

Case Report

Invasive Papillary Carcinoma of Male Breast: A Rare Case Report

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Abstract

Introduction: Breast carcinoma in male is rare accounting less than 1% of all malignancies in men. Papillary carcinoma of breast is uncommon but carries a good prognosis. So an accurate diagnosis is essential.

Presentation of case: We report a case of this rare histological type of breast cancer in 48-year-old male patient who presented with a large mass in the right breast. Histological examination showed features of intracystic invasive papillary carcinoma.

Conclusion: The intracystic variant of papillary carcinoma is extremely unusual and may be missed on cytological examination. A thorough sampling is essential for an accurate diagnosis of invasion in these cases.

Keywords: papillary carcinoma; breast; male

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Consent: We confirm that the patient has given the informed consent for the casereport to be published.

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Introduction

Breast carcinoma in male is rare. It accounts for 0.6% of all breast carcinomas and less than 1% of all malignancies in men[1]. Overall survival rates for men with breast carcinoma, stratified by stage of disease, are lower than for women with breast carcinoma. However, these differences are most likely due to the higher age distribution of male patients and the lower life expectancy of men in the general population[1]. Papillary carcinoma is one subtype of breast carcinoma which may be intracystic or intraductal and may be invasive or non-invasive. Intracystic papillary carcinoma (IPC) in men is an extremely rare condition and represents only 5–7.5% of all male breast carcinomas[2]. Clinical and radiological manifestations of intracystic papillary carcinomas are not specific. Pathologic diagnosis can be difficult at classical histological examination. Adjuvant therapy is still controversial and prognosis is excellent with 10-year survival rate for IPC is 100%; the recurrence-free survival rate is 96% and 77% at 2 and 10 years, respectively [3]. Here we report a case of this rare histological type of breast cancer in a 48-year-old male patient with review of literature.



Figure 1 Specimen of radical mastectomy showing grayish white solid mass, on cut section having small papillary projections.

Case presentation

A 48 years old, non-diabetic, hypertensive male patient presented with a swelling in the right breast. The swelling was pea sized 9 months ago. Then the swelling gradually increased in size and it was about 8.0 cm×6.0 cm×6.0cm in measurement at the time of presentation. There was history of watery discharge from the nipple of the affected breast with no retraction of nipple. It was not associated with pain, fever or weight loss. There was no positive family history. Fine needle aspiration was done from the lesion and ductal carcinoma of breast was detected. Then the patient received 4 cycles of chemotherapy and the size of the mass decreased. Then right sided radical mastectomy along with axillary clearance was done. On gross examination, the breast tissue was 10 cm×7.0 cm×2.5 cm in size and the mass proper, measuring 7.0 cm×4.0 cm, was attached with skin and nipple though there were no nipple retraction or skin changes (Figure 1). Grossly no margin was involved. Five lymph nodes were found.

On histopathological examination, we found atypical epithelial cells arranged in papillary, cribriform as well as in solid patterns within a cyst like structure made by thin fibrous strands. Papillary fronds formed by tall columnar cells having uneven stratification and loss of polarity and other atypical cells were pleomorphic having hyperchromatic nucleus and loss of polarity. The tumor cells invaded the stroma and deeper muscles and there were occasional mitoses (Figure 2, 3).

