International Journal of Medical and Health Sciences

Journal Home Page: http://www.ijmhs.net ISSN:2277-4505

Case Report

Invasive Papillary Breast Carcinoma : A Rare Case Report

KrishnaSwaroop DS*[1], Geetha Prakash[2] , Vandana Gangadharan[3] , Sangeetha BS[4]

[1]Professor, [2]Professor & HOD, [3]Assistant Professor, [4]Postgraduate Student, Department of Pathology, Meenakshi Medical College & Research Institute , Enathur , Kanchipuram , T.N, INDIA.

ABSTRACT

Papillary carcinoma of the breast is a rare, distinct variant comprising less than 2% of all the breast cancers & is usually found in postmenopausal women with a more favorable prognosis. Invasive papillary carcinoma is one of the distinct & established subtypes of papillary carcinoma breast. We report the case of a 63 year old postmenopausal woman who presented with a left breast lump for 2 months associated with pain. Ultrasound & Mammogram screening suggested malignancy with a similar finding on Fine needle aspiration cytology. A modified radical mastectomy was undertaken with lymph node dissection for histopathological study & Immunohistochemistry which showed characteristic features of an Invasive papillary breast carcinoma with all the nodes being negative for malignant cells. We report this case in view of its rarity & to highlight this entity for its usually good prognosis to avoid overtreatment.

KEYWORDS: Papillary breast carcinoma, Invasive papillary breast carcinoma, Invasive Ductal carcinoma, Breast cancer, Intracystic papillary carcinoma.

INTRODUCTION

Papillary carcinoma of breast is a rare variant of breast cancers with an overall incidence accounting for less than 1-2% of invasive breast cancers. Most of these papillary cancers is predominantly seen in postmenopausal patients & can also rarely affect the males[1-6].

Clinically these tumors are often asymptomatic or present as a palpable, centrally located mass or as a bloody nipple discharge[1,3]. More than 75% of these cases show ductal carcinoma in situ(DCIS) component & some types of invasive ductal carcinoma(IDC),especially mucinous & neuroendocrine carcinomas[2,3,6].

Histologically, Invasive papillary carcinoma(IPC) is characterized by presence of fibrovascular fronds of papillary tumor which are surrounded by a thick fibrotic wall & absence of myoepithelial cell layer(MCL) within the papillae or at the periphery of tumor with areas of invasion into the stroma or lymphovascular spaces[2,3,4,5]. We herein report this rare case of breast carcinoma variant which regardless of its varied histology including invasive nature carries an excellent prognosis requiring only adequate local therapy[3,4,5].

CASE REPORT

A 63 year old woman came to our hospital with complaints of a left breast lump noticed for the past 2 months. The lump was not associated with pain, no history of fever or any nipple discharge.

There was no loss of weight but complained of loss of appetite. No family history of malignancies & had attained menopause 10 years back. She was not a known case of Diabetes/Hypertension/Epilepsy/Pulmonary TB or Ischemic heart disease. On examination her left breast had a lump of size 5x4cm palpable over the left upper outer quadrant extending into upper inner quadrant. It was firm & tender. No warmth felt, was freely mobile in all directions & the skin was pinch able. Dimpling of the nipple was observed. Her routine Blood, Urine & Liver function tests were within normal limits. Serological studies for HIV & HBsAg was Non Reactive.

Ultrasound(USG) screening revealed a large ill-defined, lobulated lesion measuring 5x3.5cm in the retro-areolar region of left breast with few calcific foci & intralesional vascularity suggesting malignancy. No evidence of hepatic or abdominal nodal metastasis noted on abdominal, pelvic USG.

