



# Pictorial review

## Imaging findings of breast papillary lesions



C WY Tam<sup>1</sup>, HL Chan<sup>2</sup>, A LC Chan<sup>1</sup>, YY Man<sup>2</sup>, H KY Tam<sup>2</sup>, PY Tang<sup>1</sup>

<sup>1</sup> Department of Diagnostic Radiology, Alice Ho Miu Ling Nethersole Hospital

<sup>2</sup> Department of Radiology, North District Hospital

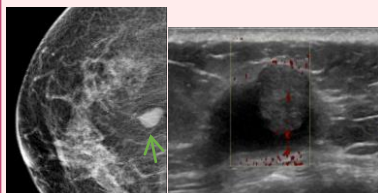
### Objectives:

Papillary lesions of breast include benign papillomas and malignant papillary lesions both of which may have imaging features which overlap with each other and pose diagnostic difficulty. The purpose of this pictorial review is to illustrate the features of histologic varieties of papillary lesions in breast using ultrasound, Doppler, ductogram, mammography, and MRI.

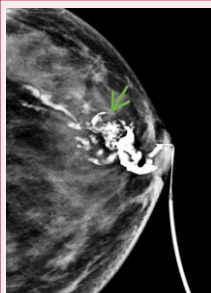
### Method:

Histologically confirmed malignant papillary neoplasms and benign papillomas over a 10-year period were reviewed with their imaging features evaluated.

### Benign intraductal papilloma

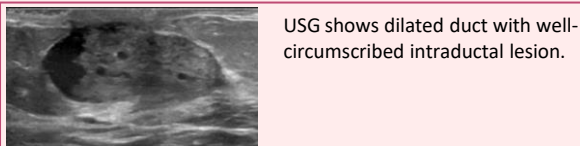
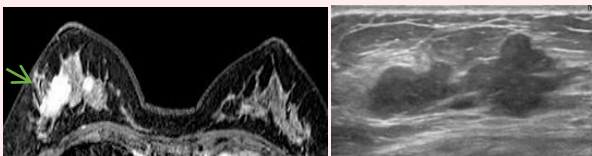


Well-circumscribed high-density mass on mammogram. Corresponding USG shows complex cystic lesion with eccentric soft tissue component.



Lobulated intraductal filling defect and dilated duct on ductogram. Corresponding USG shows focal ductal dilatation with an intraluminal mass without posterior enhancement.

Fat suppressed T1W with Gd shows well-circumscribed enhancing lesions with rapid initial enhancement and plateau phase, typical of type II kinetic curve. Corresponding USG shows lobulated hypoechoic lesion.

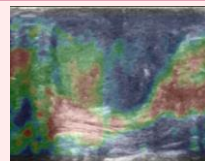
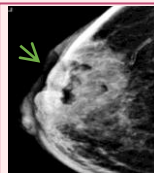


USG shows dilated duct with well-circumscribed intraductal lesion.

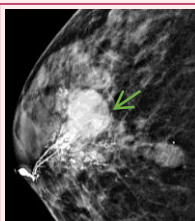
### Conclusion:

Differentiating between benign and malignant papillary tumours are often difficult because of the broad-spectrum disease with varied morphological features. However, there are some certain imaging features more frequently seen in the malignant group and would raise red flags for early biopsy.

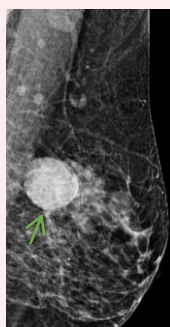
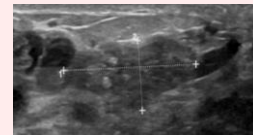
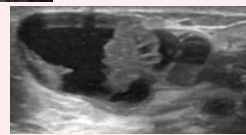
### Malignant papillary neoplasms



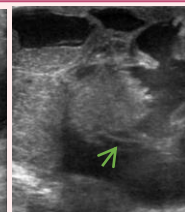
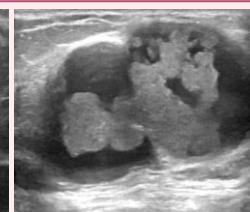
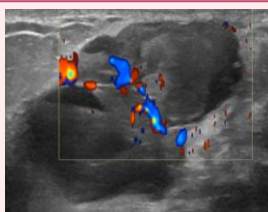
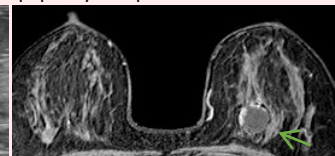
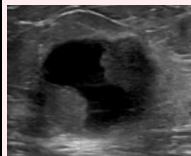
**Ill-marginated** dense ulcerated cavitary infiltrating mass on mammogram. USG shows solid hypoechoic mass with **increased stiffness on elastography**. Biopsy shows papillary carcinoma.



**Malignant lesions tend to be larger sized.** Opacification lactiferous duct with proximal intralesional filling from a **lobulated dense mass lesion** and splaying of ducts. USG shows a complex cystic lesion with posterior enhancement. Adjacent is a heterogenous hypoechoic lesion causing abrupt proximal ductal blockade. Biopsy shows IDC with associated encapsulated papillary carcinoma.



Mammogram shows high density mass whilst USG shows irregular contour with peripheral echogenic mural solid component. On MRI a **complex cystic lesion with irregular wall enhancement**; mural solid component shows rapid initial enhancement followed by washout, typical of type III kinetic curve. Biopsy shows invasive ductal carcinoma with papillary component.



The above lesions are biopsy-proven papillary carcinomas. More frequently they show **posterior acoustic enhancement**, lobulated complex cystic masses with hypervascular internal solid component and **internal septations**. Layering of echogenic debris within cystic content suggestive of hemorrhage.

References:  
1. O'Fluor C, Siciles EA, Mendelson EB, Morris EA, et al. ACR BI-RADS® Atlas, Breast Imaging Reporting and Data System. Reston, VA, American College of Radiology; 2013  
2. Soori MO et al. Papillary carcinoma of the breast: imaging findings. *Asp* 1995; 16(4):231-236  
3. Jagmohan P et al. Papillary lesions of the breast: imaging findings and diagnostic challenges. *Diagn Interv Radiol* 2013; 19:471-478.  
4. Sarica O et al. Magnetic resonance imaging features of papillary breast lesions. *EUR* 2014; 83(3):524-530