



CLINICAL GUIDELINES

Pediatric Pelvis Imaging Policy

Version 1.0.2019

Effective February 15, 2019



eviCore healthcare Clinical Decision Support Tool Diagnostic Strategies: This tool addresses common symptoms and symptom complexes. Imaging requests for individuals with atypical symptoms or clinical presentations that are not specifically addressed will require physician review. Consultation with the referring physician, specialist and/or individual's Primary Care Physician (PCP) may provide additional insight.

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Procedure Codes Associated with Pelvis Imaging	
MRI	CPT®
Pelvis MRI without contrast	72195
Pelvis MRI with contrast (rarely used)	72196
Pelvis MRI without and with contrast	72197
Unlisted MRI procedure (for radiation planning or surgical software)	76498
MRA	CPT®
Pelvis MRA	72198
CT	CPT®
Abdomen/Pelvis CT without contrast	74176
Abdomen/Pelvis CT with contrast	74177
Abdomen/Pelvis CT without and with contrast	74178
Pelvis CT without contrast	72192
Pelvis CT with contrast	72193
Pelvis CT without and with contrast	72194
CT Guidance for Needle Placement (Biopsy, Aspiration, Injection, etc.)	77012
CT Guidance for and monitoring of Visceral Tissue Ablation	77013
CT Guidance for Placement of Radiation Therapy Fields	77014
Unlisted CT procedure (for radiation planning or surgical software)	76497
CTA	CPT®
Abdomen/Pelvis CTA	74174
Pelvis CTA	72191
Nuclear Medicine	CPT®
PET Imaging; limited area (this code not used in pediatrics)	78811
PET Imaging; skull base to mid-thigh (this code not used in pediatrics)	78812
PET Imaging; whole body (this code not used in pediatrics)	78813
PET with concurrently acquired CT; limited area (this code rarely used in pediatrics)	78814
PET with concurrently acquired CT; skull base to mid-thigh	78815
PET with concurrently acquired CT; whole body	78816
Urinary Bladder Residual Study	78730
Ureteral Reflux Study (Radiopharmaceutical Voiding Cystogram)	78740
Testicular Scan – Vascular Flow and Delayed Images	78761
Radiopharmaceutical Imaging of Lymphatic System	78195
Radiopharmaceutical Imaging of Inflammatory Process Limited Area	78805
Radiopharmaceutical Imaging of Inflammatory Process Whole Body	78806
Radiopharmaceutical Imaging of Inflammatory Process SPECT	78807
Ultrasound	CPT®
Ultrasound, pelvic (nonobstetric), complete	76856
Ultrasound, pelvic transvaginal	76830
Ultrasound, pelvic (nonobstetric), limited or follow-up	76857
Ultrasound, scrotum and contents	76870

Duplex scan of arterial inflow and venous outflow of abdominal, pelvic, scrotal contents and/or retroperitoneal organs; complete study	93975
Duplex scan of arterial inflow and venous outflow of abdominal, pelvic, scrotal contents and/or retroperitoneal organs; limited study	93976
Duplex scan of aorta, inferior vena cava, iliac vasculature, or bypass grafts; complete	93978
Duplex scan of aorta, inferior vena cava, iliac vasculature, or bypass grafts; limited	93979
Duplex scan of arterial inflow and venous outflow of penile vessels; complete	93980
Duplex scan of arterial inflow and venous outflow of penile vessels; limited study	93981

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PEDPV-1.1: Pediatric Pelvis Imaging Age Considerations

Many conditions affecting the pelvis in the pediatric population are different diagnoses than those occurring in the adult population. For those diseases which occur in both pediatric and adult populations, minor differences may exist in management due to patient age, comorbidities, and differences in disease natural history between children and adults.

- Patients who are < 18 years old should be imaged according to the Pediatric Pelvis Imaging Guidelines and patients who are ≥ 18 years should be imaged according to the **Adult Pelvis Imaging Guidelines**, except where directed otherwise by a specific guideline section.

