Common symptoms and symptom complexes are addressed by this tool. Imaging requests for patients with atypical symptoms or clinical presentations that are not specifically addressed will require physician review. Consultation with the referring physician may provide additional insight.

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*Clinical Topic Section Leader
### Abdomen Imaging Guidelines

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

AB-1~GENERAL GUIDELINES

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, 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):

  o Oral contrast has no relation to the IV contrast administered.

  o 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.

  o Abdomen with Pelvis CT, usually with contrast (CPT® 74177), should be considered when signs or symptoms are generalized or lower quadrant abdomen or pelvic.

  o 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

  o 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).

  o 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.
  o 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.
  o 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.

AB-1.4 MR Enterography Coding Notes
✓ MRI Enterography is generally reported in one of two ways:
  o MRI Abdomen without and with contrast (CPT®74183), or
  o 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.
  o The routine use of 3D and 4D rendering, (post-processing), in conjunction with ultrasound is considered investigational.
  o All ultrasound studies require permanently recorded images either stored on film or in a Picture Archiving and Communication System (PACS).
  o 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 two dimensional vascular structures, Doppler spectral analysis, and color flow Doppler imaging.
  o 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
    • be assigned to report ultrasonic evaluation of diaphragmatic motion
    • be reported only once per patient imaging session
    • 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
    • be reported only once per patient imaging session
    • 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-1.8 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.

References

2. ACR Practice Guideline for Imaging Pregnant or Potentially Pregnant Adolescents and Women with Ionizing Radiation, 2012. Guideline. AAFP Evidence Grade: A
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>Location/type of abdominal pain</th>
<th>Initial Ultrasound?</th>
<th>Conservative Treatment?</th>
<th>Advanced Imaging Indicated?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<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>
<td></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:
  - 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 above

✓ 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)
<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>
</table>
| Generalized, men and also women not of childbearing age                      | Yes Complete or limited abdomen | No*                      | *If pain is accompanied with any one red flag  
  ▪ CT of the abdomen and pelvis with contrast                                                                                                                                                                         | See red flags in [AB-2.1](#)                                             |
| Generalized, women of childbearing age, not pregnant,                        | Yes complete abdomen and/or transvaginal and/or complete pelvis | No*                      | *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                                                                                                                                                            | See imaging for pregnant women in [AB-2.1](#)                           |
| Generalized, pregnant                                                        | Yes complete abdomen and/or transvaginal and/or complete pelvis | No                       | If ultrasound is equivocal with acute pain or any one red flag, MRI abdomen and/or pelvis without contrast                                                                                                                | See red flags in [AB-2.1](#) and imaging for pregnant women in [AB-2.1](#) |
| Left Lower Quadrant, rule out diverticulitis – ALL men and non-pregnant women | No (1 week of antibiotics & follow-up) | Yes                      | 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                                                                     | See red flags in [AB-2.1](#) and imaging for pregnant women in [AB-2.1](#) |
<p>| Left Lower Quadrant, suspected or known intraabdominal abscess – ALL men and non-pregnant women | No                    | No                       | If fever or elevated white blood cell count (WBC), then CT abdomen and/or pelvis with contrast                                                                                                                          | See imaging for pregnant women in <a href="#">AB-2.1</a> See: <a href="#">AB-3</a>            |</p>
<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>
</table>
| Left Lower Quadrant, follow-up known intraabdominal abscess – ALL men and non-pregnant women | No                     | No                      | Serial ultrasound 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. | See imaging for pregnant women in: AB-2.1  
See: AB-3                                                                  |
| Left Upper Quadrant – ALL men and non-pregnant women                          | Yes  
Complete or limited abdomen                                      | No                      | If pain is accompanied with at least one red flag then CT of the abdomen with contrast       | See imaging for pregnant women in: AB-2.1                                                                                      |
| Right Lower Quad, rule out appendicitis in – ALL men and non-pregnant women   | No                     | No                      | CT of the abdomen and pelvis either with contrast or without contrast                       | See imaging for pregnant women in: AB-2.1                                                                                      |

