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

ABDOMEN IMAGING GUIDELINES
Version 18.0; Effective 03-18-2016

This version incorporates accepted revisions prior to 12/31/15

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</tr>
<tr>
<td>AAA</td>
<td>abdominal aortic aneurysm</td>
<td></td>
</tr>
<tr>
<td>ACE</td>
<td>angiotensin-converting enzyme</td>
<td></td>
</tr>
<tr>
<td>ACTH</td>
<td>adrenocorticotropic hormone</td>
<td></td>
</tr>
<tr>
<td>AFP</td>
<td>alpha-fetoprotein</td>
<td></td>
</tr>
<tr>
<td>ALT</td>
<td>alanine aminotransferase</td>
<td></td>
</tr>
<tr>
<td>AST</td>
<td>aspartate aminotransferase</td>
<td></td>
</tr>
<tr>
<td>BEIR</td>
<td>Biological Effects of Ionizing Radiation</td>
<td></td>
</tr>
<tr>
<td>BUN</td>
<td>blood urea nitrogen</td>
<td></td>
</tr>
<tr>
<td>CNS</td>
<td>central nervous system</td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>computed tomography</td>
<td></td>
</tr>
<tr>
<td>CTA</td>
<td>computed tomography angiography</td>
<td></td>
</tr>
<tr>
<td>CTC</td>
<td>computed tomography colonography (aka: virtual colonoscopy)</td>
<td></td>
</tr>
<tr>
<td>DVT</td>
<td>deep vein thrombosis</td>
<td></td>
</tr>
<tr>
<td>ERCP</td>
<td>endoscopic retrograde cholangiopancreatography</td>
<td></td>
</tr>
<tr>
<td>FNH</td>
<td>focal nodular hyperplasia</td>
<td></td>
</tr>
<tr>
<td>GFR</td>
<td>glomerular filtration rate</td>
<td></td>
</tr>
<tr>
<td>GGT</td>
<td>gamma glutamyl transferase</td>
<td></td>
</tr>
<tr>
<td>GI</td>
<td>gastrointestinal</td>
<td></td>
</tr>
<tr>
<td>HCC</td>
<td>hepatocellular carcinoma</td>
<td></td>
</tr>
<tr>
<td>HCPCS</td>
<td>Healthcare Common Procedural Coding System (commonly pronounced: &quot;hix pix&quot;)</td>
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</tr>
<tr>
<td>HU</td>
<td>Hounsfield units</td>
<td></td>
</tr>
<tr>
<td>IAA</td>
<td>iliac artery aneurysm</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>intravenous</td>
<td></td>
</tr>
<tr>
<td>KUB</td>
<td>kidneys, ureters, bladder (plain frontal supine abdominal radiograph)</td>
<td></td>
</tr>
<tr>
<td>LFT</td>
<td>liver function tests</td>
<td></td>
</tr>
<tr>
<td>MRCP</td>
<td>magnetic resonance cholangiopancreatography</td>
<td></td>
</tr>
<tr>
<td>MRA</td>
<td>magnetic resonance angiography</td>
<td></td>
</tr>
<tr>
<td>MRI</td>
<td>magnetic resonance imaging</td>
<td></td>
</tr>
<tr>
<td>mSv</td>
<td>millisievert</td>
<td></td>
</tr>
<tr>
<td>NAFLD</td>
<td>non alcoholic fatty liver disease</td>
<td></td>
</tr>
<tr>
<td>PA</td>
<td>posteroanterior projection</td>
<td></td>
</tr>
<tr>
<td>PET</td>
<td>positron emission tomography</td>
<td></td>
</tr>
<tr>
<td>RAS</td>
<td>renal artery stenosis</td>
<td></td>
</tr>
<tr>
<td>RBC</td>
<td>red blood cell</td>
<td></td>
</tr>
<tr>
<td>SBFT</td>
<td>small bowel follow through</td>
<td></td>
</tr>
<tr>
<td>SPECT</td>
<td>single photon emission computed tomography</td>
<td></td>
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<tr>
<td>VC</td>
<td>virtual colonoscopy (CT colonography)</td>
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</tr>
<tr>
<td>PFT</td>
<td>pulmonary function tests</td>
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<tr>
<td>WBC</td>
<td>white blood cell</td>
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<tr>
<td>ZES</td>
<td>Zollinger-Ellison Syndrome</td>
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## AB-1 General Guidelines

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<td>CT-, MR-, Ultrasound-guided Procedures</td>
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<td>Special Considerations</td>
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AB-1.1 Overview

✓ A current clinical evaluation (within 60 days) is required before advanced imaging can be considered. The clinical evaluation may include a relevant history and physical examination, appropriate laboratory studies, and non-advanced imaging modalities such as plain X-ray or ultrasound. Other meaningful contact (telephone call, electronic mail or messaging) by an established patient can substitute for a face-to-face clinical evaluation.

✓ GI Specialist evaluations can be helpful, particularly in determining mesenteric/colonic ischemia, diarrhea/constipation, irritable bowel syndrome (IBS), or need for MRCP.

✓ Conservative treatment for abdominal pain can include (list is not exhaustive):
  o Anti-secretory or H. Pylori medications
  o Non-steroidal or opiate analgesia
  o Plain abdominal radiography
  o Diet modification
  o Pro- or anti-motility agents

✓ Abdominal imaging begins at the diaphragm and extends to the umbilicus or iliac crest.

✓ Pelvic imaging begins at the iliac crest and extends to the pubis.

✓ Clinical concerns at the dividing line can be providers’ choice (abdomen and pelvis; abdomen or pelvis).
**AB-1.2 CT Imaging**

**CT imaging** is a more generalized modality. Abdominal CT is usually performed with contrast (CPT® 74160):

- Oral contrast has no relation to the IV contrast administered.
- Exceptions are noted in these guidelines, and include:
  - Abdominal CT with contrast (CPT® 74160) or without and with contrast (CPT® 74170) with suspicion of a solid organ lesion (liver, kidney, pancreas, spleen)
  - Abdominal CT without contrast (CPT® 74150) or Abdomen and Pelvis CT (CPT® 74176) if there is renal insufficiency/failure, or a documented allergy to contrast. It can also be considered for diabetics or the very elderly.
- Abdomen with Pelvis CT, usually with contrast (CPT® 74177), should be considered when signs or symptoms are generalized, or lower quadrant abdomen or pelvic.
- CT Enterography (CPT® 74177) combines CT imaging with large volumes of ingested neutral bowel contrast material to allow visualization of the small bowel
  - Usually, only 2D reformatting is used (coronal reformatted images);
  - If the 3D rendering codes are requested (CPT® 76376 or CPT® 76377), then the final radiology report should be obtained first to verify that true 3D rendering was performed.
  - Also see **AB-23~Inflammatory Bowel Disease**
- CT Enteroclysis
  - A tube is placed through the nose or mouth and advanced into the duodenum or jejunum. Bowel contrast material is infused through the tube and CT imaging is performed either with or without intravenous contrast.
  - CT enteroclysis is used to allow visualization of the small bowel wall and lumen. CT enteroclysis may allow better or more consistent distention of the small bowel than CT enterography.
  - Report by assigning: CPT® 74176 or CPT® 74177
  - Usually, only 2D reformatting is used (coronal reformatted images).
  - The final radiology report should be obtained first to verify that true 3D rendering was performed when 3D rendering codes are requested (CPT® 76376 or CPT® 76377).
- Also see: **AB-23~Inflammatory Bowel Disease**
**AB-1.3 MR Imaging**

- MRI may be preferred as a more targeted study in cases of renal failure; in patients allergic to intravenous CT contrast; and as noted in these guidelines.
  - MRI of the abdomen with contrast only is essentially never performed. If contrast is indicated, MRI abdomen without and with contrast (CPT®74183) should be performed.
  - For pregnant women ultrasound or MRI without contrast should be used to avoid radiation exposure. The use of gadolinium contrast agents is contraindicated during pregnancy unless the specific need for that procedure outweighs risk to the fetus.¹²

**AB-1.4 MR Enterography Coding Notes**

- In the absence of written payor claims/billing guidelines, MRI Enterography is reported in one of two ways:
  - MRI Abdomen without and with contrast (CPT®74183), or
  - MRI Abdomen without and with contrast (CPT®74183) and MRI Pelvis with and without contrast (CPT®72197)

**AB-1.5 Ultrasound**

- Ultrasound, also called sonography, uses high frequency sounds waves to image body structures.
  - The routine use of 3D and 4D rendering, (post-processing), in conjunction with ultrasound is considered investigational.
  - All ultrasound studies require permanently recorded images either stored on film or in a Picture Archiving and Communication System (PACS).
  - The use of a hand-held or any Doppler device that does not create a hard-copy output is considered part of the physical examination and is not separately billable. This exclusion includes devices that produce a record that does not permit analysis of bi-directional vascular flow.

- **Duplex scan** describes an ultrasonic scanning procedure for characterizing the pattern and direction of blood flow in arteries and veins with the production of real-time images integrating B-mode 2D vascular structures, Doppler spectral analysis, and color flow Doppler imaging.
  - The minimal use of color Doppler alone, when performed for anatomical structure identification during a standard ultrasound procedure, is not separately reimbursable.
AB-1.6 Abdominal Ultrasound

✓ Complete abdominal ultrasound (CPT® 76700) includes all of the following required elements:
  o Liver, gallbladder, common bile duct, pancreas, spleen, kidneys, upper abdominal aorta, and inferior vena cava.
  o If a particular structure or organ cannot be visualized, the report should document the reason.

✓ Limited abdominal ultrasound (CPT® 76705) is without all of these required elements and can refer to a specific study of a single organ, a limited area of the abdomen, or a follow-up study.
  o Further, CPT® 76705 should:
    • be assigned to report follow-up studies once a complete abdominal ultrasound (CPT® 76700) has been performed; and
    • be assigned to report ultrasonic evaluation of diaphragmatic motion; and
    • be reported only once per patient imaging session; and
    • not be reported with CPT® 76700 for the same patient for the same imaging session.

AB-1.7 Retroperitoneal Ultrasound

✓ Complete retroperitoneal ultrasound (CPT® 76770) includes all of the following required elements:
  o Kidneys, lymph nodes, abdominal aorta, common iliac artery origins, inferior vena cava
  o For urinary tract indications, a complete study can consist of kidneys and bladder.

✓ Limited retroperitoneal ultrasound (CPT® 76775) studies are without all of these required elements and can refer to a specific study of a single organ, a limited area of the abdomen, or a follow-up study.
  o Further, CPT® 76775 should:
    • be assigned to report follow-up studies once a complete abdominal ultrasound (CPT® 76770) has been performed; and
    • be reported only once per patient imaging session; and
    • not be reported with CPT® 76700 for the same patient for the same imaging session.
AB-1.8 CT-, MR-, Ultrasound-guided Procedures

See: Preface-4.2 CT-, MR-, or Ultrasound-Guided Procedures

AB-1.9 Special Considerations

✓ CT of the abdomen and pelvis either with or without contrast (CPT® 74177 or CPT® 74176) can be performed prior to endoscopy if requested by the physician who will be performing the endoscopy, especially if there is suspected inflammatory bowel disease.

✓ Persistent unexplained nausea and vomiting:
  o One non-contrast brain MRI (CPT® 70551) can be performed in patients with persistent, unexplained nausea and vomiting and a negative GI evaluation. See: HD-1.7 Other Imaging Situations in the Head Imaging Guidelines.

