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ACR PRACTICE GUIDELINE FOR THE PERFORMANCE OF ULTRASOUND EVALUATION OF THE PROSTATE (and Surrounding Structures)

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. Therefore, it should be recognized 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

The clinical aspects of this guideline (Specifications of the Examination and Equipment Specifications) were developed collaboratively by the American College of Radiology (ACR) and the American Institute of Ultrasound in Medicine (AIUM). Recommendations for physician qualifications, written request for the examination, documentation, and quality control vary among these organizations and are addressed by each separately.

Ultrasound (US) examination of the prostate is used in the diagnosis of prostate cancer, benign prostatic hypertrophy, prostatitis and male infertility, and for the treatment of prostatic cancer, abscess, and benign prostatic hypertrophy. For prostate cancer screening, a combination of digital rectal examination and a test for

serum prostate-specific antigen (PSA) level usually serves as the initial screening procedure. Ultrasound-guided biopsy of the prostate is best reserved to evaluate those patients who have abnormal digital rectal examinations or an abnormal serum PSA level. Although certain ultrasound findings may strongly suggest the presence of prostate cancer, ultrasound evaluation alone cannot confirm or exclude the diagnosis of prostate cancer. In the patient with prostatism, ultrasound is useful to document the size of the gland. Ultrasound of the prostate and surrounding structures may also be useful in the evaluation of male infertility**.** Ultrasound may be used in the setting of infection to assess the extent of the process and to determine whether there is an associated abscess.

These guidelines have been developed to assist practitioners performing an ultrasound examination of the prostate. Ultrasound of the prostate and surrounding structures should be performed only when there is a valid medical reason, and the lowest possible ultrasonic exposure should be used to gain the necessary diagnostic information. In some cases, an additional and/or specialized examination may be necessary. While it is not possible to detect every abnormality, following this guideline will maximize the detection of abnormalities of the prostate.

II. QUALIFICATIONS AND RESPONSIBILITIES OF THE PHYSICIAN

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

III. WRITTEN REQUEST FOR THE EXAMINATION

The written or electronic request for an ultrasound evaluation of the prostate should provide sufficient information to demonstrate the medical necessity of the examination and allow for the proper performance and interpretation of the examination.

Documentation that satisfies medical necessity includes 1) signs and symptoms and/or 2) relevant history (including known diagnoses). The provision of additional information regarding the specific reason for the examination or a provisional diagnosis would be helpful and may at times be needed to allow for the proper performance and interpretation of the examination.

The request for the examination must be originated by a physician or other appropriately licensed health care provider. The accompanying clinical information should be provided by a physician or other appropriately licensed health care provider familiar with the patient's clinical problem or question and consistent with the state scope of practice requirements. 2006 (Res. 35)

IV. SPECIFICATIONS OF THE EXAMINATION OF THE PROSTATE AND SURROUNDING STRUCTURES

The following guidelines describe the examination of the prostate and surrounding structures.

A. Prostate

The transrectal approach to ultrasound of the prostate is preferred as image quality is superior to transabdominal or transperineal examinations. However, in patients for whom the transrectal approach is not possible, a transperineal ultrasound examination may be used to direct a biopsy procedure. A transabdominal approach can be useful to obtain an estimate of prostate size in some settings.

The prostate should be imaged in its entirety in at least two orthogonal planes, sagittal and axial or sagittal and coronal, from the apex to the base of the gland. An estimated volume is determined from measurements in three orthogonal planes. The volume of the prostate may be correlated with the PSA level.

The gland should be evaluated for focal mass, echogenicity, symmetry, and continuity of margins. Color and power Doppler sonography may be helpful in detecting areas of increased vascularity that can be used to select sites for potential biopsy. The periprostatic fat and neurovascular bundle should be evaluated for symmetry and echogenicity. In the patient with symptoms of prostatism, the course of the prostatic urethra should be documented, when possible, and asymmetry between left and right periurethral tissues as well as their impact on the base of the bladder should be noted.

B. Seminal Vesicles, Vasa Deferentia, and Perirectal Space

The seminal vesicles should be evaluated for size, shape, position, symmetry, and echogenicity from their insertion into the prostate via the ejaculatory ducts to their cranial and lateral extents. Particular attention should be given to the normal tapering of the seminal vesicle as it joins the prostate. In patients being evaluated for infertility, the vasa deferentia must be evaluated. Inclusion of the anterior perirectal space, in particular the region that abuts the prostate and perirectal tissues, is important.

V. DOCUMENTATION

Adequate documentation is essential for high-quality patient care. There should be a permanent record of the ultrasound examination and its interpretation. Images of all appropriate areas, both normal and abnormal, should be recorded in an appropriate format. Variations from normal size should be accompanied by measurements.

Images are to be appropriately labeled with the examination date, patient identification, and image orientation. A report of the ultrasound findings should be included in the patient's medical record. Retention of the permanent record of the ultrasound examination should be consistent both with clinical need and with the relevant legal and local healthcare facility requirements.

Reporting should be in accordance with the ACR Practice Guideline for Communication of Diagnostic Imaging Findings.

VI. EQUIPMENT SPECIFICATIONS

A. Equipment

A prostate ultrasound examination should be conducted with a real-time transrectal (also termed endorectal) transducer using the highest clinically appropriate frequency, realizing that there is a trade-off between resolution and beam penetration. With modern equipment, these frequencies are usually 6 MHz or higher. A lower frequency may be necessary for transabdominal and transperineal examinations.

B. Care of the Equipment

Transrectal probes must be covered by a disposable sheath prior to insertion. Following the examination and disposal of the sheath, the probe must be disinfected. The method of disinfection depends on the manufacturer and infectious disease recommendations. Disposable accessory items used during the study must be discarded after each examination.

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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