

The terminology and diagnostic standard  
of non-mass lesions (1)  
Ultrasound Diagnosis of Breast Lesions  
Seen as **Abnormalities of the Ducts**

Eriko Tohno <sup>1,2)</sup>, Hiroko Tsunoda <sup>2)</sup>, Tokiko Endo<sup>2)</sup>

Takanori Watanabe<sup>2)</sup>, Hidemitsu Yasuda<sup>2)</sup>

1:Institute of Clinical Medicine, University of Tsukuba

2:The committees of both the Japan Society of Ultrasound in  
Medicine(JSUM) and the Japan Association of Breast and Thyroid  
Sonology (JABTS)

# Background

- The majority of the breast lesions are seen as masses on ultrasound. But there are lesions, including some cancers, which do not show masses (non-mass lesions) .
- It is important to define these lesions and clarify their diagnostic importance.
- The committees of both the Japan Society of Ultrasonics in Medicine (JSUM) and the Japan Association of Breast and Thyroid Sonology (JABTS) are trying to establish the terminology and diagnostic standard of non-mass lesions on breast ultrasound.

# Non-mass lesions

1. Abnormalities of the ducts
2. Hypoechoic area in the mammary gland
3. Clustered microcysts
4. Architectural distortion

# Abnormalities of the ducts

## Definition

- Dilatation of the duct extending beyond the areola
- Ducts containing internal echoes
- Abnormalities of the duct wall or caliber

# Basic Rules for Diagnosis

- Lesions occupying multiple lobes are usually benign (Category 2)
  - Abnormalities localized in the solitary lobe can be malignant (C3  $\leq$ ).
- \* From now, abnormalities localized in the solitary lobe are discussed.

# Abnormalities of the ducts

1. Dilatation of the ducts **without** internal echoes.
  - If not associated with abnormal nipple discharge, usually benign (C2).
  - When associated with bloody discharge, proliferative lesions including malignancy should be accounted (C3 ≤).

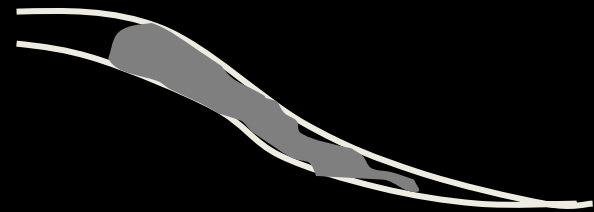
# Abnormalities of the ducts

2. Dilatation of the ducts **with** internal echoes
  - with **solid internal echoes**
  - with **floating echoes:**

# Abnormalities of the ducts

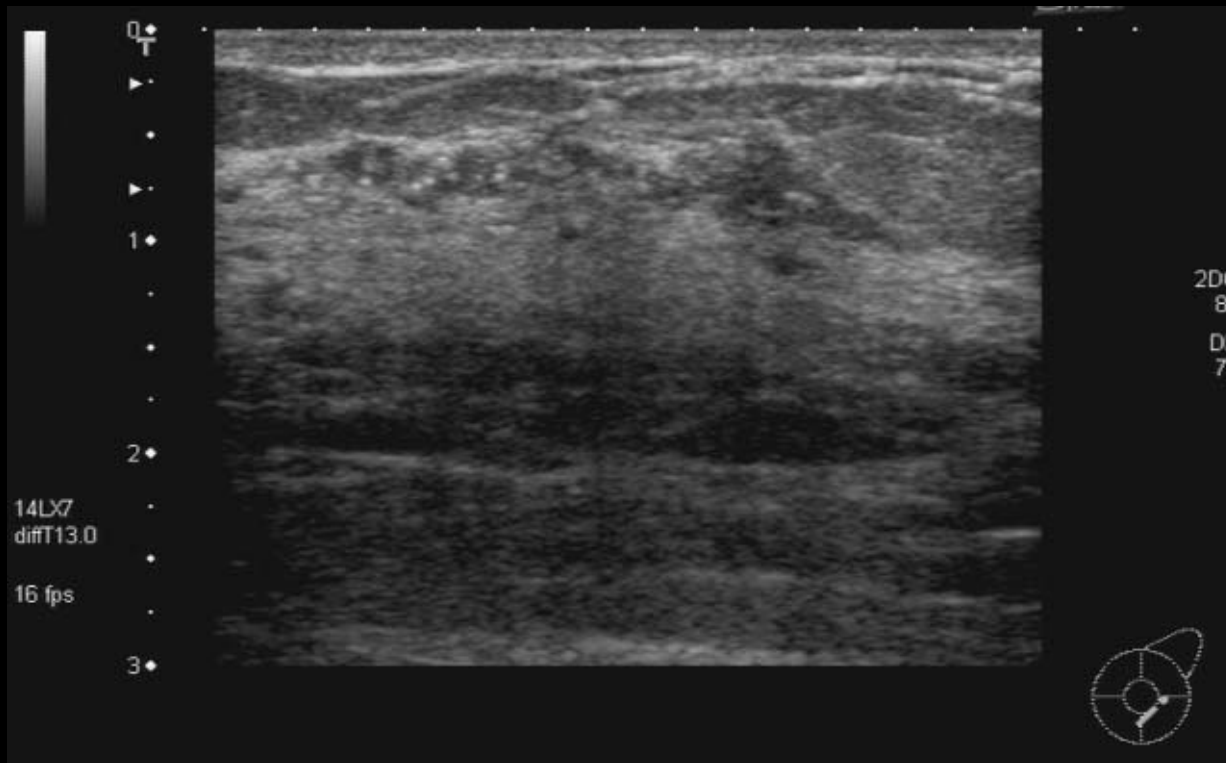
## 2. Dilatation of the ducts with internal echoes

