

Breast Ultrasound from the Patient's Perspective: Innovative Imaging Techniques to Improve Patient Outcomes and Overall Breast Imaging Experience

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Introduction

Knowing that modern mammography can miss cancer in dense breast tissue, my colleagues and I have been performing ultrasound screening since 1983 for dense breasts and indeterminate mammographic clinical findings. We recently helped pass a breast density notification law here in Tennessee.

In addition to advocating for effective breast cancer screening, I also strongly encourage my peers to use state-of-the-art ultrasound technology. At my practice, we have used an ultrasound system (Aixplorer™, SuperSonic Imagine) with real-time ShearWave™ Elastography (SWE) for eight years. We now have ten units and recently upgraded to a new high-frequency dedicated breast transducer 18-5 MHz (SuperLinear SL18-5). The system gives us high-resolution images, as well as the SWE color-coded map and analysis of tissue stiffness, a key parameter in diagnosing lesions.

When ultrasound sonographers come from other hospitals, they are astounded at the resolution of our ultrasound imaging, as well as the added benefits of SWE. Why aren't more facilities using this technology? It is not new, and its distinct clinical advantages allow us to detect cancer more definitively, reducing both false positive and false negative results. High-technology ultrasound with elastography also has the important advantage of making a very stressful patient experience more tolerable.

Comfort and Education

Years ago, when my mother had a thyroid biopsy, the surgeon told her "It went well." And of course, by that comment, she thought all was fine. I realized that he meant from his perspective, the procedure went well. My mother was positive for lymphoma, and I was left to tell her, which was very upsetting to me. When I started my practice, I knew I would talk to my patients very openly and always speak in a compassionate way about their findings.

The clinical breast radiologist's interaction with patients during the workup is extremely valuable. Breast ultrasound is an inherently stressful experience for patients who are worried they may have cancer or already know they have the disease and are bracing themselves to hear the details. Even walking in the door to our office creates anxiety.

I explain that a biopsy is a possibility, but first we will do some additional high-tech imaging. I counsel patients through the entire workup, keeping them apprised of what I am doing and seeing. Depending on the reason for the ultrasound, I might explain that the ultrasound is allowing me to get good images through their dense tissue or learn more information about the mammographic findings.

If a patient is referred after a positive mammogram or MRI, I begin by asking, "What is your understanding of the findings from the previous test?" They usually say, "I don't know. They told me I need a biopsy."

I can show them what I'm looking at on the ultrasound screen – normal breast tissue or the lesion size, borders and stiffness. I want to give patients information rather than leave them in the dark, and they appreciate that. Our ultrasound system also allows us to get images and data very quickly, which helps minimize physical and psychological discomfort.

Confidence and Results

Using SWE to evaluate breast tissue alongside high-definition ultrasound images creates a very strong confidence in our conclusions. That confidence is projected to our patients. Patients feel they can trust us and feel reassured that our findings will be the ultimate, verified diagnosis.

Patients are there for an answer. If we suspect cancer, we are very open and detailed about what we see, what that means, and what comes next. Patients need and want to know. We explain that they will need a biopsy and what to expect from that procedure.

Because I tell patients what I am doing and seeing throughout the visit – for example, I see the lump detected in mammography on the ultrasound, its shape suggests it might be cancerous, and the tissue firmness shown on SWE is also suspect – patients do not have a surprise waiting for them at the end of the workup. Even if there is something of concern, they feel reassured by the communication process and my openness and competence throughout their examination. Every woman dreads hearing that she has breast cancer, but we can present the news compassionately and affirm this is not a death sentence, which breast cancer typically is not.

Good news is, of course, much easier to deliver. As soon as the ultrasound and SWE have helped me determine the lesion is benign, I tell the patient, “***This is not cancer.***” Many of these patients have already been through the ominous experience of having a doctor say she feels something or the mammogram shows a suspicious lump. They are very scared. When they hear the news that everything is OK, their facial expressions changes completely to smiles and tears of joy. I explain the benign lump and any other steps ahead.

Because the ultrasound and SWE technologies help us to determine with greater confidence whether a lesion is benign or may be malignant, we are able to perform fewer biopsies. From the patients’ perspective, instead of waiting, terrified, for another appointment and enduring a biopsy, they can know immediately that they do not have cancer.

It is another important way that the latest technology enables us to excel clinically, while helping improve the patient experience.

SuperSonic™ Mach 30 system also known as Aixplorer Mach® 30 system.

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