✓ Fever of unknown origin; Unexplained weight loss
  o In the Oncology Imaging Guidelines, refer to: ONC-29~Medical Conditions with Cancer in the Differential Diagnosis

✓ Suspected ascites should be initially evaluated by ultrasound
  o Ultrasound (CPT® 76700 or CPT® 76705) results can then determine the need for peritoneal fluid analysis or further imaging specific to the findings.3,4

References


AB-2~ABDOMINAL PAIN

AB-2.1 General Information
The tables in AB-2.2 Abdominal Pain provides imaging guidance for generalized and quadrant specific abdominal pain. The column headers are defined as the following:

<table>
<thead>
<tr>
<th>Pain Location</th>
<th>Initial Ultrasound?</th>
<th>Conservative Treatment?</th>
<th>Advanced Imaging Indicated?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location/type of abdominal pain</td>
<td>Is an initial US required before advanced imaging?</td>
<td>Is conservative treatment required before advanced imaging?</td>
<td>Advanced imaging indicated for the specific abdominal pain</td>
<td>Additional comments related to indication</td>
</tr>
</tbody>
</table>

Red Flag Signs and Symptoms
✓ In "red flag" situations, the imaging indications may vary from the usual imaging pathway. A red flag situation is described as the following:
  o Persistent abdominal pain and at least one of the following:
    • Failure of conservative treatment for 4 weeks
    • Cancer history
    • Fever (101 degrees or greater)
    • Mass
    • GI bleeding
    • Moderate to severe abdominal tenderness
    • Guarding, rebound tenderness, or other peritoneal signs
    • WBC 10,000 or greater
✓ Please note, that when any one red flag is present with abdominal pain, the initial ultrasound is not required. Please proceed to the imaging indications under the Advanced Imaging column.

Pregnant Women
✓ For pregnant women, abdominal US (CPT®76700), and/or pelvic US (if below the umbilicus) (CPT®76856) and/or TVUS (CPT®76830) should be performed first. If ultrasound is equivocal or red flags are present, proceed to:
  • MRI abdomen without contrast(CPT®74181) and/or MRI pelvis without contrast (CPT®72195) (if below the umbilicus)
### AB-2.2 Abdominal Pain

#### AB-2.2 ABDOMINAL PAIN

<table>
<thead>
<tr>
<th>Pain Location</th>
<th>Initial Ultrasound?</th>
<th>Conservative Treatment?</th>
<th>Advanced Imaging Indicated?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generalized, men and also women not of childbearing age</td>
<td>Yes</td>
<td>No*</td>
<td>*If equivocal ultrasound or if pain is accompanied with: any one red flag ▪ CT of the abdomen and pelvis with contrast</td>
<td>See red flags in \textbf{AB-2.1}</td>
</tr>
<tr>
<td>Generalized, women of childbearing age, not pregnant,</td>
<td>Yes</td>
<td>No*</td>
<td>*If equivocal ultrasound or if pain is accompanied with any one red flag: ▪ CT abdomen and pelvis with contrast or ▪ MRI abdomen and/or pelvis without and with contrast</td>
<td>See red flags in \textbf{AB-2.1}</td>
</tr>
<tr>
<td>Generalized, pregnant</td>
<td>Yes</td>
<td>No</td>
<td>If ultrasound is equivocal with acute pain or any one red flag, MRI abdomen and/or pelvis without contrast</td>
<td>See red flags in \textbf{AB-2.1} and imaging for pregnant women in \textbf{AB-2.1}</td>
</tr>
<tr>
<td>Left Lower Quadrant, rule out diverticulitis – ALL men and non-pregnant women</td>
<td>No</td>
<td>Yes (1 week of antibiotics &amp; follow-up)</td>
<td>CT abdomen and pelvis with contrast if any red flag is present or ONE of the following: 1. failed antibiotic treatment 2. history of diverticulitis 3. CT abdomen and pelvis with contrast prior to endoscopy, if requested by the physician who will be performing the endoscopy</td>
<td>See red flags in \textbf{AB-2.1} and imaging for pregnant women in \textbf{AB-2.1}</td>
</tr>
<tr>
<td>Left Lower Quadrant, suspected or known intraabdominal abscess – ALL men and non-pregnant women</td>
<td>No</td>
<td>No</td>
<td>If fever or elevated WBC, then CT abdomen and/or pelvis with contrast</td>
<td>See imaging for pregnant women in \textbf{AB-2.1} See: \textbf{AB-3}</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPT®</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>74150</td>
<td>CT abdomen without contrast</td>
</tr>
<tr>
<td>74160</td>
<td>CT abdomen with contrast</td>
</tr>
<tr>
<td>74176</td>
<td>CT abdomen and pelvis without contrast</td>
</tr>
<tr>
<td>74177</td>
<td>CT abdomen and pelvis with contrast</td>
</tr>
<tr>
<td>76700</td>
<td>Ultrasound, complete abdomen</td>
</tr>
<tr>
<td>76705</td>
<td>Ultrasound, limited abdomen</td>
</tr>
<tr>
<td>76830</td>
<td>Ultrasound, transvaginal</td>
</tr>
<tr>
<td>76856</td>
<td>Ultrasound, complete pelvis</td>
</tr>
</tbody>
</table>
## AB-2.2 ABDOMINAL PAIN

<table>
<thead>
<tr>
<th>Pain Location</th>
<th>Initial Ultrasound?</th>
<th>Conservative Treatment?</th>
<th>Advanced Imaging Indicated?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Lower Quadrant, follow-up known intraabdominal abscess – ALL men and non-pregnant women</td>
<td>No</td>
<td>No</td>
<td>Serial abdominal and/or pelvic ultrasound (CPT®76700 and/or CPT®76856) or CT abdomen and/or pelvis with contrast: ✓ The interval can be days, weeks, or months, but not to exceed 3 follow-up studies based on the clinical course of the individual.</td>
<td>See imaging for pregnant women in: <a href="#">AB-2.1</a> See: <a href="#">AB-3</a></td>
</tr>
<tr>
<td>Left Upper Quadrant – ALL men and non-pregnant women</td>
<td>Yes Complete or limited abdomen</td>
<td>No</td>
<td>If pain is accompanied with at least 1 red flag then CT of the abdomen with contrast</td>
<td>See imaging for pregnant women in: <a href="#">AB-2.1</a></td>
</tr>
<tr>
<td>Right Lower Quad, rule out appendicitis in – ALL men and non-pregnant women</td>
<td>No</td>
<td>No</td>
<td>CT of the abdomen and pelvis either with contrast or without contrast</td>
<td>See imaging for pregnant women in: <a href="#">AB-2.1</a></td>
</tr>
</tbody>
</table>

CPT®74150 CT abdomen without contrast CPT®76700 Ultrasound, complete abdomen
CPT®74160 CT abdomen with contrast CPT®76705 Ultrasound, limited abdomen
CPT®74176 CT abdomen and pelvis without contrast CPT®76830 Ultrasound, transvaginal
CPT®74177 CT abdomen and pelvis with contrast CPT®76856 Ultrasound, complete pelvis
CPT®74181 MRI abdomen without contrast CPT®72195 MRI pelvis without contrast
CPT®74183 MRI abdomen without & with contrast CPT®72197 MRI pelvis without & with contrast

### AB-2.2 MRI abdomen without & with contrast

<table>
<thead>
<tr>
<th>Pain Location</th>
<th>Initial Ultrasound?</th>
<th>Conservative Treatment?</th>
<th>Advanced Imaging Indicated?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right Upper Quadrant, rule out cholecystitis - ALL men and non-pregnant women</td>
<td>Yes Complete or limited abdomen</td>
<td>No</td>
<td>CT abdomen with contrast, or MRI abdomen without contrast or without and with contrast if ultrasound equivocal</td>
<td>See imaging for pregnant women in <a href="#">AB-2.1</a></td>
</tr>
<tr>
<td>Epigastric pain, dyspepsia, gastritis, &amp; postprandial fullness – ALL</td>
<td>Yes Complete or limited abdomen</td>
<td>Yes 4week trial of antisecretory and/or H. Pylori</td>
<td>If pain persists after failure of conservative treatment, CT abdomen with contrast or MRI abdomen without and with</td>
<td>See imaging for pregnant women in <a href="#">AB-2.1</a></td>
</tr>
</tbody>
</table>
men and non-pregnant women | medication must be completed | contrast can be performed.
--- | --- | ---
Acute epigastric pain with any red flag symptoms – ALL men and non-pregnant women | No | No | If pain is accompanied with any one red flag, then CT abdomen with contrast or MRI abdomen without and with contrast | See imaging for pregnant women in AB-2.1

| CPT® 74150 | CT abdomen without contrast | CPT® 76700 | Ultrasound, complete abdomen |
| CPT® 74160 | CT abdomen with contrast | CPT® 76705 | Ultrasound, limited abdomen |
| CPT® 74176 | CT abdomen and pelvis without contrast | CPT® 76830 | Ultrasound, transvaginal |
| CPT® 74177 | CT abdomen and pelvis with contrast | CPT® 76856 | Ultrasound, complete pelvis |
| CPT® 74181 | MRI abdomen without contrast | CPT® 72195 | MRI pelvis without contrast |
| CPT® 74183 | MRI abdomen without & with contrast | CPT® 72197 | MRI pelvis without & with contrast |

References
AB-3~ABDOMINAL SEPSIS (Suspected Abdominal Abscess)

AB-3.1 Abdominal Sepsis

✓ CT abdomen and/or pelvis with contrast (CPT® 74160, or CPT® 72193, or CPT® 74177) for abdominal symptoms associated with fever and/or elevated white blood cell count.¹

✓ Intraperitoneal abscess can undergo interval CT abdomen and pelvis with contrast (CPT® 74177).

✓ Serial Ultrasound (CPT® 76705) or CT with contrast (CPT® 74160, or CPT® 72193, or CPT® 74177) for follow-up of known fluid collections, especially with catheter drainage. The interval can be days, weeks, or months, but not to exceed 3 follow-up studies, based on the clinical course of the individual

Reference

ABDOMEN IMAGING GUIDELINES

GENERAL ABDOMINAL SIGNS and SYMPTOMS

AB-4~FLANK PAIN, Rule Out Renal Stone

AB-4.1 Flank Pain

✓ Suspicion of renal stone in non-pregnant adults (flank pain/renal colic),\(^1,2\)
  o CT abdomen and pelvis without contrast (CPT® 74176)

✓ Suspicion of Renal Stone in pregnant women (flank pain/renal colic)\(^3,4\)
  o Ultrasound (CPT® 76770 or CPT® 76775) or MRI abdomen and pelvis without contrast (CPT® 74181 and CPT® 72195).
    • The use of gadolinium contrast agents is contraindicated during pregnancy unless the specific need for that procedure outweighs risk to the fetus.

✓ Suspicion of Renal Stone in Children (flank pain/renal colic)\(^4\)
  o In children, ultrasound (CPT® 76770 or CPT® 76775) or MR urography (MRI abdomen and pelvis, without or with and without contrast [CPT® 74181/72195 or CPT® 74183/72197]) is the best initial study to avoid radiation exposure.
  o See PACAB-4~Flank Pain, Rule Out Renal Stone

✓ Suspicion Renal Stones (Flank pain/renal colic) with Hematuria
  o CT abdomen and pelvis without contrast or CT urogram

AB-4.2 Follow-Up

✓ Serial CT scans without contrast or without and with contrast to determine the passage or dissolution (of uric acid stones) of kidney stones are acceptable if they do not exceed three scans in a six week period.
  o If the stone has been seen on the pelvic CT portion of the scan, the subsequent CT scan(s) should only include the pelvis.
  
  o Follow-up serial CT studies can and should be done with as low a dose as possible to minimize radiation exposure particularly in patients under the age of 40.

