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Integrating Ultrasound Into Your Breast Surgery Practice

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AUTHORS

Mark A. Gittleman, MD
Director
Breast Care Specialists
Allentown, Pennsylvania

Dr Gittleman, the director of Breast Care Specialists in Allentown, Pennsylvania, has restricted his practice to breast surgery and diseases of the breast since 1995. His practice was the first surgical practice to receive full accreditation for both diagnostic and interventional breast ultrasound by the American Institute of Ultrasound in Medicine (1999). A director and past president of the American Society of Breast Surgeons, Dr Gittleman was instrumental in the development of the Society's new breast ultrasound certification program.

Pat W. Whitworth, MD
Director
Nashville Breast Center
Nashville, Tennessee

Dr Whitworth is director of the Nashville Breast Center, Nashville, Tennessee, where his practice is limited to breast surgery. He has been a member of the American College of Surgeons Image-Guided Breast Biopsy faculty for several years. Dr Whitworth will serve as director of the Sentinel Lymph Node Biopsy course for the American Society of Breast Surgeons at its annual meeting in April 2002.

Jay K. Harness, MD
Professor of Clinical Surgery
UCSF East Bay, Department of Surgery
Oakland, California

Dr Harness is Professor of Clinical Surgery at the University of California, Davis–East Bay, and Chief of Surgical Oncology at Alameda County Medical Center, both in Oakland, California. He is a member of the National Ultrasound Faculty of the American College of Surgeons, the Board of Directors of the American Society of Breast Surgeons, and a past president of the American Association of Endocrine Surgeons. He also was founding director of multidisciplinary breast care centers in Ann Arbor, Michigan, and Boston, Massachussetts.

Lynne P. Clark, MD **James M. Nardi, CPA**
General Surgeon
Private Practice
Tacoma, Washington

Dr Clark is a board certified general surgeon in private practice in Tacoma, Washington, specializing in the diagnosis and management of breast disease. A breast disease specialist, she has been performing image-guided biopsies for the past 5 years. She is a member of the American Society of Breast Diseases and the American Society of Breast Surgeons. Mr Nardi is a CPA who manages the practice for Dr Clark.

EDITOR Gary Soucie
CONTRIBUTING EDITOR Marcia Ringel
ART DIRECTOR Margaret Minogue
PROGRAM MANAGER Monica Gicklhorn

COVER IMAGE **Ultrasound-guided needle core biopsy. Courtesy of Mark A. Gittleman, MD.**

CONTEMPORARY SURGERY is dedicated to publishing authoritative, practical, and current information to help surgeons optimally care for their patients by keeping its readers abreast of new developments in surgery and advances in diagnostic and therapeutic techniques and by serving as a forum in which surgeons share with colleagues the knowledge derived from their research and clinical experience. In selecting articles for publication, the overarching emphasis will be on scholarly presentation and subjects of immediate applicability to our readers' clinical practices.

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Clinical Indications and Applications

by Mark A. Gittleman, MD

The clinical information supplied by ultrasound greatly enhances the diagnosis and treatment of many conditions.

Ultrasound adds so much to the information necessary to form a surgical opinion about breast abnormalities that it is rapidly becoming an essential tool for proper patient care. This outstanding modality represents a refinement of the physical examination and an extension of the examining hand. Surgeons who fail to adopt ultrasound may find themselves no longer taking care of breast patients in the near future because others will offer these services and patients will go to them.

Before I began to use ultrasound 6 years ago, I thought I was doing a good job evaluating patients with breast abnormalities. I know I am doing a much better job now that I have incorporated ultrasound into my practice. Every surgeon I know who has decided to use breast ultrasound is pleased with the decision.

Breast surgeons benefit from using ultrasound in several distinct areas. Diagnostically, we can evaluate more fully the nature of a breast abnormality, whether it is a suspicious area seen on mammogram or a palpable mass in the breast. The modality is also extremely useful for guiding office-based and hospital-based interventional procedures, including cyst evaluation and aspiration, core biopsies, and intraoperative interventions.

Within the next 5 years we will progress beyond diagnostic and interventional procedures into therapeutic applications. Ultrasound will be used as a guidance tool for delivering therapy to breast cancers. It will locate optimal sites in which to place various therapeutic devices for delivering ablative radiofrequency, laser energy, cryotherapy, and even radiation brachytherapy. Clinical trials of in situ ablation of breast tumors using various imaging modalities, including ultrasound, are well under way.

Diagnostic and Intraoperative Uses

The diagnostic application of ultrasound is the focused examination of an area of concern triggered by a physical exam, mammographic study, or patient history (eg, pain or tenderness in a focal area of the breast) suggesting an abnormality. Indications are extensive *(see Table 1)*. Ultrasound is ideal, for example, in distinguishing between solid and cystic lesions that are indeterminate on mammogram. In addition, the absence of radiation makes ultrasound evaluation safe for the pregnant patient with a potential breast problem, such as an abscess or solid mass.

