US/DIGITAL BREAST TOMOSYNTHESIS

Advances in Digital Breast Tomosynthesis

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

US/MRI CORRELATION

MR DIRECTED US (SECOND LOOK)

MR-Directed (“Second Look”) Ultrasound Examination for Breast Lesions Detected Initially on MRI: MRI and sonographic findings
Diagnostic utility of second-look US for breast lesions identified at MR imaging: systematic review and meta-analysis

Accuracy of ultrasonography and mammography in predicting pathological response after neoadjuvant chemotherapy for breast cancer
Hsu, Y, Daffos, M. Scheinin. The American Journal of Surgery 2013

TUMOR SIZE

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

Agreement between MRI and pathological breast tumor size after neoadjuvant chemotherapy, and comparison with alternative tests: individual patient data meta-analysis
ML Marinovich, PBatzer, 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 Lehmam - Radiology, 2015

POST NEOADJUVANT CHEMOTHERAPY

Accurately Estimates/Overestimates/Underestimates tumor size
MRI: 54%/28%/18%
US: 63%/20%/17%

Digital mammography with tomosynthesis: breast density, ultrasound and MRI in predicting tumor size: A cross-sectional study
Diagnostic utility of second-look US in breast lesions identified at MRI using ultrasonography versus mammography

ABNORMAL MAMMOGRAM

• Mass
• Asymmetry
• Focal Asymmetry
• Architectural Distortion
• Calcifications
• Axillary Adenopathy

ADDITIONAL MAMMOGRAPHIC VIEWS

• Spot-compression questioned mass, asymmetry or distortion
• Spot magnification – calcifications
• Exaggerated CC view – to see more lateral posterior breast
• Rolled views – to better estimate position of finding in the breast if only seen on CC view
• 90 Lateral view – for accurate localization to use with CC view to guide targeted ultrasound exam

LATERAL LIES DOWN

MAMMOGRAPHY POSITION

Estimate
• position of finding on the mammogram
• quadrant (UOQ, UIQ, LOQ, LIQ)
• mammographic clock position
• distance from the nipple
• size, shape, margins

SONOGRAPHIC POSITION

Position on the mammogram
• quadrant
• cr/lt position
• distance from the nipple
• depth
• size, shape, margins
• surrounding tissue
US correlate normal breast tissue

MRI - sono correlation

CT - sono correlation

MRI - sono correlation

MRI - sono correlation
pre-neoadjuvant chemo

post-neoadjuvant chemo

mammo-ultrasound correlation

metastatic IDC

pre-neoadjuvant chemo

post-neoadjuvant chemo

mammo-ultrasound correlation

metastatic IDC

MRI-second look ultrasound

IDC

Day of Biopsy

dip in the mass?