Evaluating the Axilla and Other Nodal Areas with Non-Invasive Techniques

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PREOPERATIVE STAGING OF BREAST CANCER

- Local extent of the cancer
- Multifocality
- Multicentricity
- Contralateral breast
- Regional lymph node extension
- Systemic Extension
ULTRASOUND EVALUATION OF REGIONAL NODES IN BREAST CANCER

- Axillary nodes
- Internal mammary nodes
- Supra and infraclavicular and low cervical
Variability of breast imager’s approach to the axilla in breast cancer

- Will not look
- Ultrasound evaluation
- Information from MRI
- +/- Needle biopsy
Pathologic distribution of cancer cells in metastatic lymph nodes

- Isolated tumor cells
- Islands of metastatic cancer
- Focal mass
- Total replacement
Sonographic Criteria of Indeterminate/Suspicious/Metastatic Nodes

- Size
- Thickening of cortex (diffuse or eccentric)
- Lobulation of cortex
- Rounded or vertically oriented lymph node
- Complete disappearance of the hilum

Don’t forget that you can compare to the other side!
BENIGN CAUSES
AXILLARY ADENOPATHY

- Normal
- Hyperplasia
- Recent Biopsy (>3 weeks)
- HIV
- Collagen Vascular Diseases
- Dermatopathic
- Silicone adenopathy
- Toxoplasmosis
Metastatic / Reactive Nodes
Accuracy of Sonography of Axillary Lymph Nodes in Breast Cancer

**SENSITIVITY**

Palpable and Non-palpable
- Size 66-77%
- Morphology 55-92%
Non-palpable Only
- Size 49-87%
- Morphology 26-76%
Ultrasound Guided Biopsy
- 43-95%

**SPECIFICITY**

Palpable and Non-palpable
- Size 44-98%
- Morphology 80-97%
Non-palpable Only
- Size 55-97%
- Morphology 88-98%
Ultrasound Guided Biopsy
- 97-100%

AJR 2006, 186:1342-1348
In total 22/37 had metastatic disease on final histology
  64% had grade 3 mean size 5cm with lymphatic invasion in 50%, positive FNA 68%
In total 15/37 had no lymph node metastases
  87% had grade 2 mean size 3.2cm with lymphatic invasion in 8%

FNA Axillary Nodes
The Johns Hopkins Experience

69 Axillae

- 23 T1
- 32 T2
- 41 N0
- 22 N1

FNA +
41 (59%)
Neoadj. Chemo. 56%

FNA -
28
SN +7 (25%)

- Sensitivity 82%  PPV 100%
- Specificity 100%  NPV 70%
Technical aspects of FNA of lymph nodes

- Needle 23-20g
- Ventral, caudal, cephalad and dorsal sampling
- Avoid the hilum
- Three passes of same node or one pass of three separate nodes
- 30 to 40 excursions-stop when blood in hub of needle

Learn to smear slides- Avoid dryness
Challenges to successful FNA of lymph nodes in breast cancer

• Skills of axillary ultrasound performance and interpretation
• Skills of performance of FNA
• Skills of cytopathologic interpretation
Impact of Axillary US and FNA

• Reasonable sensitivity, high specificity

• If FNA is positive for cancer cells:
  
  Patient candidate for surgery and LN dissection
  or
  Preoperative Chemotherapy followed by surgery

• If FNA is negative for cancer cells:

  Patient needs sentinel node biopsy