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Breast MRI [1]

A breast MRI (magnetic resonance imaging) exam is a diagnostic examination that uses magnetic fields to capture multiple images of the breast tissue, which are combined to create detailed, computer-generated pictures of your breasts. A breast MRI sometimes is used to diagnose and evaluate breast tumors. Under some circumstances, this test may better identify a small mass within a woman's breast than a mammogram or ultrasound, particularly for women with very dense (non-fatty) breast tissue.

Why a breast MRI is performed

A breast MRI test may be used to screen women who are at a high risk for breast cancer or to find out more about the stage of cancer (how much the cancer has developed and spread) once an initial breast cancer diagnosis is made. It may also be used to monitor the response of breast cancer to chemotherapy or during follow-up care to evaluate the site of a lumpectomy (where cancerous breast tissue has been surgically removed). Women who have undergone a mastectomy (surgical removal of the entire breast) and had their breast(s) reconstructed through implants may need a breast MRI to determine if implants have ruptured (torn or leaked).

For cancer screening purposes, a breast MRI is not a replacement for a mammogram. Although it is a highly effective test, a breast MRI occasionally may fail to detect cancer that is detected by a mammogram [2]. A breast MRI may also lead to a false positive result, which means a mass or other change is detected but after further evaluation is determined to be benign (non-cancerous).

The medical team

A breast MRI may be performed in a hospital facility or in an outpatient clinic. It is performed by a radiologist (a medical doctor who performs and interprets imaging tests to diagnose disease) or by a radiology technologist who is specially trained and certified to perform, but not interpret, MRI scans.

Questions to ask your doctor

Before having a breast MRI, consider asking your doctor the following questions:

- Do I need an order (prescription) to schedule the test?
- Who will perform the exam?

- What will happen during the breast MRI?
- How long will the procedure take?
- Can a friend or family member sit in the MRI room during my examination?
- What are the risks and benefits of having a breast MRI?
- Is the imaging facility accredited [3] to perform breast MRIs?
- When will I learn the results?
- Who will explain the results to me?
- What further tests may be necessary, depending on the results?

Preparing for a breast MRI

For best results, you may want to schedule your exam at certain times of your menstrual cycle. For example, if you are premenopausal, the MRI facility may ask you to schedule the procedure during days 7 through 10 of your cycle. Be sure to discuss this with your doctor.

When you schedule your MRI, you will get detailed instructions on how to prepare.

You may need to avoid eating for two or more hours before the examination, but generally you will not need to make any special preparations.

Tell your doctor about all medications you are taking, as well as any drug allergies or other medical conditions you have. Women should tell their doctors if there is any chance that they may be pregnant. Women who are breastfeeding may want to stop for up to two days following the procedure so that their bodies can eliminate the contrast material (a special dye; see Before the exam below) and minimize any risk to their babies. However, breast MRIs conducted while a woman is breastfeeding may not produce breast images that are clear enough for accurate interpretation. Talk with your doctor if you are breastfeeding.

In addition, it is important to tell your doctor and the technologist performing your breast MRI about any metal implants or metal fragments you have in your body. These can cause serious complications when exposed to the strong magnetic pull generated by the breast MRI machine. People with most pacemakers, for example, cannot have an MRI.

You will be asked to sign a consent form that states you understand the benefits and risks of the breast MRI and agree to have the test done. Talk with your doctor about any concerns you have about the procedure.

Also consider asking whether you can bring music with you to the scan; some facilities allow patients to listen to music through headphones during the examination, which can help you relax during the procedure.

Before the exam

When you arrive for your breast MRI, you will need to remove any jewelry or other metal objects you are wearing. You may need to change into a hospital gown, as well.

You will be given a contrast material called gadolinium through an intravenous (IV) line (a small needle connected to a tube and inserted into your vein). A nurse or doctor will insert a small

needle into a vein in your arm or hand; saline solution will flow through the IV line until the contrast material is injected at a specific point during the examination. The dye will travel through your bloodstream and help to create a clearer picture of your breasts. (Patients undergoing breast MRI for a ruptured implant will not need the contrast material.) The contrast material may cause allergic reactions and cause complications in patients with kidney or liver problems, so it is important to tell your doctor about any health conditions you may have.

A breast MRI is not painful. However, if you receive an IV, you may feel discomfort when the needle is inserted, and the saline solution in the IV may cause a cool feeling at the injection site. In addition, you will need to lie still for most of the scan, which could become uncomfortable. The loud sounds coming from the machine may also make you uncomfortable; you may be given earplugs or earphones to wear during the examination. If you are claustrophobic, tell the technologist before beginning the examination. The radiologist may be able to give you a sedative (medication) to help you relax. Your primary care physician, surgeon, or oncologist may prescribe you a sedative that you can take in advance or bring to the MRI facility.

A technologist will help position you on a padded table specially designed for a breast MRI. You will lie facedown on your stomach with your arms at your side and your head on a headrest. The table has openings for your breasts so they may be scanned without being compressed (squeezed together).

During the procedure

When you are in the correct position, the table will slide into the MRI machine, which resembles a large donut. Most MRI machines have a narrow, tunnel-like opening. Some facilities have less confining ?short-bore? or ?open? MRI machines, which can accommodate larger people and also help prevent claustrophobia (fear of being in small spaces).

The exam table will slide through the hole in the center of the machine. You will need to lay very still during the breast MRI's two-to-six imaging sequences. Each sequence will last up to 15 minutes. You will know that the machine is taking images because you will hear extremely loud tapping and knocking sounds. Your breasts may feel warm during the MRI; this is normal. You will be allowed to relax slightly between each imaging sequence but will be asked to maintain your body position as much as possible.

During the examination, the technologist will be in a nearby room, separated by a window. The technologist will be able to see you, and you will be able to communicate at all times through an intercom system.

The breast imaging session will last between 30 to 60 minutes, and the whole appointment should last no more than 90 minutes. The technologist should be able to give you a time estimate before you begin.

When the procedure is complete, you may be asked to remain on the exam table while a radiologist reviews the images to determine if additional images are needed.

After the procedure

You can expect to resume your normal activities, including driving, after the breast MRI exam, unless you've been given a sedative.

A radiologist will review the images from your breast MRI and send a copy of the report to your doctor, who will discuss the results with you at a follow-up appointment.

More Information

Tests and Procedures [4]

Magnetic Resonance Imaging - €"What to Expect [5]

Breast MRI for Early Detection of Breast Cancer [6]

Additional Resources

RadiologyInfo - Breast MRI [7]

Mayo Clinic - Breast MRI [8]

Links:
[1] http://www.cancer.net/navigating-cancer-care/diagnosing-cancer/tests-and-procedures/breast-mri
[2] http://www.cancer.net/node/24584
[3] http://www.acr.org/Quality-Safety/Accreditation
[4] http://www.cancer.net/node/24959
[5] http://www.cancer.net/node/24578
[6] http://www.cancer.net/node/24414
[7] http://www.radiologyinfo.org/en/info.cfm?pg=breastmr
[8] http://www.mayoclinic.com/health/breast-mri/MY00300