

## Cytological diagnosis of ductal papilloma: an unusual entity in male breast

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### Abstract

Cytological interpretation of papillary lesions of the breast remains a challenging task due to its overlapping features of benign, atypical and malignant subtypes. Papillomas of the breast are relatively rare benign lesions with an incidence of approximately 2-3% in females. This is extremely rare and benign disease in the male breast. We report a case of 50-year-old male patient presented with circumscribed nodular mass in his left breast. FNAC was performed and diagnosed as ductal papilloma. In contrast to male breast, benign and malignant lesions are relatively common in females. Such findings are rare in male patients. The goal of the report is to emphasize the role of cytology (fine needle aspiration) in early and accurate diagnosis of papillary lesion of breast in spite of its wide morphological spectrum with overlapping features.

**Keywords:** Ductal papilloma, Fine needle aspiration cytology, Breast.

### Introduction

As compared to breast lesions in females, in which benign and malignant lesions are relatively common, the male breast is rarely affected. Male patients can present with breast abnormalities like gynaecomastia, fibroadenoma and lipoma<sup>(1)</sup>. The papillary lesion comprising benign (papilloma), atypical and malignant (papillary carcinoma) are rare entities in the male breast<sup>(1)</sup>.

Cytological diagnosis of papillary lesions of breast remains a challenging task to cytologists due to its overlapping and wide morphological features of benign and malignant entities<sup>(2)</sup>. Papillary lesions have the common characteristics features is a papillary, arborescent epithelial proliferation supported by fibrovascular stalks with or without an infiltrating myoepithelial cell layer<sup>(3)</sup>.

Ductal papilloma is an extremely rare benign disease of the male breast. We discussed the case of 50-year-old male patient with ductal papilloma of left breast in view of diagnosis on aspiration cytology.

### Case History

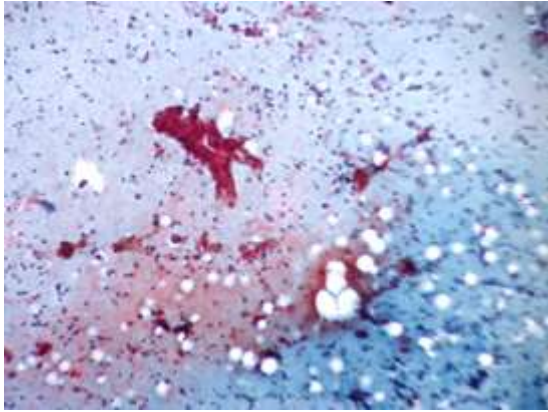
A 50-year-old male patient presented to surgical OPD of our hospital with a round, painless palpable mass since 9 months. On local examination, a well circumscribed, nodular mass with surface ulceration was noted in periareolar region of left breast measuring 4x3 cm (Fig. 1). The mass is mildly painful on palpation.

There was no associated nipple discharge or changes in overlying skin. The past, personal and family or drug history was not significant. Axillary lymphadenopathy was not present. Ultrasonography of the Left breast showed a solitary, circumscribed periareolar solid mass with dilated retroareolar ducts with BIRADS category 3, probably benign lesion.

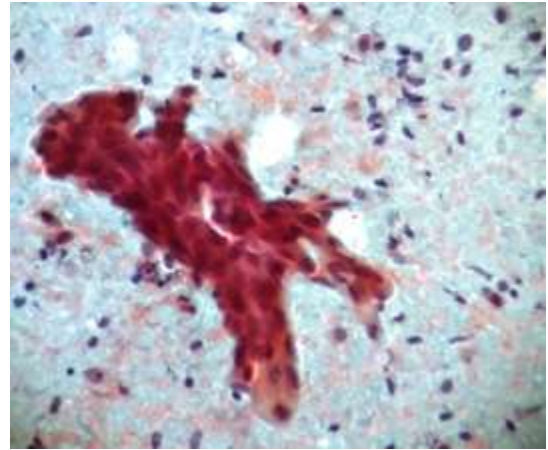
Clinically benign breast lesion was suspected and patient was sent for fine needle aspiration cytology (FNAC). The FNAC of the left breast lump was done by 23 gauge needle with 10 cc syringe; hemorrhagic aspirate was obtained and studied by Pap stain. The FNA smears showed high cellularity comprising cohesive clusters and many singly scattered cells (Fig. 2). Numerous papillary fragments with finger like branching were also seen along with scattered myoepithelial cells. (Fig. 3). The papillae composed of round to oval cells with moderate amount of basophilic cytoplasm, hyperchromatic nuclei with occasional prominent nucleoli (Fig 4, 5). Background shows numerous slightly scattered bare round to spindle shaped myoepithelial cells with occasional foamy histiocytes. The cytological diagnosis of papillary lesion, suggestive of ductal papilloma was rendered. Afterwards we lost the follow up and not able to receive the incisional, trucut biopsy or excised lump.