Mammogram results using the Breast Imaging Reporting & Data System(BI-RADS) classification reported BI-RADS 6 lesion in the left breast & BI-RADS 4 in the right breast. Fine needle aspiration cytology(FNAC) study was positive for malignancy & showed hypercellular aspirate with tumor cells in occasional papillary sheets. (Fig. 1)

The patient was taken up for a Modified radical mastectomy of the left breast lesion in view of its high BI-RADS score of 6 & the tissue was sent with level 2 nodes for biopsy study. Histopathological examination showed typical & characteristic features of IPC composed of malignant cells with pink cytoplasm & vesicular nuclei arranged in papillary fronds(Fig. 2, Fig. 3). Proliferation within cystic spaces, solid compact pattern including stromal & lymphovascular invasion was made out in areas of hemorrhage & necrosis.(Fig. 4). Foci of cribriform arrangement was noted at places. Nipple, areola & all other margins except the posterior margins were free from tumor invasion. 11 nodes studied showed only features of sinus hyperplasia & were also free of the tumor. Immunohistochemistry(IHC) was taken up for detection of hormonal receptors and was found to be Estrogen(ER), Progestrone(PR) positive & Her2neu negative. The patient did well postoperatively & preferred to get referral to a specialized cancer centre for further management & treatment protocol.

Figure 1: Cytology smear showing hypercellularity & tumor cells arranged in papillary sheets (H&E, x40)

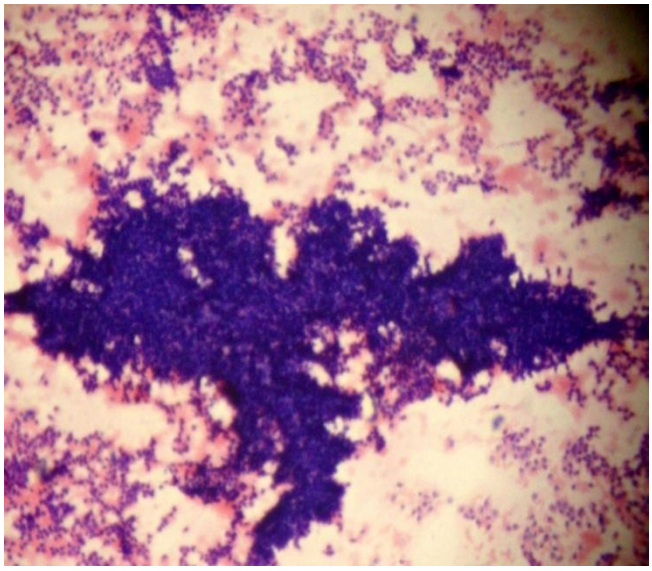


Figure 2: Photomicrograph showing tumor composed of papillary fronds with branching fibrovascular stroma (H&E, x100)

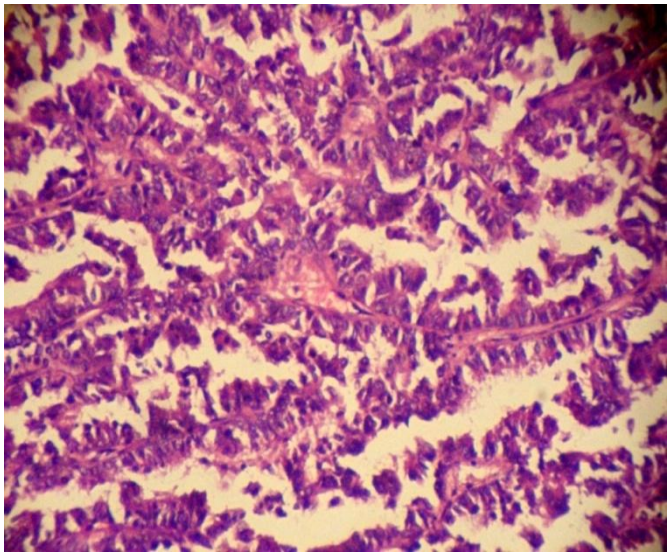


Figure 3: Photomicrograph showing typical finger like papillae with a prominent fibrovascular core lined by tumor cells showing nuclear atypia (H&E, x400)

