Contrast Enhanced Spectral Mammography

What is it?
Contrast enhanced spectral mammography (CESM) is a mammogram performed after the injection of contrast in a vein (IV). Two images are taken almost simultaneously during the exam after an iodine based contrast injection is administered. The first image is essentially a standard mammogram. The second image, shows areas that take up the contrast (enhance) signifying increased blood flow. Breast cancers often enhance with contrast due to a greater number of blood vessels. Non-cancerous lesions can also have greater blood flow. These brighter areas can only be seen on the mammogram with contrast and cannot be seen on a routine mammogram.

What are most common uses for CESM?
CESM is used as a diagnostic tool when additional information is needed after a standard mammogram. CESM has also been used to determine the extent of a known breast cancer and to screen patients at high risk for developing breast cancer due to family history or positive cancer genes and for women with dense breast tissue.

What is the difference between CESM and Tomosynthesis (3D mammography)?
CESM and tomosynthesis are two completely different tests targeting different changes in the breast. Both use a mammographic image to identify cancer and other abnormalities that may not be well seen in a standard mammogram. Tomosynthesis displays structural abnormalities that can be hidden in the breast tissue via review of multiple thin slice images, where CESM highlights abnormal blood flow to areas of the breast that are a characteristic of breast cancer.

How to prepare for the test?
Because of the contrast injection before the mammogram, if you are over 70 years of age or have certain health conditions such as diabetes or renal disease, it may be necessary to have a simple blood test prior to the day of the exam to make sure your kidney function is normal.

Make sure the technologist and staff know if you have a history of any allergies to drugs or medications and if you have had a prior reaction to CT intravenous (IV) contrast in the past. Please let your technologist know if you have diabetes or renal disease. It is recommended to have nothing to eat or drink for 4 hours prior to the test.

How is the procedure performed?
A highly skilled mammography technologist or registered nurse will place an IV in your arm and a contrast media will be injected. After two minutes, the technologist will take images of each breast. The radiologist will review the images and decide if further views are necessary. You should plan on being in our office for approximately one hour. The CESM itself takes 15–20 minutes more than a standard mammogram study. You will be observed for 30 minutes after the contrast is injected.

When will I get my results?
The radiologist will review the exam. If the test is for screening, you will receive a letter of your results. Your health care provider will receive a report with your results. If the test is to evaluate a finding, the radiologist will give you the results before you leave.

What if something abnormal is seen on my CESM exam?
The radiologist may need to perform an ultrasound or additional mammography images to confirm the presence and location of a finding. Biopsy may be needed to confirm if the finding is cancerous or not. In some cases, an MRI may be indicated to evaluate or perform a biopsy of finding seen on CESM.

What are the benefits of CESM?
CESM may detect breast cancer by looking for changes in blood flow, which can occur before a structural abnormality may be apparent on a routine mammogram. The test is more expensive than a standard mammogram but much less expensive than an MRI. The CESM can also be performed in the Breast Care Center with the same highly specialized radiologist, technologists and nurses that you already know.

Call the UVA Breast Center at 434.924.1555 for more information or to talk with your mammography technologist.