



Case Report

Encapsulated papillary carcinoma of breast with in-situ component: A rare presentation

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ABSTRACT

Papillary lesions of the breast include a broad spectrum of entities, many of which pose a diagnostic challenge for the pathologist. Papillary Carcinoma is a rare malignancy of the breast accounting for 0.5–2% of all breast carcinomas. It occurs more frequently in post-menopausal women over the age of 60. The most common presentation is a painless, mobile mass with bloody nipple discharge. Mammography typically shows a large circumscribed mass with an irregular or nodular contour. We present a case of a 42-year-old-woman with a painless lump in the right breast for 11 months, diagnosed as encapsulated papillary carcinoma of breast with in-situ component.

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1. Introduction

Papillary carcinoma is a rare malignant breast tumor, which comprises 1–2% of breast carcinomas in women.^{1,2} It is characterized by a slow growth and a better prognosis than ductal carcinomas not otherwise specified.³ Intracystic papillary carcinoma can occur in a pure form, or it may be associated with ductal carcinoma in situ or invasive carcinoma not otherwise specified.^{2,3}

Clinically, Papillary carcinoma of the breast usually appears in postmenopausal women, with an average age of onset of 69.5 years and presents with a palpable mass or as bloody nipple discharge.³ Retraction of the nipple and skin may be an associated clinical finding on physical examination.^{4,5}

2. Case Summary

A 42-year-old-woman presented to the Gynaecology clinics with a painless lump in the right breast for 11 months. She had no nipple discharge and no familial history of breast carcinoma. She was treated at a provincial hospital by

aspiration of the mass which revealed bloody fluid. Physical examination revealed a 4x3.5 cm, mobile firm mass in the upper outer quadrant of the right breast. There was no evidence of axillary lymphadenopathy. Fine needle aspirate smears were highly cellular, with sheets and papillary configurations of overlapping mildly pleomorphic epithelial cells, with minimal anisonucleosis. Mammography showed a 3.5 cm partially circumscribed, dense mass in the right upper outer quadrant, with no foci of calcification. Excisional biopsy of the breast mass was performed.

Grossly, the specimen showed a circumscribed mass measuring 4x4 cm with solid papillary masses protruding into a cystic space. Microscopic examination revealed multiple papillary fronds with thin fibrovascular cores, lined by columnar epithelial cells with marked anisonucleosis, with coarse chromatin and prominent nucleoli (Figures 1 and 2). Invasive malignant cells were also seen in the surrounding fibrous stroma with marked desmoplasia. Prominent ductal in situ component was also noted (Figure 3). Mitoses were infrequent. Immunoperoxidase stains were strongly positive for estrogen receptor (Figure 4), moderately positive for progesterone receptors and negative for Her 2/Neu biomarker. A final diagnosis was

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given as encapsulated papillary carcinoma of breast with in-situ component.

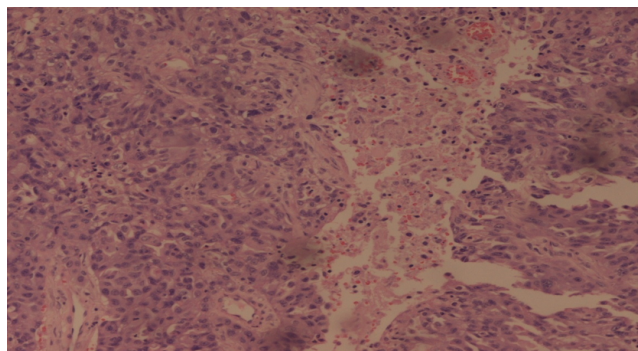


Fig. 1: Microscopic examination revealed multiple papillary fronds with thin fibrovascular cores, lined by columnar epithelial cells with markedly pleomorphic nucleus and prominent nucleoli. Hematoxylin and Eosin x 10 X.

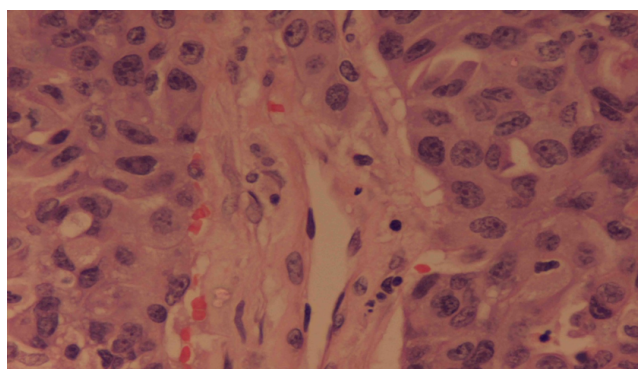


Fig. 2: Tissue section shows invasive malignant cells in the surrounding fibrous stroma with marked desmoplasia with frequent mitoses. Hematoxylin and Eosin x 40 X.