**AB 2.2 Abdominal Pain**

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

<table>
<thead>
<tr>
<th>CPT®74150</th>
<th>CT abdomen without contrast</th>
<th>CPT®76700</th>
<th>Ultrasound, complete abdomen</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPT®74160</td>
<td>CT abdomen with contrast</td>
<td>CPT®76705</td>
<td>Ultrasound, limited abdomen</td>
</tr>
<tr>
<td>CPT®74176</td>
<td>CT abdomen and pelvis without contrast</td>
<td>CPT®76830</td>
<td>Ultrasound, transvaginal</td>
</tr>
<tr>
<td>CPT®74177</td>
<td>CT abdomen and pelvis with contrast</td>
<td>CPT®76856</td>
<td>Ultrasound, complete pelvis</td>
</tr>
<tr>
<td>CPT®74181</td>
<td>MRI abdomen without contrast</td>
<td>CPT®72195</td>
<td>MRI pelvis without contrast</td>
</tr>
<tr>
<td>CPT®74183</td>
<td>MRI abdomen without &amp; with contrast</td>
<td>CPT®72197</td>
<td>MRI pelvis without &amp; with contrast</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>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 <strong>AB-2.1</strong></td>
</tr>
<tr>
<td>Epigastric pain, dyspepsia, gastritis, &amp; postprandial fullness – ALL men and non-pregnant women</td>
<td>Yes Complete or limited abdomen</td>
<td>Yes 4 week trial of antisecretory and/or H. Pylori medication must be completed</td>
<td>If pain persists after failure of conservative treatment, CT abdomen with contrast or MRI abdomen without and with contrast can be performed.</td>
<td>See imaging for pregnant women in <strong>AB-2.1</strong></td>
</tr>
<tr>
<td>Acute epigastric pain with any red flag symptoms – ALL men and non-pregnant women</td>
<td>No</td>
<td>No</td>
<td>If pain is accompanied with any one red flag, then CT abdomen with contrast or MRI abdomen without and with contrast</td>
<td>See imaging for pregnant women in <strong>AB-2.1</strong></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>74181</td>
<td>MRI abdomen without contrast</td>
</tr>
<tr>
<td>74183</td>
<td>MRI abdomen without &amp; 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>
<tr>
<td>72195</td>
<td>MRI pelvis without contrast</td>
</tr>
<tr>
<td>72197</td>
<td>MRI pelvis without &amp; with contrast</td>
</tr>
</tbody>
</table>

### References
ABDOMEN IMAGING GUIDELINES

GENERAL ABDOMINAL SIGNS and SYMPTOMS

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.

✓ 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),
  o CT abdomen and pelvis without contrast (CPT® 74176)

✓ Suspicion of Renal Stone in pregnant women (flank pain/renal colic)
  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 Renal Stones (Flank pain/renal colic) with Hematuria (see AB-39.3 Hematuria, not
  related to Urinary Tract Infection)

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.

✓ 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


4. ACR Practice Guideline for Imaging Pregnant or Potentially Pregnant Adolescents and Women with Ionizing Radiation, 2012. Guideline. AAFP Evidence Grade: A
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.

AB-5.1 Gastroenteritis

✓ CT abdomen and pelvis with contrast (CPT® 74177) if:
  o Acute abdomen suggesting bowel obstruction, toxic megacolon (abdominal swelling, fever, tachycardia, elevated white blood cell count), or perforation
  o Persistent abdominal pain with failure of conservative treatment for 4 weeks

Reference

ABDOMEN IMAGING GUIDELINES

GENERAL ABDOMINAL SIGNS and SYMPTOMS

AB-6–MESENTERIC/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)

✓ For chronic postprandial abdominal pain and weight loss (chronic) can additionally 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).

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

References


ABDOMEN IMAGING GUIDELINES

OTHER ABDOMINAL ENTITIES

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, and
  o Without associated fever, weight loss, pain, GI bleeding, or other intra-abdominal findings to raise the suspicion of malignancy

✓ If enlarged lymph node(s) is still a concern after repeat CT, biopsy should be considered to establish a histological diagnosis.