Table 1: Indications for Breast Ultrasound

Diagnostic Procedures

- Palpable breast mass
- Radiologically dense breast
- Mammographically indeterminate lesion
- Suspected abnormality when radiation/mammogram is contraindicated (eg, during pregnancy)

Image-guided Interventions

- Cyst aspiration
- Fine-needle aspiration of a solid mass
- Core biopsy
- Preoperative or intraoperative localization of breast cancer to guide excision (eg, lumpectomy)
- Evaluation or biopsy of axillary nodes or masses contiguous with breast tissue for suspected cancer
- Peritumoral injection for sentinel lymph node biopsy

Postoperative Follow-up

- Immediate postoperative evaluation of swelling after mastectomy or lumpectomy
- Evaluation of nodularities on the chest wall following mastectomy
- Hematoma
- Seroma
- Prosthesis (eg, leak)

Adapted, with permission, from Harness JK, Gittleman MA. Breast ultrasound. In: Harness JK, Wisher DB, eds. *Ultrasound in Surgical Practice: Basic Principles and Clinical Applications.* New York, NY: Wiley-Liss, 2001:161.

Real-time imaging makes ultrasound exceptionally useful for guiding many procedures done in the office or operating room. In the symptomatic or otherwise concerned patient, the quick aspiration of a benign simple cyst as shown clearly on ultrasound relieves physical or psychological discomfort. Ultrasound-guided aspiration determines whether an indeterminate but asymptomatic lesion is a complex benign cyst or a solid mass. Fine-needle aspiration of a solid mass is easily performed with ultrasound guidance.

Needle-core biopsy performed with any of various devices under ultrasound guidance is a less invasive alternative to open surgical biopsies *(Figure 1)*. The American Society of Breast Surgeons encourages surgeons to offer needle-core biopsies, as appropriate, to patients who would otherwise have open biopsies. The Society is appealing last year's Medicare decision to reduce physician reimbursement for these less-invasive procedures.

FIGURE 1: Guided by real-time ultrasound images, the surgeon performs a needle-core biopsy.

More equitable reimbursement would benefit the 1.2 million women in the U. S. who undergo breast biopsy each year, while saving more than $800 million annually.

Intraoperatively, ultrasound is useful for localization of a nonpalpable tumor in the breast to guide its removal. The surgeon can continuously assess the margins as the excision proceeds, minimizing the amount of tissue removed. A number of studies have shown that the incidence of positive margins under the microscope is at least as good with intraoperative ultrasound as that found with standard wire-guided excision, and often considerably better.[1–6] The surgeon can also evaluate and biopsy axillary nodes or masses that are contiguous with breast tissue when cancer is suspected to have spread. Intraoperative ultrasound obviates preoperative mammographic needle-wire localization, an uncomfortable, time-consuming, expensive proposition for patients.

Resected specimens may be examined ex vivo under ultrasound in the operating room to ascertain that an excision has achieved clear margins. This use of sonography provides a fast, effective alternative to specimen radiography.[7] Microcalcifications seen on mammogram in the absence of a mass are *not* an indication for ultrasound. Particles that small cannot typically be seen on ultrasound.

Follow-up after Surgery

Ultrasound is not used routinely after breast surgery but can be of great help when pain, tenderness, or a lump raises concern. Ultrasound can alert the surgeon to the condition under the incision—fluid requiring aspiration? an abscess? fibrosis and induration secondary to surgery?—and help prevent the blind insertion of a needle. Visualizing the area before taking invasive action is a vast improvement over acting on clinical impression alone.

Doing Our Best for Our Patients

A consensus paper by 22 international cancer physicians published in the September 2001 issue of the *Journal of the American College of Surgeons* urged physicians to adopt proven technologies—in mammography, breast ultrasound, and minimally invasive breast biopsy—more quickly than has been the case.[8] Otherwise, the panel warned, continued strides in the diagnosis and management of breast cancer will be threatened.

The paper states: “Breast ultrasonography is a valuable tool. Training and adoption of its use are encouraged. Any adequately trained physician should be allowed and encouraged to use this technology when indicated, without arbitrary limitations because of medical specialty…Wider implementation of currently available techniques will improve patient selection, reduce recurrence rates, mortality, and morbidity of therapy, improve cosmetic results, and decrease overall costs.”

Delivering complete, efficient, cost-effective, humane, up-to-date, *knowledgeable* care must be the surgeon’s goal. Ultrasound helps us to achieve this.

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Ultrasound Technology Today

by Jay K. Harness, MD

Remarkable technologic advances make this tool increasingly accessible, affordable, and indispensable to the busy breast surgeon.

Until about a decade ago, ultrasound machines were too large, too expensive, and too complicated for surgeons to consider incorporating into their daily practices. All that has changed drastically. Vast improvements have been made in such vital aspects of the technology as linear-array electronic focusing and image quality. Small, lightweight ultrasound machines can be carried to any desired office or hospital site.