- Unidirectional or single duct dilatation with **solid internal echoes**
  - If the solid parts protrude sharply → C3  
D.D. Intraductal papilloma > noninvasive ductal carcinoma
  - If the solid parts are broadly based → C4 or 5  
D.D. Noninvasive ductal carcinoma > intraductal papilloma
  - Hyperechoic spots possibly represent microcalcifications and/or increased vascularity suggest malignancy



Intraductal papilloma

Noninvasive ductal carcinoma  
(DCIS)



Hyperechoic spots probably represent microcalcifications  
suggest malignancy

# Abnormalities of the ducts

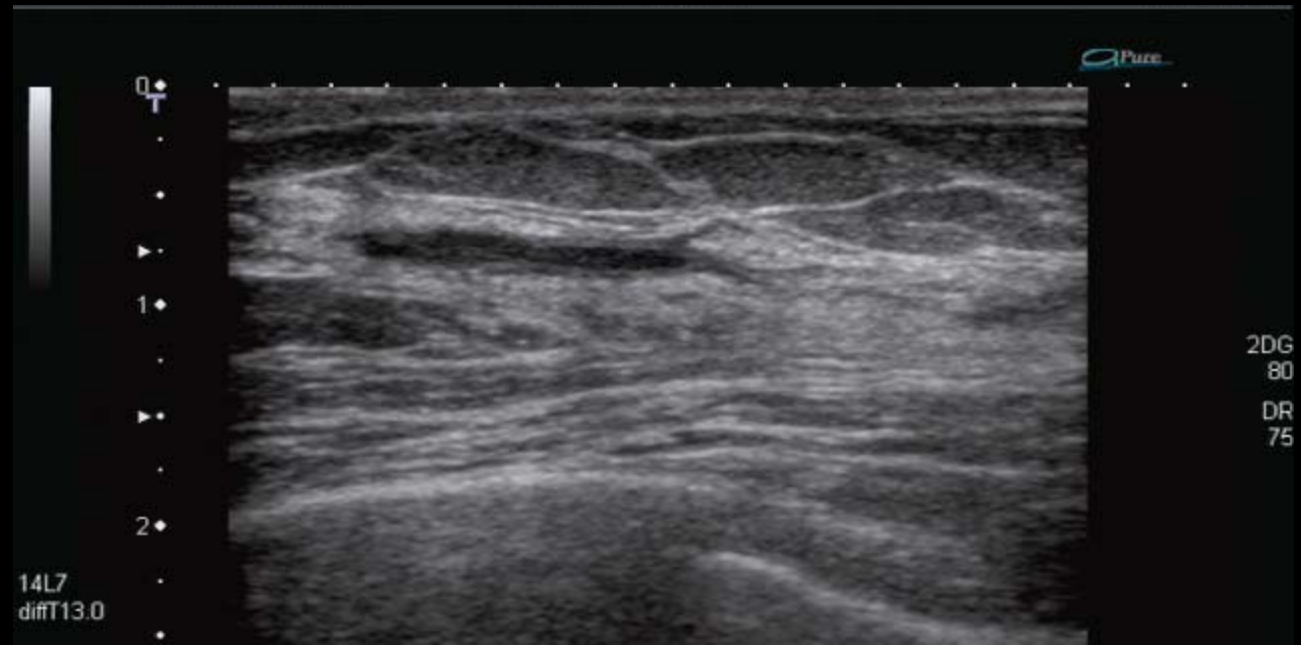
## 2. Dilatation of the ducts with internal echoes

- Unidirectional or single duct dilatation with **floating echoes**:
  - The contents may be either blood, pus or milk (milky contents are usually seen in the multiple ducts)
  - If blood
    - D.D. noninvasive ductal carcinoma, intraductal papilloma (C3 ≤)

# Abnormalities of the ducts

## 3. Abnormalities of **the duct wall**

- Thickening of the duct wall or uneven caliber  
D.D. noninvasive ductal carcinoma, chronic inflammation (C3  $\leq$ )



# Summary

	← benign	malignant→
Distribution	multiple lobe	single lobe
Internal Echoes	( - ) ~ ( + )	( + )
Shape of the solid part	sharply protrude	broad based
Distribution of the solid part	Multiple	solitary
Hyperechoic spots	( — )	( + )
Vascularity	( - ) ~ ( + )	( + + )