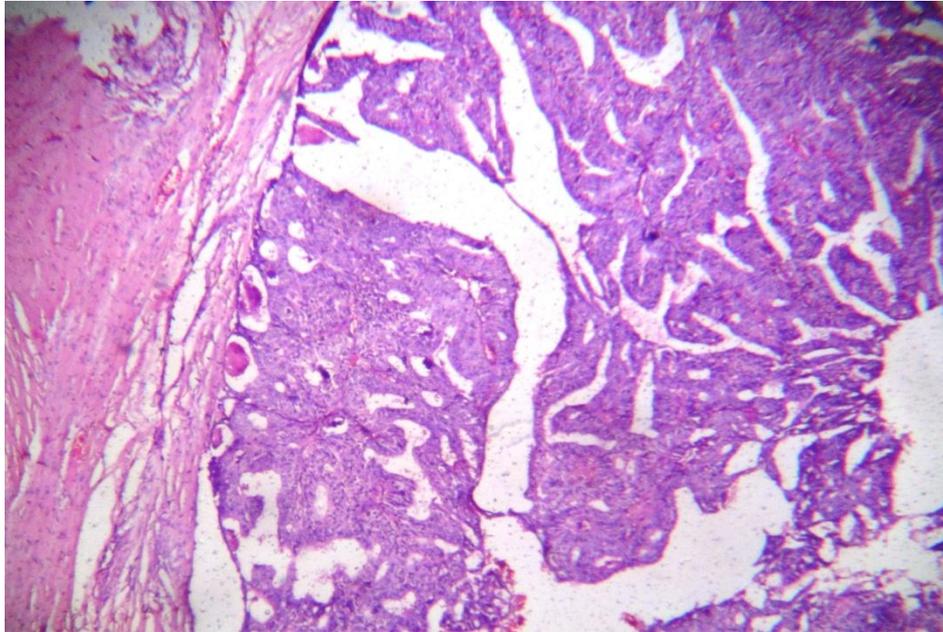


Figure 2 Papillary arrangement of the neoplastic cells within a cyst like space (Hematoxyline and Eosin, 40X)

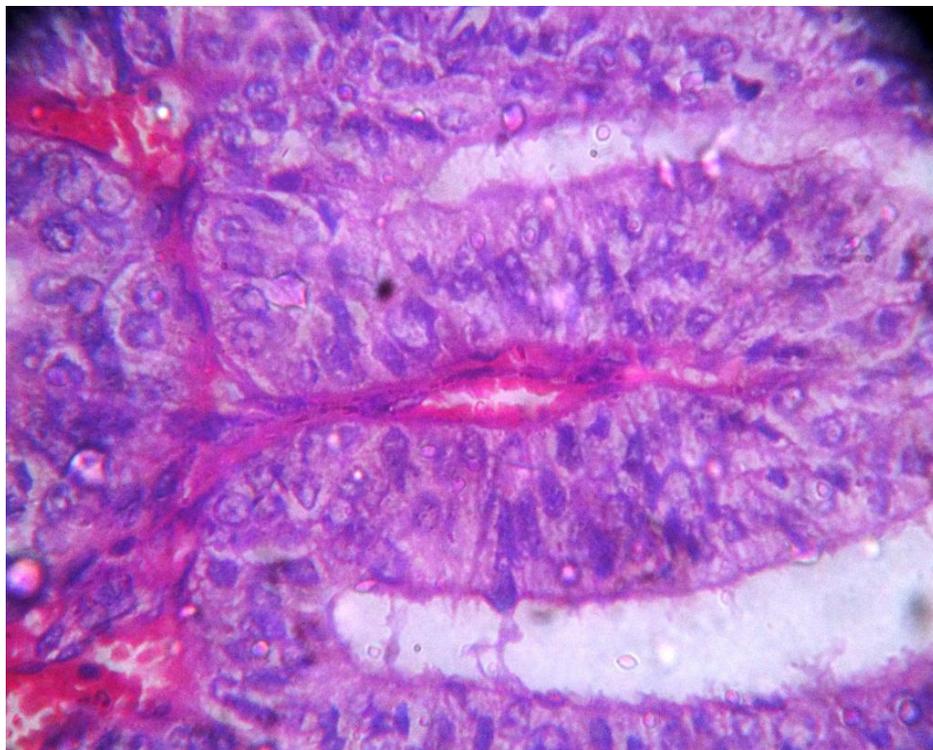


Figure 3 Papillae lined by atypical columnar cells with stratification and having thin fibrovascular core (Hematoxyline and Eosin, 400X).

