally advanced left breast mass of 77x63mm, non-specificsub-centimetricpulmonary nodules with the presence of bone lesions of D8 and iliac wing. It is therefore a T3N0M1 stage. A surgical biopsy under local anesthesia was performed, finding a heterogeneous mass with an abscessed tissue component with a hard and whitish bone component intra glandular and mobile with respect to the deep plane.

The definitiveanatomo-pathologicalexaminationfounddystriphicfibrousbreastparenchyma with presence of fusiform mesenchymal malignant tumor proliferation arranged in bundles, and presence of dystrophic calcifications within the proliferation, fibrosarcoma? immunohistochemical complement is under study

Discussion:-

Breastcarcinosarcomaoftencalledmetaplasticbreastcarcinomais a rare but growing primary malignancy [1,2]. Described by Huvos et al. in 1973, it represented 0.08-0.2% of all malignant breast tumors [3].

Metaplasticbreastcarcinoma (MBC) was recognized by the World Health Organization in the year 2000 as a histological form in its own right. These tumors are very heterogeneous and can be either purely epithelial such as squamouscellcarcinoma, adenosquamouscarcinoma, and adenocarcinoma with spindle cell differentiation. Either mixed with double epithelial and mesenchymal component, the mesenchymal contingent can be cartilaginous or osseous. (4.5)

The origin of thismetaplasia is poorly understood, and some have suggested its development from a chronic abscess, mastitis or cyst, which may explain certain clinical or iconographic presentation modes. Grenier et al. tested the viral hypothesis (HPV) but the results are not consistent with this hypothesis [6].

Although the metaplasticorigin of these tumors is wellestablished, theirhistogenesisremainscontroversial. Current data concerningmetaplastictumorsalsoremain to this day poorly known and suggest either an originfrom a multipotent stem cell or from a myoepithelial stem cell or evenfrom a myoepithelialcell [7]. Two other criteria are also necessary: the absence of parenchymal invasion by a squamous cell tumor of the skin covering (skin or nipple) and the absence of another remote squamous cell cancer. The lungs, cervix, bladder, esophagus and oropharynx should therefore be systematically checked [8]. Gupta et al. recommend performing an assessment by Pet scan [9].

Thesetumorsoccur in postmenopausal women with an average age of 53 years [10]. The clinical symptomatology is nonspecific. The tumor generally appears as a mass comparable to a benign tumor but usually rapidly growing. Mastodynia, inflammatorysigns, nipple discharge, nipple retraction, ulcerations of the skin opposite and sometimes a breast abscess are often reported. Lymph node metastases are the most pejorative prognostic factor in the development of thesetumors(7).

It ismostoften a palpable tumor of large size of 7cm. In our patient, the young age, the history of breast carcinoma and the rapid evolution of the tumor, are more in favor of malignancy, the size of the mass is 5.3 cm, comparable to the data in the literature for clinical cases, it is a little less for the series (3.8 to 4.7 cm) [11].

The radiographicappearanceisalso non-specific. But signs such as the hyperdensity of the mass and the absence of micro calcifications can be suggestive on mammography. Breast ultrasound can highlightfoci of haemorrhagic, necrotic or cystic changes, which are frequent [12]. It is generally a rounded mass, without spicule, partially irregular with a necrotic or cystic center in two thirds of the cases, which explains the pseudo cystic or abscessed aspect thatcanbefoundclinically and sonographicallyGenerally, itis not there are no microcalcifications. When they are present, they are linked to the glandular component [9].

Thesetumorscan escape screening because they usually evolve rapidly. In our patient, the ultrasound objectified a rounded, irregular, heterogeneous, solid and cystic mass.

Histologically, squamouscellcarcinomas are easy to diagnose; they are characterized by a proliferation of polygonal squamous cells connected by apparent desmosomes, with or withoutfoci of dyskeratosis. Adenocarcinoma with spindle cell metaplasia is a glandular carcinoma with extensive epithelial spindle cell foci. Adenosquamouscarcinomas are made up of two malignant epithelial contingents, glandular and squamous. Mixed metaplasticcarcinomas are characterized by the association of an infiltrating carcinoma and heterologousmesenchymalelementsrepresented by areas of cartilaginous, osseous or muscular differentiation... When the mesenchymal contingent ismalignant, the tumoriscalledcarcinosarcoma [13].