PEDPV-1.2: Pediatric Pelvis Imaging Appropriate Clinical Evaluation

- A recent (within 60 days) face to face evaluation including a detailed history, physical examination, and appropriate laboratory studies should be performed prior to considering the use of an advanced imaging (CT, MR, Nuclear Medicine) procedure. An exception can be made if the patient is undergoing guideline-supported, scheduled follow-up imaging evaluation.
- Unless otherwise stated in a specific guideline section, the use of advanced imaging to screen asymptomatic patients for disorders involving the pelvis is not supported. Advanced imaging of the pelvis should only be approved in patients who have documented active clinical signs or symptoms of disease involving the pelvis.
- Unless otherwise stated in a specific guideline section, repeat imaging studies of the pelvis are not necessary unless there is evidence for progression of disease, new onset of disease, and/or documentation of how repeat imaging will affect patient management or treatment decisions.

PEDPV-1.3: Pediatric Pelvis Imaging Modality General Considerations

- Ultrasound
 - ◆ Ultrasound should be the initial imaging in most pelvic conditions to rule out those situations that do not require additional advanced imaging.
 - ◆ For those patients who do require advanced imaging after ultrasound, ultrasound can be very beneficial in selecting the proper modality, body area, image sequences, and contrast level that will provide the most definitive information for the patient.
 - ◆ CPT® codes vary by body area and presence or absence of Doppler imaging and are included in the table at the beginning of this guideline.
 - ◆ Transabdominal ultrasound is appropriate in all pediatric patients.
 - ◆ Transvaginal (TV) ultrasound is appropriate in pediatric patients who are sexually active or use a tampon and consent to the study. Ultrasound (complete CPT® 76856 or, limited CPT® 76857) should substitute for TV in pediatric patients or non-sexually active adult females.

➤ MRI

- ◆ MRI of the pelvis is generally performed without and with contrast (CPT® 72197) unless the patient has a documented contraindication to gadolinium or otherwise stated in a specific guideline section.
- ◆ Due to the length of time for image acquisition and the need for the patient to lie still, anesthesia is required for almost all infants and young children (age < 7 years), as well as older children with delays in development or maturity. In this patient population, MRI imaging sessions should be planned with a goal of minimizing anesthesia exposure adhering to the following considerations:
 - MRI should always be performed without and with contrast unless there is a specific contraindication to gadolinium use since the patient already has intravenous access for anesthesia.
 - Recent evidence based literature demonstrates the potential for gadolinium deposition in various organs including the brain, after the use of MRI contrast.
 - The U.S. Food and Drug Administration (FDA) has noted that there is currently no evidence to suggest that gadolinium retention in the brain is harmful and restricting gadolinium-based contrast agents (GBCAs) use is not warranted at this time. It has been recommended that GBCA use should be limited to circumstances in which additional information provided by the contrast agent is necessary and the necessity of repetitive MRIs with GBCAs should be assessed.
 - If requesting clinicians indicate that a non-contrast study is being requested with specific concern for gadolinium retention, the exam can be approved.
 - If multiple body areas are supported by eviCore guidelines for the clinical condition being evaluated, MRI of all necessary body areas should be obtained concurrently in the same anesthesia session.
- ◆ The presence of surgical hardware or implanted devices may preclude MRI.
- ◆ The selection of best examination may require coordination between the provider and the imaging service.

➤ CT

- ◆ CT of the pelvis typically extends from the iliac crest to the upper margin of the sacroiliac joints, and CT of the abdomen and pelvis extends from the dome of the diaphragm through the ischial tuberosities.
 - In general, CT of the pelvis is appropriate when evaluating solid pelvic organs.
 - In general, CT of the Abdomen and pelvis is appropriate when evaluating inflammatory or infections processes, hematuria, or conditions which appear to involve both the abdomen and the pelvis.
 - In some cases, especially in follow-up of a known finding, it may be appropriate to limit the exam to the region of concern to reduce radiation exposure.
- ◆ The contrast level in pediatric CT imaging is specific to the clinical indication, as listed in the specific guideline sections.

- ◆ CT of the pelvis or abdomen and pelvis may be indicated for further evaluation of abnormalities suggested on prior US or MRI Procedures.
 - ◆ CT may be appropriate without prior MR or US, as indicated in specific sections of these guidelines.
 - ◆ CT should not be used to replace MRI in an attempt to avoid sedation unless listed as a recommended study in a specific guideline section.
 - ◆ The selection of best examination may require coordination between the provider and the imaging service.
- Nuclear Medicine
- ◆ Nuclear medicine studies are rarely used in imaging of the pediatric pelvis, but are indicated in rare circumstances, including the following:
 - Lymph system mapping (CPT® 78195) is indicated for lower extremity lymphedema with recent negative Doppler ultrasound, or a history of Milroy's disease or prior pelvic lymph node dissection.

