Memorial Sloan Kettering Cancer Center

PATIENT & CAREGIVER EDUCATION

Contrast-Enhanced Mammogram

This information explains contrast-enhanced mammograms (CEMs) at MSK.

About your CEM

A mammogram is a test that takes X-ray pictures of your breast. A CEM is a mammogram that uses iodinated contrast dye (contrast that has iodine). This dye makes it easier to find new blood vessels that form when cancers grow.

Why do I need a CEM?

Your healthcare provider may recommend you have a CEM to:

- Screen for breast cancer. A CEM may be useful for people who are at a higher risk for getting breast cancer. A CEM can also be useful for people who have dense breasts.
- Check any lumps in a breast found during a physical exam.
- Look at a breast where cancer is found.
- See if you're responding to neoadjuvant (NEE-oh-A-joo-vant) chemotherapy (chemo). This is a treatment to give you chemo before you have breast surgery. It's given as a first step to shrink tumors or stop cancer from spreading.

What are the benefits of a CEM?

A CEM finds breast cancers that cannot be seen on a regular mammogram. It often can help find cancer in people who have dense breasts.

What are the risks of a CEM?

Radiation

With a CEM, you get contrast before your technologist takes X-ray pictures. When you get contrast, your breast tissue absorbs (takes in) a little more radiation than it would in a regular mammogram. The extra radiation will not harm you.

If you have any questions about radiation safety, call the health physics department at 212-639-7391. You can reach them Monday through Friday, from 9 a.m. to 5 p.m.

Reactions to contrast

Some people can have an allergic reaction to contrast. Most reactions are mild, such as hives.

Some people can have very rare but more serious reactions, such as anaphylaxis (A-nuh-fih-LAK-sis). This is a very bad allergic reaction that can cause hypotension (a sudden drop in blood pressure) or trouble breathing.

Anaphylaxis is treated with an epinephrine (eh-pih-NEH-frin) autoinjector, commonly known as an EpiPen®. This is an injection (shot) of epinephrine (adrenaline) into a muscle.

If you have had a reaction to contrast in the past, tell your healthcare provider. They will talk with your radiologist about the best options for you. A radiologist is a doctor with special training in using imaging to diagnose and treat disease.

They may:

- Choose to give you a magnetic resonance imaging (MRI) scan instead of a CEM.
- Decide that a CEM is still the best imaging test for you. If so, they may give you medicine to lower your risk of having another allergic reaction.

Renal (kidney) function

Contrast can also affect your kidney function (how your kidneys work). Tell your healthcare provider if you have any kidney problems, such as kidney disease or poor kidney function.

You must have kidney function testing within 12 weeks of your CEM if you're at a higher risk for kidney failure. Kidney failure is when your kidneys do not work normally.

Pregnancy

You should not get a CEM if you're pregnant. If you think you might be pregnant, talk with your healthcare provider. They will tell you if a CEM is right for you.

Breastfeeding

It's safe to breastfeed after getting a CEM. A very small amount of contrast will end up in your breastmilk if you are breastfeeding. This may change the taste of breastmilk a little for a short time. If you have any concerns, you can choose not to breastfeed for 12 to 24 hours after your CEM.

If you plan to pause breastfeeding after your CEM, pump breastmilk and save it before your CEM. You can bring the pump to your CEM appointment and pump before your CEM.

For 12 to 24 hours after your CEM, continue to pump breastmilk and throw it away. After 12 to 24 hours, you can start breastfeeding again on your normal schedule.

If you have questions about contrast and breastfeeding, talk with your healthcare provider about your options. You can also talk with your radiologist on the day of your CEM.

What is the difference between a CEM and a 3D mammogram?

A 3D mammogram takes X-ray pictures of your breast from many angles. The X-ray pictures are then put together to create a 3D image of your breast. This is like what a computed tomography (CT) scan does. A 3D mammogram is also called tomosynthesis (toh-moh-SIN-thuh-sis).