The association withductal cancer in situ is not uncommon (50% of cases) [14]. Immunohistochemically, hormone receptors are positive in less than 17% of cases and HER2 overexpression is also often absent and metaplasticbreastcarcinomas are triple negative in 64% to 96% of cases. Lymph node involvement is rare and varies between 6 and 26% [1].

On the molecularbiologylevel, metaplastic breast carcinomas present a basal-type transcriptomic profile and express one or more myoepithelial or basal-type markers (p63, 34'E12, cytokeratin5/6, CK14, protein S100, actin and EGFR). Various studies have found an overexpression of EGFR Human Epidermal Growth Factor Receptor-1 (HER1) which could suggest a favorable response of these tumors to treatments targeting EGFR (HER1) [15]. Metaplasticcarcinomas of the breast pose significant problems of differential diagnosis, essentiallywithphyllodestumors and primary mammary sarcomas. In the case of pure squamous metaplasia, the possibility of carcinoma of cutaneous origin or metastasis must be ruled out. In front of a spindle cell tumor the main differential diagnosis is the malignantphyllodestumour. In front of a carcinoma withbone or chondroidmetaplasia, a fibroadenoma, an osteosarcoma, a chondrosarcoma and a phyllodes tumor must be eliminated. Many types of sarcomas can be found in the breast, the mostcommonbeingangiosarcoma and liposarcoma [15].

Treatmentisbased on surgery. It is often radical. It is most often a mastectomy with axillary dissection: in 80% to 90% of cases in the literature. this is most often explained by the size of the lesions, and not by a systematic choice of radical treatment. There is no specific study on the place of the sentinel lymph node procedure in this situation [8]. Axillary lymph node dissection is recommended, despitetheirlowlymphophiliccharacter [1].

The place of neoadjuvantchemotherapy in order to reduce tumor size to consider conservative treatment is highly questionable in view of the known results. In the series by Hennessy et al. [16], of the five cases (protocols with more or lesstaxaneanthracycline), therewas no response, or even progression in one patient. There is currently no justification for it in this case. Adjuvant chemotherapy isunsatisfactorybecausechemoresistanceisfrequentAparicio et al. [17] and Hennessy et al. [16] assessed the impact of adjuvant chemotherapy on disease-free survival and overall survival. These two authors did not find any benefit in terms of overall survival or recurrence-free survival from performing chemotherapy.

Adjuvant post-operativeradiotherapyis not indicated because conservative surgical treatment is less frequent and the lymph nodes are often negative [1], but it seems to have an essential role in controlling local recurrences after conservative surgical treatment [18].

Hormone therapyusually has no place, given the usual absence of expression of hormone receptors. Herceptin cannot be introduced in most cases because the Herceptestisoftennegative. The overexpression of EGFR(HER1) could suggest a favorable response of these tumors to treatments targeting EGFR (anti HER1). In the overall group of metaplasticforms, overexpressionis found in more than 60% of cases, and in at least three quarters of squamous forms. This therefore opens the way to targeted therapies, such as Cetuximab®, which has shown a benefit on

overall and progression-free survival in ENT epidermoids. This application must be supervised since the response to EGFR tyrosine kinase inhibitors appears difficult to predict and EGFR hyperexpressionis not entirely attributed to gene amplification (11)

The prognosis of metaplasticcarcinomas remains pejorative, approaching breast cancers with a basal phenotype [19]. The duration until the first event varies on average from 20 to 92 months and is 40 months in our series. For overall survival, the average durations vary from 37 to 111 months, and is 35 months in our series. Five-year overall and recurrence-free survival vary, respectively, from 40 to 67% and from 26 to 63% [16-20].

The predilection site for metastases occurring during the first five years is the lung, liver, bone or brain. The average survival at 5 years is estimated between 38 and 86%

Conclusion:-

It is important to identifymetaplasticcarcinomasamong the other types of breast cancer given that their therapeutic management is different and heavier. The treatment of choice remains surgery, but a new molecular approach could modify the low contribution of conventional systemic treatments.