The guidelines listed in this section for certain specific indications are not intended to be all-inclusive; clinical judgment remains paramount and variance from these guidelines may be appropriate and warranted for specific clinical situations.

References

1. Berland LL, Cernigliaro JG, Ho VB, et al. ACR Practice parameter for performing and interpreting magnetic resonance imaging (MRI). *American College of Radiology*. Revised 2017. Accessed January 23, 2018. <https://www.acr.org/-/media/ACR/Files/Practice-Parameters/mr-perf-interpret.pdf?la=en>.
2. Faerber EN, Abramson SJ, Benator RM, et al. ACR-ASER-SCBT-MR-SPR Practice parameter for the performance of pediatric computed tomography (CT). *American College of Radiology*. Revised 2014. Accessed January 23, 2018. <https://www.acr.org/-/media/ACR/Files/Practice-Parameters/ct-ped.pdf?la=en>.
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8. FDA Drug Safety Communication: FDA identifies no harmful effects to date with brain retention of gadolinium-based contrast agents for MRIs; review to continue. FDA Drug Safety Communication. May 22, 2017. <https://www.fda.gov/Drugs/DrugSafety/ucm559007.htm>.

Pelvic Signs and Symptoms – Female

PEDPV-2: Abnormal Uterine Bleeding

- Abnormal uterine bleeding imaging indications in pediatric patients are very similar to those for adult patients. See **PV-2: Abnormal Uterine Bleeding** for imaging guidelines.
- The causes of vaginal bleeding in children differ from those in adolescents. Vaginal bleeding after the first week or so of life but before menarche is always abnormal and warrants evaluation. Common conditions before normal menarche include vaginal foreign bodies, infections, precocious puberty, and estrogen exposure. After menarche, pregnancy and excessive menstrual bleeding (dysfunction) must be considered.
- Pediatric-specific imaging considerations include the following:
 - ◆ Transabdominal ultrasound is appropriate in all pediatric patients.
 - ◆ Transvaginal (TV) ultrasound is appropriate in pediatric patients who are sexually active or use a tampon and consent to the study. Transvaginal ultrasound is generally not appropriate in pediatric patients or in patients who have never been sexually active.
 - ◆ MRI of the pelvis without contrast or without and with contrast (CPT® 72195 or CPT® 72197) is indicated if ultrasound is inconclusive.

Reference

1. Mansfield MJ. Precocious puberty. *Pediatric and adolescent gynecology*. eds. Emans SJ and Laufer MR. Philadelphia, PA. Lippincott Williams & Wilkins, 6th ed. 2012; 114-124.
2. Sucato GS and Burstein GR. Abnormal Uterine Bleeding. *Nelson Textbook of Pediatrics, chapter 116*. eds. Kliegman RM, Stanton BF, St. Geme JW III, et al. 20th edition 2016; 965-967.

PEDPV-3: Pelvic Inflammatory Disease (PID)

- Pelvic inflammatory disease imaging indications in pediatric patients are very similar to those for adult patients. See **PV-7: Pelvic Inflammatory Disease (PID)** for imaging guidelines.
- Pediatric-specific imaging considerations include the following:
 - ◆ Transabdominal ultrasound is appropriate in all pediatric patients.
 - ◆ Transvaginal (TV) ultrasound is appropriate in pediatric patients who are sexually active or use a tampon and consent to the study. Transvaginal ultrasound is generally not appropriate in patients who are pre-pubescent or victims of abuse.
 - ◆ MRI of the pelvis without contrast (CPT® 72195) or without and with contrast (CPT® 72197) is indicated if US is inconclusive.
 - ◆ CT Pelvis with contrast (CPT® 72193) is indicated if MRI is not readily available.

Reference

1. Burstein GR. Sexually transmitted infections. *Nelson Textbook of Pediatrics*, chapter 120. eds Kliegman RM, Stanton BF, St. Geme JW III, et al. 20th edition 2016; 985-995.