The use of ultrasound by breast surgeons is greatly expanding thanks to many factors, including moderate prices, variably shaped and multifrequency transducers designed for assorted applications *(Figure 1)*, and a broadening array of catheters, needles, and equipment, such as biopsy guide attachments, intended for specific procedures.[1]

Once surgeons get over the barrier of understanding what the "dots" (pixels) are all about, they become rapid learners of ultrasound. They learn the essentials quickly because of their good hand–eye coordination and experience in 3-dimensional thinking. All of us who do ultrasound regularly wonder how we managed without it.

The expansion of the technology has paralleled studies reinforcing confidence in its capabilities. The literature has proliferated since the classic 1995 study by Stavros demonstrating that high-resolution ultrasound can help differentiate benign lesions from malignant solid nodules.[2]

The development of computer-enhanced imaging and high-frequency linear array transducers *(Figure 2)* has made such distinctions increasingly reliable.[3] Nevertheless, finding any suspicious characteristics warrants biopsy. Careful comparison of ultrasound findings with the mammographic report is essential for any surgeon performing breast ultrasound.[4] Surgeons should remember the importance of the Triple Test: namely, that there should be agreement, or concordance, among the physical examination, imaging studies, and biopsy results in order to accurately determine the precise nature of the ultrasound image of a suspicious lesion.

Not all lesions may be characterized with ultrasound. Surgeons must employ proper scanning techniques *(Figure 3)*, including the recognition and accurate interpretation of anatomy, whether normal or abnormal, and artifacts.[5] All this can be learned with practice. Figure 4 demonstrates a needle-core biopsy of a characteristic breast cancer.

FIGURE 1: High-resolution transducers operate at 2–10 MHz for the following applications (left to right): intracavitary; abdominal; breast, superficial, and vascular; transthoracic and trauma; and vascular access. Photograph courtesy of SonoSite, Inc.

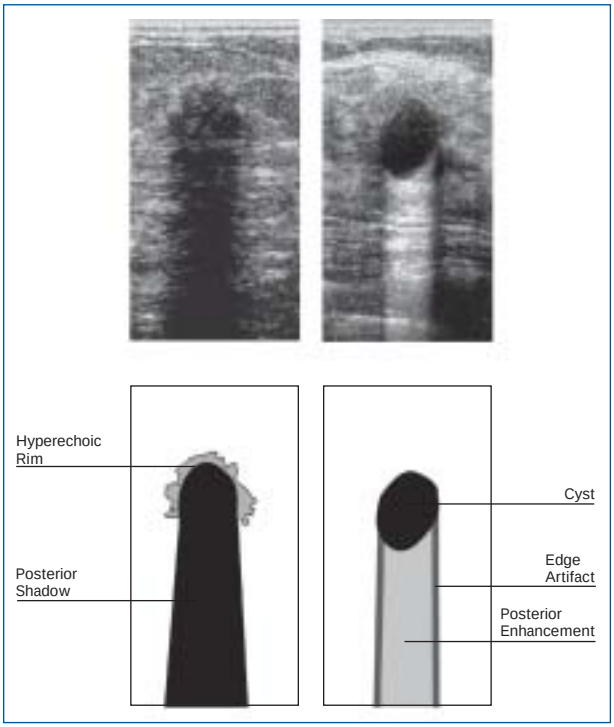

FIGURE 2: A cancer with a posterior shadow (left) is clearly distinguished from a simple cyst with posterior enhancement (right). Reproduced, with permission, from Harness JK, Wisher DB, eds. *Ultrasound in Surgical Practice: Basic Principles and Clinical Applications.* New York, NY: Wiley–Liss; 2001:193.

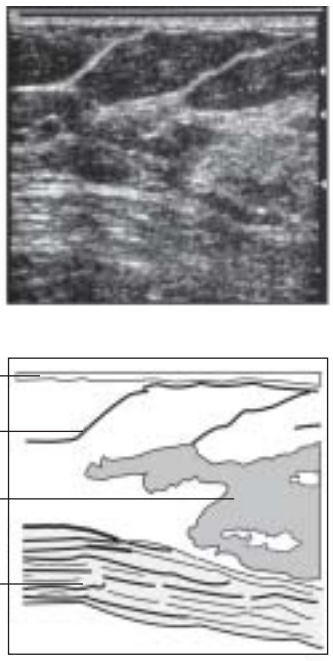

FIGURE 3: This typical ultrasound image of a normal breast demonstrates the skin, Cooper's ligament, areas of normal glandular tissue, and pectoralis muscle.
Reproduced, with permission, from Harness JK, Wisher DB, eds. *Ultrasound in Surgical Practice: Basic Principles and Clinical Applications.* New York, NY: Wiley-Liss; 2001;169.

What's on the Market

The progression of ultrasound machines in sizes from huge to quite small is parallel in a way to the evolution of computers from the Univac to the Palm Pilot. In the early days, computers filled a room. As they became increasingly affordable and user-friendly, they shrank to desktop models, then laptops, and finally palm-size devices. Similarly, ultrasound machines are available in a wide range of sizes. The size of the SonoSite® 180PLUS device *(SonoSite, Inc, Bothell, Wash)*, for example, is a small fraction of the size of the Performa *(Dornier Medical Systems, Kennesaw, Ga)*.

