

Shands HealthCast - October 2008

3-D Automated Breast Ultrasound

Susan Snodgrass, M.D.

Associate Professor of Radiology

University of Florida College of Medicine – Jacksonville



Intro:

Welcome to another Shands HealthCast brought to you by Shands HealthCare. This HealthCast features a discussion about breast cancer screening using the 3-D automated breast ultrasound with Dr. Susan Snodgrass, an associate professor of radiology and chief of women's imaging with the University of Florida College of Medicine - Jacksonville. Dr. Snodgrass sees patients at the Shands Jacksonville Breast Health Center and the Shands Jacksonville Advanced Breast Imaging Center at Emerson. For more information about the 3-D automated breast ultrasound, call (904) 633-0275 or visit <http://jax.shands.org>.

Dr. Snodgrass:

The gold standard for the detection of breast cancer is mammography, but approximately 10 percent of all breast cancers can be missed or overlooked by mammography, especially in patients with dense breast tissue. The breast ultrasound that most people are familiar with is the traditional hand-held two-dimensional ultrasound, but here at the University of Florida and Shands, we have a new adjunct to our arsenal of screening methods and that is the 3-D breast ultrasound.

There are limitations to our conventional 2-D hand-held ultrasound imaging, which is why the 3-D ultrasound that we have is so important. One of the limitations to the conventional ultrasound is that it is operator dependent, and no two people can scan exactly the same from time to time. Therefore, there is a wide variability in results and it is difficult to obtain reproducible images, which is extremely important when a mass is found.

The automated 3-D breast ultrasound has the potential to address this limitation as well as a few other limitations. First of all, the images of the entire breast are captured in 3-D, allowing the radiologist to review images from any angle, possibly uncovering areas that may not have been previously seen. We have the ability to look at multiple views of a specific abnormality simultaneously. It also provides us with the ability to obtain consistent, standardized, reproducible images, which is so important.

The other important thing that the 3-D breast ultrasound can give us is a very detailed positional reference of a finding in your breast. Whether it's a mass, a cyst or an area that just looks abnormal, we can reproduce it and find its location, if necessary, to check for its stability from appointment to appointment because this ultrasound gives us a detailed reference and

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position relative to where your nipple is, where the skin is and how deep the mass or abnormal-appearing area is from the skin line.

The patients that we hope to target with the 3-D breast ultrasound are a few subsets of women. Those with very dense breasts that are not otherwise 100 percent served by mammography because mammography is difficult and challenging in women with dense breasts since masses can be easily obscured. We're also hoping to target the younger women with a strong family history of breast cancer, for example women with a first degree family history of breast cancer in her mother, sister or daughter. Additionally, if we find a mass initially on a traditional, conventional 2-D ultrasound, we're also going to be utilizing the 3-D breast ultrasound on these patients to verify the appearance of these findings and search for any additional abnormalities.

The procedure itself is extremely simple, it's painless and it's actually quite comfortable. The patient is lying down, the technologist takes a scanner to which she attaches a silk membrane and this basically stabilizes the breast and minimizes the movement during the scan. This is placed on your breast, the scan takes only 60 seconds for each breast and then it's complete. Once it is complete, the data is sent to a work station where the radiologist can evaluate each image for any possible abnormality. There can be up to 500 different views evaluated from this procedure. Compared with the normal 2-D ultrasound, where we are looking at a very flat image of the breast, with 3-dimensional ultrasound we are able to look at the breast from multiple views: side-to-side, back and forth as well as up and down, in a three dimensional manner. This is extremely important. However, I do want to stress that this procedure does not replace mammography, it merely supplements the screening.

We are extremely fortunate to have this new technology at the Shands Jacksonville Advanced Imaging Center at Emerson. We are one of only three institutions in the State of Florida to be able to obtain this and we are so fortunate to be able to offer to our patients this new technology, especially for women at high risk for breast cancer and younger patients with dense breast tissue.

This new technology is so important because it can augment traditional mammography exams by providing us with more detailed information about the physical structures within one's breast. We hope that when we combine this information with the important information from the mammogram that it will enable us to better differentiate normal or benign tissue from malignant or cancerous tissue and therefore decrease your anxiety and hopefully more confidently determine when a biopsy is needed.