✓ Post-procedure follow-up should up to 12 months, with CT abdomen and pelvis without contrast if:
  o Uric acid stones, calcified stones obscured on plain films, or stones <4 mm - Noncontrast CT abdomen and/or pelvis (CPT® 74176, or CPT® 74150, or CPT® 72192)
    • Non-Uric Acid Stones - Abdomen plain films every 6 to 12 months in asymptomatic patients.
  o For surgical complications or if the individual develops unusual symptoms - CT abdomen and pelvis without and with contrast (CPT® 74178) may be performed.
References


ABDOMEN IMAGING GUIDELINES

GENERAL ABDOMINAL SIGNS and SYMPTOMS

AB-5~GASTROENTERITIS

Gastroenteritis is generally defined as diarrhea with nausea and vomiting usually with an infectious etiology.¹

AB-5.1 Gastroenteritis

- CT abdomen and pelvis with contrast (CPT® 74177) if:
  - Acute abdomen suggesting bowel obstruction, toxic megacolon (abdominal swelling, fever, tachycardia, elevated white blood cell count), or perforation
  - Persistent abdominal pain with failure of conservative treatment for 2 weeks

References


ABDOMEN IMAGING GUIDELINES

GENERAL ABDOMINAL SIGNS and SYMPTOMS

AB-6~MESENERIC/COLONIC ISCHEMIA

AB-6.1 Mesenteric Ischemia

✓ For acute severe abdominal pain out of proportion to findings on physical exam.
   ○ Abdominal (Mesenteric) CTA (CPT® 74175) (preferable), or MRA (CPT® 74185), or CT abdomen and pelvis with contrast (CPT® 74177)\(^1,2\)

✓ For chronic postprandial abdominal pain and weight loss (chronic) can undergo:
   ○ CT abdomen/pelvis with contrast (CPT® 74177)
   ○ If CT abdomen and pelvis with contrast is negative (documentation must be provided), then proceed to Abdominal (Mesenteric) CTA (CPT® 74175) or MRA (CPT® 74185)

✓ Routine post-procedure imaging following invasive treatment for mesenteric ischemia (bowel resection, embolectomy, etc.) is not needed in asymptomatic patients.

✓ Also see “Mesenteric Ischemia” in: PVD-6~Aortic Disorders, Renal Vascular Disorders, and Visceral Artery Aneurysms in the Peripheral Vascular Disease Imaging Guidelines.

AB-6.2 Colonic ischemia (including ischemic colitis)

✓ CT abdomen and pelvis with contrast (CPT® 74177) can be performed for suspicion of colonic ischemia, abdominal pain, and any one of the following:
   ○ Fever (101 degrees or greater)
   ○ Guarding, rebound tenderness, or other peritoneal signs
   ○ WBC above 10,000
   ○ GI bleeding

✓ Repeat imaging for asymptomatic or unchanged symptoms, including post-procedure imaging, is not needed.

✓ Abdominal CTA (CPT® 74175) or MRA (CPT® 74185) if requested by a gastroenterology specialist, vascular surgeon, or interventional radiologist.
References


ABDOMEN IMAGING GUIDELINES

GENERAL ABDOMINAL SIGNS and SYMPTOMS

AB-7~Post-Operative Pain Within 60 Days Following Abdominal Surgery – Abdominal Procedure

**AB-7.1 Post-Op Pain within 60 Days**

- CT abdomen and/or pelvis with contrast (CPT®74177 or CPT®74160 or CPT®72193) can be performed for suspected postoperative/post procedure complications (For example bowel obstruction, abscess or anastomotic leak).\(^1,2\)

- Beyond 60 days postoperatively, see: **AB-2~Abdominal Pain**

**References**


ABDOMEN IMAGING GUIDELINES

OTHER ABDOMINAL ENTITIES (ALPHABETICAL ORDER)

AB-8~ABDOMINAL LYMPHADENOPATHY

AB-8.1 Abdominal Lymphadenopathy

✓ CT abdomen with contrast (CPT® 74160), or CT pelvis with contrast (CPT® 72193), or CT abdomen and pelvis with contrast (CPT® 74177) once following the original imaging study if lymphadenopathy is:
  o Found incidentally on previous imaging
✓ If enlarged lymph node(s) is still a concern after repeat CT, biopsy should be considered to establish a histological diagnosis.1, 2

AB-8.2 Inguinal Lymphadenopathy

There is no evidence-based support for advanced imaging of clinically evidenced inguinal lymph adenopathy without biopsy.

✓ Localized inguinal lymphadenopathy should prompt:
  o Search for adjacent extremity injury or infection;
  o 3 to 4 weeks of observation if clinical picture is benign;
  o Excisional or image guided core needle biopsy under ultrasound or CT guidance of most abnormal lymph node if condition persists or malignancy suspected;
  o No advanced imaging indicated.
✓ Generalized inguinal lymphadenopathy should prompt:
  o Diagnostic work-up, including serological tests, for systemic diseases and
  o Excisional or image guided core needle biopsy under ultrasound or CT guidance of most abnormal lymph node if condition persists or malignancy suspected.

See: ONC-27~Lymphomas in the Oncology Imaging Guidelines
See also: ONC-30~Metastatic Cancer and Carcinomas of Unknown Primary Site

Reference
AB-9~BARIATRIC SURGERY

AB-9.1 Bariatric Surgery

✔ CT abdomen and pelvis with contrast (CPT®74177) for patients who have had obesity surgery and who present with suspected complications related to the bariatric surgery who presents with any one of the following: fever, abdominal pain, abdominal distention, frequent vomiting or suspected hernia.

✔ See AB-7~Post-Operative Pain Within 60 Days Following Abdominal Surgery

References


AB-10~BLUNT ABDOMINAL TRAUMA

AB-10.1 Blunt Abdominal Trauma

✔ Ultrasound (CPT®76700 and/or CPT®76856) initially for trauma with low probability of intra-abdominal injury (minimal pain, no peritoneal irritation on physical examination, no hemodynamic instability, no elevated AST/ALT)

✔ To determine whether patients need hospitalization for observation as a result of blunt renal trauma with hematuria, CT abdomen and pelvis without and with contrast (CPT®74178) should be used initially.¹,²

✔ CT abdomen and/or pelvis with contrast (CPT®74160, or CPT®72193, or CPT®74177):
  o High probability intra-abdominal injury
  o If ultrasound demonstrates any positive finding(s)

References

ABDOMEN IMAGING GUIDELINES

OTHER ABDOMINAL ENTITIES (ALPHABETICAL ORDER)

AB-11~GAUCHER’S DISEASE and HEMOCHROMATOSIS

See also: PN-6.3 Gaucher’s Disease in the Peripheral Nerve Disorders Imaging Guidelines

AB-11.1 Gaucher’s Disease

- MRI abdomen without contrast (CPT®74181) and MRI lower extremity without contrast (CPT®73718) as follows:
  - Patients not on enzyme therapy - every 12 to 24 months
  - Patients on enzyme therapy every 12 months:
    - For change in dose of medication, complication from medication specific for treatment of Gaucher’s disease or clinical complication, individuals with active bone disease may require more frequent monitoring than once a year.

AB-11.2: Hereditary (Primary) Hemochromatosis (HH) and Other Iron Storage Diseases

- MRI abdomen to assess iron storage in the liver has not been sufficiently validated to endorse its use for this purpose at the current time. Current AASLD diagnosis and treatment algorithms for hemochromatosis do not include MRI either for the diagnosis or follow-up of hepatic iron storage.

- Patients with HH who have been determined to have cirrhosis should be imaged according to AB-26.1 Cirrhosis and Liver Screening for HCC.

AB-11.3: Transfusion-Associated (Secondary) Hemochromatosis

- Transfusion-associated hemochromatosis imaging indications in adult patients are identical to those for pediatric patients. See PEDAB-18.2~Transfusion-Associated (Secondary) Hemochromatosis for imaging guidelines.

Practice Notes

Gaucher’s Disease is a lysosomal storage disease characterized by glucosylceramide accumulation in the spleen, liver, kidneys, lung, brain and bone marrow.

Practice Notes

Gaucher’s Disease is a lysosomal storage disease characterized by glucosylceramide accumulation in the spleen, liver, kidneys, lung, brain and bone marrow.

References


7. Hemochromatosis. Duchini, Andrea; Chief Editor (Updated April 18, 2014)


ABDOMEN IMAGING GUIDELINES

OTHER ABDOMINAL ENTITIES (ALPHABETICAL ORDER)

AB-12~HERNIAS

AB-12.1 Inguinal or Femoral Hernia
✓ Ultrasound (pelvic limited (CPT® 76857) or pelvic complete) ultrasound and/or a limited (or complete abdomen ultrasound) is the initial imaging for known or suspected primary or recurrent inguinal or femoral hernia
  o Limited (CPT® 76857) or complete (CPT® 76856) pelvic ultrasound; and/or
  o Limited (CPT® 76705) or complete (CPT® 76700) abdominal ultrasound
✓ CT pelvis with contrast (CPT® 72193) or without contrast (CPT® 72192) if there is suspected incarceration or strangulation of inguinal or femoral hernia or if requested by a specialist or surgeon

AB-12.2 Spigelian, Ventral, Umbilical, or Incisional Hernia
✓ Known or suspected primary or recurrent Spigelian hernia (anterior abdominal wall hernia through the semilunar line), ventral hernia, umbilical, or incisional hernia:
✓ CT of the abdomen and/or pelvis (if below the umbilicus) with contrast (CPT® 74160 or CPT® 72193 or CPT® 74177) or without contrast (CPT® 74150 or CPT® 72192 or CPT® 74176)

AB-12.3 Hiatal Hernia
✓ Chest and/or Abdomen CT with contrast (CPT® 71260 and/or CPT® 74160) to evaluate any of the following:
  o GI specialist or surgeon request for treatment/pre-operative planning
  o Suspected complication of primary disease or surgery

AB-12.4 Indeterminate Groin Pain
✓ Occurs after intra-abdominal/genitourinary causes have been ruled out and Musculoskeletal evaluation does not identify a specific cause
  o Plain X-ray of the pelvis is the initial study
  o Further advanced imaging can then be considered with pelvis MRI without contrast
  o Pelvic Ultrasound (CPT® 76856 or CPT® 76857) can be considered in the evaluation of sports hernia (athletic pubalgia)
Practice Note

Sports hernia, also referred to as athletic pubalgia, is not a true hernia. Sports hernia is a term used to describe a condition characterized by groin pain, often in an athlete, in which there is no identifiable hernia.

References

1. Daniels CJ, Scali F. Clinical brief: recognition and treatment of the elusive sports hernia. Topics in Integrative Health Care, 2012; 3(3).
ABDOMEN IMAGING GUIDELINES

OTHER ABDOMINAL ENTITIES (ALPHABETICAL ORDER)

AB-13~ABDOMINAL MASS

**AB-13.1 Abdominal Wall Mass**
- Ultrasound (CPT®76700) or CT abdomen and/or pelvis (if below the umbilicus) with contrast (CPT®74160 or CPT®72193 or CPT®74177) or without contrast (CPT®74150 or CPT®72192 or CPT®74176)
- MRI abdomen without and with contrast (CPT®74183) or MRI abdomen without contrast (CPT®74181) can be considered if ultrasound and/or CT are equivocal, or for preoperative planning

**AB-13.2 Intra-Abdominal Mass**
- If the physical exam suggests a palpable mass or a mass is seen on prior imaging, imaging can include one of the following:
  - CT abdomen and/or pelvis (if mass palpated below the umbilicus) with contrast (CPT®74160 or CPT®72193 or CPT®74177) **OR**
  - CT abdomen and/or pelvis (if mass palpated below the umbilicus) without contrast (CPT®74150 or CPT®72192 or CPT®74176) **OR**
  - MRI abdomen and/or pelvis (if mass palpated below the umbilicus) without contrast (CPT®74181 and/or CPT®72195) **OR**
  - MRI abdomen and/or pelvis (if mass palpated below the umbilicus) without and with contrast (CPT®74183 and/or CPT®72197)

- **Pediatric patient:**
  - Initial Imaging: Abdominal and/or pelvic ultrasound (CPT®76700 and/or CPT®76856) is appropriate
  - Follow-up Imaging if ultrasound findings are indeterminate: CT abdomen or MRI abdomen (contrast as requested)

- **Pregnant patient:**
  - Initial Imaging: Abdominal and/or pelvic and/or transvaginal ultrasound (CPT®76700 and/or CPT®76856 and/or CPT®76830) is appropriate
  - Follow-up Imaging if ultrasound findings are indeterminate: See AB-2.1

- **Subcutaneous mass:** Abdominal and/or pelvic ultrasound (CPT®76700 and/or CPT®76856) is appropriate

**References**


## AB-14~LOWER EXTREMITY EDEMA

See:

**PVD-7.5 Lower Extremity, Deep Venous Thrombosis (DVT) and/or Lower Extremity Edema** in the Peripheral Vascular Disease Imaging Guidelines.