A number of companies make devices that are suitable for use by breast surgeons. Several manufacturers make portable machines that can be carried to the patient's bedside, the clinic, the operating room, or the emergency room.

What to Buy?

Before making your first ultrasound purchase, participate in an educational course to be sure you want to become involved in this process. *(See the article on education and training on page 6.)* Then take 4 to 6 weeks to explore the market. Ask vendors to bring their products to your office so that you can try them out on your patients and do side-by-side comparisons of different machines.

Next, determine your requirements. How portable is the machine and how much do you require that attribute? Is the equipment upgradable? What are the annual costs of ownership and service? Can the machine store and download images in digital format, a capability that is often useful for training, documentation, and quality assurance?

You probably don't need all the bells and whistles, such as a high-end machine with color Doppler, 3-D imaging, multiple transducers, remote control, and sophisticated storage features—especially not right away. But you do need equipment of high quality.

Like home computers, many different ultrasound scanners are good, but the various models are far from identical. Avoid bargain-basement equipment. You don't need it; in the past few years, prices have been falling steadily. An excellent single-transducer machine can be obtained for approximately $18,000 to $25,000. (The price has as much to do with the quality of the transducer, an extremely important factor in accurate ultrasound use, as with that of the machinery.)

Originally, physicians were advised to amortize their ultrasound equipment over 3 years. Today, the less expensive machines can be paid off in about 12 to 18 months.

In making your decision, think about what you're comfortable with, how much you can afford to spend, and where you will use the equipment. Portable devices occupy little room and are handy to take to different exam rooms or offices in different cities, to outpatient surgical centers, and to the operating rooms of different hospitals. Larger machines, however, often provide more features and better resolution.

Beyond the Breast

A wide variety of transducers can be obtained as separate accessories for most ultrasound equipment. For the general surgeon, the linear-array 7.5–12 MHz transducer, which is used for breast ultrasound, can also be helpful in evaluating thyroid nodules, cervical lymph nodes, and testicular masses. Transducers of different frequencies and construction are used for intra-abdominal (eg, aortic aneurysm and gallstones), pelvic, colorectal, prostate, and endovaginal examinations.

Ultrasound has many applications outside the office setting. In the emergency department or intensive-care unit (ICU), sonography assists the examination of the trauma patient in evaluating for blood in the abdomen or chest cavity—called the focused abdominal sonography for trauma (FAST exam).[6] In the ICU, ultrasound helps to identify the subclavian and internal jugular veins for

