2011 Imaging Criteria

Magnetic Resonance Imaging (MRI), Pelvis[1, 2]

ICD-9-CM: 88.95
CPT: 72195, 72196, 72197
I/O Setting: Outpatient

INDICATION(S)

100 Suspected adenomyosis
200 Adnexal/pelvic mass by PE/KUB
300 Suspected septate/bicornuate uterus
400 Cancer staging
500 Cryptorchidism

100 Suspected adenomyosis **[Both]**[3, 4]
- 110 Sx/findings **[One]**[5]
  - 111 Pelvic pain[6]
  - 112 Abnormal bleeding **[Both]**[7, 8]
    - -1 Vagina and cervix normal by PE
    - -2 Continued abnormal bleeding **[One]**
      - A) Interferes with ADLs[9]
      - B) Hct < 27%(0.27) / Hb < 9.0 g/dL(90 g/L) unresponsive to iron Rx > 12 wks[10]
  - 113 Ureteral compression by US/IVP
  - 114 Other associated symptoms **[One]**[11*MDR]
    - -1 Pelvic/abdominal pain/discomfort w/o other explanation
    - -2 Urinary frequency/urgency w/o evidence of infection
    - -3 Dyspareunia[12]
  - 115 Infertility by Hx[13]
- 120 US nondiagnostic for adenomyosis[14]

200 Adnexal/pelvic mass by PE/KUB **[Both]**
- 210 Findings **[One]**
  - 211 Newly discovered
  - 212 Enlarging since last evaluation
- 220 US nondiagnostic for etiology of mass[15]

300 Suspected septate/bicornuate uterus **[Both]**[16, 17]
- 310 Findings **[One]**
  - 311 Infertility by Hx[13]
  - 312 Spontaneous abortion by Hx[18]

313 Cervical septum by PE

320 Sonohysterogram/US nondiagnostic for septate/bicornuate uterus[19]

400 Cancer staging **[One]**[20*RIN, 21]

410 Bladder cancer[22]

420 Rectal cancer[23, 24]

430 Prostate cancer[25]

440 Cervical cancer[26]

450 Endometrial cancer[27]

500 Cryptorchidism **[Both]**[28, 29]

510 Testicle not palpable in scrotum/inguinal canal

520 Abdominal/pelvic US nondiagnostic for undescended testicle

Notes

(1)
While US is the study of choice for the initial evaluation of gynecologic pathology, CT or MRI of the pelvis can provide additional information regarding pelvic pathology. CT does not characterize soft tissue pelvic anatomy as well as MRI and with the development of pelvic surface and endorectal coils, MRI has made significant improvements in its ability to evaluate pelvic anatomy.

(2)
The following are examples of relative and absolute contraindications to the use of magnetic resonance imaging:
• Implanted devices that are electrically or magnetically activated (e.g., cardiac pacemakers, automatic cardioverter defibrillators, drug infusion pumps, cochlear implants)
• Ferromagnetic metal objects (e.g., cerebral aneurysm clips, intraocular metallic foreign body, prostheses, screws)
• Pregnancy, first trimester
• Renal insufficiency in cases when magnetic resonance imaging is performed with gadolinium-based contrast

(3)-DEF:
Adenomyosis is the benign invasion and growth of ectopic endometrial tissue within the myometrium (the muscle of the uterus).

(4)
Adenomyosis can be a diffuse condition or may be localized with well-defined borders (an adenomyoma). The cause is unknown but risk factors for the development of adenomyosis include prior uterine surgery (e.g., C section, myomectomy), D & C, and multiple deliveries.

(5)
There are no symptoms that are pathognomonic for adenomyosis and many of the symptoms are associated with other common gynecologic disorders (e.g., fibroids, DUB, endometriosis). Approximately 30% of patients are asymptomatic and the adenomyosis is discovered coincidentally (Bergeron et al., Best Pract Res Clin Obstet Gynaecol 2006; 20(4): 511-521; Peric and Fraser, Best Pract Res Clin Obstet Gynaecol 2006; 20(4): 547-555). The uterus may be enlarged on exam.

(6)
The pain associated with adenomyosis is varied and includes cramping that may begin days or weeks prior to menses, dyspareunia, or dysuria.

(7)
Abnormal bleeding includes menorrhagia (heavy and prolonged menses) and menometrorrhagia (heavy and prolonged bleeding during and between menses).

(8)
The abnormally located endometrial tissue tends to bleed with menses. Heavy bleeding is associated with increasing depth of myometrial penetration (Peric and Fraser, Best Pract Res Clin Obstet Gynaecol 2006; 20(4): 547-555).

(9)
Activities of daily living (ADLs) are frequently divided into those simple activities relating to basic self-care and those that involve more complex interactions with others and the environment (called instrumental activities of daily living or IADLs). This criterion includes both types of activity. Whether a condition is of sufficient severity to interfere with ADLs or IADLs is somewhat subjective. There should be an indication that symptoms impede the patient's ability to effectively work, shop, manage at home, care for family members, or tend to personal hygiene.

(10)
Ferrous sulfate is generally not well tolerated. Other iron preparations (e.g., ferrous gluconate, oral polysaccharide iron complex) are better tolerated and are more likely to ensure compliance with treatment.

(11)-MDR:
These are common, troublesome symptoms occurring secondary to uterine enlargement. Before a procedure is performed for discomfort or pain, other potential causes should be considered. In patients with urinary frequency, UTI should be excluded. Because these symptoms are subjective, if there is any question, secondary medical review is required.