PEDPV-4: Amenorrhea

- Girls with primary amenorrhea and any of the following should be evaluated initially with pelvic ultrasound (CPT® 76856 or CPT® 76857):
 - ◆ Amenorrhea is usually primary and refers to absence of menstrual periods by age 16.
 - Normal pubertal development and negative pregnancy test.
 - Transabdominal ultrasound is appropriate in all pediatric patients.
 - Transvaginal (TV) ultrasound is appropriate in pediatric patients who are sexually active or use a tampon and consent to the study. Transvaginal ultrasound (CPT® 76830) can also be approved if requested for better view of genitourinary anomalies in sexually active females.
 - Delayed puberty with follicle-stimulating hormone (FSH) or luteinizing hormone (LH) that is elevated for the patient's age and Tanner stage.
- MRI Pelvis without contrast or without and with contrast (CPT® 72195 or CPT® 72197) +/- Abdomen (CPT® 74181 or CPT® 74183) without and with contrast are indicated for the following:
 - ◆ Evaluation of congenital anomalies of the uterus and/or urinary system identified on abdominal and pelvic ultrasound (CPT® 76700 and CPT® 76856) in order to better define complex anatomy.
 - ◆ Preoperative planning in girls with distention of the vagina by fluid (hydrocolpos) or blood (hematocolpos) due to congenital vaginal obstruction.

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1. Langer JE, Oliver ER, LevToaff AS, et al. Imaging of the female pelvis through the life cycle. *Radiographics*. 2012; 32:1575-1597. Accessed January 23, 2018. <http://pubs.rsna.org/doi/abs/10.1148/rq.326125513>.
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3. Cohen HL and Raju AD. Amenorrhea and abnormalities of puberty. *Caffey's Pediatric Diagnostic Imaging*, chapter 128. eds Brian Coley, Elsevier Saunders, Philadelphia PA, 12th edition. 2013; 12.
4. Behr SC, Courtier JL, and Qayyum A. Imaging of Müllerian Duct anomalies. *Radiographics*. 2012 Oct; 32 (6): E233-E250. Accessed October 23, 2017. <http://pubs.rsna.org/doi/abs/10.1148/rq.326125515>.

PEDPV-5: Endometriosis

- Endometriosis imaging indications in pediatric patients are very similar to those for adult patients. See **PV-6: Endometriosis** for imaging guidelines.
- Pediatric-specific imaging considerations include:
 - ◆ Transabdominal ultrasound is appropriate in all pediatric patients.
 - ◆ Transvaginal (TV) ultrasound is appropriate in pediatric patients who are sexually active or use a tampon and consent to the study. Transvaginal ultrasound is generally not appropriate in patients who are pre-pubescent or have never been sexually active.

Reference

1. Suscato GS and Burstein GR. Dysmenorrhea. *Nelson Textbook of Pediatrics*, chapter 116. eds Kliegman RM, Stanton BF, St. Geme JW III, et al. 20th edition 2016; 967-968.

PEDPV-6: Suspected Adnexal Mass

- Suspected adnexal mass imaging indications in pediatric patients are very similar to those for adult patients. See **PV-5: Adnexal Mass/Ovarian Cysts** for imaging guidelines. Ultrasound is the first study indicated for evaluation of a suspected adnexal mass.
- Pediatric-specific imaging considerations include the following:
 - ◆ Transabdominal ultrasound is appropriate in all pediatric patients.
 - ◆ Transvaginal (TV) Ultrasound is appropriate in pediatric patients who are sexually active or use a tampon and consent to the study. Transvaginal ultrasound is generally not appropriate in patients who are pre-pubescent or have never been sexually active.
 - ◆ Adnexal masses with a solid component in patients, age ≥ 15 years, should be imaged according to guidelines in **PEDONC-10: Pediatric Germ Cell Tumors**.

Reference

1. Allen-Rhoades WA and Steuber CP. Clinical assessment and differential diagnosis of the child with suspected cancer. *Principles and Practice of Pediatric Oncology*, chapter 6. eds. Pizzo PA and Poplack DG, 2016; 7:101-111.
2. Kelleher CM, Goldstein AM. Adnexal masses in children and adolescents. *Clinical obstetrics and gynecology*. 2015 Mar 1;58(1):76-92.

PEDPV-7: Pelvic Pain/Dyspareunia, Female

- Pelvic Pain/Dyspareunia imaging indications in pediatric patients are identical to those for adult patients. See **PV-11: Pelvic Pain/Dyspareunia, Female** for imaging guidelines.