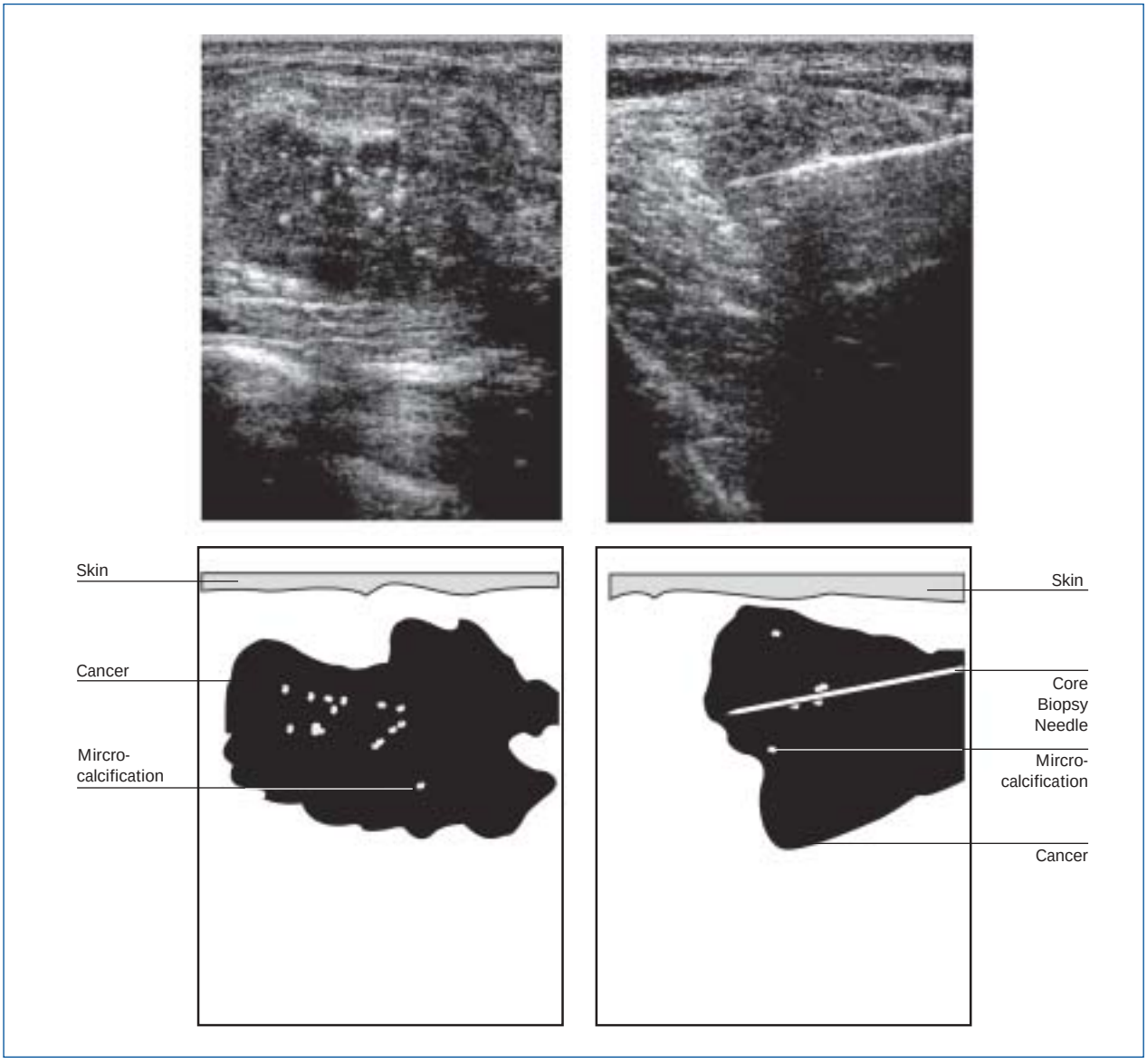

FIGURE 4: Learning ultrasound-guided biopsy techniques requires time and patience, but the rewards are great. Here, the well-placed needle is evident (right) in a carcinoma needle-core biopsy.
Reproduced with permission from Harness JK, Wisher DB, eds. *Ultrasound in Surgical Practice: Principles and Clinical Applications.* New York, NY: Wiley–Liss; 2001:233.

easier access when a central venous catheter is being placed. In the emergency department and ICU, ultrasound can identify hemopericardium.

Staying in the Loop

Breast and other surgeons who do not hasten to bring ultrasound into their practices may find themselves even farther behind in the foreseeable future. Magnetic resonance imaging (MRI), already emerging as an imaging modality of the breast to add to mammography and ultrasonography, has been proven particularly useful for visualizing the very dense breast, breasts with prostheses, and additional suspected cancers in patients who have an established diagnosis of breast cancer.

A large part of the future of breast surgery will involve image-directed, minimally invasive techniques. To participate, breast surgeons must know how to perform ultrasound scans and ultrasound-guided biopsy procedures—and they must know them today. The future is now.

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Education, Training, and Certification

by Pat W. Whitworth, MD

Don't hesitate to take an ultrasound course, acquire a machine, and practice, practice, practice.

The ultrasound machine is to the surgeon as the stethoscope is to the cardiologist. Physicians easily learn to use the equipment in a basic way, polish their skills with routine use, and develop increasingly subtle impressions of clinical presentations. Granted, getting started in ultrasound is more complicated than plucking a stethoscope off the medical supplier's wall—but not so much more as one might think.

Getting Started

The American Board of Surgery has integrated ultrasound training into general surgery training for several years. Residents must fulfill certain ultrasound-related criteria. Those of us who finished school some time ago must seek ultrasound education on our own. Fortunately, it is readily available.

Most surgeons who are active ultrasound enthusiasts began, as I did, by taking a course, purchasing an ultrasound machine, and using it for nearly every patient who visited the office with a palpable cyst or a breast mass. The reluctance of radiologists to cooperate is fading *(see sidebar on page 7)*. Surgeons are strongly advised not to use information obtained via ultrasonography in any meaningful way (or to charge for the service) until they have developed the pattern recognition that can come only from experience and have grown to believe that their discoveries are making a substantial difference in the way their patients are managed.

Excellent, CME-accredited courses are offered by the American College of Surgeons (ACS, *www.facs.org*), the American Society of Breast Surgeons (*www.breastsurgeons.org*), hospitals and other health organizations, and ultrasound equipment vendors. Courses can sometimes be arranged in a given geographic area for even a small group by educational training companies at the request of a vendor. Similarly, the ACS will export courses to local chapters and other organizations. The ACS is working with the breast surgeons' society toward uniformity in the provision of breast ultrasound courses.

Most such courses occupy at least 4 hours or, more often, 6 to 8 hours. They may require attendance for a full day or consist of a sequence of sessions over 2 days. Classes involve both didactic sessions and hands-on experience, typically involving practice on ultrasound phantoms. Many surgeons take a second course—perhaps the same course—to reinforce the cognitive content, gain more experience overseen by a knowledgeable instructor, and perhaps ask questions that have occurred to them since taking the first course.

Hands-on Training, Step by Step

It usually takes about 6 months for surgeons who practice regularly and have the equipment at hand to progress through the sequence of training described below. Those who take much longer tend to be held back by having to travel to use an ultrasound machine outside the office setting.

Phase 1: Visualizing a large cyst or large palpable mass. The surgeon's first interventional procedures performed under ultrasound usually involve scanning large cysts or large palpable masses (eg, a suspected fibroadenoma) whose management would previously have been dictated by palpation and biopsy alone. Neophytes often are surprised to discover how easily the palpated lesion is visualized.