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
ABDOMEN IMAGING GUIDELINES

OTHER ABDOMINAL ENTITIES

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

✓ 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

AB-11~GAUCHER’S DISEASE and HEMACHROMATOSIS

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:
  o Patients not on enzyme therapy -every 12 to 24 months
  o Patients on enzyme therapy every 12 months:
    • For change in dose of medication or clinical complication, individuals with active bone disease may require more frequent monitoring than once a year.

AB-11.2 Hemochromatosis and Other Iron Storage Diseases

✓ MRI liver (CPT®74181 or MRI cardiac CPT®75561) if used to assess heart and liver concurrently, using T2* sequences, contrast not necessary
  o Assessment of hepatic iron overload in hemochromatosis, whether hereditary or transfusion-related
    • Screening imaging may be appropriate every 12 months
    • Imaging may be appropriate every 3 months for treatment response in patients receiving active treatment (chelation +/- phlebotomy)

Practice Notes

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

References

OTHER ABDOMINAL ENTITIES

ABDOMEN IMAGING GUIDELINES

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
  ○ Limited (CPT® 76857) or complete (CPT® 76856) pelvic ultrasound: and/or
  ○ 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 pelvis if below the umbilicus) with contrast (CPT® 74160 or CPT® 74177) or without contrast (CPT® 74150 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:
  ○ GI specialist or surgeon request for treatment/pre-operative planning
  ○ Or suspected complication of primary disease or surgery

AB-12.4 Indeterminate Groin Pain
✓ Occurs after intrabdominal/genitourinary causes have been ruled out and Musculoskeletal evaluation does not identify a specific cause
  ○ Plain x-ray of the pelvis is the initial study
  ○ Further advanced imaging can then be considered with pelvis MRI without contrast
  ○ US 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). Usual practice. AAFP Evidence Grade: C
2. ACR Appropriateness Criteria® Palpable Abdominal Mass, 2011 Guideline. AAFP Evidence Grade: A


ABDOMEN IMAGING GUIDELINES

OTHER ABDOMINAL ENTITIES

AB-13-ABDOMINAL MASS

AB-13.1 Abdominal Wall Mass

✓ Ultrasound (CPT®76700) or CT abdomen (and pelvis if below the umbilicus) with contrast (CPT®74160 or CPT®74177) OR without contrast (CPT®74150 or CPT®74176)

✓ MRI with and without contrast or MRI without contrast can be considered if ultrasound and/or CT are equivocal, or for preoperative planning

AB-13.2 Intra-Abdominal Mass

✓ If a physical exam suggests a palpable mass, or a mass is seen on prior imaging, one of the following may be appropriate:
  o CT abdomen without contrast (CPT®74150), CT abdomen with contrast (CPT®74160), MRI abdomen without contrast (CPT®74181), MRI abdomen without and with contrast
  o Pelvic imaging is acceptable for masses palpated below the umbilicus

✓ Ultrasound for pregnant patients, as well as patients in whom subcutaneous mass is suspected
  o If ultrasound findings are indeterminate in a pregnant patient, see: AB-1.3 MR Imaging for imaging in pregnancy

References


OTHER ABDOMINAL ENTITIES

AB-14~LOWER EXTREMITY EDEMA

Also see PVD-7.4 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).

References


## AB-16.1 Adrenal Cortical Lesions

### Imaging Decision Tree: Incidentally Discovered Adrenal Mass

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

| CPT®74150 | CT abdomen without 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 |
Continued . . .

AB-16.1 Adrenal Cortical Lesions Continued . . .

<table>
<thead>
<tr>
<th>Imaging Decision Tree: Incidentally Discovered Adrenal Mass</th>
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<tbody>
<tr>
<td><strong>Mass Details</strong></td>
</tr>
<tr>
<td>1) &gt;4cm</td>
</tr>
<tr>
<td>2) History of malignancy</td>
</tr>
<tr>
<td>1) Hormone secreting;</td>
</tr>
<tr>
<td>2) Cushing’s or Conn’s Syndrome</td>
</tr>
<tr>
<td>1) Hormone secreting;</td>
</tr>
<tr>
<td>2) Pheochromocytoma</td>
</tr>
</tbody>
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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>
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<th>NORMAL VALUES</th>
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<tr>
<td><strong>Aldosterone</strong></td>
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<tr>
<td>3-10 ng/dl (supine)</td>
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<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>
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</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.
Practice Notes

