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Pure Invasive Micropapillary Carcinoma, Breast: A Rare Entity

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Abstract
Invasive micropapillary carcinoma is a special subtype of invasive breast cancer with characteristic morula and pseudo papillae of eosinophilic tumor cells surrounded by clear space. Association with lymphovascular invasion and early nodal metastasis makes it an aggressive tumor. We present a case of a 51 years old female with awareness of lump in left breast. On USG a presumptive diagnosis of breast carcinoma was suggested post which she underwent modified radical mastectomy. On histopathology, diagnosis of Invasive micropapillary carcinoma, breast with metastatic deposits in 23/26 lymph nodes was given. It is a rare and aggressive form of tumor with high rate of recurrence. Timely and accurate diagnosis is required for improving outcome of the patient.

Introduction

Invasive micropapillary carcinoma of breast is an aggressive and rare variant of Invasive breast cancer. It is classified as a special subtype of Invasive carcinoma of breast.[1] It is histopathologically characterized by small, hollow or morula-like clusters or pseudopapilla of eosinophilic cancer cells, surrounded by clear stromal spaces. These cells have characteristic inside-out arrangement.[2] The tumor has a propensity for lymphovascular invasion and early axillary nodal spread due to which prognosis remains poor.[3]

Case Report

A 51 years old female presented with awareness of lump in left breast for the last 3 months. On USG a heteroechoic area of 1.44 x 0.96 cm was identified in the left breast with retraction of nipple and multiple large lymph nodes seen in the left axilla largest measuring 1.9x1.3 cm. Mammography revealed BIRADS 5. Modified radical mastectomy of left breast was done.

On Gross examination, Left MRM specimen measuring (20x12x4) cm with separately sent axillary tail measuring (5x3x2.5) cm was received. Overlying skin flap (14.5x10) cm showed peau d' orange appearance and retraction of the nipple.

On serial sectioning of the breast a gray white firm growth measuring (5.5x5x2) cm was seen in the central quadrant. The growth was 1.5 cm away from the overlying skin and 0.5 cm away from the deep resection margin. Adjacent remaining breast tissue was unremarkable. On palpation and serial sectioning of the separately sent axillary tail 22

lymph nodes/ tumor nodules were dissected out ranging in diameter from 0.5 cm to 2.5 cm

On microscopic examination, multiple foci comprised of tufts of cells arranged in micropapillae, morules and hollow tubules surrounded by empty clear spaces formed by fibrocollagenous stroma. Tumor cells showed reversed polarity having moderately pleomorphic nuclei, fine chromatin, variably prominent nucleolus and abundant eosinophilic cytoplasm with focal knobby contour and scattered mitoses. Extensive lymphovascular emboli were seen.

Sections from overlying skin and nipple areola complex revealed dermal lymphatics with tumor emboli. All the resection margins including deep resection margin/ base were free from tumor invasion. Adjacent breast revealed fibrocystic disease with sclerosing adenosis. Microscopically 26 lymph nodes were identified and 23 of them revealed metastatic tumor deposits.

Diagnosis of Invasive Micropapillary Carcinoma Grade II (3+2+1), left breast with metastatic tumor deposits in 23/26 lymph nodes was given. IHC showed ER/PR positivity and HER2nu negativity.