## AB-15~ZOLLINGER-ELLISON SYNDROME (ZES)

### AB-15.1 Zollinger-Ellison Syndrome (ZES)

✓ For known CT abdomen with contrast (CPT®74160) or MRI abdomen without and with contrast (CPT®74183)

**Practice Notes**

Zollinger-Ellison Syndrome is a complex condition in which one or more tumors form in the pancreas or upper part of the small intestine (duodenum).

Imaging is sometimes combined with Somatostatin Receptor Scintigraphy in the evaluation of suspected gastrinoma (elevated serum gastrin (normal value is <100 pg/ml) and/or abnormal gastric acid secretory test).\(^1,2,3\)

**References**


### AB-16.1 Adrenal Cortical Lesions

#### Imaging Decision Tree: Incidentally Discovered Adrenal Mass\(^1,2,3,4\)

<table>
<thead>
<tr>
<th>Mass Details</th>
<th>Primary Study</th>
<th>Additional Studies</th>
</tr>
</thead>
</table>
| 1) 1 to 4 cm 2) No history malignancy 3) Initial | CT abdomen without contrast | ✓ If primary CT without is not diagnostic or concerning for malignancy:  
- CT abdomen without and with contrast*; or  
(*delayed imaging obtained to calculate washout)  
- MRI abdomen without contrast**  
(**also appropriate for iodinated contrast allergy) |
| 1) 1 to 4 cm 2) No history malignancy 3) Follow-up indeterminate lesions in 12 months | CT abdomen without contrast | ✓ If enlarging adrenal lesion:  
- MRI abdomen without contrast  
✓ No further imaging if:  
- (1) initial determines benign adenoma, myelolipoma, hematoma or simple cyst or  
- (2) no change in size after 12 months follow-up. |
| 1) >4cm 2) No history of malignancy | CT abdomen with contrast* | ✓ For pre-op:  
- MRI abdomen without and with contrast  
- PET can be considered for pre-operative study  
- MIBG if suspect pheochromocytoma |
| 1) <4cm 2) History of malignancy | CT abdomen without contrast | CT abdomen without and with contrast*; or  
(*delayed imaging obtained to calculate washout)  
- MRI abdomen without contrast**; or  
(**also appropriate for iodinated contrast allergy; chemical shift)  
- PET  
- Biopsy/resection if suspicious imaging and can’t be determined benign  
- MIBG if suspect pheochromocytoma |

**CPT®**
- 74150  CT abdomen without contrast
- 74160  CT abdomen with contrast
- 74170  CT abdomen without and with contrast
- 74181  MRI abdomen without contrast
- 74183  MRI abdomen without & with contrast
- 78812  PET, skull base to mid-thigh
- 78815  PET/CT, skull base to mid-thigh

*Continued...*
### AB-16.1 Adrenal Cortical Lesions Continued

<table>
<thead>
<tr>
<th>Mass Details</th>
<th>Primary Study</th>
<th>Additional Studies/Comments</th>
</tr>
</thead>
</table>
| 1) >4cm  
2) History of malignancy | PET | Biopsy before or after PET |
| 1) Hormone secreting;  
2) Cushing’s or Conn’s Syndrome | CT abdomen with contrast bolus arterial phase* | Laboratory: Dexamethasone suppression, serum ACTH level, serum aldosterone/renin, and/or virulizing hormone levels, and 24 hour urine for adrenal hormones confirm adrenal cortical endocrine syndrome |
| 1) Hormone secreting;  
2) Pheochromocytoma | Any MRI abdomen requested* | Chemical shift MRI is the preferred imaging, since tumor lights up brightly on T2 weighted images  
*hypertensive crises may be precipitated with bolus iodinated IV contrast |

| CPT®74160 | CT abdomen with contrast |
| CPT®74170 | CT abdomen without and with contrast |
| CPT®74181 | MRI abdomen without contrast |
| CPT®74183 | MRI abdomen without & with contrast |
| CPT®78812 | PET, skull base to mid-thigh |
| CPT®78815 | PET/CT, skull base to mid-thigh |

### AB-16.2 Normal Laboratory Values

<table>
<thead>
<tr>
<th>NORMAL VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aldosterone</strong></td>
</tr>
<tr>
<td>3-10 ng/dl (supine)</td>
</tr>
<tr>
<td>5-30 ng/dl (upright)</td>
</tr>
<tr>
<td><strong>Cortisol</strong></td>
</tr>
<tr>
<td>at 8am</td>
</tr>
<tr>
<td>at 4pm</td>
</tr>
<tr>
<td>at 10pm</td>
</tr>
</tbody>
</table>

### AB-16.3 Adrenal Insufficiency

✓ CT abdomen without contrast (CPT®74150) or MRI abdomen without contrast (CPT®74181) is supported to determine the cause of primary adrenal insufficiency. Imaging is necessary if testing has confirmed adrenal insufficiency or adrenomyeloneuropathy.6,7

**Practice Notes**
The majority of “incidentalomas” are benign adenomas. Primary Adrenal Carcinoma is a very rare disease and usually seen with adrenal masses greater than 5 cm in diameter.
Metastases with history of malignancy are 25-75%. Routine screening for endocrine function is recommended since 5%-23% will be hormone secreting.

Resection or biopsy is often considered for mass lesions larger than 4 cm or hormone-secreting tumors should be resected.

Biopsy is often considered if pheochromocytoma is excluded.

Signs and symptoms of pheochromocytoma:
- Flushing spells and/or poorly controlled hypertension.
- Elevated plasma or urine metanephrines support the diagnosis of pheochromocytoma with sensitivity for diagnosis at 99.7%.

If plasma metanephrines are not elevated, a 24-hour urine for catecholamine and metanephrine levels should be obtained prior to considering advanced imaging.

If catecholamine and metanephrine levels are not elevated in a 24-hour urine test, then no advanced imaging is indicated unless unexplained symptoms suggestive of pheochromocytoma persist.

References
ABDOMEN IMAGING GUIDELINES

SPECIFIC ABDOMINAL ORGANS - STRUCTURES

AORTA

AB-17~Abdominal Aortic Aneurysm (AAA), Iliac Artery Aneurysm (IAA), and Visceral Artery Aneurysms
Follow-Up of Known Aneurysms and Pre-Op Evaluation

AB-17.1 Abdominal Aortic Aneurysm (AAA)

Non-Obese Patient

✓ Ultrasound (CPT® 76775) is the preferred initial imaging study to screen or surveil for AAA or to evaluate a pulsatile abdominal mass.

Obese Patient

✓ CT abdomen with contrast (CPT® 74160) can be substituted for US using the same timeline as non-obese patient

Screening

✓ One-time screening recommendations for AAA (Ultrasound (CPT® 76775))
  o Men age 65 to 75 who have smoked
  o Women and non-smokers – no routine screening
  o Medicare covers a one-time AAA screening ultrasound (procedure code G0389) if there is at least one of the following risk factors:
    • Family history of AAA
    • Patient is a male age 65 to 75 who has smoked at least 100 cigarettes in his lifetime.

Surveillance

✓ Surveillance recommendations for AAA (Ultrasound (CPT® 76775))
  o 2.6-2.9 cm → once at 5 years
  o 3.0-3.4 cm → once at 3 years
  o 3.5-4.4 cm → annually
  o 4.5-5.4 → every 6 months

✓ >5.4 cm, or aortic diameter has increased in size by 0.7 cm in six months or at least 1 cm in a year may undergo more frequent monitoring and should be evaluated by a Vascular Specialist.
**Additional Imaging**

- CT of the abdomen and pelvis with contrast (CPT® 74177), CT of the abdomen and pelvis without and with contrast (CPT® 74178), or CTA (CPT® 74175 and CPT® 72191).
  - Preoperative imaging if endovascular or open repair of AAA is being considered
  - New onset of back and/or abdominal pain in a patient with a known AAA

Also see: **PVD-6~Aortic Disorders, Renal Vascular Disorders, and Visceral Artery Aneurysms** in the Peripheral Vascular Disease Imaging Guidelines.

**Practice Note**

There is insufficient evidence to support the use of advanced imaging to screen for thoracic aortic aneurysm in patients with known abdominal aortic aneurysm.

**AB-17.2 Iliac Artery Aneurysm (IAA)**

- Evaluation of a suspected IAA should begin with ultrasound.
  1. If ultrasound is equivocal, CT pelvis with contrast (CPT® 72193) may be performed.
  2. Follow-up imaging studies can be performed annually

**Additional Imaging**

- CT of the abdomen and pelvis with contrast (CPT® 74177), CT of the abdomen and pelvis without and with contrast (CPT® 74178), or CTA abdomen and pelvis (CPT® 74174).
  - Preoperative imaging if endovascular or open repair is being considered

**Practice Notes**

- Iliac artery aneurysms are most commonly associated with aortic aneurysms.
- Isolated IAA’s are rare.
- Approximately one third to one half of isolated IAA’s are bilateral at time of presentation.
- The majority of patients are male and between 50 and 70 years old.
- The normal size of the iliac artery is <1cm.
- Aneurysm rupture usually occurs at a diameter of 5 cm or larger, whereas common iliac aneurysms that are less than 3 cm in diameter almost never rupture.
AB-17.3 Visceral Artery Aneurysm

Also see:
**PVD-6~Aortic Disorders, Renal Vascular Disorders, and Visceral Artery Aneurysms** in the Peripheral Vascular Disease Imaging Guidelines

**Reference**

**AORTA**

**AB-18~Abdominal Aortic Aneurysm (AAA) and Iliac Artery Aneurysm (IAA)-Post Endovascular or Open Aortic Repair**

### AB-18.1 AAA, IAA, Post Endovascular or Open Aortic Repair

- Any one of the following studies can be used after aortic intervention:
  - CT of the abdomen and/or pelvis with contrast (CPT® 74160 or CPT® 72193 or CPT® 74177), or
  - CT of the abdomen and/or pelvis without and with contrast (CPT® 74170 or CPT® 72194 or CPT® 74178) or
  - CTA of the abdomen and/or pelvis (CPT® 74175 or CPT® 72191 or CPT®74174), or
  - MRA of the abdomen and/or pelvis (CPT®74185 and CPT®72198)

- **Open Aortic Repair** - every 3 years to screen for aneurysms in the remaining aorta

- **Endovascular (Stent) Aortic Repair** - 1 month, 6 months, and 12 months following repair, then every year
  - An additional study at 3 months can be performed if there was evidence of endoleak on the 1 month study.

- Any of the following studies can be used after endovascular iliac repair (stent):
  - CT pelvis (CPT®72193 or CPT®72194), or
  - CTA pelvis (CPT®72191), or
  - MRA pelvis (CPT®72198)

- **Endovascular (Stent) Iliac Repair** - 1 week, 1 month, 3 months, and 6 months after endovascular treatment, and then every 6 months thereafter.