Figures

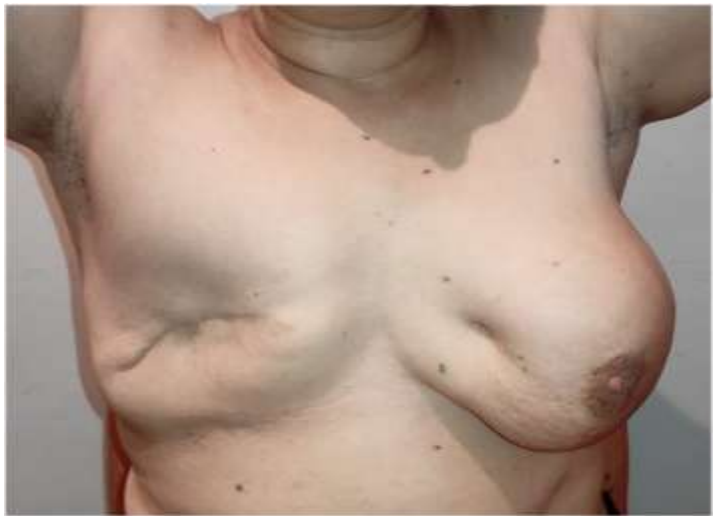

Figure 1:- Clinicalpicture: right mastectomy and left conservative treatment with presence of a mass occupying the entire left breast.

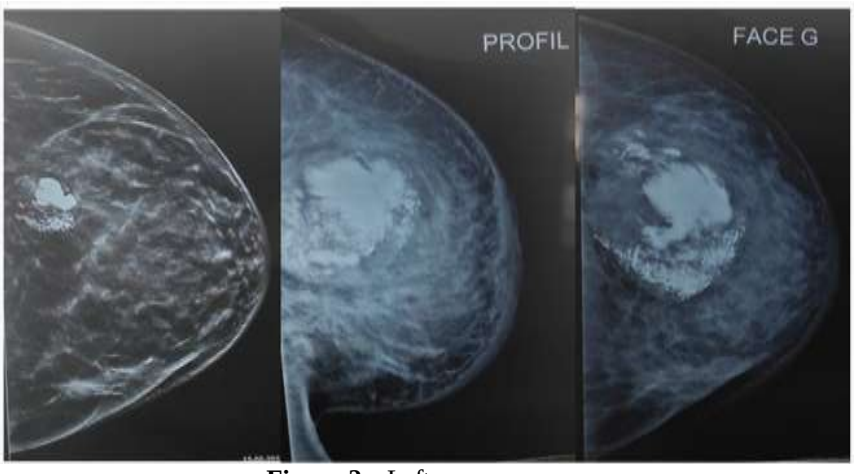

Figure 2:- Leftmammogram.

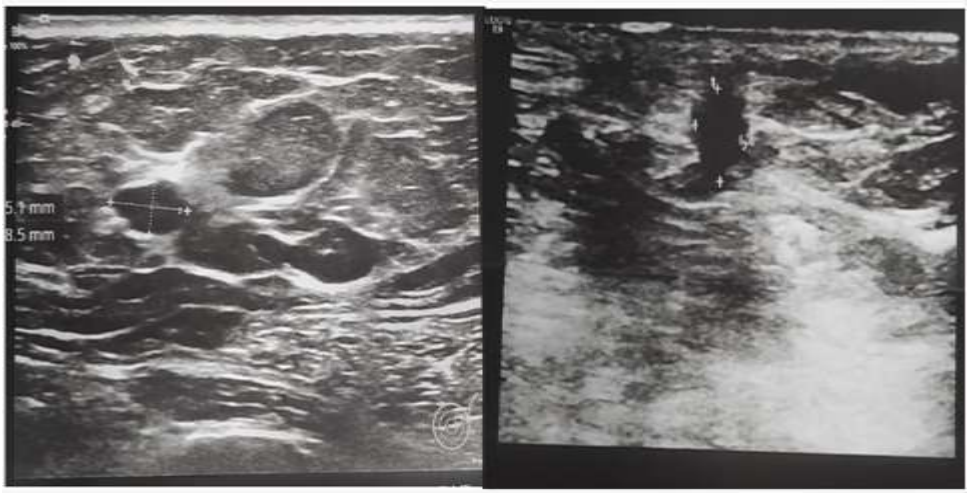

Figure 3:- Breastultrasound.