Visualizing large lesions builds confidence with pattern recognition and permits the surgeon to become facile with the simultaneous use of the ultrasound probe and the biopsy or aspiration needle. Reproducing abnormalities that have been seen on outside ultrasound images becomes second nature. Still in a learning phase, the surgeon is not yet billing for this procedure. Becoming experienced with palpable abnormalities may take several dozen cases over about 2 or 3 months. There is no standard; the time required varies considerably according to the individual.

Phase 2: Interventional procedures for nonpalpable masses. Surgeons then monitor and guide the management of nonpalpable lesions that are large enough (at least 1 cm) to be seen readily on ultrasound. These patients often have an outside ultrasound image that the surgeon can reproduce. At this point the surgeon may consider billing for the procedure in accordance with the guidelines described above.

Phase 3: Management of smaller nonpalpable lesions. The third step is to use ultrasound in the management of smaller (<10 mm), nonpalpable lesions that were suspicious on mammogram. At this stage there may be no outside ultrasound available for easy reference. In some cases, the surgeon is the first to see on ultrasound a lesion that was not evident on mammogram.

Once you have obtained an ultrasound machine

and learned how to use it well, write to your referring physicians announcing this capability. Word of mouth will follow. Patient response is positive as well; women are often familiar with ultrasound from their obstetric exams or elsewhere and like to see surgeons using it.

After becoming adept at breast ultrasound, surgeons can perform more advanced procedures. These include ultrasound-guided percutaneous excision of a palpable fibroadenoma using a handheld vacuum-assisted device *(Mammotome, Ethicon Endo-Surgery, Cincinnati, Ohio)*. Furthermore, the surgeon will be ready to bring real-time ultrasound into the operating room to guide lumpectomy for a previously diagnosed tumor, saving the time and inconvenience required for a preoperative needle localization procedure. Easily portable ultrasound devices (about the size of a laptop computer) are now available. The surgeon will also be ready to apply new ultrasound-guided ablative and excisional technologies as those become available.

Throughout the training period and beyond, the most important rule is to maintain concordance between the image and the pathology report. Histologic findings must never be used as an independent test, but must fully explain the ultrasound image that triggered the biopsy in the first place. *Excision is mandatory when the findings on pathology fail to fully explain the imaged abnormality.*

Enlisting Office Staff and Pursuing QA

Many surgeons are beginning to realize how helpful their office staff can be in using ultrasound. With training, staff members can assist the surgeon by locating lesions or monitoring lesions (with supervision) that have already been evaluated.

Quality assurance is derived from maintaining a registry of every case done, including the results of the biopsy, the action taken, and especially the follow-up imaging and clinical evaluation of those patients 6, 12, and 24 months after the intervention.

Cases should be reviewed every 6 or 12 months. Your practice must be able to state its rate of false-negative results and the number of cases of cancer per biopsies done. The false-negative rate will not be zero even in the best practices because some cancers are removed immediately after pathologic findings have failed to explain suspicious sonographic findings. To minimize the risk of missing any cancers, a small but significant number of benign lesions will be removed when concordance between imaging and histologic findings is not certain.

Keeping Up and Demonstrating Expertise

It is crucial over the years to maintain one's skills and develop further the technical skills needed to use ultrasound in a meaningful way. Some surgeons like to take additional breast ultrasound courses as a refresher.

The American Society of Breast Surgeons recently initiated the first breast ultrasound certification program for individual surgeons (*see "Breast Ultrasound Certification Program Begins" on back cover*). Anyone on the staff, including the surgeon, can work toward certification as an ultrasound technologist by the American Registry of Diagnostic Medical Sonographers (ARDMS) in Rockville, Md (www.ardms.org). Learning to use ultrasound in surgical practice has become increasingly important and increasingly easy.

Working in Concert with Radiologists: A Growing Rapport

Those of us who use ultrasound tend to embrace it wholeheartedly. Yet some surgeons have remained reluctant to take the plunge. Turf issues have played a continuing part in that history. Radiologists in some communities, sensing an infringement on their clinical territory, have attempted to prevent surgeons from being trained in breast ultrasound or using the equipment to evaluate patients. Some have expressed concerns about putting patients at risk. (Similar obstructions once impeded OB/GYNs who wanted to do pelvic and obstetric ultrasound.) Fortunately, in recent years, enlightened radiologists have recognized that surgeons with ultrasound skills pose no significant threat to their income and provide better-quality care as members of the same breast health team.

Ultrasonography in surgeons' hands is becoming more common as surgeons and radiologists grow to trust each other. In some centers, radiologists are taking a much more interactive role with patients than before. Radiologists and surgeons working in concert have the same goals and may have more in common with each other than with their general surgical or general radiological colleagues. The best situation for the patient is to have a surgeon and a radiologist with ultrasound skills who work together as a team.

Reimbursement Adviser

By Lynne P. Clark, MD, with James M. Nardi, CPA

To encourage third-party payers to reimburse for ultrasound-related procedures, use correct codes, and approach insurers proactively.

