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The American College of Radiology will periodically define new practice guidelines and technical standards for radiologic practice to help advance the science of radiology and to improve the quality of service to patients throughout the United States. Existing practice guidelines and technical standards will be reviewed for revision or renewal, as appropriate, on their fifth anniversary or sooner, if indicated.

Each practice guideline and technical standard, representing a policy statement by the College, has undergone a thorough consensus process in which it has been subjected to extensive review, requiring the approval of the Commission on Quality and Safety as well as the ACR Board of Chancellors, the ACR Council Steering Committee, and the ACR Council. The practice guidelines and technical standards recognize that the safe and effective use of diagnostic and therapeutic radiology requires specific training, skills, and techniques, as described in each document. Reproduction or modification of the published practice guideline and technical standard by those entities not providing these services is not authorized.

Revised 2011 (Resolution 6)*

ACR–ACOG–AIUM–SRU PRACTICE GUIDELINE FOR THE PERFORMANCE OF SONOHYSTEROGRAPHY

PREAMBLE

These guidelines are an educational tool designed to assist practitioners in providing appropriate radiation oncology 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 of 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 contained in specific sections of this guideline (Introduction, Indications and Contraindications, Specifications of the Examination, and Equipment Specifications) were developed collaboratively by the American College of Radiology (ACR), the American Institute of Ultrasound in Medicine (AIUM), the American College of Obstetricians and Gynecologists (ACOG), and the Society of Radiologists in Ultrasound (SRU). Recommendations for physician qualifications, written request for the examination, procedure documentation, and quality control may vary among the four organizations and are addressed by each separately.

This guideline has been developed to assist qualified physicians performing sonohysterography. Properly performed sonohysterography can provide information about the uterus, endometrium, and fallopian tubes. Additional studies may be necessary for complete diagnosis. Adherence to the following guideline will maximize the diagnostic benefit of sonohysterography.

Sonohysterography is the evaluation of the endometrial cavity using the transcervical injection of sterile fluid. Various terms such as saline infusion sonohysterography

or simply sonohysterography have been used to describe this technique. The primary goal of sonohysterography is to visualize the endometrial cavity in more detail than is possible with routine endovaginal ultrasound [1]. Sonohysterography can also be used to access tubal patency [2].

II. INDICATIONS AND CONTRAINDICATIONS

A. Indications [3-11]

Indications include but are not limited to evaluation of:

1. Abnormal uterine bleeding.
2. Uterine cavity, especially with regard to uterine myomas, polyps, and synechiae.
3. Abnormalities detected on endovaginal sonography, including focal or diffuse endometrial or intracavitary abnormalities.
4. Congenital abnormalities of the uterus.
5. Infertility.
6. Recurrent pregnancy loss.

B. Contraindications

Sonohysterography should not be performed in a woman who is pregnant or who could be pregnant. This is usually avoided by scheduling the examination in the follicular phase of the menstrual cycle, after menstrual flow has essentially ceased, but before the patient has ovulated. In a patient with regular cycles, sonohysterography should not in most cases be performed later than the tenth day of the menstrual cycle. Sonohysterography should not be performed in patients with a pelvic infection or unexplained pelvic tenderness, which could be due to pelvic inflammatory disease. Active vaginal bleeding is not a contraindication to the procedure but may make the interpretation more challenging.

III. QUALIFICATIONS AND RESPONSIBILITIES OF THE PHYSICIAN

Each organization addresses this requirement individually. ACR language is as follows:

See the [ACR–SPR–SRU Practice Guideline for Performing and Interpreting Diagnostic Ultrasound Examinations](#).

In addition, the physician must have spent a minimum of 3 months in documented formal training in the performance, interpretation, and reporting of examinations of the female reproductive system. Additionally, the physician should supervise and interpret examinations of the female reproductive system on a regular basis and be familiar with techniques of cervical cannulation.

IV. WRITTEN REQUEST FOR THE EXAMINATION

Each organization addresses this requirement individually. ACR language is as follows:

The written or electronic request for sonohysterography should provide sufficient information to demonstrate the medical necessity of the examination and allow for its proper performance and interpretation.

