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Case Report

A rare case of papillary breast carcinoma: A case report

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Abstract

Papillary carcinoma is an uncommon form of ductal carcinoma of breast with an infiltrative papillary growth pattern. It has an incidence of 0.5-0.7% of all breast carcinomas1. Most common in postmenopausal women of more than 50 years of age. Here, we report a case of 45 year old female who presented with a lump in the left breast for a duration of 3 weeks. The mass was removed by excision procedure and sent for histopathological examination. Histopathological examination revealed papillary carcinoma of breast. The diagnosis is difficult clinically and radiologically. The tumor detection rates by mammography is only 50%. Most of the tumors are mammographically occult, so histopathology is essential for an accurate diagnosis. Immunohistochemistry is needed for confirmation.

Keywords: Papillary, Breast carcinoma, Histopathology, Immunohistochemistry.

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1. Introduction

Invasive papillary carcinoma of breast is a very rare entity. It is an uncommon form of ductal carcinoma of breast with an infiltrative papillary growth pattern in which the neoplastic cells proliferate on an arborizing skeleton of fibrovascular fronds with an incidence of 0.5-0.7% of all breast carcinomas.[1] It occurs among whites and postmenopausal women beyond 50 years of age. The average clinically determined size of tumors is 2 to 3 cm. At least one-third of patients report a discharge from the nipple. Patients with papillary carcinomas experience bleeding from the nipple more often than do women with papillomas. Imaging studies of papillary carcinomas frequently display round, oval, or lobulated masses. Irregularity of the contour suggests the presence of an invasive component. Studies may also display multinodular densities in a segmental distribution, sometimes confined to a single quadrant. Most papillary carcinomas do not contain abundant calcifications; however, punctate calcifications can mark the associated intraductal component Comedo, tubular, cribriform, and the mucinous foci may also be seen in the invasive component. Even though papillary carcinomas frequently appear to be invasive, recognition of minimal invasion might be challenging to identify.[2,3] Many papillary carcinomas have cystic areas, but the diagnosis of papillary carcinoma does not require the presence of such foci. Fibrosis, hemorrhage and chronic inflammation are also seen. Identification of epithelial clusters in these areas can be difficult.

The following morphologic features characterize the histopathology of conventional papillary carcinomas and provide the basis for distinguishing papillary carcinomas from papillomas. Malignant ductal cells comprise the entire epithelial population of most papillary carcinomas, whereas benign luminal and myoepithelial cells make up the epithelium of papillomas.[4,5] A mixture of benign and malignant cells may be present when a carcinoma involves a papilloma. The epithelial cells in papillary carcinomas grow in a disorderly fashion manifest by the loss of nuclear polarity with respect to the basement membrane and uneven stratification of the cells.[6]

Groups of neoplastic cells that are arranged parallel to the layer of reactive stroma at the border of papillary carcinoma represents distorted pre-existing glands. The reliable histological evidence of invasion is the presence of

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extension of suspicious cells beyond the zone of reactive changes into the mammary parenchyma and fat. Grossly they appear well circumscribed and even appear encapsulated. Irregular border suggests invasive component. The tumor is soft to moderately firm. In uncertain cases immunohistochemical staining for myoepithelial cells can be helpful. A change in the pattern of growth also suggests presence of invasion.[7]

Myoepithelial cells, which are distributed relatively uniformly and proportionately within the epithelium of papillomas, are characteristically absent from invasive papillary carcinoma. Although one can usually identify myoepithelial cells in H&E-stained sections, immunohistochemical staining provides a more reliable method for detecting them. Cytoplasmic markers of myoepithelial cells include CD10, smooth muscle actin (SMA), calponin, smooth muscle myosin heavy chain (SMMHC), and cytokeratin 5/6 (CK5/6). The markers cross react with stromal myofibroblasts and vascular structures to varying and unpredictable degrees.[8-10] The transcription factor p63 stains nuclei of myoepithelial cells but does not react with those of stromal cells. Whenever possible, it is prudent to employ a panel composed of p63 and two or more cytoplasmic markers when investigating the presence of myoepithelial cells in a papillary tumor.