Reference:-

(1) Song et al. Unique clinicopathologicalfeatures of metaplasticbreastcarcinomacomparedwith invasive ductalcarcinoma and poorprognosticindicators. World Journal of SurgicalOncology. 2013 ; 11:129.
(2)Barnes PJ, Boutilier R, Chiasson D, and Rayson D. Metaplasticbreastcarcinoma: clinical-pathologiccharacteristics and HER2/neu expression. Breast Cancer Research and Treatment. 2005; 91(2): 173-178
(3)Esbah O, Turkoz FP, Turker I (2012) MetaplasticBreastCarcinoma: Case Series and Review of the Literature. AsianPacifi c J Cancer Prev 13: 4645-9
(4) Shah DR, Tseng WH, Martinez SR (2012) Treatment Options forMetaplasticBreast Cancer. International ScholarlyResearch Network. ISRN Oncology Article ID 706162
(5) Song Y, Liu X, Zhang G et al. (2013) Unique clinicopathologicalfeatures of metaplasticbreastcarcinomacomparedwith invasive ductalcarcinoma and poorprognosticindicators. World J SurgOncol 11: 129
(6) Grenier J, Soria JC, Mathieu MC, et al. Differentialimmunohistochemical and biological profile of squamouscellcarcinoma of the breast. AnticancerRes 2007 ; 27 : 547-55. 32. Weigelt B, Kreike B, Reis-Filho JS. Metaplasticbreastcarcinomas are basal-likebreast cancers: agenomicprofilinganalysis. Breast Cancer ResTreat 2009 ; 117 : 273-80.
(7)Weigelt B, Kreike B, Reis-Filho JS. Metaplasticbreastcarcinomas are basal-likebreast cancers: agenomicprofilinganalysis. Breast Cancer ResTreat 2009 ; 117 : 273-80.
(8) Cardoso F, Leal C, Meira A, et al. Squamouscellcarcinoma of the breast. Breast 2000 ; 9 : 315-9.
(9) Gupta C, Malani AK, Weigand RT, Rangineni G. Pure primarysquamouscellcarcinoma of the breast: a rare presentation and clinicopathologiccomparisonwithusualductalcarcinoma of the breast. PatholResPract 2006 ; 202 : 465-9.
(10)penault-llorca F, Mishellany F. Pièges diagnostiques en pathologie mammaire- Cas no 7: carcinome à cellules fusiformes du sein ou carcinome métaplasique. Annales de pathologie. 2009;29(3) : 223-227.
(11)Mychaluk J, Baron M, Fondrinier É, Laberge S, Gondry J, Fauvet R. Carcinomes épidermoïdes primitifs du sein : étude clinique et revue de la littérature. Bull Cancer 2012 ; 99 : 771-8. doi : 10.1684/bdc.2012.1614.
(12) M. Driss, K. Mrad, R. Dhouib, S. Sassi, I. Abbes, L. Charfi, K. Ben Romdhane,Les carcinomes métaplasiques du sein : étude anatomo clinique d'une série de 13 cas,Annales de Pathologie,Volume 24, Supplement 1,2004,Page 141,ISSN 0242-6498
(13) Luini A, Aguilar M, Gatti G, Fasani R, Botteri E, Brito JA, et al. Metaplasticcarcinoma of the breast, an unusualdiseasewithworseprognosis: the experience of the European Institute of Oncology and review of the literature. Breast Cancer ResTreat. 2007;101(3):349-53.
(14)Greenberg D, McIntyre H, Bierre T. Metaplasticbreast cancer. AustralasianRadiology. 2004;48(2) :243-247.
(15)GauchotteG ,Gauchotte É , Bressenot A . Les carcinomes métaplasiques du sein: une étude morphologique et immunohistochimique. Annales de pathologie. 2011 ; 31(1) : 18-27.
(16) Hennessy B, Krishnamurthy S, Giordano S, et al. Squamouscellcarcinoma of the breast. J Clin Oncol 2005 ; 23 : 7827-35.

(17)Aparicio I, Martinez A, Hernandez G, Hardisson D, De Santiago J. Squamouscellcarcinoma of the breast. Eur J ObstetGynecolReprodBiol 2008 ; 137 : 222-6.
(18) Yi-Chen Lai, Chih-Yi Hsu, Yi-Hong Chou, Chui-MeiTiu, Ling-Ming Tseng, Hsin-Kai Wang, Hong-JenChiou. Sonographicpresentations of metaplasticbreastcancers.Journal of the ChineseMedical Association. 2012; 75(11) :589-594.
(19) Leibl S, Moinfar F. Metaplasticbreastcarcinomas are negative for Her-2 but frequently express EGFR (Her-1): potential relevance to adjuvant treatmentwith EGFR tyrosine kinase inhibitors? J Clin Pathol 2005 ; 58 : 700-4.
(20)Rokutanda N, Iino Y, Yokoe T, et al. Primarysquamouscellcarcinoma of the breastduring lactation: a case report. Jpn J Clin Oncol 2000 ; 30 : 279-82.