### References

ABDOMEN IMAGING GUIDELINES

SPECIFIC ABDOMINAL ORGANS - STRUCTURES

AORTA

AB-19~AORTIC DISSECTION and IMAGING for OTHER AORTIC CONDITIONS

AB-19.1 Aortic Dissection and other Aortic Conditions

✓ Any of the following studies can be used if acute dissection is suspected:

  o CT of the chest (CPT® 71260 or CPT® 71270) and/or
  o CT abdomen (CPT® 74160 or CPT® 74170) and/or
  o CT pelvis (CPT® 72193 or CPT® 72194) or

     • If CT abdomen and pelvis with or with and without is requested, codes:
       (CPT® 74177 or CPT® 74178) are appropriate.

  o CTA of the chest (CPT® 71275) and/or CTA abdomen and/or pelvis (CPT® 74175
    or CPT® 72191 or CPT® 74174), or
  o MRA of the chest and/or abdomen and/or pelvis (CPT® 71555 and/or CPT® 74185
    and/or CPT® 72198)
  o See CH-30~Thoracic Aortic in the Chest Imaging Guidelines

AB-19.2 Imaging for Other Aortic Conditions

✓ Chest CTA (CPT® 71275) prior to minimally invasive or robotic surgery.
(See also: CD-1.10 in the Cardiac Imaging Guidelines.)
ABDOMEN IMAGING GUIDELINES

BOWEL (ALPHABETICAL ORDER)

For diverticulitis, see: AB-2.2 Abdominal Pain
For mesenteric/colonic ischemia, see: AB-6~Mesenteric/Colonic Ischemia

AB-20~BOWEL OBSTRUCTION

AB-20.1 Bowel Obstruction

✓ Plain X-rays of the abdomen (obstructive series) should be obtained as the initial study in patients with suspected bowel obstruction.

✓ CT of the abdomen and pelvis with contrast (CPT®74177) may be used for:
  o Plain X-rays that are abnormal or equivocal
  o High index of suspicion for bowel obstruction (abdominal pain, vomiting, constipation, abdominal distention, failure to pass flatus), especially in patients with prior history of abdominal surgery, history of malignancy, or patients with current hernias.¹

✓ For bariatric surgery patients, see: AB-9.1 Bariatric Surgery

Reference

ABDOMEN IMAGING GUIDELINES

BOWEL (ALPHABETICAL ORDER)

AB-21~Diarrhea, Constipation, and Irritable Bowel

AB-21.1 Diarrhea/Constipation

✓ Endoscopy should be first step in evaluation of change in bowel habits unless accompanied by other signs and symptoms

✓ CT of the abdomen and pelvis with contrast (CPT® 74177) can be used if:
  o Diarrhea and any of the following: fever, weight loss, abnormal physical examination findings, fecal incontinence, GI bleeding, or abnormal labs including stool analysis
  o Constipation and any of the following family history of inflammatory bowel disease or cancer, onset of constipation after age 50, acute onset of constipation in the elderly, GI bleeding, fever, substantial pain, vomiting, weight loss, rectal pain, abnormal lab studies, or abnormal physical examination findings
  o Diarrhea or constipation which has failed conservative 2 weeks of conservative management

✓ MRI Defecography (MRI pelvis without contrast CPT® 72195) can be considered only if ordered for preoperative evaluation for the planning of complex pelvic reconstruction.

AB-21.2 Bloating and/or Irritable Bowel Syndrome

✓ Advanced imaging is not needed for suspected or known Irritable Bowel Syndrome (IBS) which is a diagnosis of exclusion with the following symptoms:
  o Abdominal pain
  o Change in frequency (diarrhea, constipation or both) and form of stool
  o Relief of symptoms with defecation

References

AB-22~GI BLEEDING

AB-22.1 GI Bleeding

✓ Endoscopy should be first step in evaluation for GI bleeding

✓ CTA Abdomen (CPT®74175) or CTA Abdomen and Pelvis (CPT® 74174) or CT abdomen and pelvis with contrast (CPT®74177) can be considered if any of the following is accompanied with GI bleeding1,2:
  - Severe abdominal pain; or
  - Hemodynamic instability (shock); or
  - Endoscopy is contraindicated or negative.

References

ABDOMEN IMAGING GUIDELINES

SPECIFIC ABDOMINAL ORGANS - STRUCTURES

BOWEL (ALPHABETICAL ORDER)

AB-23~INFLAMMATORY BOWEL DISEASE
Rule Out Crohn’s Disease or Ulcerative Colitis

AB-23.1 IBD rule out Crohn’s Disease or Ulcerative Colitis

✓ Suspected or Known Crohn’s Disease or Ulcerative Colitis
  ○ CT of the abdomen and pelvis with contrast (CPT®74177), CT enteroclysis (CPT®74176 or CPT®74177) or CT enterography (CPT®74177) if diagnosis is otherwise inconclusive or suspected complications, including abscess, perforation, fistula, or obstruction.
  ○ MRI Enterography (CPT®74183 and CPT®72197) may be performed to avoid radiation, to monitor response to immune-modulatory agents, and to differentiate acute phase disease from remission.¹

✓ Rectal/Peri-Rectal involvement
  ○ Endoscopic ultrasound, rectal ultrasound (CPT®76872), MRI pelvis without and with contrast (CPT®72197), or CT pelvis with contrast (CPT®72193)²,³

✓ SPECT,PET and PET/CT Enterography are considered investigational⁴

AB-23.2 Special Considerations

✓ CT of the abdomen and pelvic either with or without contrast (CPT®74177 or CPT®74176) can be performed prior to endoscopy if requested by the physician who will be performing the endoscopy, especially if there is suspected inflammatory bowel disease.

References

AB-24.1 Celiac Disease

✓ Diagnosis is made by blood testing¹:
  o Anti-tissue transglutaminase antibody [anti-tTG], anti-endomysium antibody (EMA), total IgA count, CBC to detect anemia, ESR, C-reactive protein, complete metabolic panel, vitamin D, E, B12 levels

✓ Endoscopy and biopsy of the small bowel is performed to confirm the diagnosis if the tTG and EMA tests are positive.

✓ CT abdomen and pelvis with contrast (CPT 74177) or CT Enteroclysis (CPT 74176 or CPT 74177) is appropriate for:
  o One time study after initial, confirmed diagnosis of Celiac Disease
  o Confirmed Celiac disease and the patient is experiencing new or continued weight loss, diarrhea, abdominal distention, or anemia despite adherence to a gluten free diet.

Practice Notes

Celiac is an autoimmune disease in which the villi of the small intestine are damaged from eating gluten (found in wheat, barley, and rye).

Reference

ABDOMEN IMAGING GUIDELINES

SPECIFIC ABDOMINAL ORGANS - STRUCTURES

BOWEL (ALPHABETICAL ORDER)

AB-25~CT COLONOGRAPHY (CTC)

AB-25.1 CTC

Certain payers consider CTC investigational and their coverage policies will take precedence over eviCore guidelines with either requested CTC (CPT® 74263 or CPT® 74261).

✓ Screening CTC (CPT® 74263) for colorectal cancer1,2,3:
  o Every 5 years in average-risk individuals ages 50 to 75 (average risk is defined as no history of adenoma and inflammatory bowel disease and negative for first degree family history of colorectal cancer)
    • This coverage may vary according to health plan/payor

✓ Diagnostic CTC (CPT® 74261, without contrast or CPT® 74262, with contrast, including noncontrast images if performed) can be used in:
  o Failed conventional colonoscopy (e.g. due to a known colonic lesion, structural abnormality or technical difficulty), and/or
  o Conventional colonoscopy is medically contraindicated. Contraindications may include4:
    • Coagulopathy
    • Intolerance to sedation
    • Elderly greater than or equal to 80 years of age
    • Recent (within the last 60 days) myocardial infarction (MI)

References
AB-26.1 Cirrhosis and Liver Screening for HCC

✓ Ultrasound every 6 months \(^{1,2}\) for patients at high risk for developing hepatocellular carcinoma (HCC)
  - High-risk = Hepatitis B or C, non-hepatitis cirrhosis, or genetic hemochromatosis
  - First ultrasound can be CPT® 76700 or CPT® 76705
  - Follow-up ultrasounds should be CPT® 76705

✓ MRI abdomen without and with contrast (CPT® 74183), CT abdomen without and with contrast (CPT® 74170), or CT with contrast (74160) can be performed:
  - Based on **AB-29~Liver Lesion Characterization.**
  - Liver lesion identified (prior to biopsy)
  - AFP greater than 20
  - Continue CT or MRI lesion surveillance at 3 months, and then return to ultrasound every 6 months

✓ Liver Transplant:
  - See: **AB-42.1 Liver Transplant**

**Practice Note**

Individuals with hepatitis and cirrhosis are at increased risk for developing hepatocellular carcinoma (HCC). Most studies have shown no benefit to HCC screening and most major US Associations either do not have guidelines (USPSTF, NCCN, & ACS) or recommend against screening (NCI); however, the American Association for the Study of Liver Diseases (AASLD) and EASL recommend ultrasound screening every 6 months for high risk. One study\(^3\) demonstrated that ultrasound screening among high risk populations can reduce mortality from HCC by one-third. This study has become the basis for most US screening programs. No studies have demonstrated that CT or MRI improves screening outcomes.

**References**

AB-27~MR CHOLANGIOPANCREATOGRAPHY (MRCP)

MRCP is an alternative to endoscopic retrograde cholangiopancreatography (ERCP) for evaluating the biliary system and pancreatic ducts. It should not be used if there is a high probability of biliary obstruction based on CT or endoscopic ultrasound (EUS) and if therapeutic intervention will likely be needed. In this situation ERCP should be used.1

AB-27.1 MRCP

✓ Rule out pathology in the biliary system or pancreatic duct.
  o Examples include:
    • Suspected or known gallstone pancreatitis
    • Suspected biliary pain
    • Pancreatic pseudocyst (for preoperative cyst drainage and/or pancreatic trauma with suspected duct injury)
    • Pancreatic trauma
    • Recurrent acute pancreatitis with no known cause

✓ Preoperative planning

✓ Evaluation of congenital anomaly of pancreaticobiliary tract

✓ Altered biliary anatomy that precludes ERCP (e.g. post-surgical distorted anatomy)

✓ Failed ERCP in a patient who needs further investigation

✓ Evaluation of pancreaticobiliary anatomy proximal to a biliary obstruction that cannot be opened by ERCP

✓ ERCP is indicated but is not available, is contraindicated, or is expected to be difficult
  o Examples include coagulopathy, severe cardiopulmonary disease, allergy to iodinated contrast, distorted anatomy, pregnant patient

✓ Requests for 3D rendering do not need to be sent to MD for review when criteria are met for MRCP as indicated above

Coding Notes

Code assignment for MRCP

o There is no CPT® code that specifically describes MRCP.

o To report an MRCP, select one of these codes: CPT® 74181 or CPT® 74183 The specific MRI code should be selected based on whether or not intravenous contrast was administered.

There is a Level II HCPCS code for MRCP, S8037 (Magnetic resonance cholangiopancreatography).

- S8037 (and any other code beginning with the letter ‘S’) is not payable by Medicare. Some other payors may accept this code.
- Reporting/billing a second MRI code, to represent the ‘MRCP portion’ of the study is not supported.

References

1. American College of Radiology. ACR practice guideline for the performance of magnetic resonance imaging (MRI) of the abdomen. Reston (VA): American College of Radiology (ACR); 2010

AB-28~JAUNDICE

AB-28.1 Jaundice

✓ Ultrasound\textsuperscript{1} (CPT\textsuperscript{®} 76700 or CPT\textsuperscript{®} 76705) is the preferred initial imaging study to visualize the biliary ductal system when pain is present. Ultrasound often demonstrates the level and cause of any obstruction.

✓ Abdomen CT\textsuperscript{2} without and with contrast (CPT\textsuperscript{®} 74170) or Abdomen CT with contrast (CPT\textsuperscript{®} 74160) should be considered in the following scenarios:

- If non-diagnostic or equivocal ultrasound
  - e.g., large amounts of intestinal gas
- Patient is obese
- Painless jaundice
- Acute abdominal pain and one of following: fever, previous biliary surgery, or known cholelithiasis.
- If there is high pretest probability of obstruction due to malignancy\textsuperscript{1}

✓ MR cholangiopancreatography (MRCP) (See AB-27~MRCP) may be used to assess the extent and cause of intrahepatic bile duct obstruction:

- Suggested by either ultrasound or CT if further characterization is warranted.
- Contraindications to the use of IV contrast for CT imaging.
Practice Notes
Caused by an inherited gene mutation, Gilbert’s Syndrome is a liver condition in which the liver doesn't properly process a substance called bilirubin. It is often detected incidentally when a blood test shows elevated bilirubin levels.