Reference

1. Naffaa L, Deshmukh T, Tumu S, Johnson C, Boyd KP, Meyers AB. Imaging of Acute Pelvic Pain in Girls: Ovarian Torsion and Beyond☆. Current problems in diagnostic radiology. 2017 Jul 1;46(4):317-29.

PEDPV-8: Polycystic Ovary Syndrome

- Polycystic ovary syndrome imaging indications in pediatric patients are identical to those for adult patients. See **PV-8: Polycystic Ovary Syndrome** for imaging guidelines.

Reference

1. Fondin M, Rachas A, Huynh V, Franchi-Abella S, Teglas JP, Duranteau L, Adamsbaum C. Polycystic Ovary Syndrome in Adolescents: Which MR Imaging–based Diagnostic Criteria?. Radiology. 2017 Jul 25;285(3):961-70.

PEDPV-9: Periurethral Cysts and Urethral Diverticula

- Periurethral cysts and urethral diverticula imaging indications in pediatric patients are identical to those for adult patients. See **PV-13: Periurethral Cysts and Urethral Diverticula** for imaging guidelines.

PEDPV-10: Fetal MRI

- Fetal MRI indications in pediatric patients are identical to those for adult patients. See **PV-15: Fetal MRI** for imaging guidelines.

Pelvic Signs and Symptoms – Male

PEDPV-11: Undescended Testis

- Boys with a history of cryptorchidism (undescended testis) have a several-fold risk increase of testicular cancer. It is important to diagnose and treat this condition either by bringing the undescended testis into the scrotum, or resecting the testis.
- Pediatric-specific imaging considerations include the following:
- Suspected undescended testis is an indication for referral to a surgical subspecialist who should make the decision on necessary imaging studies.
- The following imaging is indicated for boys with suspected undescended testis based on a recent detailed physical exam.
 - ◆ Scrotal ultrasound (CPT® 76870) if testis not palpable in the scrotal sac and there is concern for retractile or inguinal testis,
 - If ultrasound is inconclusive, either of the following may be approved:
 - MRI Abdomen (CPT® 74183) and Pelvis (CPT® 72197) without and with contrast, however MRI has a high false negative rate.
 - CT Abdomen/Pelvis with contrast (CPT® 74177).

References

1. Kolon TF, Herndon CDA, Baker LA, et al. Evaluation and treatment of cryptorchidism: AUA Guideline, Copyright © 2014 American Urological Association Education and Research, Inc.®, Accessed October 23, 2017. <https://www.auanet.org/education/guidelines/cryptorchidism.cfm>.
2. Kanaroglou N, To T, Zhu J, et al. Inappropriate use of ultrasound in management of pediatric cryptorchidism. *Pediatrics*. 2015 Sep; 136 (3): 479-486. Accessed October 23, 2017. <http://pediatrics.aappublications.org/content/136/3/479>.
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4. Poppas DP and Medina C. Undescended testicle or cryptorchidism. *Cornell University Institute for Pediatric Urology*. Accessed October 23, 2017. <https://urology.weillcornell.org/cryptorchidism>.
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PEDPV-12: Scrotal Pathology

- Scrotal pathology imaging indications in pediatric patients are very similar to those for adult patients. See **PV-20: Scrotal Pathology** for imaging guidelines.
- Pediatric-specific imaging considerations include the following:
 - ◆ Scrotal US (CPT® 76870) with Doppler (CPT® 93975 or CPT® 93976) is indicated for concerns of testicular torsion.
 - ◆ MRI is not typically used for the acute scrotum due to the limited availability of equipment and the long examination time involved. However, MRI of the pelvis without (CPT® 72195) or without and with contrast (CPT® 72197) is indicated if torsion is unlikely on ultrasound and no surgical exploration is planned.
 - ◆ Since the acceptance of Doppler US as the primary imaging for evaluation of acute scrotum, scintigraphy is not indicated. The unavailability of nuclear medicine imaging in many practices and its use of ionizing radiation, its poor anatomical details, and the time required for imaging are other limiting factors

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1. Hartman MS, Leyendecker JR, Friedman B, et al. Acute onset of scrotal pain—without trauma, without antecedent mass. ACR Appropriateness Criteria®. *American College of Radiology*. 2014; 1-7. Accessed January 23, 2018. <https://acsearch.acr.org/docs/69363/Narrative/>.
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5. Alkhorri NA, Barth RA. Pediatric scrotal ultrasound: review and update. *Pediatric radiology*. 2017 Aug 1;47(9):1125-33.

