

General Ultrasound Pelvic Exam

PURPOSE:

1. To determine the presence or absence of disease.
2. To identify and quantitate pathology, which may be present by evaluating organs and anatomic regions in the female pelvis, for focal or diffuse abnormalities.
3. To improve patient outcomes by identifying abnormalities and disease, categorizing severity, and planning for interventional and/or medical correction.

PROCEDURE:

1. The complete study may/may not include Real Time, Doppler or Color interrogation.
 - a) Complete transabdominal and transvaginal pelvic exams include the uterus, the adnexa (ovaries and fallopian tubes), and the cul-de-sac (posterior to the uterus)
 - i) Normal fallopian tubes are not usually visualized, unless dilated.
 - b) In appropriate clinical situations Doppler or color Doppler may be incorporated into the examination.
 - c) In appropriate clinical situations, a single organ, quadrant or follow up exam may only be necessary because it answers a single specific clinical question.
2. Patient preparation is required for these tests.
 - a) A transabdominal pelvic exam requires a full bladder. (Drinking 32/48 ounces of water, at least one hour prior to the exam is recommended)
 - b) A transvaginal pelvic exam requires patients to empty their bladder, prior to the exam.
 - c) A patient may be asked to follow a lower bowel cleaning protocol prior to the ultrasound exam
3. For legal safety, a woman chaperone may be present during a transvaginal sonogram.
4. A qualified MD must interpret the study.
5. At conclusion of test sonographer will complete:
 - a) appropriate technologist worksheet with findings
 - b) complete appropriate billing information
6. Call preliminary report as indicated.

STATEMENT OF INDICATIONS: One or more of the following indications must be present

1. Transabdominal:
 - a) Lower quadrant pain
 - b) Suspected uterine, ovarian or adnexal abnormalities
 - c) Positive pregnancy test with elevated serum HCG (R/O ectopic)
 - d) Increased bleeding or cramping with menses (R/O fibroid tumors)
 - e) History of fibroid tumors (follow-up to monitor size)
 - f) Post menopausal bleeding (R/O endometrial hyperplasia)
 - g) Precocious puberty (R/O ovarian and uterine development)
 - h) Additional indication maybe used following ICD guidelines
2. Transvaginal:
 - a) Suboptimal conditions for transabdominal (i.e.: obesity, adhesions, intestinal gas, inability to distend bladder)
 - b) Uterine anomalies (e.g. retroverted uterus)
 - c) First trimester IUP

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- d) Suspected Ectopic pregnancy
- e) Threatened abortion
- f) Former transabdominal exam finding (need greater detail)
- g) Mass (to obtain a closer look or distinguish from free fluid)
- h) Uterine pathology
- i) Follicle monitoring
- j) Post menopausal bleeding
- k) Additional indication maybe used following ICD guidelines

EQUIPMENT:

1. Real-time scanner using:
 - a) sector narrow near field
 - b) linear (curved) transducers wide near field
 - c) endovaginal transducer (5 MHz or higher)
2. Doppler
3. Color Doppler
4. Ultrasound acoustic gel
5. Appropriate patient drape
6. Towels
7. Probe cover for endovaginal transducer - sterile gel (i.e. KY gel)
8. Appropriate cleaning solution for transducer - sterilization for transvaginal transducer

PROCEDURE FOR TRANSABDOMINAL EXAM OF THE FEMALE PELVIS

1. Proceed with introductions, explanations and patient comfort
2. Obtain complete patient history, including last menstrual period, current and past symptoms, recent laboratory and other test results, past surgeries, and relevant risk factors. Enter patient data into real-time scanner.
3. Select pelvic set up or other appropriate machine setting.
4. Apply ultrasound gel to patient's lower abdomen region, with patient in a supine position.
5. Begin by placing transducer just above the patient's symphysis pubis and midline. Check to make sure the urinary bladder is adequately full to allow full visualization of the uterus.
6. In sagittal, image the uterus including the fundus, body, and cervix. Take a long measurement from the fundus to the cervix and an AP measurement. In menstruating women, normal is 6-9 cm in length and 4cm in AP. (The vagina should be included in the image as a landmark).
 - a) Analyze the endometrium for thickness, echogenicity, and its position within the uterus.
 - b) Analyze the myometrium and cervix for contour change, echogenicity and masses.
7. Image the entire fundus-body with optimal demonstration of the endometrium.
8. Image the lower uterine segment with optimal demonstration of the cervix, vagina, and posterior cul-de-sac.
9. In transverse, and midline, angle slightly above the symphysis pubis, image the fundus. Angle posteriorly and image the cervix. Measure the width of the uterus at mid-corpus.

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10. In post hysterectomy patients, substitute views of the vaginal cuff (appears as fibrous mass), and adnexal region.
11. Remain in transverse, and angle to the right of the uterus to image the right ovary and measure the dimension.
12. Rotate the transducer to sagittal and image the long-axis of the right ovary with measurement (long-axis and AP).
13. Move the transducer back to midline and in transverse, angle left to image the left ovary and measure.
14. Rotate the transducer to sagittal and image the long-axis of the left ovary with measurement (long-axis and AP).
15. Doppler and color doppler to document blood flow and obtain RI's
16. If follicles exceed 10mm in size, measure the diameter of the largest follicle.
 - a) The ovaries are sometimes difficult to locate. Scanning at right angles to the axis of the uterus is helpful. Turning patient slightly to the right or left can also be helpful in locating the ovaries. They are anterior to the internal iliac vessel, which can serve as a landmark..
 - b) Cranial or caudal angulation may be necessary to visualize the ovaries.
 - c) In menopausal women, the size of the ovary gradually decreases.
17. While scanning the ovaries, survey the adnexal region for abnormalities. If an adnexal mass is identified, measure the mass, and document if cystic, solid or mixed, as well as its location in relationship to the ovaries and uterus.
18. Doppler or color Doppler may be useful in identifying the vascular nature of dilated tubular structures in the adnexal region.
 - a) Normal fallopian tubes are not usually visualized.
19. In patients whose ovaries have been removed, substitute views of the adnexa, ovarian region and cul-de-sac to verify that no ovarian tissue is present.
20. Scan the cul-de-sac and bowel area posterior to the uterus for the presence of free fluid or a mass. If a mass is identified, measure the mass, and document if cystic, solid or mixed, as well as its relationship to the ovaries and uterus.
 - a) Identification of peristalsis can help distinguish a loop of bowel from a pelvic mass.