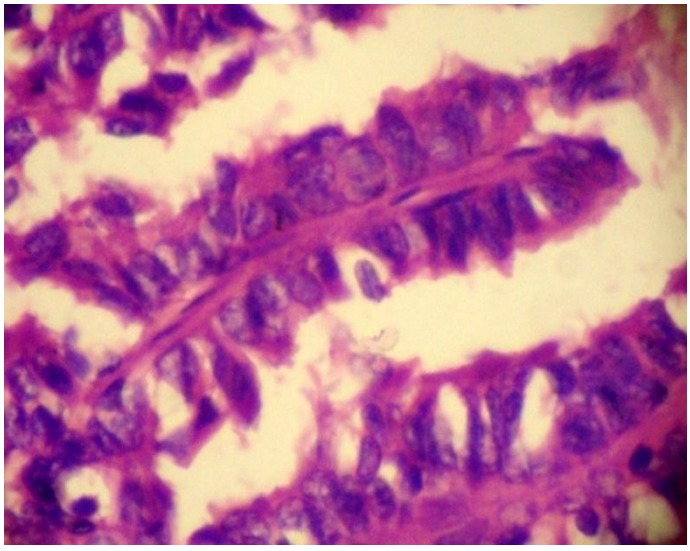
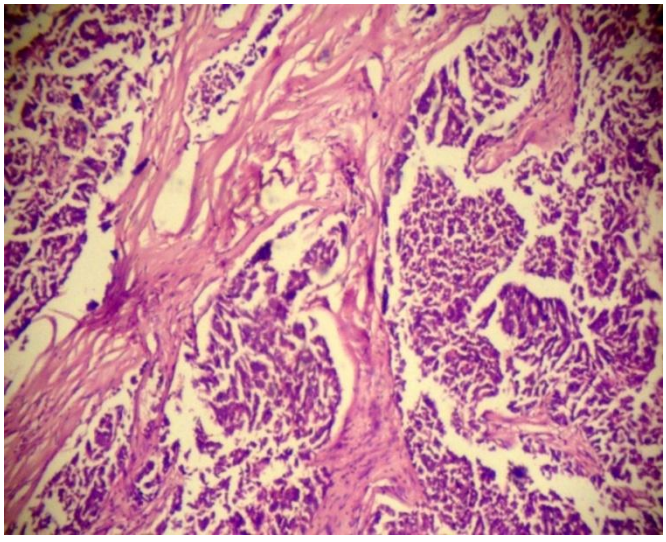


Figure 4: Photomicrograph showing clusters and nests of tumor cells surrounded by thick fibrotic wall & areas of invasion into stroma (H&E, x100)



DISCUSSION

Papillary lesions of the breast represent a heterogeneous group & at times is difficult to differentiate between benign or malignant lesions[1]. Invasive papillary carcinoma(IPC) is one of the 3 morphologically distinct subtypes of papillary carcinomas along with the encapsulated(Intracystic) papillary carcinoma & solid papillary carcinoma which usually presents in postmenopausal women accounting for less than 1-2% of all the breast cancers[1,3,5]. Pathologically these tumors show expansile papillary lesion with prominent fibrovascular core & surrounded by thick fibrotic wall. MCL is absent within the papillae or at the periphery of the tumor[3,4,5].

Invasive features into the stroma, higher nuclear grade & necrosis differentiates the IPC from the Intracystic(encapsulated) papillary breast which is usually of low or intermediate nuclear grade with no evidence of necrosis, strongly ER receptor positive, negative for C-erb2(Her2neu)[5]. Differential diagnosis also include benign & malignant lesions like atypical ductal hyperplasia(ADH), lobular hyperplasia & DCIS. Fibrovascular cores are absent in ADH & the cellular discohesion is the path gnomic feature of lobular neoplasms[2].

DCIS do not show branching fibrovascular stroma but IPC can show DCIS component along with IDC exhibiting pure mucinous, neuroendocrine or rarely lobular or tubular carcinoma[2]. Gruber et al in his study of radiological breast cancer evaluation using various modalities concluded that Magnetic resonance imaging(MRI) & Mammogram are more exact cancer sizing techniques whilst USG showed significant underestimation[7]. IHC has an important role in hormonal, invasion assessment. Papillary carcinomas of the breast tend to be ER, PR receptors positive & Her2Neu negative[1,2,4]. IHC markers for MCL have an important role in invasion assessment with smooth muscle actin, p63, CD10, S-100, calponin, maspin commonly employed among which smooth muscle myosin heavy chain & p63 are more MCL specific[4,6].