All surgeons regularly practicing the management of breast-related diseases should use ultrasound judiciously to assist diagnostic management. Ultrasound-guided core biopsies and ultrasound vacuum-assisted biopsies, as with the Mammotome (*Ethicon Endo-Surgery, Cincinnati, Ohio*), should be part of the office armamentarium. In turn, clinicians can expect to receive adequate reimbursement.

In my solo practice, breast patients represent 65%–70% of office billings. Each week, approximately 60–75 patients are evaluated, including 12–25 new patients. Ultrasound evaluation of breast masses at the time of the initial patient evaluation gives assurance of clinical assessment of the mass. Performing needle-core biopsies and Mammotome biopsies under ultrasound guidance as in-office procedures provides excellent efficiency for the physician, timely reports of results to patients, and lower overall cost to insurance companies. Following this path increases productivity, improves patient care, and drastically reduces the paperwork shuffle.

Boon to Efficiency, Finances, and Patient Care

Ultrasound became an integrated part of our office practice about 4 years ago. Recently, Mr Nardi analyzed the practice regarding the number of procedures done in the last 2 quarters of 2000 as compared to those done in the first 2 quarters of 2001. The analysis revealed unexpected findings.

Diagnostic ultrasound procedures had been performed at a steady rate, but the number of open biopsies dropped considerably, and the number of minimally invasive biopsies increased substantially. This was a naturally occurring phenomenon based on choosing the appropriate procedure to resolve an indeterminate finding on mammogram or ultrasound. Speed and efficiency improved.

The overall number of biopsies performed remained constant over the 2 periods, but fewer open biopsies and more ultrasound-guided Mammotome biopsies were performed. In many cases, reimbursement was higher for minimally invasive procedures.

With ultrasound in the picture, the average amount of time spent by the patient was less than 30 minutes. The surgeon's time was reduced from 45–60 minutes to only 10–20 minutes. In addition, in-office ultrasound obviated commuting between the office and outpatient units. Results included better medicine, heightened efficiency, and increased patient satisfaction.

From a business standpoint, the practice of using ultrasound can recap the initial investment of both the ultrasound and biopsy instruments in a reasonable period. A typical cost analysis of purchasing capital equipment involves estimating how many procedures will be performed and at what reimbursable fee, then determining how long it will take for each piece of equipment to pay for itself (payback period). Instead, we evaluated the practice globally to demonstrate that the volume of both diagnostic and ultrasound-guided procedures should be included in the equation. We found that our ultrasound and biopsy equipment had paid for itself in far less than a year *(Table 1)*.

Easing Insurance Companies' Objections

Surgeons should keep certain principles in mind when submitting forms for reimbursement to insurance companies. Correct coding is an essential component of any and all insurance reimbursement. When we first introduced ultrasound in our practice, a number of insurance companies resisted reimbursing for procedures done under the diagnostic CPT code 76645 on the day of the initial office consultation. They resisted even more strongly reimbursing for an ultrasound-guided biopsy performed on the same day.

For optimal reimbursement, the evaluation and management (E&M) code must stand alone. If the surgeon follows the prescribed guidelines for such use, the code is appropriate. Adding modifier 25, which indicates significant, separately identifiable E&M services provided by the same physician on the same day, to the E&M code has reduced our reimbursement problems.

Breast cancer does not discriminate by age. Many of our patients are not Medicare recipients. Their reimbursement is usually provided at higher rates.

If the patient's health insurance provider is a managed care plan, taking a proactive approach helps to prevent HMO gatekeepers from barring reimbursement for appropriate care. Ask the referring physicians in your area to write, "Breast exam and radiological evaluation as required," not merely, "Breast exam," on the original referral form. This more inclusive wording frees the specialist to proceed promptly with whatever aspects of patient care are considered to be appropriate at the time.

Table 1: One Practice's Break-even Analysis for Ultrasound and Biopsy Equipment

This table represents expenses and reimbursements for ultrasonography in the author's solo practice for the first 6 months of 2001. The total reimbursements for U/S-guided biopsies during the 6-month period ($56,374) were only $10,626 less than the capital cost of the equipment. By extrapolation, reimbursement would have paid for the equipment in another month or two. (Office ultrasound equipment costs $27,000–$60,000. Spending more or less than Dr Clark's practice might increase or decrease the cost-recovery period.)

Total Equipment Costs*

Ultrasound machine	$ 37,000
Vacuum-assisted biopsy machine	30,000
	$ 67,000

*not including costs for labor, supplies, maintenance, etc.

	CPT Code	Procedure	No. of Procedures Performed	Approx. Reimbursement/ Procedure	Approx. Total Reimbursement
Diagnostic	76645	Diagnostic ultrasound	390	$75	$29,250
	76942	Ultrasound guidance for needle placement	97	$100	$9,700
Surgical	19102	Needle core biopsy under ultrasound guidance	52	$225	$11,700
	19103	Excision of breast mass under ultrasound guidance	18	$318	$5,724
All data from author's practice, January–June 2001.					**$56,374**

The tremendous gains in efficiency are equaled by a reduction in patients' anxiety and stress.