(12)-DEF:
Dyspareunia is difficult or painful sexual intercourse.

(13)

Infertility has many possible causes including anatomical factors (e.g., endometriosis, adenomyosis, fibroids, congenital uterine abnormalities, tubal abnormalities), DUB, absent ovulation, or thyroid disease with amenorrhea or oligomenorrhea.

(14)

US in adenomyosis can show uterine enlargement and thickening or asymmetry of the uterine walls; US is the most cost-effective tool for excluding other causes of the patient's symptoms. MRI is a highly accurate, noninvasive technique for imaging the uterus and may be equally sensitive but more specific than US in differentiating adenomyosis from multiple, small fibroids (Rabinovici and Stewart, Best Pract Res Clin Obstet Gynaecol 2006; 20(4): 617-636; Tamai et al., Radiographics 2005; 25(1): 21-40).

(15)

US is the study of choice to evaluate a pelvic mass discovered on PE or by KUB. If the US is not diagnostic, CT or MRI of the pelvis may be performed to identify the characteristics of the mass or to rule out ovarian or uterine pathology such as fibroids, abscess, or cancer.

(16)-DEF:

A bicornuate uterus forms from the incomplete fusion of the Mullerian ducts at the level of the fundus and results in 2 separate endometrial cavities and a single cervix.

(17)

Incomplete fusion of the Mullerian ducts can result in either a septate or a bicornuate uterus. These two entities can be differentiated by MRI, which is important because the treatment of the two conditions differs (Fielding, Radiol Clin North Am 2003; 41(1): 179-192). A septate uterus can be repaired via a hysteroscopic approach with obliteration of the septum, while a bicornuate uterus is generally reconstructed with open surgery because the septum contains highly vascular myometrium (Patton et al., Am J Obstet Gynecol 2004; 190(6): 1669-1675; discussion 1675-1668).

(18)

Habitual abortion may be caused by a bicornuate uterus or other anatomic anomalies. Approximately 10% to 15% of recurrent abortions are due to uterine malformations (ACOG Practice Bulletin No. 24, Feb 2001. Reaffirmed, 2008).

(19)-DEF:

A sonohysterogram involves catheter insertion into the endometrial cavity and the instillation of saline to distend the uterus during US imaging.

(20)-RIN:

If imaging of the abdomen is necessary for staging (e.g., liver metastases), an MRI of the abdomen in addition to the pelvic views should be performed and does not require additional approval.

(21)

MRI allows multiplanar views of the pelvis, provides superior soft tissue resolution, and distinguishes radiation-induced changes from recurrent or residual disease (Follen et al., Cancer 2003; 98(9 Suppl): 2028-2038). If disease is found to no longer be localized, images into the abdomen are indicated.

(22)

Both CT and MRI are used in staging bladder cancer. CT is able to identify pelvic lymphadenopathy and visceral metastases but has limited ability to detect small bladder lesions. MRI is more sensitive than CT in identifying bone and perivesical metastases, and nodal metastasis in patients with muscular invasion of the bladder (Zhang et al., Radiol Clin North Am 2007; 45(1): 183-205).

(23)

Endoluminal US is more specific than CT or MRI in determining the depth of tumor invasion through the rectal wall; the 3 modalities show similar low sensitivity with respect to assessment of lymph node involvement (Bipat et al., Radiology 2004; 232(3): 773-783). MRI is the most accurate in predicting the circumferential resection margin (Lahaye et al., Semin Ultrasound CT MR 2005; 26(4): 259-268). Endoluminal US is best used for the evaluation of mid to low rectal cancers and provides information that influences the decision to give preoperative neoadjuvant therapy (Wiersema and Harewood, Gastroenterol Clin North Am 2002; 31(4): 1093-1105).

(24)

Endoluminal US cannot evaluate the liver and the rest of the abdomen. Consequently, if this information is desired, CT or MRI is a better choice. Which study to perform is a matter of clinical judgment, but should not include all of the above tests.

(25)

The accuracy of MR imaging in the local staging of prostate cancer varies widely (Akin and Hricak, Radiol Clin North Am 2007; 45(1): 207-222). There is no data to support routine use of MRI for prostate cancer assessment. The use of magnetic resonance spectroscopic imaging (MRSI) may improve the accuracy of staging but it is not considered a routine diagnostic tool (Fuchsjager et

al., Acta Radiol 2008; 49(1): 107-120).

(26)

Accurate staging for cervical cancer is critical to determine appropriate treatment. Cervical cancer confined to the cervix is treated with surgery, whereas extensive carcinoma is treated with chemotherapy and radiation therapy. MRI or CT may be performed for staging of cervical cancer (Mitchell et al., Gynecol Oncol 2009; 112(1): 95-103).

(27)

Surgical staging for endometrial cancer remains the standard of care. MRI can, however, be used to detect the extent of the disease and determine appropriate treatment options (Peungjesada et al., J Comput Assist Tomogr 2009; 33(4): 601-608).

(28)-DEF:

Cryptorchidism is failure of the testicle to descend into the scrotum. This diagnosis is usually established in childhood but may not become apparent until later in life.

(29)

CT or MRI is performed to locate the nondescended testicle if abdominal or pelvic US is nondiagnostic. Abdominal testicles have a much higher incidence of testicular carcinoma and are usually removed in the adult patient.