The presence of myoepithelial cells in parts of a papillary lesion does not exclude the diagnosis of carcinoma. Non-invasive papillary carcinomas containing myoepithelial cells often represent papillomas overtaken by carcinoma. The myoepithelial cells constitute remnants of the pre-existing benign epithelium. They may persist in segments of residual epithelium or as a layer beneath the carcinomatous population.

2. Case Report

A 45 year old female came to OPD with complaints of lump in the left breast for 3 weeks. Gradually the lump progressed to attain the current size of 6x3x2cm. Not warm, non tender lump felt at left upper outer quadrant of breast. Skin over the areola appeared normal. Bleeding discharge from nipple was seen.

2.1. Gross appearance

The mass was removed by excision procedure which revealed 6x3x2cm, single grey brown to grey white soft tissue mass (**Figure 1**). External surface showed papillary projections (**Figure 2**). Cut surface showed homogenous, gritty, firm, grey white areas with papillary projections (**Figure 3**).

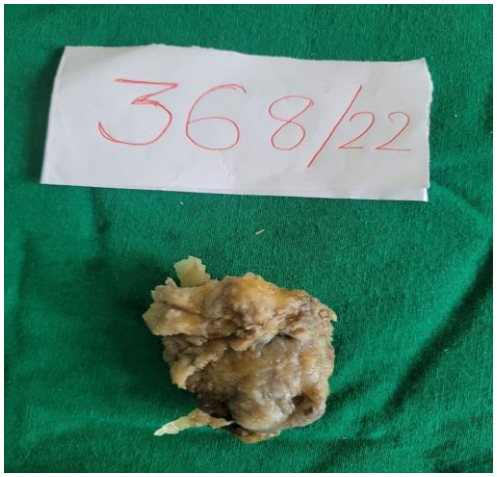

Figure 1: Single grey brown to grey white soft tissue mass

Figure 2: External surface showed papillary projections

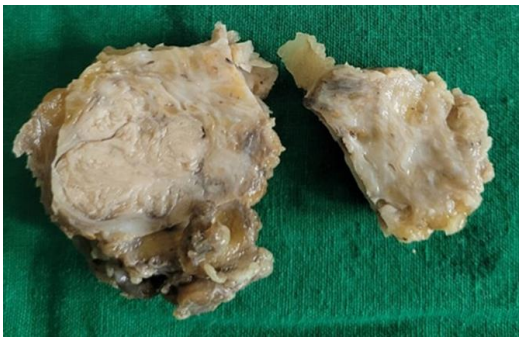

Figure 3: Cut surface showed homogenous, gritty, firm, grey white areas with papillary projections (current size of 6x3x2cm)

2.2. Microscopic appearance

Microscopy Showed neoplastic cells arranged predominantly in papillary pattern with fibro vascular core (**Figure 4**). Also seen are tubular pattern and mucinous foci (**Figure 5**). Neoplastic cells are polyhedral with vesicular nuclei and prominent nucleoli. Some cells shows hyperchromatic nuclei. No areas of necrosis (**Figure 6**).

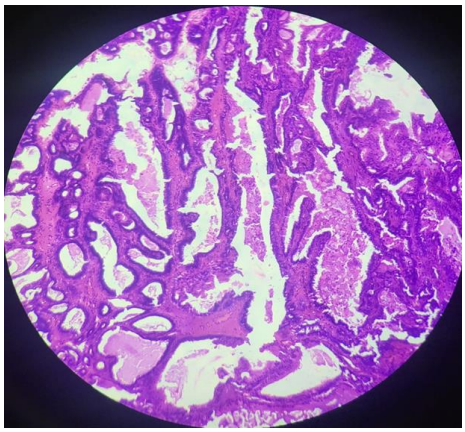

Figure 4: Papillary pattern with fibro vascular core (Microscopy view in neoplastic cells)