The majority of “incidentalomas” are benign adenomas. The risk of primary adrenal carcinoma is as high as 5%. 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 2.6-2.9cm → once at 5 years
  o 3.0-3.4cm → once at 3 years
  o 3.5-4.4cm → 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 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
ABDOMEN IMAGING GUIDELINES

SPECIFIC ABDOMINAL ORGANS - STRUCTURES

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:
  o CT of the abdomen and/or pelvis with contrast (CPT®74177), or
  o CT of the abdomen and/or pelvis without and with contrast (CPT®74178), or
  o CTA of the abdomen and/or pelvis (CPT®74175 and CPT®72191), or
  o 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
  o 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):
  o CT pelvis (CPT®72193 or CPT®72194), or
  o CTA pelvis (CPT®72191), or
  o MRA pelvis (CPT®72198)

✓ Endovascular (Stent) Iliac Repair - one week, one 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®72160 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 without is requested, codes: (CPT®74177 or CPT®74178) are appropriate.
  o CTA of the chest and/or abdomen and pelvis (CPT®71275 and/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

For diverticulitis, see: AB-2.2 Abdominal Pain
For mesenteric/colic 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.

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

Reference

ABDOMEN IMAGING GUIDELINES

BOWEL

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 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


ABDOMEN IMAGING GUIDELINES

BOWEL

AB-22.1 GI BLEEDING

✓ Endoscopy should be first step in evaluation for GI bleeding without red flags and symptoms

✓ Abdomen CTA with and without contrast (CPT®74175) or CT of the abdomen and pelvis with contrast (CPT®74177) can be considered if any of the following is accompanied with GI bleeding:
  o Severe abdominal pain; or
  o Hemodynamic instability (shock); or
  o Endoscopy is contraindicated or negative.

References
ABDOMEN IMAGING GUIDELINES

SPECIFIC ABDOMINAL ORGANS - STRUCTURES

BOWEL

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
  o 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.
  o 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.

✓ Rectal/Peri-Rectal involvement
  o Endoscopic ultrasound, rectal ultrasound or MRI (CPT® 72197)

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

References


ABDOMEN IMAGING GUIDELINES

SPECIFIC ABDOMINAL ORGANS - STRUCTURES

BOWEL

AB-24-CELIAC DISEASE (SPRUE)

AB-24.1 Celiac Disease

✓ Diagnosis is made by blood testing:
  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 EM9A 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

AB-25-CT COLONOGRAPHY (CTC)

AB-25.1 CTC

✓ Screening CTC (CPT® 74263) for colorectal cancer:
  - 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)

✓ Diagnostic CTC (CPT® 74261, without contrast or CPT® 74262, with contrast, including noncontrast images if performed) can be used in:
  - Failed conventional colonoscopy (e.g. due to a known colonic lesion, structural abnormality or technical difficulty), and/or
  - Conventional colonoscopy is medically contraindicated. Contraindications may include:
    - Absolute contraindications include a competent patient who is unwilling to give consent, and a patient who has consented but cannot cooperate and adequate sedation cannot be achieved. Toxic megacolon, fulminating colitis, and a known free colonic perforation are additional contraindications.
    - Relative contraindications are those situations in which risk is substantially increased. It may be appropriate to proceed if the information that may be acquired or a treatment that can be given is critical to the welfare of the patient. These include acute diverticulitis, very large abdominal aortic aneurysms (particularly if they are symptomatic), patients who are immediately postoperative, and patients who have suffered recent myocardial infarction, pulmonary embolism, or are currently hemodynamically unstable. Severe coagulopathies constitute a relative contraindication also, particularly for therapeutic procedures. Colonoscopy can generally be performed safely during pregnancy but should be deferred in most instances if the indication does not require immediate resolution. In general, colonoscopy is contraindicated when the risks to the patient's health or life outweigh the potential benefits of colonoscopy.

References

AB-26.1 Cirrhosis and Liver Screening for HCC

- Ultrasound every 6 months 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), or CT abdomen without and with contrast (CPT®-74170), 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 (NCD); however, the American Association for the Study of Liver Diseases (AASLD) and EASL recommend ultrasound screening every 6 months for high risk. One study 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

ABDOMEN IMAGING GUIDELINES

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.

