

SPECIAL BREAST MRI EDITION (Part 2 of 2)

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CLEARING UP THE CONFUSION ABOUT BREAST MRI

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(continued from last issue)

Who Should Be Screened with Breast MRI?

Another important indication for breast MRI is the evaluation of the contralateral (other) breast in a woman with a diagnosis of unilateral breast cancer (that is, cancer in one breast). A landmark study published in the March 2007 *New England Journal of Medicine* evaluated 969 women with unilateral diagnosis of breast cancer, with no abnormalities in the contralateral breast on physical exam or mammography. This study detected 30 clinically and mammographically occult (previously undetected) cancers in these women.¹ In our series, we found 7% of patients with invasive cancers had significant contralateral lesions. Other uses of breast MRI include measuring post-therapy response of breast cancer, and cases that produce equivocal results on mammography and/or ultrasound.

How Accurate Is Breast MRI?

In another important study, published in *The Lancet* this month, German researchers performed mammograms and breast MRIs on thousands of women. The study determined the sensitivity of MRI for pure ductal carcinoma in situ (DCIS) was 92%, compared to 56% for mammography. Based on our experience at ProScan, microcalcification – often the only visible manifestation of low-grade DCIS – is frequently difficult to visualize on MRI, so it surprises us that the sensitivity was measured to be so high.

However, the German study did find that of the 93 high-grade DCIS cases, 43 (48%) were seen on MRI yet missed by mammography. We have found MRI to be extremely effective in detecting high-grade DCIS, corroborating the findings of the *Lancet* study.

Benign Biopsy Rates

An important factor to consider in breast MR screening is the false positive rate associated with MRI. That is, how often does it result in benign biopsies? The *Lancet* study showed similar positive predictive values for MRI and mammography (59% and 55%, respectively), resulting in a significant number of benign biopsies associated with both modalities. Studies in the journals *Cancer* and *Radiology* both showed biopsy recommendation rates of approximately 8.5% for MRI and 2.2% for mammography.^{2, 3}

Our initial experience with breast MRI (approximately 10,000 cases) yielded similar results here at ProScan Imaging. However, as our experience has broadened, our results have improved. Today we find that our breast MRIs result in significantly fewer benign biopsies (approximately 20%) than mammography.

Accreditation for Breast MRI: What's Next?

The American College of Radiology (ACR) has developed a “modular accreditation program,” expected to launch in 2008, addressing the need for quality assurance in the realm of magnetic resonance imaging. This new program would require accreditation for each magnet in use, divided into six categories: MR Body, MR Head, MR Angiography, MR Spine, MR Musculoskeletal, and MR Cardiac. Breast MR is not included in this list, as it is a separate accreditation program being developed under the framework of mammography and other breast imaging accreditation organizations.

This new framework would limit breast MRI to women's centers or other sites that perform mammograms and breast ultrasound scans. Under this accreditation program, MR centers without other breast imaging might be excluded from breast MR. Also, the breast imagers who could be accredited might not have any background in MRI, and thus would lack the expertise required to accurately perform and interpret the images.

Still, the program might provide the advantage of “one-stop shopping” for a patient, who could have all of her imaging performed at one center – perhaps on the same day. More comprehensive care could result from this approach, as all the imaging results for a single patient would be readily available to the diagnosing radiologist. The challenges of this approach, as it relates to physician competence, are discussed in Part One of this special edition (Vol. 1, Number 4).⁴

1. Lehman, C.D., et al. “MRI Evaluation of the Contralateral Breast in Women with Recently Diagnosed Breast Cancer.” *NEJM*, March 2007; 356(13):1295-1303.

2. Lehman, C.D., et al. “Screening Women at High Risk for Breast Cancer with Mammography and Magnetic Resonance Imaging.” *Cancer*, 2005; 103(9):1898-1905.

3. Lehman, C.D., et al. « Cancer Yield of Mammography, MR, and US in High-Risk Women.” *Radiology*, 2007; 244, 2: 381-389.

4. www.acr.org