Normal Values:
- Bilirubin (total) 0.2-1.0 mg/dl
- Bilirubin (conjugated) 0-0.2 mg/dl

References

AB-29—LIVER LESION CHARACTERIZATION

AB-29.1 Liver Lesion Characterization

- Ultrasound\(^1\) (CPT\(^76700\) or CPT\(^76705\)) should be considered:
  - For suspected hepatomegaly
  - To evaluate for biliary disease or isolated liver lesion in Nonalcoholic Fatty Liver Disease (NFLD)\(^2\)
  - For suspected simple cyst

- MRI abdomen without and with contrast (CPT\(^74183\)), CT abdomen without and with contrast (CPT\(^74170\)), or CT with contrast (74160):
  - For any indeterminate liver lesion identified on any other imaging, including suspected hemangioma, hepatic adenoma, focal nodular hyperplasia\(^3\) (FNH) and a lesion identified in cirrhotic liver
  - Percutaneous liver biopsy is to be considered if imaging is atypical or inconclusive\(^4\)
  - Diagnosis for HCC is done with imaging, biopsy is not needed for diagnosis\(^5\)
  - Suspected liver metastases; see **ONC-31.2 Liver Metastases**

- Further evaluation
  - MRI abdomen without and with contrast (CPT\(^74183\)) can be considered if an initially performed CT abdomen without and with contrast (CPT\(^74170\)) or CT with contrast (74160) is equivocal
  - MRA abdomen (CPT\(^74185\)) or CTA abdomen (CPT\(^74175\)) for preoperative study in patients with large hemangiomas or adenomas considered for resection
CT or MRI can be repeated after 3 months, then every 6 months for 3 years if liver lesion not biopsied or resected.

- No further diagnostic imaging is needed if:
  - Simple cyst or hemangioma
  - Benign on biopsy

References


AB-30~ELEVATED LIVER FUNCTION (LFT) LEVELS

AB-30.1 Elevated Liver Function Levels

✓ Ultrasound (CPT® 76705) or CT\(^1,2\) of the abdomen without and with contrast (CPT® 74170), CT of the abdomen with contrast (CPT® 74160) or MRI of the abdomen without and with contrast (CPT® 74183) for:
- Elevation LFTs of AST and/or ALT less than two times normal if:
  - Persistent elevation of AST or ALT after 3 weeks, with discontinuation of lipid lowering medications (statins, niacin, sulfa, rifampin, tetracycline, estrogen, acetaminophen, etc.) if applicable
- Elevation of LFT’s of AST and/or ALT greater than or equal to two times normal
- Known cancer and suspected liver metastases
- Elevated alpha-fetoprotein (AFP) levels

✓ For Jaundice, see AB-28~Jaundice

✓ MRCP can be considered if biliary dilatation is seen on ultrasound or CT
  - (See AB-27~MRCP for coding guidelines for MRCP)

Practice Notes
The enzymes included in this category are AST, ALT, alkaline phosphatase, GGT, and bilirubin.

References
AB-31.1 Pancreatic Lesion

Screening studies for pancreatic cancer can be considered in those who are considered high risk in the following guideline: **ONC-13~Pancreatic Cancer** in the Oncology Imaging Guidelines.

**AB-31.2 Pancreatic Lesion (Incidental Pancreatic Cyst)**

- Abdominal CT (CPT® 74170) preferably, thin slice or MRI with and without contrast (CPT® 74183) for any of the following:
  1. Every 12 months after the initial incremental finding if <1 cm in size
  2. Every 6 to 12 months after the initial finding if 1-2 cm in size
  3. Every 3-6 months after the initial finding if greater than 2 cm in size

- The following lesions should be evaluated by endoscopic ultrasound (EUS) and MRCP:
  1. Pancreatic lesions >3 cm; or
  2. Pancreatic lesions of any size with concerning features (mural nodules, dilated duct, pain, positive cytology, jaundice, worsening diabetes, etc.).

- See **AB-27~MRCP** for coding guidelines for MRCP.

**AB-31.3 Pancreatic Lesion (Incidental Pancreatic Mass or Suspected Metastatic Disease to Pancreas)**

- CT abdomen with contrast with dual phase imaging (CPT® 74160), or CT abdomen without and with contrast (CPT® 74170) (dedicated pancreatic protocol) since the majority of pancreatic tumors will enhance following IV contrast.

**References**


AB-32.1 Pancreatic Pseudocysts

✓ CT of the abdomen with contrast (CPT®74160), or without and with contrast (CPT®74170), or abdominal MRI without and with contrast (CPT®74183)
  o Minimal symptoms - every two weeks, up to six weeks total. Thereafter, every 4 weeks.
  o Anytime symptoms worsen, including development of ascites or pleural effusion, increasing serum amylase, or if drainage of the cyst is planned.

✓ MRCP for preoperative planning cyst drainage:
  o See AB-27~MRCP for coding guidelines for MRCP

✓ MRCP for pancreatic trauma with suspected duct injury or pseudocyst

Practice Notes

Endoscopic ultrasound has increasingly become an important imaging modality in evaluating pseudocysts.  

References

AB-33~PANCREATITIS

AB-33.1 Pancreatitis

✓ Ultrasound² (CPT®76700 or CPT®76705) is the first study to evaluate:
  o Mild and uncomplicated symptoms of epigastric pain described as uncomfortable
    without guarding to rule out gallstone disease
  o If ultrasound suggests uncomplicated pancreatitis, then advanced imaging is not
    necessary. For complicated pancreatitis, see below.

✓ CT abdomen² with contrast (CPT®74160), without contrast (CPT®74150) or without
  and with contrast (CPT®74170)
  o Suspected complications including peripancreatic effusions, pseudocysts, abscess,
    and pancreatic necrosis
  o Lipase and/or amylase greater than or equal to three times the upper limit of
    normal and 
    any one of the following:
    • Fever (101 degrees or greater)
    • Elevated WBC (10,000 or greater)
    • Mass
    • No improvement with medical therapy
  o Suspected pancreatitis and ultrasound findings do not explain symptoms
    (gallstones, common duct, etc)
  o Plain abdominal X-ray (KUB) and ultrasound (CPT®76700 or CPT®76705) are not
    characteristic and diagnostic in known chronic pancreatitis

✓ MRI without and with contrast² (CPT®74183) is considered if:
  o CT is contraindicated and CT indications met or equivocal

✓ MR cholangiopancreatography¹,² can be considered if:
  o Suspected gallstone pancreatitis to screen for those patients who would benefit
    from ERCP
  o Recurrent, acute pancreatitis with no known cause
  o Evaluation of patients with suspicion of pancreatic ductal anomalies that may
    predispose patients to pancreatitis
  o Plain abdominal X-ray (KUB) and ultrasound (CPT®76700 or CPT®76705) are not
    characteristic and diagnostic in known chronic pancreatitis and findings will affect
    management decisions
  o MRCP—See: AB-27~MRCP for coding guidelines for MRCP
The diagnosis of acute pancreatitis is often made by fulfilling two of the following three (3) conditions:

1. Typical pain (acute onset of epigastric pain radiating to the back that is persistent without relief, frequently associated with nausea and vomiting, and associated with severe epigastric tenderness and/or guarding, and/or fever)
2. Lipase and/or amylase greater than or equal to three times the upper limit of normal
3. Typical characteristics of pancreatitis on CT abdomen

Chronic pancreatitis that is suspected as evidenced by recurrent characteristic pancreatic pain, symptoms of maldigestion/malabsorption that improve with digestive enzymes, does not require the use of advanced imaging.

For known chronic pancreatitis including hereditary pancreatitis, there is no evidence-based data supporting screening.

Acute pancreatitis is divided clinically into non-severe (previously called mild) and severe pancreatitis.

- Non-severe pancreatitis represents interstitial edematous pancreatitis, and severe pancreatitis manifests as necrotizing pancreatitis or as pancreatitis associated with organ failure.
- Serum enzyme levels do not correlate with the severity of the disease
- Clinical scoring systems and imaging tests have been advocated to classify individual patients in terms of severity.
- The diagnosis may be overlooked in the absence of typical enzyme elevation; in some patients, acute pancreatitis may be present in the absence of enzyme abnormalities

References

AB-34.1 Spleen

✓ Ultrasound\(^1\) (CPT\(^\circledR\)76700 or CPT\(^\circledR\)76705) is considered the initial imaging modality for:
  o Incidental cystic splenic lesion seen on a non-abdominal imaging study
    • Splenic cysts < 5 cm in diameter should be followed yearly or until new symptoms present.
    • Splenic cysts 5 cm or greater should be referred for surgical evaluation.
  o Splenomegaly

✓ CT\(^2\) abdomen without and with contrast (CPT\(^\circledR\)74170) or CT abdomen with contrast should be considered when:
  o Ultrasound is indeterminate or shows an abnormality
  o Incidental non-cystic splenic lesion is seen on a non-abdominal imaging study
  o Pre-operative for splenectomy

✓ MRI\(^2\) abdomen without and with contrast (CPT\(^\circledR\)74183) should be considered when:
  o CT is indeterminate or IV contraindicated
  o Pregnant women with indeterminate or abnormality ultrasound

AB-34.2 Trauma - Spleen

✓ Ultrasound of the abdomen (CPT\(^\circledR\)76700 or CPT\(^\circledR\)76705) and pelvis (CPT\(^\circledR\)76856 or CPT\(^\circledR\)76857) or CT\(^3,4,5\) of the abdomen and pelvis without and with contrast (CPT\(^\circledR\)74178) or with contrast are indicated in patients with blunt abdominal trauma with suspected splenic rupture or in patients with penetrating trauma to the left upper quadrant.

See: AB-10~Blunt Abdominal Trauma

Practice Notes

Splenomegaly is usually the result of systemic disease, and diagnostic studies are directed toward identifying the causative disease. Complete blood count with differential, LFT’s, and peripheral blood smear examination are often performed prior to considering advanced imaging. There is no evidence-based data to support performing serial CT or MRI to follow patients with incidental splenic lesions.
**References**


**AB-35~INDETERMINATE RENAL LESION**

For acute flank pain, rule out renal stone, see: AB-4~Flank Pain

**AB-35.1 Indeterminate Renal Lesion**

<table>
<thead>
<tr>
<th>Newly Discovered Renal Mass, Any Size (indeterminate by the initial test)</th>
</tr>
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<tbody>
<tr>
<td><strong>Initial Imaging (Step 1)</strong></td>
</tr>
<tr>
<td>Ultrasound (CPT®76770 or CPT®76775); or</td>
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<tr>
<td>CT abdomen without and with contrast (CPT®74170)</td>
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<tr>
<td>Otherwise, imaging as follows:</td>
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<tr>
<td>• CT of the abdomen without and with contrast (CPT®74170); or</td>
</tr>
<tr>
<td>• MRI of the abdomen without and with contrast (CPT®74183)</td>
</tr>
</tbody>
</table>

*Continued . . .*
AB-35.1 Indeterminate Renal Lesion Continued

**Practice Notes**
The most common renal mass is a cyst. The Bosniak Classification may be helpful to evaluate renal cysts. This classification relates CT renal cyst characteristics and their relationship with malignancy and need for follow-up:

<table>
<thead>
<tr>
<th>Bosniak Class</th>
<th>Characteristic</th>
<th>Work-Up</th>
<th>% Malignant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosniak 1</td>
<td>Simple cyst, anechoic, imperceptible wall, rounded</td>
<td>Nil</td>
<td>~0</td>
</tr>
<tr>
<td>Bosniak 2</td>
<td>Minimally complex, single thin (&lt; 1mm) septations, thin Ca++; non-enhancing high-attenuation renal lesions of less than 3 cm are also included in this category; these lesions are generally well marginated.</td>
<td>Nil</td>
<td>~0</td>
</tr>
<tr>
<td>Bosniak 2F</td>
<td>Minimally complex. • Increased number of septa, minimally thickened or enhancing septa or wall • Thick Ca++ • Hyperdense cyst that is: &gt; 3 cm diameter, mostly intrarenal (less than 25% of wall visible); no enhancement</td>
<td>Ultrasound / CT follow up</td>
<td>~5</td>
</tr>
<tr>
<td>Bosniak 3</td>
<td>Indeterminate, thick or multiple septations, mural nodule, hyperdense on CT (see 2F)</td>
<td>Partial nephrectomy or RF ablation, in elderly/poor surgical risk</td>
<td>~50</td>
</tr>
<tr>
<td>Bosniak 4</td>
<td>Clearly malignant, solid mass with cystic spaces</td>
<td>Partial/total nephrectomy</td>
<td>&gt;80</td>
</tr>
</tbody>
</table>

**References**
AB-36.1 Renal Failure

✓ Ultrasound (CPT®76770 or CPT®76775) of the kidney and bladder, preferably with Doppler (CPT®93975 or CPT®93976), is the preferred imaging study for in the evaluation of acute or chronic renal failure¹

✓ MRA abdomen (CPT®74185) can be utilized when suspected¹:
  o Renal vein/caval thrombosis
  o Renal artery stenosis as cause of renal failure

✓ CT abdomen without contrast (CPT®74150) is not needed except to rule out ureteral obstruction or retroperitoneal mass¹

References


AB-37.1 Renovascular Hypertension

✓ MRA without or with contrast (CPT® 74185) or CTA with contrast (CPT® 74175) of the abdomen if:
  o Resistant to three blood pressure medications and two serial blood pressure measurements (>140/90 without history of diabetes or renal disease or >130/80 with diabetes or renal disease)
    • Home blood pressure measurements thwarting “white coat syndrome” and other secondary causes may improve accuracy.
  o Anyone under 40 years old with hypertension.
  o Sudden onset of significant hypertension (generally >160/100) or flash pulmonary edema
  o Women who develop hypertension (≥140/90) within the first 20 weeks of pregnancy, if the hypertension persists >12 weeks post-partum
  o Previously stable hypertension, with worsening hypertension or worsening renal function/increasing creatinine (especially after the administration of an ACE inhibitor or with angiotensin receptor blocking agent).
  o Unexplained atrophic kidney or discrepancy in size between kidneys of greater than 1.5 cm

✓ US kidney retroperitoneal (CPT® 76775) AND/OR Doppler(CPT® 93975 or CPT® 93976) if expertise is available

References

**AB-38~POLYCYSTIC KIDNEY DISEASE**

**AB-38.1 Polycystic Kidney Disease**

☑ Ultrasound\(^1\) (CPT\(^\circledR\) 76770 or CPT\(^\circledR\) 76775) can be performed for:
- Suspected polycystic kidney disease
- Screening individuals at risk for autosomal dominant polycystic disease (ADPKD)

**Reference**


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**AB-39~HEMATURIA and HYDRONEPHROSIS**

**AB-39.1 General Considerations – Hematuria**

Hematuria can be either micro-hematuria or gross hematuria\(^1\) (including dipstick urinalysis, complete urinalysis with microscopic exam).

**AB-39.2 Hematuria with Urinary Tract Infection (UTI)**

Signs and symptoms of UTI (urinary frequency, burning on urination, positive urine leukocyte esterase, presence of WBCs in the urine, fever, elevated WBC>10,000):

☑ Females <40 years of age should receive at least a 3-day regimen of antibiotics followed by repeat dipstick urinalysis or complete urinalysis with microscopic exam. If the hematuria resolves, advanced imaging is not indicated. If symptoms persist, may receive CT Urogram (CPT\(^\circledR\) 74178)

☑ Females >40 years of age, may undergo CT urogram\(^1\) (CPT\(^\circledR\) 74178)

☑ Males with UTI should be imaged, see: **AB-40~Urinary Tract Infection**

**AB-39.3 Hematuria, not Related to Urinary Tract Infection (UTI) or Flank Pain**

☑ CT Urogram (CPT\(^\circledR\) 74178)

☑ Evidence of primary generalized renal disease should have renal US (CPT\(^\circledR\) 76770 or CPT\(^\circledR\) 76775) in order to determine renal volume and morphology, prior to considering advanced imaging including CT Urogram.
AB-39.4 Hematuria and Flank Pain (Suspicion for renal/urethral stones)

CT abdomen and pelvis without contrast (CPT® 74176) or CT Urogram (74178)

References

AB-40~URINARY TRACT INFECTION (UTI)

These guidelines refer to UTI without Hematuria.

For UTI with Hematuria, See AB-39~Hematuria

AB-40.1 Upper (Pyelonephritis)

CT abdomen and pelvis without and with contrast (CPT® 74178) or CT abdomen and pelvis with contrast (CPT® 74177) if:
- Suspected complicated: diabetes, immune-compromised, history of stones, prior renal surgery, elevated creatinine, or fever ≥101 F (≥38.5 C)
- Not responding to therapy after 3 days
- Recurrent pyelonephritis (at least 1 prior pyelonephritis)
- Males with first time UTI, or recurrent UTI without etiology

Pregnant women should be evaluated initially by renal ultrasound (CPT® 76770 or CPT® 76775) and if further imaging is necessary, MRI abdomen and pelvis (contrast requested).

AB-40.2 Lower

CT abdomen and pelvis without and with contrast (CPT® 74178) if:
- Suspected complicated: diabetes or immunocompromised or history of stones or prior renal surgery, elevated creatinine or fever ≥101 F (≥38.5 C)
- Not responding to therapy after 3 days
- Males with first time UTI, or recurrent UTI without etiology
- Recurrent UTI >3 per year
- Recommendation by urologist or specialists

MRI pelvis without and with contrast (CPT® 72197) if:
- Suspected urethral diverticulum or other urethral abnormalities
Also see **PV-13~Periurethral Cysts and Urethral Diverticula** in the Pelvis Imaging Guidelines.

**References**


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**AB-41~PATENT URACHUS**

**AB-41.1 Patent Urachus**

CT Pelvis with contrast (CPT®72193) can be performed if ultrasound (CPT®76700 or CPT®76705) is equivocal, or if needed for surgical planning.\(^1,2\)

**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 connection between the bladder and the umbilicus.

**References**

AB-42.1 Liver Transplant, Pre-Transplant

Individuals on the liver transplant waiting list can undergo advanced imaging per the participating institution’s protocol, as long as the studies do not exceed the following:

See: **CD-1.6 Transplant Patients** in the Cardiac Imaging Guidelines for guidelines on cardiac stress testing

- If no known Hepatocellular Carcinoma\(^1\):
  - Liver ultrasound (CPT\(^{®}\) 76705) with Doppler (CPT\(^{®}\) 93975) every six months
  - CT or MRI abdomen (CPT\(^{®}\) 74170 or CPT\(^{®}\) 74183) every year
  - CT chest (CPT\(^{®}\) 71260) for initial placement on the transplant list, but repeat chest CT is not required
  - MRI Bone Marrow Blood Supply (CPT\(^{®}\) 77084) or bone-scan one time

- If known Hepatocellular Carcinoma\(^{1,2}\):
  - Liver ultrasound (CPT\(^{®}\) 76705) with Doppler (CPT\(^{®}\) 93975) every six months
  - CT or MRI abdomen (CPT\(^{®}\) 74170 or CPT\(^{®}\) 74183) every three months
  - CT chest (CPT\(^{®}\) 71260) every six months
  - Bone scan every six months

- If known Primary Sclerosing Cholangitis\(^1\) (PSC)
  - MRCP (see: **AB-27~MRCP** for correct reporting/coding)

- Pre-operative studies immediately prior to liver transplant\(^3\):
  - CT or MRI abdomen (CPT\(^{®}\) 74170 or CPT\(^{®}\) 74183)
    - if CT abdomen was most recently done while on the transplant waiting list, then MRI abdomen should be done immediately prior to transplant and vice versa
  - CT pelvis (CPT\(^{®}\) 72193)
  - CTA abdomen (CPT\(^{®}\) 74175) or MRA abdomen (CPT\(^{®}\) 74185)
  - CT chest (CPT\(^{®}\) 71260)
  - MRI Bone Marrow Blood Supply (CPT\(^{®}\) 77084) or bone scan

AB-42.2 Liver Transplant, Partial Liver Transplant Donors

- Donors for partial liver transplant can be evaluated with CT of the abdomen without and with contrast (CPT\(^{®}\) 74170) or MRI of abdomen without and with contrast (CPT\(^{®}\) 74183) prior to transplant
AB-42.3 Liver Transplant, Post-transplant

See: CD-1.6 Transplant Patients in the Cardiac Imaging Guidelines for guidelines on stress testing

✓ If known Hepatocellular Carcinoma:
  o CT or MRI abdomen (CPT® 74170 or CPT® 74183) at 6 and 12 months post transplant, then every year until 5 years post-transplantation, then as clinically indicated

✓ If known Cholangiocarcinoma:
  o Liver ultrasound (CPT® 76705) every 6 months until 5 years post-transplantation
  o Chest CT (CPT® 71260) every 6 months until 5 years post-transplantation
  o MRI abdomen and MRCP (CPT® 74183) every 6 months until 5 years post-transplantation

✓ All other post-transplant patients:
  o Abdomen and pelvis CT with contrast (CPT® 74177) or without contrast (CPT® 74176) can be performed for the following:
    • Unexplained fever, abdominal pain, anemia, bleeding, weight loss, lymphadenopathy, enlarged spleen or liver, or other suspected postoperative complication

AB-42.4 Liver Transplant, Post-Transplant Lymphoproliferative Disease (PTLD)

✓ Most cases of PTLD are observed in the first year following transplant. Frequency of developing PTLD:
  o Small bowel transplant—20% of patients are at risk of developing PTLD
  o Lung transplant—10% risk
  o Heart transplant—6% risk
  o Liver transplant—1%-3% risk
  o Kidney transplant—1%-3% risk

✓ Evaluation of suspected PTLD is same as evaluation for lymphoma:
  (See: ONC-27~Lymphomas in the Oncology Imaging Guidelines)

✓ Chest/abdomen/pelvis CT with contrast (CPT® 71260 and CPT® 74177) can be performed. Biopsy of the involved organ should be performed if PTLD is suspected

✓ There is insufficient evidence-based data to support the routine use of imaging to screen for PTLD
AB-42.5 Kidney Transplant, Pre-Transplant Imaging Studies

See: CD-1.6 Transplant Patients in the Cardiac Imaging Guidelines for guidelines on cardiac stress testing

Individuals on the kidney transplant waiting list can undergo advanced imaging per that institution’s protocol as long as the studies do not exceed the following:

- If stress test is positive for reversible ischemia, or if duration of diabetes is >25 years and patient has additional cardiac risk factors, then diagnostic left heart catheterization can be performed
- Carotid duplex study (CPT® 93880 bilateral study or CPT® 93882 unilateral study) if there is history of stroke, TIA, or if carotid bruit is present on exam
- Abdomen and pelvis CT (CPT® 74176 or CPT® 74177) or CTA of the Abdomen (CPT® 74175) one time

AB-42.6 Kidney Transplant, Post-transplant

- Ultrasound of transplanted kidney:
  - Current ultrasound imaging protocols of the transplanted kidney commonly include a Doppler study and are coded as CPT® 76776
  - Do not report non-invasive vascular codes CPT® 93975 and CPT® 93976 in conjunction with CPT® 76776
  - Ultrasound of the transplanted kidney performed without duplex Doppler should be reported as a limited retroperitoneal ultrasound (CPT® 76775)