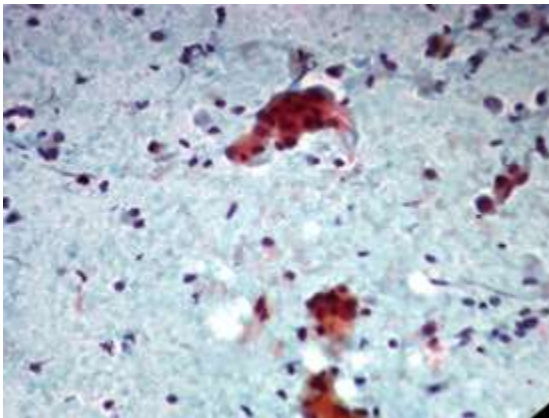
**Fig. 1: Gross appearance of subareolar circumscribed lump with surface ulceration in left breast**



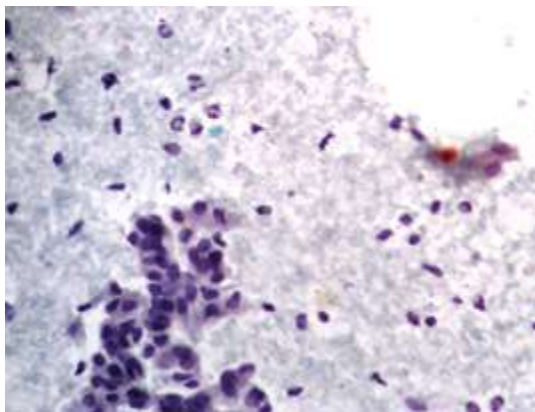
**Fig. 2:** Smears showed cohesive clusters, complex papillae and many singly scattered cells (Pap stain, x100)



**Fig 5:** Papillae composed of round to oval cells with moderate amount of basophilic cytoplasm with hyperchromatic nuclei (Pap stain, x400)



**Fig. 3:** Microphotograph showing numerous papillary fragments with finger like branching with scattered bipolar cells (Pap stain, x400)



**Fig. 4:** Papillae composed of round to oval cells with moderate amount of basophilic cytoplasm with hyperchromatic nuclei (Pap stain, x400)

### Discussion

Papillary neoplasm, including benign papilloma and invasive as well as non-invasive papillary carcinomas are unusual to rare lesions of the breast<sup>(3)</sup>. Precise classification of these lesions of breast on fine needle aspiration remains a challenging area in cytology<sup>(4)</sup>.

Distinction of these subtypes of papillary neoplasm is not always an easy task<sup>(4)</sup>. Cytologically, the complete absence of myoepithelial cell layer in the background of papillae indicates a carcinoma, however the presence of myoepithelial cells does not excludes the diagnosis of intraductal papillary carcinoma<sup>(5)</sup>. Papillomas usually yield a highly cellular smear containing clusters of ductal cells, often with a papillary configuration with scattered bipolar cells that represents myoepithelial cells<sup>(4)</sup>.

The accurate diagnosis of papillary lesions by FNAC is fraught with difficulties largely because of the overlapping cytological features of benign and malignant lesions between the papillary lesions and other entities with papillary component as fibrocystic disease, fibroadenoma, invasive ductal carcinoma and Phyllodes tumour<sup>(6)</sup>. But distinctions between these lesions are well appreciated on cytology by nuclear features, presence or absence of base nuclei, architecture and the background. Regarding treatment of these lesions, local excision should be curative with overall good prognosis.

FNAC is an excellent, cost effective diagnostic modality and OPD based safe procedure that is superior to physical examination and mammography for diagnosing breast lesions.<sup>(7,8)</sup> FNAC of breast gained popularity due to its fast and easy approach, inexpensive with little complications. So FNAC has a valuable tool in pre-operative assessment of breast masses with high accuracy, sensitivity and specificity.<sup>(9)</sup> To differentiate benign from malignant lesions is one of the major goals of FNAC.<sup>(9)</sup>

Regarding differential diagnosis of papillary lesions of breast with nodular mass, epithelial – myoepithelial lesions are main differentials. Epithelial-myoeplithelial lesions (adenoepithelial lesions) of the breast comprise a heterogeneous group of entities, some of which are rare. Adenosis, adenomyoepithelioma and metaplastic carcinoma are mainly included in this rare group in females of old age group<sup>(10)</sup>.

Papillary adenoma of the nipple (Florid papillomatosis, erosive papillomatosis) relatively uncommon benign condition can be closed differential in females of 4<sup>th</sup> decades. It can also occur in males. On cytology, papillary projections with duct like structures supported by fibroblast are noted. The treatment is surgical wide excision<sup>(11)</sup>.

Cytological and clinical knowledge can easily diagnose these entities from each other. Hence use of FNAC may reduce the cost of diagnosis by 90% compared to excision biopsy and hospitalization.<sup>(2)</sup> The limitation of this case study was, we haven't received the trucut biopsy or excisional mass in view of lost the follow up of the patient due to his field work.

The goal of this case report to highlight the utility of FNAC as a first line investigation in borderline/intermediate or grey zone category of breast diseases as papillary lesions. We report this case of ductal papilloma in view of its diagnosis on cytology and presented in male patient, which is extremely rare.

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