Breast Imaging Correlation: Practices and Techniques

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US/Digital Breast Tomosynthesis

Characterization of breast lesions: comparison of digital breast tomosynthesis and ultrasonography

Advances in Digital Breast Tomosynthesis

US/MRI Correlation

MRI-Directed US (Second Look)


Diagnostic utility of second look US for breast lesions identified at MR imaging: systematic review and meta-analysis
C Spick, PBatzer - Radiology, 2014

Tumor Size

Estimation of tumor size in breast cancer comparing clinical examination, mammography, ultrasound and MRI: correlation with the pathological analysis of the surgical specimen

Agreement between MRI and pathologic breast tumor size after neoadjuvant chemotherapy, and comparison with alternative tests: individual patient data meta-analysis
ML Marinovich, P Macaskill, L Irwig et al - BMC Cancer, 2015

Comparative accuracy of preoperative tumor size assessment on mammography, sonography, and MRI: is the accuracy affected by breast density or cancer subtype?

The impact of breast cancer biological subtyping on tumor size assessment by ultrasound and mammography - a retrospective multicenter cohort study of 6543 primary breast cancer patients
RG Stein, D Wollschläger, R Kreienberg - BMC Cancer, 2016

Neoadjuvant chemotherapy for breast cancer: functional tumor volume by MR imaging predicts recurrence-free survival - results from the ACRIN 6657/CALGB 150007 SPY I Trial
NM Hylton, CA Gatsonis, MA Rosen, CD Lehmann - Radiology, 2015

DM/DBT/US/MRI

- DBT superior to DM for evaluation of mass size
- DBT and US both superior to DM for evaluation of mass size
- US at least equal or superior to MRI in predicting tumor size, MRI overestimating and limited by background enhancement

Mammogram: Gold Standard
Screening/Diagnostic

- Mass
- Asymmetry
- Focal Asymmetry
- Architectural Distortion
- Calcifications
- Axillary Adenopathy
- Skin thickening/Over/Increased density
ADDITIONAL MAMMOGRAPHIC VIEWS

- Spot compression - questioned mass, asymmetry or distortion
- Spot magnification - calcifications
- Exaggerated CC views - to see more lateral, posterior or medial breast
- Rolled views - to better estimate position of finding in the breast if only seen on CC view
- 90 degree view - for accurate localization in case only 2D view is past interpretational threshold

MAM/US CORRELATION

Estimate
- position of finding on the mammogram
- quadrant (LQD, UQ, LOQ, UQ)
- mammographic clock position
- distance from the nipple
- size, shape, margin

POSITION

“LATERAL LIES DOWN”

SONOGRAPHIC POSITION

MEDIAL MOVES UP

Position on the mammogram
- quadrant
- B/C position
- distance from the nipple
- depth
- size, shape, margins
- surrounding tissue
28 yo woman, palpable mass

Incidental mass

Scar

Fibroadenolipoma/hamartoma

Scar
US correlate normal breast tissue

CEM

CT-sono correlation

MRI-Sonography Correlation
Day of Imaging  
Day of biopsy  

Stromal Fibrosis – Clip in the mass?

Correlation with biopsy results

BIRADS 5 - Highly Suggestive of Malignancy

DISCORDANT WITH BIRADS 5 MASS

GRANULAR CELL TUMOR

- rare (1 in 1000 in breast)
- <1% malignant
- tumor originating from Schwann cells of peripheral nerves
- painless round mass, can look like Ca on mammogram

Granular cell tumor: a case report

Maria Castillo Lara, Antonia Martínez Herrera, Rafael Torrejón Cardoso, and Daniel Maria Lubián López