Documentation that satisfies medical necessity includes 1) signs and symptoms and/or 2) relevant history (including known diagnoses). 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's scope of practice requirements. (ACR Resolution 35, adopted in 2006)

V. SPECIFICATIONS FOR INDIVIDUAL EXAMINATIONS

A. Patient Preparation

Pelvic organ tenderness should be assessed during the preliminary endovaginal sonogram. If adnexal tenderness or pain suspicious for active pelvic infection is found prior to fluid infusion, the examination should be deferred until after an appropriate course of treatment. In the presence of nontender hydrosalpinges, consideration may be given to administering antibiotics at the time of the examination; in this case it is prudent to discuss the antibiotic regimen with the referring physician. A pregnancy test is advised when clinically indicated. Patients should be questioned about latex allergy prior to use of a latex sheath. The optimal time to perform this test in a menstruating woman is after the bleeding ends but prior to ovulation.

B. Procedure

Preliminary endovaginal sonography with measurements of endometrium and evaluation of the uterus, ovaries, and pelvic free fluid should be performed prior to sonohysterography. A speculum is used to allow visualization of the cervix. The presence of unusual pain, lesions, or purulent vaginal or cervical discharge may require rescheduling the procedure pending further evaluation. Prior to insertion, the catheter should be

flushed with sterile fluid to avoid introducing air during the study. After cleansing the external os, the cervical canal and/or uterine cavity should be catheterized using aseptic technique, and appropriate sterile fluid should be instilled slowly by means of manual injection under real-time sonographic imaging. Imaging should include real-time scanning of the endometrial and cervical canal [12].

C. Contrast Agent

Appropriate sterile fluid such as normal saline or water should be used for sonohysterography.

D. Images

Precatheterization images should be obtained and recorded, in at least two planes, to demonstrate normal and abnormal findings. These images should include the thickest bi-layer endometrial measurement on a sagittal image when possible.

Once the uterine cavity is filled with fluid, a complete survey of the uterine cavity should be performed and representative images obtained to document normal and abnormal findings. If a balloon catheter is used for the examination, images should be obtained at the end of the procedure with the balloon deflated to fully evaluate the endometrial cavity, particularly the cervical canal and lower portion of the endometrial cavity.

Additional techniques such as color Doppler and 3D imaging may be helpful in evaluating both normal and abnormal findings [13-14].

VI. DOCUMENTATION

Each organization addresses this requirement individually. ACR language is as follows:

Adequate documentation is essential for high quality in patient care. There should be a permanent record of the ultrasound examination and its interpretation. Comparison with prior relevant imaging studies may prove helpful. Images of all appropriate areas, both normal and abnormal, should be recorded. Variations from normal size should generally be accompanied by measurements. The initials of the operator should be accessible on the images or electronically on PACS. Images should be labeled with the patient identification, facility identification, examination date, and image orientation. An official interpretation (final report) of the ultrasound examination should be included in the patient's medical record. Retention of the ultrasound examination images should be based on clinical need and relevant legal and local health care facility requirements.

Reporting should be in accordance with the [ACR Practice Guideline for Communication of Diagnostic Imaging Findings](#).

VII. EQUIPMENT SPECIFICATIONS

Sonohysterography is usually conducted with a high-frequency endovaginal transducer. In cases of an enlarged uterus, additional transabdominal images during infusion may be required to fully evaluate the endometrium. The transducer should be adjusted to operate at the highest clinically appropriate frequency under the ALARA (as low as reasonably achievable) principle.

VIII. QUALITY CONTROL AND IMPROVEMENT, SAFETY, INFECTION CONTROL, AND PATIENT EDUCATION

Each organization addresses this requirement individually. ACR language is as follows:

Vaginal transducers should be covered by a protective sheath prior to insertion. Coupling gel should be used. Following the examination, the sheath should be disposed of and the transducer cleaned in an antimicrobial solution. The type of solution and amount of time for cleaning should follow manufacturer and infectious disease control recommendations.

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 appearing under the heading *Position Statement on QC & Improvement, Safety, Infection Control, and Patient Education* on the ACR web site (<http://www.acr.org/guidelines>).

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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