Tomosynthesis: 3D Screening Mammography is HERE!

By Marina I. Feldman, MD, MBA, Breast Radiologist

One in eight women will develop breast cancer during her lifetime. The stage at which breast cancer is detected directly influence's a woman's chance of survival. The American Cancer Society states that if detected early, the five-year survival is 98%.

Clearly, early detection means increased chance of survival. As a doctor specializing in Breast Radiology, I see patients daily that would benefit from early detection from screening mammography. Tomosynthesis, also referred to as 3D mammography, is the latest among the technological advances that offer doctors a better way to screen patients for breast cancer.

How does Tomosynthesis work?

The breast is a 3-dimensional organ composed of different structures, such as blood vessels, milk ducts, fat and hormonally active breast tissue. These structures are located at different depths within the breast and may overlap each other when 2-dimensional images are obtained as part of a conventional mammogram.

On a conventional mammogram, dense tissue can fool us by hiding a small cancer that is behind it resulting in delayed diagnosis. Additionally, overlapping tissue can look suspicious – effectively fooling us into thinking that there is a problem when there is not.

Tomosynthesis is different from a standard mammogram in that it allows us to see breast tissue better by decreasing the effect of this overlap. The x-ray arm sweeps over the breast in an arc and multiple very low dose x-rays are obtained in a few seconds. This digital data set is reconstructed in 1 mm slices of breast tissue. By evaluating these 1 mm slices, we are able to perform a more detailed examination of the layers of breast tissue than offered by flat 2-dimensional images obtained with a conventional mammogram.

So, tomosynthesis increases the accuracy of screening mammography by allowing us to detect breast cancer we wouldn't otherwise see until later. Studies demonstrate that tomosynthesis finds breast cancer earlier than conventional mammography alone, with about 30% increase in cancer detection.

The additional benefit of this technology is the decrease of unnecessary call backs. Though only a small percentage of women called back actually have a problem, as many women know, the process of being called back is anxiety inducing. Studies demonstrate that with tomosynthesis, there's a 20-40% reduction in call backs.

Is it safe?

In May 2013, the Food and Drug Administration approved new technology called Low Dose 3D Mammography (Breast Tomosynthesis) featuring C-View 2D imaging software. This solution no longer requires that a conventional digital mammogram be obtained along with tomosynthesis. Instead, C-View allows reconstruction of 2D images from the 3D tomosynthesis data set. This brings the radiation dose of a Low Dose tomosynthesis examination essentially back to what it is now with conventional digital mammography.

What does this mean for the patient?

It's a win-win. Patients will now have all the benefits of a more detailed examination with increased detectability of breast cancer with essentially no increase in radiation exposure.

Mammograms can detect breast cancer early when it is most treatable. Notably, mammograms have cut death rates from breast cancer by nearly a third since 1990.

Medical societies with demonstrated expertise in breast cancer care recommend that women start getting yearly mammograms starting at the age of 40. These societies include American Cancer Society, American College of Radiology, Society of Breast Imaging, American Society of Breast Surgeons, American Society of Breast Disease, and National Comprehensive Cancer Network.

The Elliot Physician Network strongly supports Breast Cancer Screening and advocates that patients talk to their Primary Care Physician to determine the best plan for their specific medical and family history.

The Elliot Breast Health Center at River's Edge and Elliot Breast Health Center at Londonderry are proud to announce that Low Dose 3D Mammography is here and will be available to our patients starting in October 2013. Your Primary Care Provider can refer you for this state of the art technology and we will be happy to schedule your appointment.