Sonohysterography

**ABSTRACT:** The primary goal of sonohysterography is to visualize the endometrial cavity in more detail than is possible with routine transvaginal ultrasonography. Sonohysterography also can be used to assess tubal patency. The indications for sonohysterography include, but are not limited to, evaluation of the following: abnormal uterine bleeding; uterine cavity, especially with regard to uterine leiomyomata, polyps, and synechiae; abnormalities detected on transvaginal ultrasonography, including focal or diffuse endometrial or intracavitary abnormalities; congenital abnormalities of the uterus; infertility; recurrent pregnancy loss; and suboptimal visualization of the endometrium on transvaginal ultrasonography. Sonohysterography should not be performed in a woman who is pregnant or who could be pregnant. Credentialing obstetrician–gynecologists to perform or supervise diagnostic sonohysterography should be based on education, training, experience, and demonstrated competence in performing and interpreting transvaginal ultrasonography and sonohysterography. The obstetrician–gynecologist should be skilled in the transcervical placement of catheters. The sonohysterography procedure, including benefits and risks, should be explained fully to the patient before the procedure is performed.

The clinical aspects of this document on sonohysterography include sections that address indications and contraindications, specifications of the examination, and equipment specifications that were developed collaboratively by the American College of Radiology, the American Institute of Ultrasound in Medicine, the Society of Radiologists in Ultrasound, and the American College of Obstetricians and Gynecologists. Sections of the document that address physician qualifications and responsibilities, documentation, quality control, performance improvement, safety, infection control, and patient education are recommendations of the Committee on Gynecologic Practice. The American College of Obstetricians and Gynecologists offers the following recommendations:

- The indications for sonohysterography include, but are not limited to, evaluation of the following: abnormal uterine bleeding; uterine cavity, especially with regard to uterine leiomyomata, polyps, and synechiae; abnormalities detected on transvaginal ultrasonography, including focal...
or diffuse endometrial or intracavitary abnormalities; congenital abnormalities of the uterus; infertility; recurrent pregnancy loss; and suboptimal visualization of the endometrium on transvaginal ultrasonography.

- Sonohysterography should not be performed in a woman who is pregnant or who could be pregnant.
- Credentialing obstetrician–gynecologists to perform or supervise diagnostic sonohysterography should be based on education, training, experience, and demonstrated competence in performing and interpreting transvaginal ultrasonography and sonohysterography. The obstetrician–gynecologist should be skilled in the transcervical placement of catheters.

- The sonohysterography procedure, including benefits and risks, should be explained fully to the patient before the procedure is performed.
- A pregnancy test is advised before the procedure when clinically indicated.
- Patients should be questioned about latex allergy if a latex sheath is used to cover the ultrasound transducer and about a reaction or allergy to povidone iodine or other antiseptic solutions.
- Although routine use of antibiotic prophylaxis is not recommended, consideration should be given to administering antibiotics based on individual risk factors.

Sonohysterography is the evaluation of the endometrial cavity using the transcervical injection of sterile fluid. The primary goal of sonohysterography is to visualize the endometrial cavity in more detail than is possible with routine transvaginal ultrasonography. Sonohysterography also can be used to assess tubal patency. Adherence to the following recommendations serves to maximize the benefits and safety of sonohysterography. Additional imaging studies may be necessary for a complete diagnosis.

Terms such as “saline infusion sonohysterography” or “hysterosonography” have been used to describe this technique. Sonohysterography can provide diagnostic information about the uterus and endometrial cavity and also may be used to assess tubal patency. After instillation of normal saline solution into the endometrial cavity, the observation of fluid accumulation in the peritoneal cavity indicates that at least one fallopian tube is patent. Agitated saline solution containing air bubbles also is used to perform sonohysterography and to assess tubal patency (sonosalpingogram). Advantages of sonohysterography include the following (1):

- It can be performed in an office setting.
- It eliminates radiation exposure.
- It causes less patient discomfort than hysterosalpingography.

**Indications and Contraindications**

The indications for sonohysterography include, but are not limited to, evaluation of the following:

- Abnormal uterine bleeding
- Uterine cavity, especially with regard to uterine leiomyomata, polyps, and synechiae
- Abnormalities detected on transvaginal ultrasonography, including focal or diffuse endometrial or intracavitary abnormalities
- Congenital abnormalities of the uterus
- Infertility
- Recurrent pregnancy loss
- Suboptimal visualization of the endometrium on transvaginal ultrasonography

Sonohysterography should not be performed in a woman who is pregnant or who could be pregnant. Usually, this is avoided by scheduling the examination in the follicular phase of the menstrual cycle, after the menstrual flow has essentially ceased but before the patient has ovulated. In a patient with regular menstrual cycles, sonohysterography should, in most cases, be performed by day 10 of the menstrual cycle. In cases of intermittent or prolonged abnormal uterine bleeding, treatment with a short course of progestin may be considered to enable timing of the procedure. Sonohysterography should not be performed in patients with existing pelvic infection or unexplained pelvic tenderness. Active vaginal bleeding is not a contraindication to the procedure but may make the interpretation more challenging.