PEDPV-13: Penis-Soft Tissue Mass

- Penile soft tissue masses are very rare in pediatric patients, and imaging indications are identical to those for adult patients. See **PV-18: Penis – Soft Tissue Mass** for imaging guidelines.

Pediatric Pelvis Imaging Guidelines (Not Otherwise Covered)

PEDPV-14: Incontinence

- Incontinence imaging indications in pediatric patients are very similar to those for adult patients. See **PV-22: Incontinence/Pelvic Organ Prolapse** for imaging guidelines.
- Most often incontinence in children is not due to a medical condition. Several uncommon disorders that can lead to urinary incontinence include a spinal cord defect such as spina bifida, ureteral duplication with ectopic insertion, and overactive bladder or dysfunctional voiding.
- No imaging is needed if primary enuresis is suspected; however, imaging evaluation may be warranted if ureteral duplication or overactive bladder or dysfunctional voiding is suspected. The physician should obtain a full medical history and urinalysis before imaging is done.
- Radiopharmaceutical urinary bladder residual study (CPT® 78730) is indicated for suspicion of urinary retention and a recent non-diagnostic ultrasound.
- Pediatric-specific imaging considerations include the following:
 - ◆ MRI of the pelvis without and with contrast (CPT® 72197) is indicated if ultrasound is inconclusive or spinal abnormality is suspected.
 - ◆ CT Pelvis with contrast (CPT® 72193) is approvable if MRI is not readily available.

References

1. Elder JS. Enuresis and voiding dysfunction. *Nelson Textbook of Pediatrics. Chapter 543.* eds Kliegman RM, Stanton BF, St. Geme JW III, et al. 20th edition 2016;2581-2586.
2. Mandell GA, Eggli DF, Gilday DL, et al. Procedure guideline for radionuclide cystography in children. *Society of Nuclear Medicine*. Version 3.0 approved January 2003. Accessed October 23, 2017. http://snmmi.files.cms-plus.com/docs/pg_ch32_0703.pdf.
3. Peters CA, Skoog SJ, Arant BS, et al. Management and screening of primary vesicoureteral reflux in children: AUA guideline 2010. *American Urological Association*. Accessed October 23, 2017. [http://www.auanet.org/guidelines/vesicoureteral-reflux-\(2010-reviewed-and-validity-confirmed-2017\)](http://www.auanet.org/guidelines/vesicoureteral-reflux-(2010-reviewed-and-validity-confirmed-2017)).
4. Fettich J, Colarinha P, Fischer S, et al. Guidelines for direct radionuclide cystography in children. *Paediatric Committee of the European Association of Nuclear Medicine*. Dec 2002. Accessed November 2, 2017. http://www.eanm.org/publications/guidelines/gl_paed_drc.pdf.

PEDPV-15: Patent Urachus

- Ultrasound of the pelvis (CPT® 76856) is indicated as the initial evaluation for patent urachus.
 - ◆ Any of the following are indicated if the ultrasound is inconclusive or insufficient for preoperative planning:
 - MRI Pelvis without contrast (CPT® 72195)
 - MRI Pelvis without and with contrast (CPT® 72197)
 - CT Pelvis with contrast (CPT® 72193)
- Repeat imaging of asymptomatic patients is not generally necessary, but is indicated for the following:
 - ◆ New or worsening symptoms
 - ◆ Preoperative planning

Practice Note

The urachus is a “tube” connecting the fetal bladder to the umbilical cord. It is usually obliterated during fetal growth, but if it remains patent, there can be a complete or partial connection between the bladder and the umbilicus.

Ultrasound has an accuracy greater than 90%.

References

1. Villavicencio CP, Adam SZ, Nikolaidis P, et al. Imaging of the urachus: anomalies, complications, and mimics. *RadioGraphics*. 2016; 36:2049–2063. Accessed January 22, 2018. <http://pubs.rsna.org/doi/10.1148/rq.2016160062>.
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