Communicate freely and regularly with providers. Insurance practices differ widely from one location to another. It is therefore essential for practitioners who are beginning to add ultrasound to their practices to communicate with third-party payers to make sure reimbursement is consistent.

Surgeons who are not considered sufficiently competent to be reimbursed can be sued as well. The authors of a recent review in *The Breast Journal* of 124 lawsuits involving 212 defendants, including 33 surgeons, noted that a triad of errors—patient age under 45 years, self-diagnosed breast mass, and the report of a normal mammogram or normal clinical exam—accounted for a substantial number of cases.[1] The authors recommend performing all possible diagnostic studies, including ultrasound, when evaluating patients to prevent missing a diagnosis of cancer. In addition, the individual certification in breast ultrasound that is now being offered by the American Society of Breast Surgeons *(see back cover)* may help surgeons to demonstrate reimbursement-supporting (and litigation-fighting) competence in that modality.

Rounding Out One's Practice

Ultrasound equipment in the office can increase billings in unexpected ways. For example, the surgeon may perform an abdominal ultrasound scan when a patient can not be scheduled in a timely fashion to have that procedure done in the hospital. In other cases, the surgeon may perform an ultrasound-guided biopsy on a thyroid nodule identified on clinical exam.

Surgeons who develop ultrasound skills can improve productivity in the office setting by performing minimally invasive, image-guided removal of breast masses. Doing so allows surgeons to work more efficiently while achieving better patient satisfaction as workups are completed expeditiously.

It is essential that surgeons continue to participate in the diagnostic phase of breast disease as patients increasingly demand minimally invasive procedures. The use of ultrasound may be the key to the treatment of breast cancer in the next decade.

Reference

1. Zylstra S, D'Orsi CJ, Ricci BA, et al. Defense of breast cancer malpractice claims. *Breast J.* 2001;7:76-90.

Breast Ultrasound Certification Program Begins

The American Society of Breast Surgeons is now offering a breast ultrasound certification program for surgeons. Until now, only surgeon practices and facilities, not individuals, have been able to earn certification, through a program offered by the American Institute of Ultrasound in Medicine (AIUM). As of late 2001, the Society's program was expected to begin in early 2002.

Applicants must:

- be currently certified by the American Board of Surgery;
- document training in ultrasound during residency or fellowship or the acquisition of at least 15 AMA Category I CME credits in breast ultrasound, at least 7 of which have been earned in the 12 months prior to application;
- have at least 1 year's experience performing and interpreting breast ultrasound;
- document having performed no fewer than 100 breast ultrasound cases in the previous year;
- have reviewed at least 100 mammograms in the previous year; and
- submit 10 cases with images that represent diseases of the breast and that coincide with biopsies done under ultrasound guidance.

The review faculty will consist of board-certified surgeons who are members of the American College of Surgeons (ACS) breast ultrasound faculty. Each application will be assigned at random to 2 reviewers. Applications will be checked for completeness by the Society's office staff before being assigned for evaluation. A fee of $750 will cover costs; reviewers will perform their duties gratis, says Society president Arthur G. Lerner, MD, director emeritus of the Department of Surgery and surgical director of the Dickstein Cancer Center at White Plains (NY) Hospital Center.

The Society's board approved the document outlining the new certification program during the group's annual meeting in New Orleans in October 2001. The document was later endorsed by Thomas R. Russell, MD, executive director of the ACS.

Rationale

Accreditation of facilities by the AIUM "proves commitment to the highest quality patient care, demonstrates clinical excellence, and provides credibility to peers," according to AIUM's web site *(www.aium.org)*. Similar goals are desired for the American Society of Breast Surgeons program. Furthermore, Dr Lerner explains, earning certification is hoped to aid surgeons in obtaining privileges to use breast ultrasound equipment in hospitals and to be reimbursed by Medicare and other third-party payers for performing breast ultrasound services. "We're hoping that having the Society's process in place, supported by the ACS, will give surgeons who are having difficulty with reimbursement an opportunity to confront HMOs that deny such reimbursement," he says.

Litigation is yet another consideration. "Breast cancer cases are taking over as the Number One arena for lawsuits," including accusations of delays in diagnosis, Dr Lerner observes. If a plaintiff's lawyer should claim that it was inappropriate for a surgeon to have performed an ultrasound scan as part of a workup, he continues, certification in breast ultrasound should help the surgeon to demonstrate competence and credibility in that area.

Written Test Being Developed

The Society is developing a written examination to accompany the application requirements listed above. "We hope to offer the test twice a year," Dr Lerner says. The goal is to begin testing at the October 2002 ACS Clinical Congress, continue at the annual meeting in April 2003, and proceed from there.

Interest in the new program has been substantial even before its initiation. "Other subspecialty surgical societies are looking to our certification process as the template," Dr Lerner says.

Information on the new breast ultrasound certification program is posted on the organization's web site *(www.breastsurgeons.org)*.

—Pat W. Whitworth, MD