A CEM is not the same as a 3D mammogram. With a CEM, you get contrast before your technologist takes X-ray pictures. The contrast helps your healthcare provider see certain areas more clearly in the X-ray pictures. That's why a CEM can find a cancer that cannot be seen on a 3D mammogram.

Your healthcare provider may recommend you have a CEM instead of a 3D mammogram if you have dense breasts.

Will I need to have other imaging or testing with a CEM?

Just like with a regular mammogram, you may need to have more tests after your CEM. These can include:

- More mammography pictures
- An ultrasound
- An MRI
- A biopsy (a procedure to get tissue samples)

The day of your CEM

The contrast may cause mild nausea, so eat only a light meal (such as a sandwich or soup).

Do not put on any deodorant, lotion, cream, powder, talc, oils, perfume, or cologne before your CEM.

If you're getting intravenous (IV) contrast, your nurse will place an IV line into a vein in your arm or hand. They will then inject (put) the contrast into your IV line.

Most people get contrast through an IV line, unless you already have:

- A central venous catheter (CVC) or any other type of CVC.
- A peripherally inserted central catheter (PICC).
- An implanted port (also called a mediport or Port-A-Cath).

If you have a CVC, PICC line, or implanted port, your nurse may use it to give you the contrast.

If you have an implanted port, here are our guidelines.

- **If you're having a CEM done on 1 breast and it does not have a port:** Only the breast that does not have the port can have a CEM. For example, we can take a picture of your left breast if the port is on your right breast. We will use the port on your right breast to give you the contrast.
- **If you're having a CEM done on 1 breast and it has a port:** We will use an IV line to give you contrast instead of the port. This is because the port will get in the way of the imaging.
- **If you're having a CEM done on both breasts and one of them has a port:** We will use an IV line to give you contrast instead of the port. This is because the port will get in the way of the imaging.

As you're getting the contrast, you may feel warm. You may also have a mild, metallic (metal) taste in your mouth. This is normal.

Your CEM will start 2 to 3 minutes after you get the contrast.

Tell your nurse if you have pain at your IV site or have any unusual symptoms, such as:

- Itchiness
- Swelling
- Dizziness
- Trouble breathing

- Feeling weak or like you're going to faint

A CEM takes a little longer than a regular mammogram. This extra time is needed for the contrast part of the test.

You should plan to be at your CEM appointment for about 1 hour in case you need other tests.

IV hydration

IV hydration is when fluids are put into your bloodstream. You may need IV hydration if you have poor kidney function (your kidneys don't work as well as they should). You will get the IV hydration before your CEM scan, after your CEM scan, or both. Your care team will arrange this for you.

After your CEM

If your nurse placed an IV, they will take it out after your CEM. Then, they will place a bandage over the area. You can take the bandage off after 1 hour if there's no bleeding.

Tell your nurse if you have any of these symptoms:

- Itchiness
- Hives
- Dizziness
- Trouble breathing
- Feeling weak or like you're going to faint
- Swelling or discomfort in the area where your IV was placed

Drink 6 to 8 (8-ounce) cups of water in the 24 hours after your CEM. Drinking water will help the contrast leave your body through your urine (pee).

Results of your CEM

After your appointment, we will mail you a letter with the results of your CEM. The results will also be available in MSK MyChart, our patient portal, 1 to 2 business days (Monday through Friday) after your CEM.

If you do not have an MSK MyChart account, you can sign up at mskmychart.mskcc.org.

If you get a call about needing more images, it does not mean you have cancer. It means your radiologist wants to see an area more clearly.

You will then be scheduled for a diagnostic ultrasound or a diagnostic mammogram, which takes more detailed images of a specific area in your breast. Sometimes, you will be scheduled for both. Most of the time, your mammogram will be found to be normal after these additional images are taken.

If you have questions or concerns, contact your healthcare provider. A member of your care team will answer Monday through Friday from 9 a.m. to 5 p.m. Outside those hours, you can leave a message or talk with another MSK provider. There is always a doctor or nurse on call. If you're not sure how to reach your healthcare provider, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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