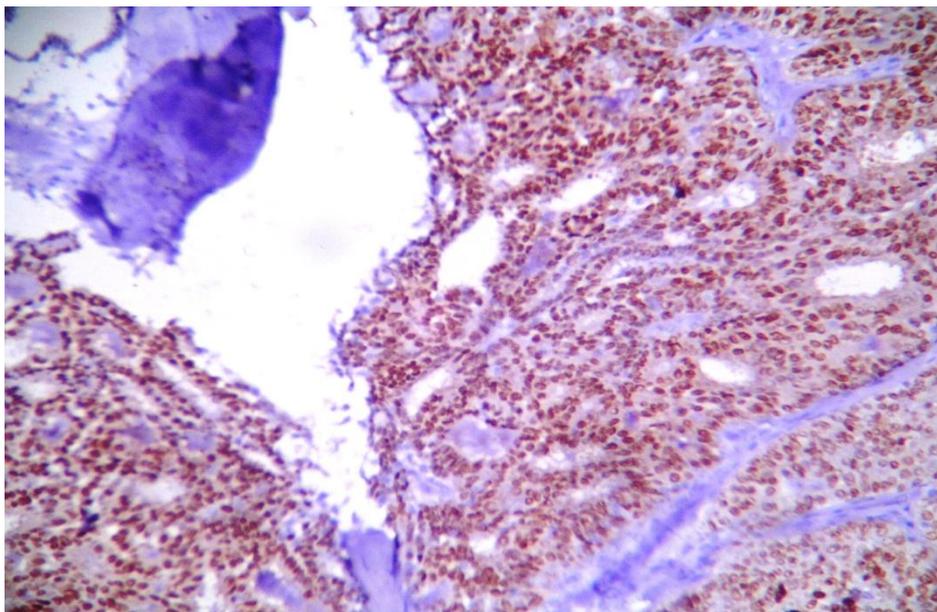


Figure 4 Immunohistochemistry showing ER positivity.

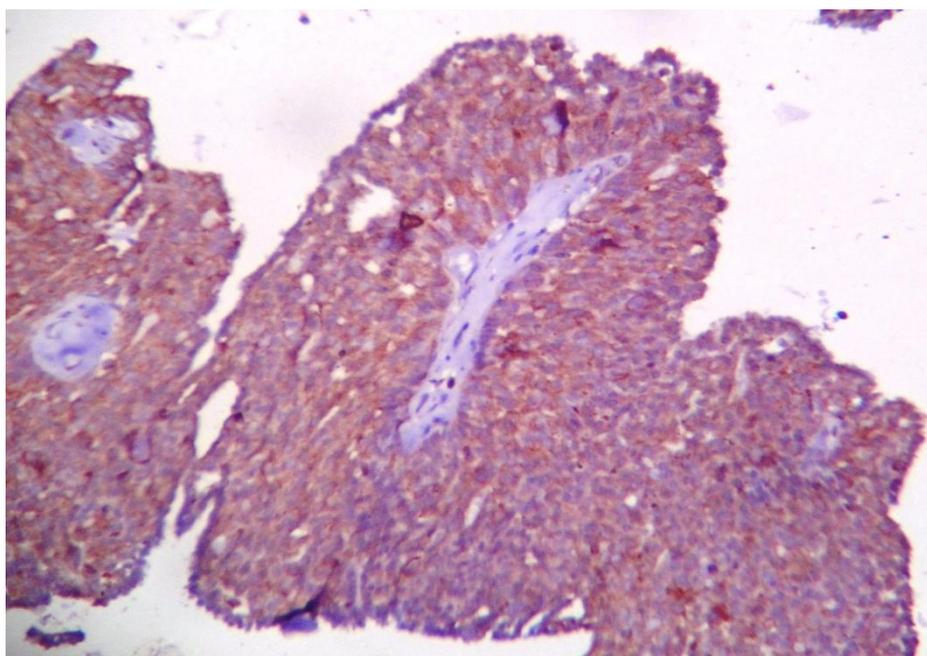


Figure 5 Immunohistochemistry showing PR positivity.

On immunohistochemical study the tumor cells were ER and PR positive and HER-2/NEU negative (Figure 4, 5).

Discussion

Intracystic breast carcinoma is rare in females and exceedingly rare in males with a handful of case reports in the literature. The Intracystic Papillary Carcinoma (IPC) is more frequently found among

postmenopausal woman with an average age between 55 to 67 years [4]. IPC in man is usually reported among those of an older age group (67 to 84 years)[2]; However, in our patient, IPC developed significantly in younger age. The clinical presentation is similar in both male and female.

Papillary carcinoma is of two types: intracystic or intraductal and again it may be invasive or non invasive. The traditional term "intracystic papillary carcinoma"(IPC) generally refers to a localized lesion, in situ in a cystically dilated duct. Histologically, IPC is divided into 3 subgroups. Pure IPC, IPC associated with DCIS, and IPC associated with invasive carcinoma. Given the often marked stromal response surrounding these lesions, the distinction between in situ and invasive papillary carcinoma can be very difficult to make. Extension of tumor into breast parenchyma and fat beyond the zone of reactive changes is the most reliable histological criterion for invasion. This case was diagnosed as IPC associated with invasive carcinoma.

In papillary carcinomas, the fibrovascular stroma is less conspicuous due to the pronounced epithelial component; epithelial cells proliferate in a disorderly fashion and have hyperchromatic nuclei, high nucleo-cytoplasmic ratio and variable number of mitotic figures [5]. The majority of patients with IPC have associated ductal carcinoma in-situ (DCIS), or invasive carcinoma, or both and the treatment strategies differ on the basis of this associated pathology.