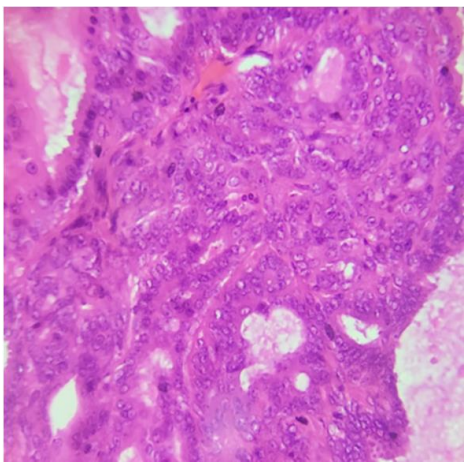

Figure 5: Tubular pattern and mucinous foci

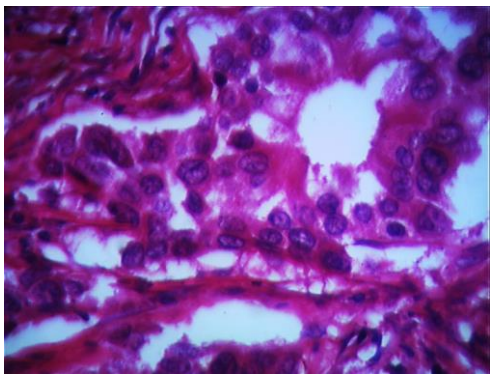

Figure 6: Vesicular and prominent nucleoli with neoplastic cells

3. Discussion

Papillary carcinoma is an uncommon form of Ductal carcinoma of breast with an infiltrative papillary growth pattern. Neoplastic cells grow on an arborizing fibrovascular skeleton. Its Incidence is 0.5-0.7 percent. Most common in postmenopausal women of more than 50 years of age. Most commonly occurs in Central part of the breast with nipple discharge and bleeding.[11] It has a slow growth rate. Lymph node metastasis is the rule. It has high local recurrence.

The different patterns seen are Cribriform, Tubular and Mucinous foci. High grade papillary carcinoma shows cells with high nuclear to cytoplasmic ratio with pleomorphic and hyper chromatic nuclei. Mitotic figures vary in number and more numerous in carcinomas with severe cytologic atypia.[12] The following morphologic features characterize the histopathology of conventional papillary carcinomas and provide the basis for distinguishing papillary carcinomas from papillomas. Malignant ductal cells comprise the entire epithelial population of most papillary carcinomas, whereas benign luminal and myoepithelial cells make up the epithelium of papillomas.[13] A mixture of benign and malignant cells may be present when a carcinoma involves a papilloma. The epithelial cells in papillary carcinomas grow in a disorderly fashion manifest by the loss of nuclear polarity with respect to the basement membrane and uneven stratification of the cells. The absence of myoepithelial layer differentiates carcinomas from benign papillary lesions.[14] Fibrosis, hemorrhage and chronic inflammation are also seen. Identification of epithelial clusters in these areas can be difficult. Groups of neoplastic cells that are arranged parallel to the layer of reactive stroma at the border of papillary carcinoma represents distorted preexisting glands. Molecular analysis of DNA shows Loss of heterozygosity (LOH) at 16q23, mutations in PIK3CA gene. The overall prognosis of invasive papillary carcinoma is better than other breast malignancies such as infiltrating ductal carcinomas and it is ER, PR positive.[15] Ten years survival rate is 85 Percent.

PAS: Positive; **IHC:** ER & PR- Positive; Her 2/neu-Negative

4. Conclusion

This case is presented here for its rarity in its incidence. It commonly presents in a postmenopausal women beyond 50 years of age. Here it occurred in a younger women of 45 years.

5. Source of Funding

None.

6. Conflict of Interest

None.

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