CASE REPORT

INVASIVE MICROPAPILLARY CARCINOMA OF THE BREAST: CASE REPORT

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ABSTRACT

Invasive micropapillary carcinoma (IMPC) is a recently reported entity that is a histological variant of breast cancer with a poor prognosis. The tumor is best characterized by a nested pattern of eosinophilic tumor cells arranged in a solid, morular, tubular pattern. The tumor cells have intermediate to high grade nuclei and individual groups have a clear space separating them from the surrounding stroma. We report one case of pure IMPC of the breast

Keywords: Breast, carcinoma, Micropapillary carcinoma, Pathology

INTRODUCTION

Invasive micropapillary carcinoma (IMPC) of the breast has been recently described as a poorly recognized aggressive and a rare variant (<3%) of infiltrating ductal carcinoma. It is definitively associated with lymphatic invasion and a high incidence of nodal metastases ¹².

CASE REPORT

A 70 –year –old woman presented with a lesion on the right breast that has been first noted four months ago. Physical examination revealed a discrete mass in central location of the right breast. Mammography showed a high density mass of 3 cm in diameter with spicular borders which caused slight skin retraction. Ultrasound(US) examination showed a mass of 2.5x2 mm in size with ill defined margins with a marked posterior acustic shadow. The US and mammography findings were typical for a malign lesion. Following the fine needle aspiration biopsy of the mass which has reported as positive carcinoma, the patient underwent a right modified radical mastectomy with axillary dissection.

On gross examination, the specimen measured 30cmx25cmx5cm with 27cmx12cm epidermis and nipple. On the cut surface of the breast there was a 2.5cmx2cm ill-circumscribed tumoral lesion with extensive fibrosis that was 3 cm distance to nipple. On low power microscopic examination, the tumor was constituted of abundant invasive epithelial nest, cohesive tumor cell clusters within clear spaces and the stroma surrounding the clear spaces had a fine reticular to colageneus structure (Fig. 1). The cell clusters mainly had round pattern while some of them had serrated peripheral borders. There was not desmoplasia around epithelial cell nests but micropapillary type of ductal carcinoma insitu area was present.
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On high power microscopic examination, the epithelial cells were cuboidal to columnar with variable amounts of cytoplasm that range from finely granular to densely eosinophilic (Fig. 2).

Myoepithelial cells were not identifiable at the periphery of cell clusters. Histological grading and mitotic index were fairly high and pleomorphism, multinucleated giant cells were present. The only metastatic lymph node was sentinel lymph node one out of 13 lymph nodes which were found in level I-II of axillary dissection. The metastatic lymph node was sharing the same morphology with the tumor. Immunohistochemistry for oestrogen receptor (ER) (Fig. 3) and progestrone receptor (PR), c-erbB-2 was performed. Both ER and PR immunoexpressions were positive in 70% of the tumor cells. c-erbB-2 was (+++) positive in cytoplasmic membrane of the tumor cells.

DISCUSSION

Invasive micropapillary carcinoma (IMPC) of the breast has been recently described as a poorly recognized aggressive and a rare variant 1,2. Invasive papillary cancers were first described by Fisher et al, who recognised several subtypes in their review of 1603 patients tumors from the National Surgical Adjuvant Breast Project (protocol 4) 3. The patterns that termed exfoliative was thought clinically poor prognosis. In 1993 Siriaunkgu and Tavassoli from the Armed Forces Institute of Pathology described the first series of this tumor which they called as invasive micropapillary carcinoma 4. They noted that this pattern is a different entity from metastatic papillary carcinoma and tubular carcinoma 4.

The tumor is best characterized by a nested pattern of eosinophilic tumor cells arranged in a solid, morular and tubular pattern. The tumor cells have intermediate to high grade nuclei and individual groups have a clear space separating them from the surrounding stroma. These spaces are not lined by endothelial cells and this is most likely shrinkage artifact 4-6. In the frozen sections of our case there was not any clear spaces around the tumor nests and this finding is consistent with the shrinkage artifact due to the formalin fixation procedure.

The intraductal component that accompanies these tumors often has a micropapillary pattern in which intermediate to high grade nuclei and necrosis typically present. It has been further defined by electron microscopic analyses, which showed microvilli on the external surfaces of cell clusters1. Our case also had intraductal carcinoma with micropapillary pattern beside the invasive tumor nests.
IMPC has a high percentage of oestrogen receptor (ER) and progesterone receptor (PR) positivity (90% and 70%) and nearly doubles the expected percentage of HER-2/neu positivity (60%) 2,6,7. ER positivity has traditionally been associated with better differentiated tumors would appear to be an exception to these general rules.

Expression of acid mucins and surface linear staining with epithelial membrane antigen (EMA) antibody was also described. The clinical significance and role of prognostic markers in IMPC are not fully described. It has been shown that prognostic factors in IMPC of the breast are the grade and extensive lymphatic invasion 2. Other factors such as ER and PR states, HER-2/neu protein overexpression and p53 deletions have also been studied. It appears that the presence or absence of these markers in IMPC generally mimic that of the usual breast cancer in terms of predicting patient prognosis 2,8,9. It has also been found that pure IMC histology was associated with high-grade histology, metastases to regional lymph nodes, a high mitotic index and c-erbB-2 immunopositivity 9,10. In this case c-erbB-2 immunoreexpression was positive in 20% of the tumor cells. Survival rates were similar to those of other patients with equivalent numbers of lymph node metastases 9.

In terms of the differential diagnosis of IMPC of the breast, other primary breast tumors, such as the rare invasive papillary carcinoma and colloidal carcinoma, must be considered.

Invasive papillary carcinoma is of histologically a distinguishable from invasive micropapillary by its lack of clear spaces surrounding tumor clusters, truly papillary architectures and typically low nuclear grade 6. The distinction from pure colloid carcinoma is especially relevant because mucin secretion is an occasional, albeit usually minor, feature of IMPC of the breast. The large extracellular mucin pools of colloid carcinoma are infrequent in IMPC 6. Metastatic tumors especially ovarian serous papillary adenocarcinoma, micropapillary variant of transitional cell carcinoma of the bladder must also be considered in the differential diagnosis 8. Both of these tumors may exactly mimic the histological appearance of primary IMPC of the breast. A thorough and accurate clinical history and the presence of associated DCIS will aid in the correct diagnosis of primary IMPC of the breast. The observation of a papillary pattern in intramammary lymphatic tumor emboli or lymph node metastases should prompt a search for even a small amount of IMPC differentiation in the primary tumor.

Identification of this entity as a distinct variant of breast cancer seems prudent because of the IMPC is predilection for lymphatic and lymph node spread.

REFERENCES