**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 with low probability of common duct stone
    • 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.

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

o S8037 (and any other code beginning with the letter “S”) is not payable by Medicare. 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 Guideline. AAFP Evidence Grade: A

ABDOMEN IMAGING GUIDELINES

AB-28.1 Jaundice

✓ Ultrasound (CPT® 76700 or CPT® 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 without or with contrast (CPT® 74170) or Abdomen CT with contrast 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

✓ 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


ABDOMEN IMAGING GUIDELINES

AB-29.1 Liver Lesion Characterization

✓ Ultrasound (CPT® 76700 or CPT® 76705) should be considered:
  o For suspected hepatomegaly
  o To evaluate for biliary disease or isolated liver lesion in Nonalcoholic Fatty Liver Disease (NFLT)
  o For suspected simple cyst

✓ MRI abdomen without and with contrast (CPT® 74183), or CT abdomen without and with contrast (CPT® 74170):
  o For any indeterminate liver lesion identified on any other imaging, including suspected hemangioma, hepatic adenoma, focal nodular hyperplasia (FNH) and a lesion identified in cirrhotic liver
  o Suspected metastases can also undergo, in lieu of one of the above two studies, CT abdomen with contrast (CPT® 74160) since these tend to be hypovascular
  o Percutaneous liver biopsy is to be considered if imaging is atypical or inconclusive
  o Diagnosis for HCC is done with imaging, biopsy is not needed for diagnosis

✓ Further evaluation
  o MRI abdomen without and with contrast (CPT® 74183) can be considered if an initially performed CT abdomen without and with contrast (CPT® 74170) is equivocal
  o MRA abdomen (CPT® 74185) or CTA abdomen (CPT® 74175) for preoperative study in patients with large hemangiomas or adenomas considered for resection
  o CT or MRI can be repeated after 3 months, then every 6 months for 3 years if liver lesion not biopsied or resected.
  o No further diagnostic imaging is needed if:
    • Primary or metastatic malignancy, unless biopsy assisted or PET for staging
    • Simple cyst or hemangioma
    • Benign on biopsy

References
ABDOMEN IMAGING GUIDELINES

AB-30~ELEVATED LIVER FUNCTION (LFT) LEVELS

AB-30.1 Elevated Liver Function Levels

✓ Ultrasound (CPT®76705) or CT 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:
  o 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
  o Elevation of LFT's of AST and/or ALT greater than or equal to two times normal
  o Known cancer and suspected liver metastases
  o Elevated alpha-fetoprotein (AFP) levels

✓ For Jaundice, see AB-28~Jaundice

✓ MRCP can be considered if biliary dilatation is seen on ultrasound or CT
  o (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

ABDOMEN IMAGING GUIDELINES

AB-31~PANCREATIC LESION

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 the following:
  o <1 cm in size, may be performed every 12 months after the initial finding
  o 1-2 cm, may be performed every 6-12 months after the initial finding
  o Greater than 2 cm, may be performed every 3-6 months after the initial finding

✔ Evaluation of pancreatic cystic lesions by endoscopic ultrasound (EUS) and MRCP for the following:
  o Those greater than 3 cm or with other concerning features (mural nodules, dilated duct, pain, positive cytology, jaundice, worsening diabetes, etc) should be considered for resection.
  o 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® 74170), or CT abdomen without and with contrast (CPT® 74170) (dedicated pancreatic protocol) since the majority of pancreatic tumors will enhance following IV contrast.

References


ABDOMEN IMAGING GUIDELINES

AB-32~PANCREATIC PSEUDOCYSTS

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
  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 is ideally suited for evaluating pancreatic cysts, including pseudocysts.