PROCEDURE FOR TRANSVAGINAL SCANNING:

1. Transvaginal scanning may/may not replace the transabdominal pelvic exam.
2. It may/may not be used in sexually inexperienced girls or in some postmenopausal women that might have problems with the insertion of the transducer. Proceed with introductions, explanations and patient comfort.
3. Obtain complete patient history, including last menstrual period, current and past symptoms, recent laboratory and other test results, past surgeries, and relevant risk factors.
4. Enter patient data into real-time scanner
5. Select pelvic setting or appropriate machine setting
6. Cover the transducer with a condom after gel has been placed on the transducer tip, and remove air bubbles. (A lubricant is not necessary on the outside of the condom, but if needed use K-Y jelly or saline). Instruct the patient to insert the transducer into their

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- vagina about 3 to 4 inches. Patient position is supine with feet in stir-ups, or with a pillow under the patient's lower back and knees bent.
7. Begin in sagittal, and midline, with anterior angulation; image the uterine fundus and endometrial canal.
 8. Include the location and anatomic landmarks on each image, since orientation is different than transabdominal scanning and not yet standardized.
 9. Rotate the transducer to transverse and image the uterine fundus and endometrial canal.
 10. Angle the transducer slowly posteriorly and image the lower uterine segment and cervix.
 11. Obliquely angle the transducer toward the right adnexa and image the right ovary with transverse measurement.
 12. Rotate the transducer to sagittal and image the right ovary with measurement of long axis and AP dimensions.
 13. Obliquely angle the transducer toward the left adnexa and image the left ovary with transverse measurement.
 14. Rotate the transducer to sagittal and image the left ovary with measurement of long axis and AP dimensions.
 15. Doppler and color doppler to document blood flow and obtain RI's
 - a) If follicles exceed 10mm in size, measure largest follicle in two orthogonal dimensions
 16. At the completion of the examination, the condom should be removed and the transducer disinfected.

SPECIAL STATEMENT REGARDING PROTOCOL: This document is meant to be a statement of standard. It is not meant to deter the professional sonographer from interrogating any disease or suspected pathology with whatever means they deem appropriate and necessary. It is understood that other additional views, Doppler sampling sites, color settings, velocity ratios and measurements etc., will be used in evaluating any pathologic or suspected pathologic condition.

EVALUATION AND DIAGNOSTIC CRITERIA

Real-time evaluation and documentation of the uterus, ovaries and adnexal region should include but not be limited to:

1. Size and Shape of Organ
 - a) Echogenicity
 - b) Echo-texture
 - c) Endometrium (<0.2cm in postmenopausal)
 - d) Lesion (Cystic, Solid or Complex)
 - i) Margins
 - ii) Shape
 - iii) Size (>or <5cm)
 - iv) Location and Origin
 - v) Septations
 - vi) Mural nodules
 - vii) Enhanced through transmission (posterior acoustic enhancement)
 - viii) Posterior attenuation

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- ix) Distended fusiform tubular structures (fallopian tubes)
 - e) Fluid collection
 2. Doppler/Color Doppler criteria should include but is not limited to the presence or absence of blood flow:
 - a) Internal in mass
 - b) External to mass
 - c) Laminar flow patterns
 - d) Normal vascularity
 - e) Turbulence and Mosaics
 - f) $PI < 1$ or $RI < .4$ (suggests inflammatory or malignant mass)
 3. Doppler/Color Doppler may be performed on the following sites:
 - a) To evaluate vascularity of the uterus and adnexal region and that of localized masses.
 - b) To rule out any tubule dilatation.

SPECIAL STATEMENT REGARDING DIAGNOSTIC CRITERIA: It is recognized that individual patients and disease presentations will differ. For this reason, this document is meant to be a statement of standard. This document is not meant to supersede the qualified interpreting physician's prerogative to add or adjust the interpretation according to his/her best judgment.

GUIDELINES FOR CALLING PRELIMINARY REPORTS:

1. Reporting preliminary or technical findings is both desirable and necessary in clinical practice.
2. The sonographer may/may not make the preliminary nature of the report known to the referring or interpreting physician.
3. The technical findings must be interpreted within the above stated pre-established diagnostic criteria guidelines.
4. When to call the referring or interpreting physician with a preliminary report:
 - a) Ectopic pregnancy
 - b) Endometrial thickening and fluid
 - c) Adnexal mass
 - d) Free fluid or mass in cul-de-sac

REFERENCES:

1. ACR Standard for the Performance of Ultrasound Examination of the Female Pelvis. Revised 1999.
2. AIUM Standards and Guidelines for the Accreditation of Ultrasound Practices.
3. Ultrasound Procedure Protocol-The Jefferson Ultrasound Research and Education Institute. Second edition. June 1995
4. Berman, Mimi Obstetrics and gynecology. J.B. Lippincott Company. 1991
5. Sanders, Roger. Clinical Sonography A Practical Guide. 1991, second edition
6. Dodson, Melvin G. Transvaginal Ultrasound 1991