Immunophenotypic & genomic characterization of papillary breast carcinomas have shown PIK3CA & IDH1 mutations. Intracystic papillary carcinoma with IDC had 11q22.1-23.3 loss, chr5 gain & was enriched with matrix metalloproteinase gene[8,9,10]. It was suggested that papillary carcinomas may be positioned as a part of the spectrum of ER-positive breast cancers & that its good prognosis may be due to low lymph node metastasis, low p53 expression, lower number of gene copy number aberrations & its high prevalence of PIK3CA mutations[9]. Various management strategies which are considered include, wide local excision with or without adjuvant radiotherapy, or mastectomy, including sentinel lymph node biopsy & or axillary dissection[5,6]. Systemic treatment by endocrine manipulation using Tamoxifen is usual as these tumors are hormonal receptors positive & Her2Neu negative[5]. Chemotherapeutic intervention is not mandatory & is considered in cases associated with lymphovascular invasion[5,6].Targeted therapy has been suggested as point mutations have been identified in these special types of breast cancers[10].

CONCLUSION

We highlight this rare variant of breast cancer which usually has an indolent behavior , carries an excellent prognosis & thus awareness of this entity is important to avoid over treatment. Proper imaging interpretation, histologic subtyping & optimal surgical planning is essential for its detection & treatment.

REFERENCES

1. Irina Anca Eremia, Maria Ciobanu, Tenea T, Maria Victoria Comanescu, Stefania Craitoiu. Invasive papillary carcinoma of the mammary gland:histopathologic and immunohistochemical aspects.Rom J Morphol Embryol 2012;53(3):811-815

2. Noriko Yoshimura, Shigeru Murakami, Mayumi Kaneko, Akio Sakatani, Naoki Hirabayashi, and Wataru Takiyama, "Synchronous Bilateral Solid Papillary Carcinomas of the Breast," Case Reports in Surgery 2013;1155:8121-29

3.Saremian J, Rosa M. Solid papillary carcinoma of the breast: a pathologically and clinically distinct breast tumor. Arch Pathol Lab Med 2012;136(10):1308-11

4.Terzi A, Uner AH. An unusual case of invasive papillary carcinoma of the breast. Indian J Pathol Microbiol 2012;55:543-5

5.Sara Al Reefy, Rashid Kameshki, Dhabya Al Sada, Abdullah Al Elewah, Arwa Al Awadhi, Kamil Al Awadhi. ecancer 2012;7:286-91

6.Bhosale SJ, Kshirsagar AY, Sulhyan SR, Jagtap SV, Nikam YP. Case Rep Oncol 2010;3:410-415

7.Gruber et al: Measurement of tumor size with mammography, sonography and magnetic resonance imaging as compared to histological tumor size in primary breast cancer. BMC Cancer 2013;13:328-36

8.Duprez R, Wilkerson PM, Reis-Filho JS. Immunophenotypic and genomic characterization of papillary carcinomas of the breast. J Pathol 2012; 226(3):427-41

9.Khoury T, Hu Q, Liu S, Wang J. Intracystic papillary carcinoma of breast: interrelationship with in situ and invasive carcinoma and a proposal of pathogenesis: array comparative genomic hybridization study of 14 cases. Mod Pathol 2013;10:1038-136.

10.Ang D, VanSandt AM, Beadling, Carol, Warrick, Andrea BS et al. Biphasic Papillary and Lobular Breast Carcinoma With PIK3CA and IDH1 Mutations. Diagn Mol Pathol 2012; 21(4):221-4

---

*Corresponding author: Dr. Krishna Swaroop DS
E-Mail: drkrishu@yahoo.com