Incidental Breast Findings on Chest and Abdominal MRI: Follow-up and Cancer Detection Rates

Samantha Rios MS2, Amanda Amin MD, Christa Balanoff MD, Jamie Wagner DO, Onalisa Winblad MD, Kelsey Larson MD

1Department of General Surgery, Division of Breast Surgery and Department of Radiology
University of Kansas Cancer Center, Kansas City KS

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Background

- The use of cross sectional imaging between 1997 and 2006 has nearly doubled with the use of MRI nearly tripling over this ten year period.¹
- A systemic review of the prevalence of CT incidentalomas and outcomes of imaging finding showed that breast incidentalomas had the highest percentage of malignancy (42%).²
- Data is lacking on work-up and cancer detection rates for breast incidentalomas discovered on chest and abdominal MRI.

Aims

- The aim of the study was assess the frequency of incidental breast findings on MRI chest/abdomen protocols, review what follow-up if any is performed, and report the final diagnosis (benign vs. malignant) of these lesions.

Methods

- A single institution retrospective study was performed on women who underwent abdominal or chest MRI for a non-breast reason from 1/2007-1/2017
- Any radiology report with a breast finding was included
- Incidental findings were defined as lesions not suspected prior to imaging
- For all patients where a breast lesion was identified, the radiologic reports, additional follow up imaging and procedures, and final breast pathology were reviewed
- Descriptive points were analyzed using counts and percentages versus mean with standard deviation where applicable

Results

- 8% (n=21) had a breast finding for which follow up was recommended (Figure 1)
- 7/21 (33.3%) completed the recommended follow up imaging
- 86% (6/7) was normal and return to yearly screening was recommended
- 14% (1/7) had a new breast cancer diagnosis
- Thus, the rate of new breast cancer diagnosis from abnormal abdominal or thoracic MRI was 4.7% overall
- This cancer was identified on diagnostic mammogram/ultrasound
- Breast MRI did not lead to cancer detection
- Recommendation for specific imaging follow up (mammogram, ultrasound or MRI) was 40% more likely to be completed versus per clinician (p= 0.15)

Discussion

- Incidental breast findings on abdominal/chest MRI are uncommon but follow up is important to exclude new breast cancer diagnosis
- Specific imaging recommendations (versus “per clinician”) improve rate of follow up, with mammogram/ultrasound being appropriate modalities to recommend
- Breast MRI does not improve cancer detection rates
- Multi-institutional or larger studies may further define the rate of breast cancer diagnosis for breast incidentalomas on abdominal/chest MRI
- Studies focusing on improving follow-up rates for incidentalomas are important for patient safety and quality of care

References


Patient Population

- 261 female patients identified with the keyword “breast” in the abdominal/chest MRI radiologic report

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**Demographic N % of Total**

<table>
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<tr>
<th>Age</th>
<th>N</th>
<th>% of Total</th>
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<td>16 +/- 11 years</td>
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**Race**

- American Indian: 1 (0.4%)
- Asian or Pacific Islander: 6 (2.3%)
- African American: 18 (6.9%)
- Caucasian: 18 (6.9%)
- Unknown: 215 (83.5%)

**Insurance**

- Medicaid: 10 (3.8%)
- Medicare: 98 (37.5%)
- Private: 142 (54.4%)
- Unknown: 9 (3.4%)

**Breast Cancer Status**

- History of breast cancer without current breast disease: 163 (62.5%)
- No prior history of breast cancer: 98 (37.5%)

**Type of MRI**

- MRI chest: 25 (9.6%)
- MRI abdomen: 235 (90.4%)

**Location of Imaging**

- Cancer Center: 74 (28.4%)
- Main Campus (Tertiary Referral Center): 106 (40.6%)
- Suburban: 63 (24.1%)
- Other: 15 (5.9%)

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**Figure 1: Recommended Follow Up Imaging and Imaging Completed**

- Recommended follow up
- Follow up Imaging
- Completed

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