BI-RADS Lexicon: Ultrasound

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Disclosures
- None

Objectives
- Overview of ultrasound lexicon

Goal of BI-RADS Lexicon
- To provide a common language that will facilitate communication between breast imagers, clinicians, and patients.

“Because the density just above the left nipple stands out a little bit more than the others and is the size of a large raisin, I choose to do a left breast sonogram.”

“IMPRESSION: Pancake shaped cyst in the 3:00 position of the left breast which correlates with a round density on mammography dated 2/22/99”

Limitation of Lexicon
- Inter and intra-observer variability
- Lack of understanding by clinicians
- Potential for unresolved reports if breast imaging studies are read at separate sites/without correlation
**Benefits of Lexicon**
- Greater clarity in reporting
- Better communication
- Facilitated research
  - Specific features associated with malignancy and probably benign lesions

**Report Organization**
- Indication for examination
- Statement of scope and technique of breast US exam
- Succinct description of the overall breast composition (screening only)
- Clear description of important findings
  - Characterization
  - Lesion size—2 dimensions, 3 if follow up, w and w/o calipers
  - Location—clock-face, distance from nipple

**Report Organization**
- Comparison to previous examination(s), including correlation with physical, mammography, or MRI findings
- Composite reports
- Assessment
- Management

**Lexicon Terminology**
- Tissue composition
- Masses
- Calcifications
- Associated features
- Special cases

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**Tissue Composition**
- Homogenous background echotexture—fat
- Homogenous background echotexture—fibroglandular
- Heterogenous background echotexture
**Tissue Composition**
*(screening only)*

- Homogenous background echotexture - fat
- Homogenous background echotexture - fibroglandular
- Heterogenous background echotexture

**Lexicon Terminology**
- Tissue composition
- Masses
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- Associated features
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**Masses**
- Shape
- Orientation
- Margin
- Echo pattern
- Posterior features

**Masses: Shape**
- Oval
- Round
- Irregular

**Masses: Orientation**
- Parallel
- Not parallel
Masses: Orientation
- Parallel
- Not parallel

Masses: Margin
- Circumscribed
- Not circumscribed
  - Indistinct
  - Angular
  - Microlobulated
  - Spiculated

Mass Margin: Circumscribed
- Anechoic
- Hyperechoic
- Complex cystic and solid
- Hypoechoic
- Isoechoic
- Heterogenous

Mass Margin: Not Circumscribed
- Indistinct
- Spiculated
- Angular
- Microlobulated

Masses: Echo Pattern
- Anechoic
- Hyperechoic
- Complex cystic and solid
- Hypoechoic
- Isoechoic
- Heterogenous
Masses: Posterior Features

- No posterior features
- Enhancement
- Shadowing
- Combined pattern

Lexicon Terminology

- Tissue composition
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- Calcifications
- Associated features
- Special cases

Calcifications

- Calcifications in a mass
- Calcifications outside of a mass
- Intraductal calcifications

Lexicon Terminology

- Tissue composition
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- Associated features
- Special cases
Associated Features

- Architectural distortion
- Duct changes
- Skin changes
- Edema
- Vascularity
- Elasticity assessment

Associated Features

- Skin changes:
  - thickening
  - retraction
- Edema

Associated Features

- Vascularity:
  - Internal vascularity
  - Vessels in Rim
  - Absent

Associated Features

- Elasticity assessment:
  - Soft
  - Intermediate
  - Hard
  - Shear wave
  - Strain

Lexicon Terminology

- Tissue composition
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- Special cases
Special Cases

- Simple cyst
- Clustered microcysts
- Complicated cyst
- Mass in or on skin
- Foreign body including implants
- Lymph nodes—intramammary
- Lymph nodes—axillary
- Vascular abnormalities
  - AVMs
  - Mondor disease
- Post-surgical fluid collection
- Fat necrosis

Special Cases

- Intramammary node
- Axillary node
- Postsurgical fluid
- Fat necrosis

BI-RADS Assessment Categories

- Category 0: Incomplete—Need additional imaging evaluation
- Category 1: Negative
- Category 2: Benign
- Category 3: Probably benign
- Category 4: Suspicious
  - A: Low suspicion
  - B: Moderate suspicion
  - C: High suspicion
- Category 5: Highly suggestive of malignancy
- Category 6: Known biopsy-proven malignancy

BI-RADS Assessment Categories

- If mammogram is Category 0 and ultrasound is negative, a recommendation must be made based on initial mammography findings.
- Do not leave report unresolved!
Summary

- Importance of lexicon
- Report structure
- How to describe findings
- Assessment and management

Thank you!