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ACR PRACTICE GUIDELINE FOR THE PERFORMANCE OF A BREAST ULTRASOUND EXAMINATION

PREAMBLE

These guidelines are an educational tool designed to assist practitioners in providing appropriate radiologic care for patients. They are not inflexible rules or requirements of practice and are not intended, nor should they be used, to establish a legal standard of care. For these reasons and those set forth below, the American College of Radiology cautions against the use of these guidelines in litigation in which the clinical decisions of a practitioner are called into question.

The ultimate judgment regarding the propriety of any specific procedure or course of action must be made by the physician or medical physicist in light of all the circumstances presented. Thus, an approach that differs from the guidelines, standing alone, does not necessarily imply that the approach was below the standard of care. To the contrary, a conscientious practitioner may responsibly adopt a course of action different from that set forth in the guidelines when, in the reasonable judgment of the practitioner, such course of action is indicated by the condition of the patient, limitations on available resources or advances in knowledge or technology subsequent to publication of the guidelines. However, a practitioner who employs an approach substantially different from these guidelines is advised to document in the patient record information sufficient to explain the approach taken.

The practice of medicine involves not only the science, but also the art of dealing with the prevention, diagnosis, alleviation and treatment of disease. The variety and complexity of human conditions make it impossible to always reach the most appropriate diagnosis or to predict with certainty a particular response to treatment. It should be recognized; therefore, that adherence to these guidelines will not assure an accurate diagnosis or a successful outcome. All that should be expected is that the practitioner will follow a reasonable course of action based on current knowledge, available resources, and the needs of the patient to deliver effective and safe medical care. The sole purpose of these guidelines is to assist practitioners in achieving this objective.

I. INTRODUCTION

This guideline has been developed to assist practitioners performing ultrasound examination of the breast. When ultrasound is used as guidance for interventional procedures or biopsy, guidelines that address those specific situations should be consulted.

II. INDICATIONS

Appropriate indications for breast sonography include:

1. Identification and characterization of palpable and nonpalpable abnormalities and further evaluation of clinical and mammographic findings.
2. Guidance of interventional procedures.
3. Evaluation of problems associated with breast implants.

4. Treatment planning for radiation therapy.

Breast sonography is the initial imaging technique to evaluate palpable masses in women under 30 and in lactating and pregnant women.

Although the efficacy of ultrasound as a screening study for occult masses is an area for research at the current time, ultrasound is not indicated as a screening study for microcalcifications.

III. QUALIFICATIONS AND RESPONSIBILITIES OF PERSONNEL

See the ACR Practice Guideline for Performing and Interpreting Diagnostic Ultrasound Examinations.

IV. SPECIFICATIONS OF THE EXAMINATION

A. Lesion Characterization and Technical Factors

1. The breast sonogram should be correlated with mammographic and other appropriate breast imaging studies as well as with physical examination directed to the area in question. If sonography has been performed previously, the current examination should be compared with prior sonograms, as appropriate. A lesion or any area of the breast being studied should be viewed in two perpendicular projections; one view is insufficient.

2. At least one set of images of a lesion should be obtained without calipers. The maximal dimensions of a mass should be recorded in at least two dimensions.

3. The images should be labeled as to right or left breast, the lesion's location, and the orientation of the transducer with respect to the breast (e.g., transverse or longitudinal, radial or antiradial). The location of the lesion should be recorded; the quadrant should be specified or the location can be indicated by using clock notation and distance from the nipple, or shown on a diagram of the breast.

   Several sonographic features may be helpful in characterizing breast masses. These features should be noted: size, shape, echogenicity, margin features, orientation, and attenuation (e.g., shadowing or enhancement).

4. Mass characterization with ultrasonography is highly dependent on technical factors.

   Breast ultrasound should be performed with a high-resolution scanner (Section VI). Proper gain settings and focal zone selections should be optimized to obtain high-quality images. The patient should be positioned to minimize the thickness of the portion of the breast being evaluated. For evaluation of superficial lesions, a stand-off device may be helpful.

B. Guidance of Interventional Procedures

(See the ACR Practice Guideline for Performance of Ultrasound-Guided Percutaneous Breast Interventional Procedures.)

When ultrasound guidance is used to assist in needle placement for interventional procedures, care should be taken to ensure that scanning geometry and transducer placement permit adequate visualization of the needle and the needle tip.

V. DOCUMENTATION

Images of all-important findings, including, in the case of interventional procedures, the relationship of the needle to the lesion, should be recorded on a retrievable and reviewable image storage format.

A. Image labeling should include a permanent identification label that contains:

1. The facility name and location.
2. Examination date.
3. Patient's first and last name.
4. Identification number and/or date of birth.
5. Anatomic location using quadrant, clock notation, or labeled diagram of the breast. Indication of the distance of the abnormality from the nipple also may be helpful.
6. Sonographer's or sonologist's identification number, initials, or other symbol.

B. The physician's report of the ultrasonographic findings should be placed in the patient's medical record.

C. Retention of the breast ultrasonographic images should be consistent with the policies for retention of mammograms, in compliance with federal and state regulations, local healthcare facility procedures, and clinical need.

D. Reporting should be in accordance with ACR Practice Guideline for Communication: Diagnostic Radiology.

VI. EQUIPMENT SPECIFICATIONS

Breast ultrasound should be performed with a high-resolution and real-time linear array scanner operating at a center frequency of at least 7 MHz. Equipment permitting electronic adjustment of focal zone(s) is recommended. In general, the highest frequency capable of adequate penetration to the depth of interest should be used. For evaluation of superficial lesions, a stand off device may be helpful.

VII. QUALITY CONTROL AND IMPROVEMENT, SAFETY, INFECTION CONTROL, AND PATIENT EDUCATION CONCERNS

Policies and procedures related to quality, patient education, infection control, and safety should be developed and implemented in accordance with the ACR Policy on Quality Control and Improvement, Safety, Infection Control, and Patient Education Concerns appearing elsewhere in the ACR Practice Guidelines and Technical Standards book.

Equipment performance monitoring should be in accordance with the ACR Technical Standard for Diagnostic Medical Physics Performance Monitoring of Real Time Ultrasound Equipment.

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