MAMMOGRAM BLIND SPOTS

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<th>Learning Objectives</th>
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<tr>
<td>1. Identify and analyze the <strong>Review Areas</strong> in Mammography</td>
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<td>2. Recognize &quot;<strong>inattentive blindness</strong>&quot; and learn &quot;<strong>what</strong>&quot; to look for and &quot;<strong>where</strong>&quot; to look for it</td>
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<td>3. Understand &quot;<strong>Satisfaction of search</strong>&quot; and formulate an effective search pattern</td>
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Review areas in Mammography

The "Milky Way" (retromammary fat)
Parallel to the edge of the pectoral muscle

Retroareolar region

Medio Lateral Oblique

Cranio Caudal

“No mans land” (retroglandular region)
Clear space between the posterior border of the breast parenchyma and the chest wall

Medial half of breast
FORBIDDEN ZONES

Axilla
Edge of fibroglandular triangle
The breast disc
Pectoral region
Inframammary angle
Edge of mammogram
SEARCH PATTERN

Right vs Left
Top to Bottom
Nipple to Chest wall
Fibroglandular edge
Inframammary fold
Axilla

Comparison with previous
Image toggling
Single view asymmetry
Beyond benign findings
Straight lines
Masking

LOOK AT

LOOK FOR
Review Area -- Axilla

- Mass in left Axillary tail overlying pectoral muscle
- Only visible on MLO

Present MLO shows tethering and distortion
An asymmetry can be retrospectively seen

Carcinoma no special type Grade II
Review Area -- Axilla

- Developing asymmetry in Left axilla
- Visible on MLO in 3 year prior view
- Visible on CC in present view

Infiltrating Ductal Carcinoma  Grade II

LOOK OUT!
Findings in an area of the breast that is normally well visualized on only one view

Posteromedial breast
Axillary tail
Inframammary fold
Infiltrating Ductal Carcinoma Grade II

Hiding in plain sight

Focal contour bulge

- Subtle opacity at edge of breast disc in retro glandular zone
  - Better seen on CC view/ Focal compression

- Ultrasound - highly suspicious hypoechoic lesion
"Peeking" opacity at edge of MLO
True lateral view showed the well-defined lesion
Ultrasound - well-defined hypoechoic mass
IDC Grade III
Triple Negative
Small groups of punctate, amorphous, or coarse heterogeneous calcifications
Slowly growing calcifications
Stable calcifications with indeterminate or suspicious features

- Microcalcifications in lower inner quadrant of left breast
- Ultrasound - poorly circumscribed mass

LOOK OUT!

High Grade DCIS
Asymmetry

- Subtle asymmetry at level of nipple
- Ultrasound - poorly circumscribed mass

Review Area -- Fibroglanulandular Edge

Lobular CA may have **same** density as the rest of fibroglanulandular tissue

Infiltrating Lobular Carcinoma Grade II
Review Area -- Milky way
Retromammary fat

- Subtle asymmetry in Right breast UOQ
- Interval Change is better appreciated in comparison with 9 years prior

Infiltrating Lobular Carcinoma Grade II
- Spiculated retroareolar lesion with tethering
- Very subtle on MLO

Infiltrating Ductal Carcinoma Grade III
Subtle asymmetry in Left breast 12 o'clock with **progressive nipple inversion**

Infiltrating Ductal Carcinoma  Grade I
Small lesion at the Edge of mammogram in a fatty breast

Use of masking to focus on one area at a time

New lesion in a postmenopausal lady - even though benign looking should be treated with suspicion

Carcinoma no special type Grade II
Infiltrating Ductal Carcinoma

Grade II

"Peeking" Opacity

- Small lesion at the Edge of mammogram
- Ultrasound image shows highly suspicious lesion

Infiltrating Ductal Carcinoma Grade II
Asymmetry

Retroglandular zone -
Subtle density anterior to the pectoral margin

Biopsy: Infiltrating lobular carcinoma

Likelihood of associated malignancy
- 1.8% in screen-detected cases
- 9%–38% of missed cancers

High index of suspicion.

Very subtle developing densities.

Rare calcification or spiculations.

Case: Garth Kruger rID: 19782
Subtle asymmetry in Left breast Inner Quadrant - only seen on CC
Interval Change is better appreciated in comparison with 5 years prior

Single view Asymmetry

Infiltrating Ductal Carcinoma  Grade II
Developing Asymmetry

- Opacity in left breast lower quadrant at level of nipple
- Subtle asymmetry can be seen in hindsight

Carcinoma no special type Grade II
Developing Asymmetry

- Opacity in left breast UOQ
- Identified in previous screening and dismissed as benign
  - "looks like a node"

BRCA1 gene mutation carriers
Cancer can simulate benign solid masses or even cysts

Infiltrating Ductal Carcinoma Grade III
Opacity in left breast UOQ
Identified in previous screening and dismissed as benign
  "looks like a node"

Infiltrating Lobular Carcinoma Grade II
Developing Asymmetry in UOQ right breast
New suspicious calcifications

- Infiltrating Ductal Carcinoma  Grade II
Non-Calcifying Ductal Carcinoma in situ

Background stable, benign calcifications

Interval change in left breast upper outer quadrant

Slowly developing architectural distortion

Comparison with previous Tethering

Review Area - Fibroglandular Edge

Interval change - Architectural Distortion
Architectural Distortion

- Distortion in Right breast upper outer quadrant
- MRI image on right shows extent of the cancer
- Infiltrating Lobular Carcinoma Grade II
Developing asymmetry and distortion adjacent to a **stable cyst**
- At time of diagnosis, the cancer had infiltrated skin and was node positive

- **Cancer -- Masked due to a cyst**

Beware of benign findings masking underlying or developing cancers

Infiltrating Ductal Carcinoma  Grade III
• Distortion in an area of local breast density in the UOQ
• Interval change helps identify the tethering

Infiltrating Ductal Carcinoma  Grade II
Architectural Distortion

- Distortion in UOQ
- Use of masking to better appreciate the parenchymal tethering

Infiltrating Ductal Carcinoma Grade II
## Take home points

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<tr>
<th>CAUTION</th>
<th>ASK</th>
<th>LOOK FOR</th>
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<tr>
<td>Finding seen on only one view</td>
<td>Is this area well visualized in the other view?</td>
<td>Axilla/ Inframammary Fold/ Retromammary zone</td>
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<tr>
<td>Dense Breast</td>
<td>Is the orientation of parenchyma normal?</td>
<td>Straight lines/ Tethering/ &quot;Pinching&quot; /Interval change</td>
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<td>BRCA Carriers</td>
<td>Is this lesion truly benign?</td>
<td>Low threshold for biopsy Possibibility of Poorly differentiated tumors</td>
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Take home points

- Do a "secondary search" after the primary search
- Recognize "anchoring" on initial impression
- Step back at look a the whole picture
- Just because it looks innocent, doesn't mean it is! Think Beyond
- Clear corners/edges
- Lesions peeking through
- Be aware of "inattentive blindness" Look ACTIVELY
- Critical Reflection on practice


