

RADIOLOGY NEWS

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BREAST MRI

Breast MRI has been performed on the Atlanta campus of Piedmont Hospital for over ten years. We are fortunate to have a dedicated 1.5 Tesla magnet in the Doris Shaheen Breast Health Center that was generously donated by the Shaheen Family.

screening and underused by those who would greatly benefit from it. The purpose of this article is to review the uses and indications for contrast enhanced MRI of the breast.

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In 2014, there were approximately 445,000 contrast enhanced breast MR procedures performed in the United States. While the use of breast MRI has increased over the past decade there are concerns that the exam is being overused by patients who do not fit the criteria for

The current clinical indications for Breast MRI include but are not limited to screening, accessing the extent of disease and additional evaluation of imaging or clinical abnormalities.

Breast MRI is an adjunct to mammography and ultrasound, not a replacement.



SCREENING:

Multiple clinical trials have proven the effectiveness of contrast-enhanced breast MRI in detecting breast cancers that are mammographically or sonographically occult. Sensitivity for the exam ranges from 91% to 100%. While screening is not recommended for asymptomatic, average risk woman, it should be considered as a means of surveillance in woman with a life time risk of greater than 20% (as determined by one of several risk models). These include woman with a genetic or family history of breast cancer, woman with a history of prior breast cancer or atypia (atypical ductal hyperplasia, atypical lobular hyperplasia, lobular carcinoma in situ, and radial scar) and woman with a history of mediastinal irradiation for Hodgkin's disease.

For patients with newly diagnosed with breast cancer, Breast MRI is also of benefit in screening the contralateral breast where studies have demonstrated occult malignancies in 3-5% of patients.

Lastly screening with breast MRI may also be helpful in woman with saline or silicone implants, or in those woman with silicone or paraffin injections in whom mammography is difficult. Additionally, the integrity of the implants can be checked with a non-contrast MRI study.

EXTENT OF DISEASE:

A large proportion of the MR exams performed at the Doris Shaheen Breast Health Center are on woman with biopsy proven invasive carcinoma or ductal carcinoma in situ. The main objective in these patients is to assess the extent of disease and to establish or exclude the presence of multifocal and/or multicentric disease in the ipsilateral breast prior to definitive breast surgery. Studies have demonstrated occult disease in the ipsilateral breast in 12-27% of patients. MRI is superior to mammography and physical examination in this regard. The exams also define the tumors relationship to the nipple, fascia and the muscles of the chest wall and render a 3-D model of the tumor within the breast. The information gained from the study aids in surgical

planning and helps determine who is a candidate for breast conservation surgery or who would be better served by mastectomy.

MRI has also proven helpful to look for residual disease in woman with positive margins following a lumpectomy, and before, during and after neoadjuvant chemotherapy to assess response to treatment.

ADDITIONAL EVALUATION CLINICAL OR IMAGING FINDINGS:

MR has also proven effective in the workup of patients who present with metastatic disease where a breast origin is suspected. In over 50 % of cases a primary lesion is demonstrated in the breast parenchyma. MR is also indicated when recurrence is suspected and mammography and ultrasound are inconclusive. This also holds true for women suspected of having a recurrence in a reconstructed breast formed from tissue flaps. Lastly, MR is used to guide vacuum assisted core biopsy and preoperative needle localization.

*The American Cancer Society
recommends MRI's for
screening high-risk women
who show no signs of cancer.**



SOME POINTS ON CONSELLING YOUR PATIENT TO PREPARE THEM FOR THE EXAM

- Breast MRI is an adjunct to mammography and ultrasound, not a replacement. Although it has a high sensitivity, MRI can still miss some breast cancers that can be seen only on mammography.
- While there is no radiation involved the exam still exposes one to risk. These include false positive results that can lead to additional tests and biopsies and the anxiety that these additional procedures incur. Since the MRI study also involves the injection of contrast material there is a risk of an allergic reaction that can cause serious complications in patients with kidney disease
- Screening exams should be optimally scheduled during days 7-14 of the menstrual cycle.
- Patients at high risk should meet with the Piedmont Genetic counselor to determine if they carry a genetic mutation. Consider annual MRI if the patient is gene positive.
- The study is not recommended during pregnancy
- If nursing, the patient should stop breast feeding for 12-24 hours after the exam to allow the contrast material to be eliminated from the body
- Patients shouldn't wear any metallic object to the examination and if the patient has any implantable devices they must be MRI safe.
- The exam takes 30 min to an hour. If the patient suffers from claustrophobia, the referring physician may need to provide premedication.

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