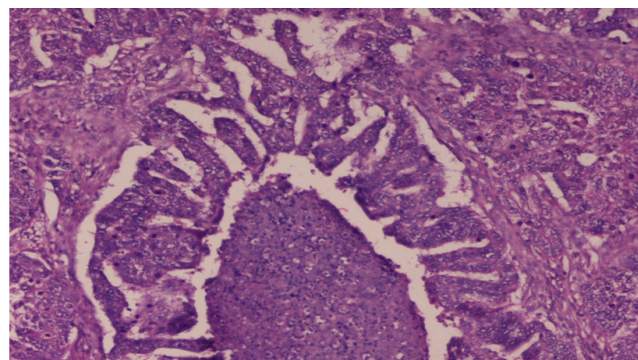


Fig. 3: Section shows a prominent ductal carcinoma in situ component. Hematoxylin and Eosin x 40 X.

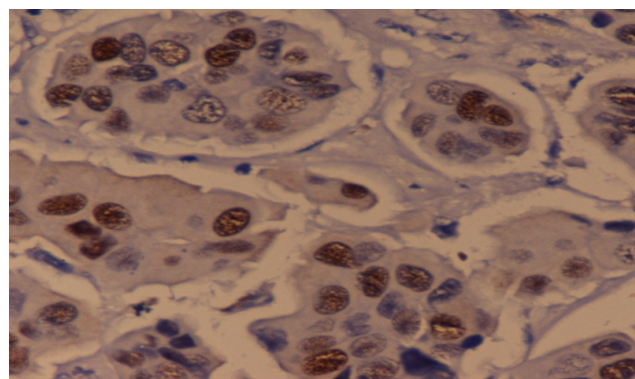


Fig. 4: Immunohistochemistry showed strong nuclear positivity for estrogen receptors. IHC Estrogen Receptor x 40X.

3. Discussion

Papillary carcinoma of the breast is a rare malignant tumour, constituting 1-2% of all breast carcinomas in women.¹ Papillary carcinoma generally occurs in older women aged 63-67 years.² Patients with papillary carcinoma may present with a palpable mass or bloody nipple discharge. The tumour may also be asymptomatic and identified at screening mammography. The tumour has a slow growth and a better prognosis than other forms of ductal carcinomas, with infrequent axillary nodal metastases.^{6,7}

On ultrasound, the tumour appears as a solid hypoechoic mass, or a complex mass with cystic and nodular solid components with posterior acoustic enhancement.^{2,3} On mammography, papillary carcinoma is seen as a round, oval or lobulated well circumscribed mass.⁷ Mammographically, differentiation between invasive and papillary ductal carcinoma in-situ is difficult. Papillary ductal carcinoma in-situ may show foci of calcification or circumscribed masses of tumor.⁸⁻¹⁰ In-situ foci is difficult to diagnose by fine needle aspiration (FNA) or core biopsy because the centre of the lesion is often targeted, and invasion is often found at the periphery of the tumour.

Fine-needle aspiration (FNA) of papillary carcinoma is highly cellular with complex papillae of tumor cells with stratification, nuclear hyperchromasia and foamy macrophages.⁶ It is difficult to distinguish benign versus malignant papillary breast disease on FNA because there are no reliable and consistent features.⁶ The absence of a myoepithelial layer may help distinguish carcinoma from benign papillary lesion on cytology. Therefore, excisional biopsy is often performed when papillary carcinoma is suspected.

Gross appearance of papillary carcinoma may show a cyst surrounded by a fibrous wall containing dark brown blood clots.⁵ Pathologically, papillary carcinoma has a frond-forming growth pattern supported by a fibrovascular stalk.¹ If a cystic component is present, the tumour is

described as an intracystic papillary carcinoma.² Invasive papillary carcinoma occurs infrequently, often as only a small focus of stromal invasion and is almost always detected at the periphery of the lesion.^{2,3} Features that may suggest a diagnosis of papillary carcinoma include a monomorphic cell population with mild to moderate pleomorphism, increased mitotic activity and increased number of single cells with intact cytoplasm.^{9,11} The differential diagnosis is made with colloid carcinoma on mammography and with benign solitary intraductal papilloma and multiple intraductal papilloma on histology.¹²

Definitive therapy of papillary carcinoma is tumorectomy to total mastectomy, with or without axillary dissection with adjuvant radiotherapy and chemotherapy. Because papillary carcinoma has an excellent prognosis, the tumour may be managed by mastectomy or segmental resection.^{7,11} Our case underwent simple mastectomy with axillary node dissection and revealed no nodal metastasis in the 15 dissected lymph nodes. The prognosis for papillary carcinoma is excellent, except for the lesions with a greater degree of nuclear atypia.¹²

4. Source of Funding

None.

5. Conflict of Interest

None.

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