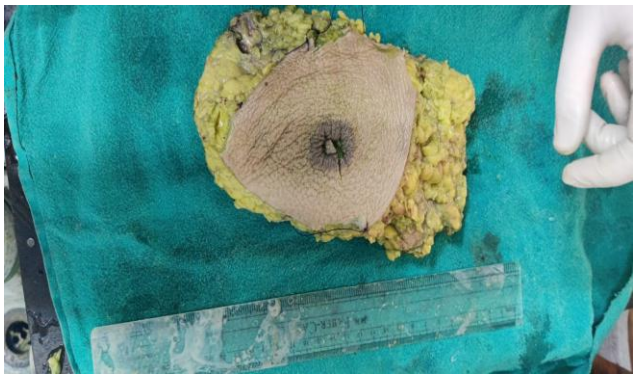

Fig 01

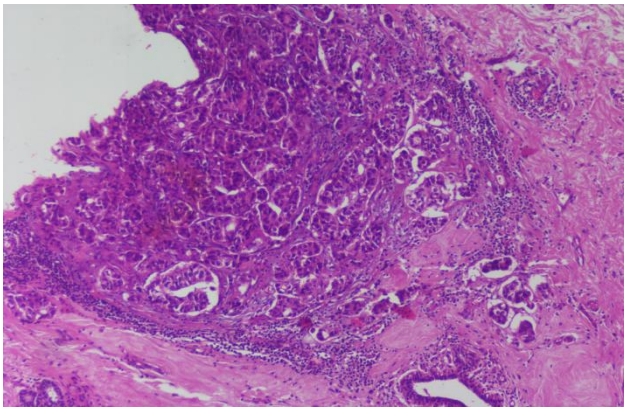

Fig 02

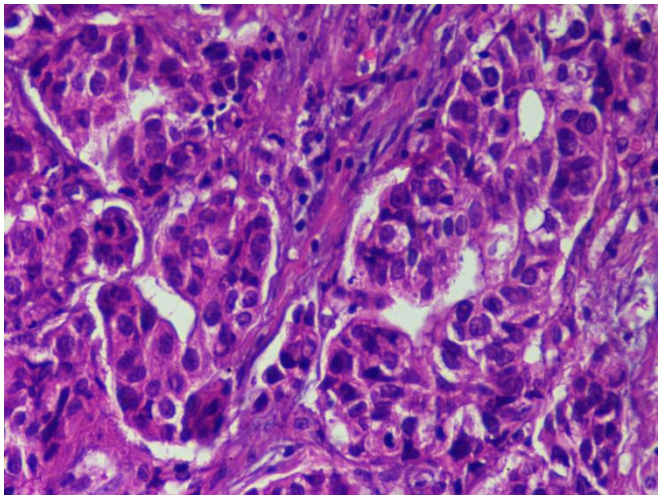

Fig 03

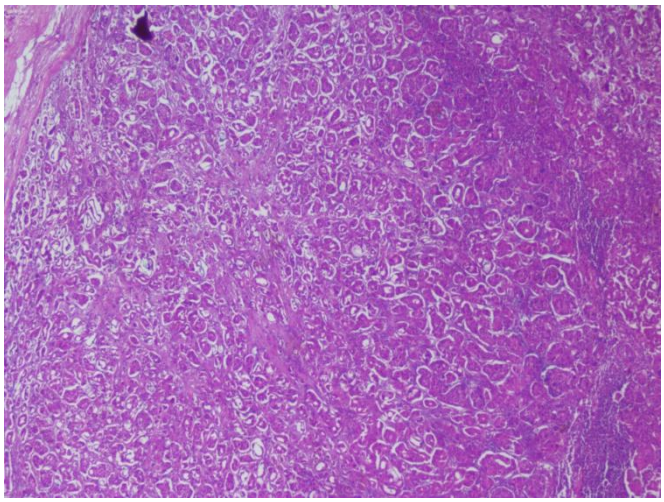

Fig 04

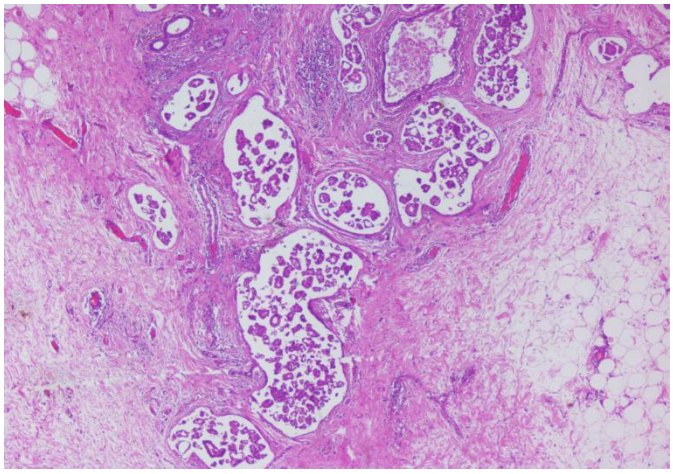

Fig 05

Discussion

Invasive micropapillary carcinoma (IMPC) of breast is an aggressive and rare variant of Invasive breast cancer. It was first described in literature by Petersen in 1993[4] as a unique variant of breast

cancer with inside out arrangement and then defined as Invasive micropapillary Carcinoma (IMPC) by Siriaunkgul S, Tavassoli FA in 1993.[5] In the 2003 World Health Organization classification of breast tumors, it was mentioned as a rare subtype of breast epithelial tumors.[6] Patients usually presents with palpable lump in breast or axillary swelling.[7]

Histopathologically characterized by small clusters, hollow or morula like aggregates, pseudo papillae devoid of fibrovascular cores suspended in tight clear spaces. These clear spaces resemble dilated lymphatic channels, but are not lined by endothelial cells, and may potentially constitute a fixation artefact.[7] Cells Display an "inside-out" arrangement with the apical pole of neoplastic cells facing the empty stromal spaces rather than the hollowed central aspects of the tumour cell aggregates.[8]

On the basis of morphology it can be divided into pure IMPC or mixed IMPC. To consider IMPC as pure, variation of microinvasive pattern from 50-75% is considered.[2]

Extensive lymphovascular invasion and early nodal metastasis is common.[9] Patients with Invasive Micropapillary Carcinoma have high loco-regional recurrence as compared to Invasive ductal carcinoma.[10]

IMPC has a high % of estrogen receptor and progesterone receptor positivity (90% and 70%) and HER-2/neu positivity (60%).[11]

EMA and CD15: membranous staining of tumor cells abutting stroma. Complete linear EMA reactivity on the outer surface of the micropapillary clusters supports complete reversal of cell polarity. E-cadherin and p120 catenin: cup shaped basolateral membranous staining with sparing of the apical surface.[2]

Presence of empty stromal space mimicking lymphovascular invasion can be distinguished from true lymphovascular invasion by absence of endothelial cells which can be demonstrated on IHC by CD31 which will be positive in endothelial cells.

Invasive papillary carcinoma is histologically distinct entity from IMPC and can be distinguished by lack of clear spaces surrounding tumor clusters, truly papillary architecture (with fibrovascular core) and a low nuclear grade.[12]

But it is important to distinguish it from metastatic papillary tumors especially ovarian serous papillary adenocarcinoma, micro papillary variant of urothelial carcinoma of the bladder by IHC.[13]

Conclusion

Pure Invasive Micropillary carcinoma of the breast is a rare and aggressive tumor with early lymphovascular/ nodal metastasis and high rate of local and regional recurrence. Early and timely diagnosis of the entity is required for proper management and to improve the outcome of the patient.

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