Palpation-Guided Sonography & Sono-Guided palpation: The breast imaging radiologist’s secret weapon

The most common palpable lump:

A clinically or self-detected palpable finding is the most common presenting concern for which a diagnostic breast imaging consultation is requested. A negative mammographic and/or ultrasound study is the most common result of the imaging workup. A report that leaves a clinical concern unexplained has a potential, if not common adverse consequence for the patient. Her anxiety may, in fact, be increased, fearing that the imaging studies have failed to find a potentially malignant lesion. Her clinician has been taught that a palpable concern that remains unexplained after diagnostic imaging workup should be referred for surgical consultation. Excisional biopsy commonly follows.

The most common palpable abnormality referred for diagnostic imaging evaluation is normal loculated fatty or glandular tissue that has no associated abnormal mammographic or sonographic findings, yet can be clearly explained with the aid of sonographic-guided palpation and palpation-guided sonography. A similar, but less common palpable concern is a prominent Cooper’s ligament attachment to the skin. With the aid of dermal lubrication and the clinical description or the patient’s direction to the site of palpable concern, most such lesions are easily palpable. By careful sonographic characterization of the palpable concern, loculated fatty or glandular tissue yields an easy diagnosis, achieving the ultimate “clinical correlation” of imaging findings. More importantly, the radiologist is able to show the patient that her palpable concern has been seen and explained. Her examination is not a “negative study”, but a “definitive” study, explaining her palpable finding as contained normal tissue, obviating the need for surgical consultation. Her anxiety has been addressed and resolved. She is relieved of the fear that something sinister has been missed.

The radiologist has an opportunity to further explain the finding of loculated fatty or glandular tissue or an underlying Cooper’s ligament by demonstrating the sonographic appearance of these areas on the monitor. Patients commonly want to know how we are able to distinguish normal tissue from suspicious masses. Demonstrating the appearance of a rib with its internal echoes and posterior
shadowing, provides a way to show the appearance of a solid structure and to explain that were such a finding be detected within the breast, it would be called a solid breast mass. These simple steps in finding and explaining palpable concerns are valuable techniques in providing optimal patient care. We must remind ourselves that anxiety is morbidity and that with a little additional consideration and effort we can provided an important value added service.

Finding the elusive palpable or imaging concern:

We are often challenged to sonographically find and characterize an equivocal palpable or mammographic abnormality. These lesions can sometimes be difficult to identify with ultrasound. The most common scanning technique is to hold the transducer in one hand with the other hand free to make necessary adjustments on the control panel of the ultrasound machine. We have adopted the practice of keeping the 2nd, 3rd and 4th fingers against the broad side of the transducer as the other hand guides the transducer over the breast tissue. This enables the finger to feel as the transducer “sees” the underlying tissue. When the fingers detect a palpable area of interest, the transducer can be guided through various orientations in search of a sonographic correlate. Likewise, when the transducer “sees” a potential abnormality, the fingers are led to determine whether there are correlating palpable findings. Ambiguous palpable findings can be made more significant with correlating sonographic findings as ambiguous sonographic findings are made more significant with suspicious palpable findings. It has been our experience and the experience of residents and fellows we have trained, that the sensitivity of breast ultrasound is significantly improved when performed with the fingers and transducer moving as a unit as the breast is scanned.

When suspected lesions seem elusive to palpation and ultrasound:

High quality breast ultrasound depends on high resolution, spatial compounding and an experienced sonographer. Even with these requirements in place, subtle clinical or mammographic concerns may easily escape sonographic detection. If the location of the suspected abnormality is understood, two important adjunctive sonographic techniques may lead to sonographic recognition of a lesion. The first is the use Doppler to identify associated increased vascularity. Abnormal blood flow may be more easily demonstrated than a sub centimeter isoechoic or slightly hypoechoic malignancy. If such blood flow is identified, delicate manipulation of the transducer may reveal an otherwise occult lesion. The second adjunctive technique is the application of harmonics as the area of concern is carefully scanned. Isoechoic lesions may be made to appear more hypoechoic and subtle shadowing made more obvious with harmonics.

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