AB-42.7 Heart Transplant

- See: CD-1.6 Transplant Patients in the Cardiac Imaging Guidelines

References

AB 43.1: Hepatic Arteries and Veins

✓ For the evaluation of the hepatic arteries and veins (including portal vein), CTA abdomen and pelvis (CPT®74174), or CTA abdomen (CPT®74175) or MRA abdomen (CPT®74185) may be considered if one of the following:
  o Evaluation of portal and hepatic veins prior to or following TIPS (transjugular intrahepatic portosystemic shunt)
  o Evaluation of portal and hepatic veins prior to or following surgical intervention for portal hypertension
  o Evaluation of hepatic vasculature prior to and following embolization procedure
  o Evaluation of hepatic vasculature prior to planned hepatectomy
  o Evaluation of liver donor
  o Suspected hepatic vein thrombosis or Budd Chiari syndrome [One of the following]:
    • Ascites
    • Hepatomegaly
    • Inadequate Doppler ultrasound of hepatic veins
  o Possible portal vein thrombosis with negative or inadequate Doppler study of the portal vein [One of the following]:
    • Hypercoagulable state
    • Abdominal malignancy
  o Preoperative evaluation for pancreatic cancer

AB 43.2: Abdominal Veins other than Hepatic and Portal Veins

✓ For the evaluation of abdominal veins other than hepatic and portal veins CTA abdomen and pelvis (CPT®74174), or CTA abdomen (CPT®74175) or MRA abdomen (CPT®74185) may be considered if one of the following:
  o Nephrotic syndrome
  o Suspicion of iliac vein thrombus
  o Suspicion of inferior vena cava thrombus
  o Renal vein thrombosis
  o Mesenteric vein thrombosis

AB 43.3. Renal Vein Thrombosis

✓ For suspected renal vein thrombosis MRA abdomen (CPT®74185) may be considered if one of the following:
  o Nephrotic syndrome
  o Proteinuria – 3 grams or more in 24 hours
  o Lupus nephritis
Hypercoagulable state [One of the following]
- Antiphospholipid antibodies
- Behçet’s syndrome
- Protein C deficiency
- Protein S deficiency

References
1. American College of Radiology (ACR), North American Society for Cardiovascular Imaging (NASCI), Society for Pediatric Radiology (SPR). ACR-NASCI-SPR practice guideline for the performance of pediatric and adult body magnetic resonance angiography (MRA), [online publication].

AB-44~NUCLEAR MEDICINE

Nuclear medicine studies are commonly used in evaluation of abdominal disorders, and other rare indications exist as well:
- Esophageal motility study (CPT® 78258) and/or Gastroesophageal reflux study (CPT® 78262) is indicated in the evaluation of gastroesophageal reflux
- Gastric mucosa imaging (Meckel’s scan, CPT® 78261) is indicated for the following:
  - Suspected Meckel’s diverticulum
  - Barrett’s esophagus
  - Thoracic masses suspected of containing gastric mucosa
- Gastric emptying study (CPT® 78264) is indicated for evaluation of either suspected delayed or rapid gastric emptying
- Gastric emptying study with small bowel transit (CPT® 78265) is indicated for evaluation of suspected abnormalities in both total and regional times for gastrointestinal transit in small bowel
- Gastric emptying study with small bowel and colon transit (CPT® 78266) is indicated for evaluation of suspected abnormalities in both total and regional times for gastrointestinal transit to the colon
- Gastrointestinal bleeding scintigraphy (CPT® 78278) is indicated for evaluation of brisk active GI bleeding with indeterminate endoscopy
- Gastrointestinal protein loss study (CPT® 78282) is indicated for decreased serum albumin or globulins and no evidence of GI bleeding
- Nuclear intestinal imaging (CPT® 78290) is indicated for evaluation of ectopic gastric mucosa
• Peritoneal-venous shunt patency study (CPT® 78291) is indicated for evaluation of shunt patency and function in a patient with ascites
• Nuclear renal imaging (CPT® 78701, 78707, 78708, or 78709) is indicated for evaluation of the following:
  o Renal transplant follow-up
  o Kidney salvage vs. nephrectomy surgical decisions
  o Acute renal failure with no evidence of obstruction on recent ultrasound
  o Chronic renal failure to estimate prognosis for recovery

✓ Nuclear kidney imaging (CPT® 78707, 78708, or 78709) is indicated for evaluation of recurrent flank pain when CT and ultrasound are non-diagnostic, or for suspected obstructive uropathy

✓ Diuretic renography using Tc-99m MAG 3 (CPT® 78707, 78708, or 78909) is the study of choice for the following indications:
  o Differentiating a dilated non-obstructed urinary system from a true stenosis (e.g., UPJ obstruction; ureteral-vesical junction [UVJ] obstruction), and for
  o Quantifying renal parenchymal function.
  o Ultrasound findings that are compatible with a multicystic dysplastic kidney to evaluate function of the affected kidney or a ureteral-pelvic junction (UPJ) obstruction of the contralateral kidney
  o Diagnostic evaluation of upper tract dilatation when VCU is negative
  o Renal function evaluation in patients with hydronephrosis

✓ Radiopharmaceutical nuclear medicine imaging (CPT 78805, 78806, or 78807) is indicated for evaluation of any of the following:
  o Peritonitis
  o Postoperative fever without localizing signs or symptoms

✓ Nuclear medicine studies of the kidney are indicated for evaluation of the following anatomic renal anomalies:
  o Suspected horseshoe kidney (CPT® 78700 or 78701)
  o Suspected solitary or ectopic kidney (CPT® 78700 or 78701)
  o Radiopharmaceutical voiding cystogram (CPT® 78740) is indicated for evaluation of antenatally-detected hydronephrosis

✓ Nuclear medicine spleen imaging (CPT® 78185) is rarely performed, but can be approved for the following indications when CT is unavailable:
  o Splenic trauma
  o Evaluation of splenic function
  o Suspected splenic mass, cyst, abscess, infarct, or metastasis
  o Radiation treatment planning
  o Asplenia
  o Suspected functional accessory spleen
    ▪ Can approve CPT® 78215 or 78216 instead of 78185 if requested
**Upper Urinary Tract:**

- Technetium-99m-dimercaptosuccinic acid (Tc-99m DMSA) scintigraphy (CPT® 78700, 78701, or 78710), is indicated in the following:
  - Children aged 5 years or younger with febrile UTI for the diagnosis of acute pyelonephritis. Sensitivity of DMSA scintigraphy is much higher than ultrasound and is equivalent to CT, but at a lower radiation dose.
  - Detection of post-pyelonephritic renal scarring at least 6 months after the documented upper tract UTI

- Radiopharmaceutical nuclear medicine imaging (CPT® 78805, 78806, or 78807) is indicated for evaluation of suspected pyelonephritis or diffuse interstitial nephritis

**Left Upper Quadrant Pain:**

- Nuclear medicine spleen imaging (CPT® 78185) is rarely performed, but can be approved for left upper quadrant pain when neither ultrasound or CT is available

**Right Upper Quadrant Pain:**

- Nuclear medicine imaging of the hepatobiliary system (HIDA scan, CPT® 78226 or 78227) is indicated in the following:
  - Suspected acute cholecystitis when ultrasound is nondiagnostic (CPT® 78226)
    - CPT® 78227 is supported when gallbladder does not fill on routine HIDA scan (CPT® 78226)
  - Chronic Cholecystitis with one of the following (CPT® 78226):
    - Evidence of gallstones on prior ultrasound
    - Recurrent RUQ pain
    - CPT® 78227 is supported when gallbladder does not fill on routine HIDA scan (CPT® 78226)
  - Chronic acalculous cholecystitis with recurrent RUQ pain and no evidence of gallstones on ultrasound (CPT® 78227)
  - Suspected bile leak after trauma or surgery (CPT® 78226)
  - Preoperative assessment prior to partial hepatectomy (CPT® 78226)
  - Preoperative assessment of post-operative liver remnant or monitoring of liver regeneration (CPT® 78226)
  - Assessment of liver transplant or choledochal cyst (CPT® 78226)
  - Sphincter of Oddi dysfunction with recurrent RUQ pain and no evidence of gallstones on ultrasound (CPT® 78226 or 78227)
  - Calculation of gallbladder ejection fraction or biliary dyskinesia with persistent RUQ pain and no evidence of gallstones on ultrasound (CPT® 78227)
Renovascular Hypertension:

✓ Captopril renography (CPT® 78709)

✓ Nuclear renal imaging (CPT® 78707, 78708, or 78709) is indicated for evaluation of the following:
  o Severe hypertension with progressive renal insufficiency or failure to respond to 3 drug therapy
  o Malignant or accelerated hypertension
  o Acute worsening of previously stable hypertension
  o Diastolic BP >100 in patient <35 years old
  o New onset severe hypertension (diastolic BP >110) in patient >50 years old
  o Hypertension in presence of asymmetric kidneys or diffuse atherosclerosis
  o Hypertension in presence of acute elevation in creatinine either unexplained or after treatment with ACE inhibitor
  o Abdominal bruit
  o Recurrent acute pulmonary edema and hypertension
  o Hypokalemia with normal or elevated plasma renin level in absence of diuretic therapy
  o Hypertension with known neurofibromatosis

Liver Lesion Characterization:

✓ Nuclear medicine liver imaging (ONE of CPT® 78201, 78202, 78205, 78206, 78215, or 78216) if rarely performed, but can be approved for the following when ultrasound, CT, and MRI are unavailable or contraindicated:
  o Evaluation of liver mass, trauma, or suspected focal nodular hyperplasia (FNH)
  o Differentiation of hepatic hemangioma from FNH
  o Diffuse hepatic disease or elevated liver function tests
  o Suspected accessory spleen (CPT® 78215 or 78216 only)

Pediatric Liver Failure and Cirrhosis:

✓ Nuclear medicine liver imaging (ONE of CPT® 78201, 78202, 78205, 78206, 78215, or 78216) if rarely performed, but can be approved for the following when ultrasound, CT, and MRI are unavailable or contraindicated:
  o Diffuse hepatic disease or elevated liver function tests

Adrenal Lesions:

✓ Additional adrenal imaging considerations include the following:
  o Adrenal Nuclear Imaging of the cortex and/or medulla (CPT® 78075) is indicated for the following:
    ▪ Distinguishing adrenal adenoma from adrenal hyperplasia
    ▪ Evaluation of suspected pheochromocytoma or paraganglioma
- MIBG preferred (one of CPT® 78800, 78801, 78802, 78803, or 78804)
- For known pheochromocytoma or paraganglioma, see ONC-15~Neuroendocrine Cancers and Adrenal Tumors for imaging guidelines
  ▪ Evaluation of suspected neuroblastoma, ganglioneuroblastoma, or ganglioneuroma
    - MIBG preferred (one of CPT® 78800, 78801, 78802, 78803, or 78804), see PEDONC-6~NEUROBLASTOMA for imaging guidelines
  ▪ History of multiple endocrine neoplasia: see PEDONC-2.8 Multiple Endocrine Neoplasias (MEN) for imaging guidelines
  ▪ History of neurofibromatosis: see PEDONC-2.3 Neurofibromatosis 1 and 2 (NF1 and NF2) for imaging guidelines
  ▪ History of von Hippel-Lindau disease: see PEDONC-2.10 Von Hippel-Lindau Syndrome (VHL) for imaging guidelines

Transfusion-Associated (Secondary) Hemochromatosis:

✓ T2* MRI has been well established in the determination of organ iron burden in transfusion-associated hemochromatosis. Contrast use is not necessary for evaluation of iron burden. The following studies are indicated for evaluation of transfusion-associated hemochromatosis:
  o MRI Abdomen without contrast (CPT® 74181) for liver iron evaluation
  o MRI Cardiac without contrast (CPT® 75557) for cardiac iron evaluation
  o MRI Chest without contrast (CPT® 71550) can be approved as a single study to evaluate both heart and liver iron burden
  o CPT® 74181 and 75557 can be approved alone, or both together
  o If requested, CPT® 71550 will evaluate both heart and liver and should not be approved with any other codes