The lack of an intact basal myoepithelial cell layer can be identified by calponin, smooth-muscle myosin heavy chain (SMM-HC) cytoplasmic stain, and by p63 nuclear stains. This "gold standard" method has a relatively high sensitivity and denotes the invasiveness of the tumour cells in malignant papillary breast lesions[6]. Though the presence of myoepithelial cells suggests a benign neoplasm, occasional myoepithelial cells may be seen in papillary carcinoma and do not negate the diagnosis[7].

Triple assessment is essential for diagnosis of IPC in male and it should be done very carefully. In mammography IPC presents as a well-defined area but irregular margin suggests invasion[8]. Ultrasonography typically reveals a hypoechoic area (representing the cyst) with soft tissue echoes projecting from wall of the cyst (intracystic tumour) [9]. Though fine needle aspiration and core biopsies are done in these cases, false negativity is very high[10]. Therefore excisional biopsy is suggested in these cases. It allows the pathologist to perform histopathological classification with invasion status and immunohistochemical study.

Though there is no definite guideline for management of IPC in male, Grabowski et al. suggested that surgery is the mainstay of treatment, which can be either conservation or mastectomy. Since the prognosis of IPC is excellent with low locoregional and distant recurrence rates, mastectomy is usually not necessary, unless it is technically unavoidable[11]. There is a controversy regarding axillary lymph node clearance. Sentinel node biopsy may be an excellent alternative to full axillary dissection in patients with IPC and associated invasive carcinoma [3].

There is no clear indication in adjuvant chemotherapy even in hormone responsive cases. The addition of hormonal treatment does not appear to have impacted the outcome [11]. Recently Fayanju et al. reviewed that patients having DCIS or microinvasive disease in association with IPC were more likely to receive radiotherapy and tamoxifen[12].

Conclusion

Intracystic papillary carcinoma is a very rare entity in male but it has favorable prognosis. Clinical and radiological features are not specific and there is a chance of underdiagnosis in aspiration cytology. Therefore correct histopathological diagnosis and invasion status is required. The mainstay of treatment is surgical resection, with adjuvant therapy if associated to DCIS or invasive carcinoma.

Consent

Consent was taken from the patient for publication of this case report.

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References

1. Anderson WF, Devesa SS. In situ male breast carcinoma in the Surveillance, Epidemiology, and End Results database of the National Cancer Institute. *Cancer*. 2005, 104:1733-1741.
2. Sinha S, Hughes RG, Ryley NG. Papillary carcinoma in a male breast cyst: a diagnostic challenge. *Ann R Coll of Surg Engl*. 2006, 88(5): W3-W5
3. Solorzano CC, Middleton LP, Hunt KK, et al. Treatment and outcome of patients with intracystic papillary carcinoma of the breast. *Am J Surg*. 2002, 184(4): 364-368pp. 364-368
4. Salem A, Mrad K, Driss M, Hamza R, Mnif N. Intracystic papillary carcinoma of the breast. *J Radiol*. 2009, 90(4): 515-518
5. Kraus FT, Neubecker RD. The differential diagnosis of papillary tumors of the breast. *Cancer*. 1962, 15: 444-455
6. Hill CB, Yeh IT. Myoepithelial cell staining patterns of papillary breast lesions: from intraductal papillomas to invasive papillary carcinomas. *Am J Clin Pathol*. 2005, 123(1): 36-44
7. Papotti M, Eusebi V, Gugliotta P, Bussolati G. Immunohistochemical analysis of benign and malignant papillary lesions of the breast. *Am J Surg Pathol*. 1983, 7: 451-61
8. Estabrook A, Asch T, Gump F, Kister SJ, Geller P. Mammographic features of intracystic papillary lesions. *Surg Gynecol Obstet*. 1990, 170(2): 113-116
9. Jones BM, Bradbeer JW. The presentation and progress of macroscopic breast cysts. *Br J Surg*. 1980, 67(9): 669-671
10. Levine PH, Waisman J, Yang GCH. Aspiration cytology of cystic carcinoma of the breast. *Diagnostic Cytopathol*. 2003, 28(1): 39-44
11. Grabowski J, Salzstein SL, Sadler GR, Blair S. Intracystic papillary carcinoma: a review of 917 cases. *Cancer*. 2008, 113: 916-920
12. Fayanju OM, Ritter J, Gillanders WE, et al. Therapeutic management of intracystic papillary carcinoma of the breast: the roles of radiation and endocrine therapy. *Am J Surg*. 2007, 194: 497-500