Medical Science, Vol. 20, No. 82, November-December, 2016 CASE REPORT

ISSN 2321–7359 EISSN 2321–7367

Medical Science

An International Journal

Metaplastic Breast Carcinoma with Squamous Differentiation: A case report and overview of the management

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Publication History
Received: 18 October 2016
Accepted: 2 November 2016
Published: November-December 2016

Citation
Ujaimi R. Metaplastic Breast Carcinoma with Squamous Differentiation: A case report and overview of the management. *Medical Science*, 2016, 20(82), 219-221

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ABSTRACT

Metaplastic carcinoma is an uncommon variant of breast cancer. It carries a worse prognosis than the usual epithelial neoplasms of the breast. It is clinically and radiologically indistinguishable from the common variants of breast cancer, and it is a pathologic diagnosis. The optimum management approach is unknown and it has been usually managed like matched stage invasive ductal carcinoma. Research is ongoing to explore the potential benefit of tyrosine kinase inhibitors in the systemic management of metaplastic breast carcinoma.

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Key words: Metaplastic carcinoma, breast cancer, management.

1. INTRODUCTION

Metaplastic breast carcinoma is a rare pathologic entity. The best management approach is not clear. This a report of a case of metaplastic carcinoma with squamous differentiation.

2. CLINICAL PRESENTATION

The patient in this report is a 42-year Saudi female. She has presented with an incidentally noted right sided breast lump. She sought medical advice and was referred to a screening clinic. After detailed history and physical exam was done revealing only the lump with no other relevant symptoms or signs, a mammogram of both breasts was arranged and revealed a suspicious abnormality at 1 o'clock position. An MR was obtained and revealed a suspicious mass at 1 o'clock position, associated with homogenous enhancement on the post gadolinium sequence with a progressive wash out in delayed imaging. There was also restricted diffusion. A tru cut biopsy was done and revealed high grade invasive mammary carcinoma. The tumor was estrogen receptor(ER), progesterone receptor (PR), and Her2neo (Her2) negative, and CK HMW and CK 5/6 positive. Based on these immunohistochemical stains and the histological features, a diagnosis of metaplastic carcinoma could not be excluded.

Subsequently she underwent complete staging workup with a diagnostic computed tomography of the chest, abdomen and pelvis, as well as a bone scan. She had no evidence of distant metastatic disease.

On September 2, 2016, she underwent breast conservative surgery with sentinel lymph node biopsy. The final pathology revealed metaplastic breast carcinoma with mainly squamous differentiation. The tumor was unifocal, 2.5cm in diameter and was not associated with ductal carcinoma in situ (DCIS). Margins were not involved and there was no Lymphovascular space invasion. Perineural invasion was present. In addition to the previously mentioned stains, CK 7 was positive and vimentin was negative. Lymph nodes were negative for involvement by cancer.

After her surgery, she received four cycles of Adriamycin-Cyclophosphamide (AC) and Docetaxel chemotherapy and this will be followed by radiotherapy to the whole breast.

3. DISCUSSION

According to the world Health Organization (WHO), breast cancer is the most common cancer in women both in the developed and less developed world. The most commonly encountered invasive histology and the subject of all major randomized trials are invasive ductal carcinomas (IDC) and invasive lobular carcinomas (ILC). However, there are another uncommon histological variants including metaplastic carcinoma (MBC). Because of the rarity of those histological variants, there is paucity of evidence that dictate the most appropriate management decisions.

Metaplastic carcinoma comprises 0.5-5% of all breast neoplasms[1]. It is characterized by its high grade cellularity [1]. It is a mixture of epithelial and mesenchymal histology with multiple variants including matrix-producing carcinoma, squamous cell carcinoma, spindle cell carcinoma, carcinosarcoma, and metaplastic carcinoma with osteoclastic giant cells[1-3].

Metaplastic carcinoma is a pathological diagnosis and usually presents as a palpable lump[4]. There are no identifying radiological features of metaplastic carcinoma, however, it is associated with less incidence of nodal metastases[5] and higher incidence of distal metasteses[6,7]. Moreover, the primary size at diagnosis is larger than the average size for the more common variants of breast cancer[4,7]. It also carries worse prognostic features including ER, PR, and Her2 negativity , higher incidence of high grade and lymphovascular space invasion ,and high levels of Ki67[5,6] . Also, a good proportion of MBC expresses EGFR receptors[8,9].

Moreover, ER and PR positive Metaplastic carcinoma have worse prognosis than stage matched IDC and ILC[10]. The overall survival at 5 years is lower than that of IDC when similar stages where compared[5]and it ranges from 49-68%[11]. Some authors have found that triple negative MBC behaves worse than triple negative IDC[7].Some series, however, have found that the prognosis of MBC is similar to matched IDC [12]. Rakha et al., have also found that matrix producing carcinoma was associated with the best outcome while spindle and mixed spindle and squamous carcinomas were associated with the worst outcome and this was an independent prognostic variable[12].

The management of metaplastic breast carcinomas has traditionally followed that of the usual breast cancer. Unlike the common epithelial neoplasms, there are no large randomized trials to dictate the management and set any guidelines that are specific for

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metaplastic carcinoma. Hence, they are managed like their comparable stage of common epithelial neoplasms. Early metaplastic carcinoma are treated with breast conservative surgery .There is no evidence to suggest that breast conservative surgery is contraindicated in metaplastic carcinoma and the conservative approach does not affect survival[11,13]. However , due to their larger size at presentation , relatively more patients with MBC undergo mastectomy than IDC patients[14]. Likewise, sentinel lymph node biopsy is routinely used. Because the trials of no axillary dissection after sentinel lymph node biopsy have excluded MBC, axillary dissection after positive sentinel lymph node should probably be the way to go. After breast conservative surgery, radiation to the whole breast is usually given. Tseng et al have found that the addition of radiation after lumpectomy and after mastectomy, for tumor larger or equal to 5 cm or associated with 4 or more regional lymph node metastases, is associated with improvement in overall survival[11].

The role of chemotherapy is also not clear. It is generally noted that MBC is relatively chemoresistant[14] . Nonetheless, majority of MBC patients receive chemotherapy[14] Because a good proportion of MBC expresses EGFR receptors, patients with MBC might benefit from treatment with protein kinase inhibitors[8,9]. Because most MBC cases are ER ,PR ,and her2 negative , hormonal therapy as well as Herceptin have no role in the management of MBC[14].

4. CONCLUSION

MBC is a rare histologic type of breast cancer that carries worse prognosis. The optimum management approach is unknown and it is generally managed as the other common breast cancer variants.

DISCLOSURE STATEMENT

The author has no conflict of interest.

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