**Physician Qualifications and Responsibilities**

Credentialing obstetrician–gynecologists to perform or supervise diagnostic sonohysterography should be based on education, training, experience, and demonstrated competence in performing and interpreting transvaginal ultrasonography and sonohysterography.
The obstetrician–gynecologist should be skilled in the transcervical placement of catheters. He or she should understand the indications, limitations, and possible complications of the procedure. Physicians are responsible for the documentation of the examination, quality control, and patient safety.

**Written Request for the Examination**

If the obstetrician–gynecologist is not performing the procedure, a written or electronic request is necessary. The request for the examination must be initiated by a physician or other licensed health care provider. The written or electronic request for sonohysterography should provide sufficient information to demonstrate the medical necessity for the procedure and allow for the proper performance and interpretation of the study. Documentation that satisfies medical necessity includes signs and symptoms, relevant history (including known diagnoses), or both.

**Specifications of the Examination**

**Patient Preparation**

The sonohysterography procedure, including benefits and risks, should be explained fully to the patient before the procedure is performed. A form documenting the consent process and the patient decision should be signed by the patient and the health care provider. Transvaginal ultrasonography is a specialized form of a pelvic examination. Therefore, local policies regarding chaperone or patient privacy during a pelvic examination also apply during a transvaginal ultrasonographic examination. A pregnancy test is advised before the procedure when clinically indicated. Patients should be questioned about latex allergy if a latex sheath is used to cover the ultrasound transducer and about a reaction or allergy to povidone iodine or other antiseptic solutions. If the history or physical examination is concerning for active pelvic infection or if unexplained pelvic tenderness is present during the preliminary transvaginal ultrasound examination, sonohysterography should be deferred until after an appropriate course of treatment. Although routine use of antibiotic prophylaxis is not recommended, consideration should be given to administering antibiotics based on individual risk factors (eg, in the presence of nontender hydrosalpinges or a prior history of pelvic inflammatory disease). Routine screening for gonorrhea and chlamydial infection, beyond what is recommended by the Centers for Disease Control and Prevention, is not required before the procedure is performed.

**Procedure**

Preliminary transvaginal ultrasonography with measurements of the endometrium and evaluation of the uterus, ovaries, and amount of pelvic free fluid should be performed before sonohysterography. A speculum is inserted into the vagina 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. Before insertion, the catheter should be flushed with sterile fluid to avoid introducing air during the study. After the external os is cleansed, a sterile catheter is inserted into the cervical canal or uterine cavity using aseptic technique. Once the speculum is removed and the catheter is in position, the endovaginal transducer is reinserted into the vagina. The sterile fluid should be instilled slowly with the help of real-time ultrasound imaging. Imaging should include real-time scanning of the endometrium and cervical canal.

**Contrast Agent**

Appropriate sterile fluid should be used for sonohysterography. Normal saline solution can be used for this purpose.

**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 bilayer endometrial measurement in the sagittal plane, 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 three-dimensional imaging, may be helpful in the evaluation of normal and abnormal findings. If assessment of tubal patency is indicated, then sonosalpingography can be performed with agitated saline.

**Documentation**

Appropriate documentation of a sonohysterographic examination is essential for clinical care and for quality assessment and improvement. The written report should include patient identification, indication for the procedure, procedural technique, measurements,
morphologic descriptions, and interpretation. Images of key findings and written reports from ultrasonographic examinations are considered part of the medical record and should be documented and stored appropriately. Use of ultrasonography without thorough evaluation of organs or anatomic region, image documentation, and final written report is not separately reportable (ie, not billable). To report the catheterization and use of saline or contrast material for saline infusion, code 58340 (Catheterization and introduction of saline or contrast material for saline infusion sonohysterography [SIS] or hysterosalpingography) is appropriate. According to the 2015 Current Procedural Terminology guidelines, for radiological supervision and interpretation of saline infusion sonohysterography, code 76831 (Saline infusion sonohysterography [SIS], including color flow Doppler, when performed) is appropriate (2). For radiologic supervision and interpretation of hysterosalpingography, code 74740 (Hysterosalpingography, radiological supervision and interpretation) is appropriate.

Equipment Specifications
Sonohysterography typically is conducted with a high-frequency endovaginal transducer. If a patient has 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.

Quality and Infection Control
Quality control is accomplished through careful record keeping, reliable archiving of reports and images, and clinical correlation with outcomes. Endovaginal transducers should always be covered with a single-use disposable nonlatex or latex cover before insertion. However, because no such disposable protective cover is without risk of rupture or defect, endovaginal transducers should undergo appropriate antimicrobial and antiviral reprocessing between patient uses. Coupling gel should be used. After 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 Position Statement on Quality Control and Improvement, Safety, Infection Control, and Patient Education (3). Equipment performance monitoring should be performed in accordance with the ACR Technical Standard for Diagnostic Medical Physics Performance Monitoring of Real Time Ultrasound Equipment (4).

REFERENCES

RESOURCES