References

AB-33.1 Pancreatitis

✓ Ultrasound (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 abdomen 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 contrast (CPT® 74183) is considered if:
  o CT is contraindicated and CT indications met or equivocal

✓ MR cholangiopancreatography 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
Practice Notes

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

ABDOMEN IMAGING GUIDELINES

AB-34.1 Spleen

✓ Ultrasound (CPT® 76700 or CPT® 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 abdomen without and with contrast (CPT® 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 abdomen without and with contrast (CPT® 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 or CT of the abdomen and pelvis without and with contrast (CPT® 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

**ABDOMEN IMAGING GUIDELINES**

**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>
<th>Initial Imaging (Step 1)</th>
<th>Secondary Imaging (Step 2)</th>
<th>Tertiary Imaging or Biopsy (Step 3)</th>
</tr>
</thead>
</table>
| Ultrasound (CPT<sup>®</sup>76770 or CPT<sup>®</sup>76775); or CT abdomen without and with contrast (CPT<sup>®</sup>74170) | No further imaging if:  
- Simple cyst or other benign lesion (e.g. Bosniak 1 or 2, angiomyolipoma without calcifications); or  
- Biopsy makes the definitive diagnosis of angiomyolipoma, metanephric adenoma, or focal infection | No further imaging if:  
- Benign on CT/MRI (e.g. Bosniak 1 or 2, or angiomyolipoma without calcifications) or  
- Biopsy diagnosis of angiomyolipoma or focal infection | Follow-up imaging with original diagnostic modality (US, CT or MRI) 6 to 12 months, then annually for 5 years if:  
- indeterminate on either CT/MRI or biopsy or  
- biopsy nonmalignant |
| Otherwise, imaging as follows:  
- CT of the abdomen without and with contrast (CPT<sup>®</sup>74170); or  
- MRI of the abdomen without and with contrast (CPT<sup>®</sup>74183) |  |  |

*Continued . . .*
Practice Notes
The most common renal mass is a cyst. The Bosniak Classification may be helpful to evaluate renal cysts. It 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 margined.</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
2. Hindman NM, Hecht EM, Bosniak MA. Follow-up for Bosniak Category 2F cystic renal lesions. DOI: http://dx.doi.org/10.1148/radiol.14122908 Retrospective study. AAFP Evidence Grade: B

ABDOMEN IMAGING GUIDELINES

AB-36~RENAL FAILURE

Ab-36.1 Renal Failure

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

✓ MRA abdomen (CPT®74185) can be utilized when suspected:
  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 mass

References


ABDOMEN IMAGING GUIDELINES

AB-37~RENOVASCULAR HYPERTENSION

AB-37.1 Renovascular Hypertension

✓ MRA without or with contrast (CPT® 74185) or CTA with contrast (CPT® 74175) of the abdomen if:
   ○ 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.
   ○ Anyone under 40 years old with hypertension.
   ○ Sudden onset of significant hypertension (generally >160/100) or flash pulmonary edema
   ○ Women who develop hypertension (≥140/90) within the first 20 weeks of pregnancy, if the
     hypertension persists >12 weeks post-partum
   ○ 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).
   ○ 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

   Appropriateness Criteria® renovascular hypertension. American College of Radiology (ACR); 2012.
   Guideline. AAFP Evidence Grade: A

2. Moser M, Setaro JF. Resistant or difficult-to-control hypertension. New England Journal of
   Medicine, 2006, 355, 385-392. Case Study. AAFP Evidence Grade: C
AB-38.1 Polycystic Kidney Disease

✓ Ultrasound (CPT® 76770 or CPT® 76775) can be performed for:
  ○ Suspected polycystic kidney disease
  ○ Screening individuals at risk for autosomal dominant polycystic disease (ADPKD)

Reference

ABDOMEN IMAGING GUIDELINES

AB-39~HEMATURIA

AB-39.1 General Considerations – Hematuria

Hematuria can be either micro-hematuria or gross hematuria (including dipstick urinalysis, complete urinalysis with microscopic exam, and/or blood creatinine level).

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

AB-39.2 Hematuria with Urinary Tract Infection

✓ Females ≤ 40 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®74178)

✓ Females >40, may undergo CT urogram (CPT®74178)

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

AB-39.3 Hematuria, not Related to Urinary Tract Infection

✓ CT Urogram (CPT®74178)

✓ Evidence of primary generalized renal disease should have renal ultrasound (CPT®76770 or CPT®76775) in order to determine renal volume and morphology, prior to considering advanced imaging including CT Urogram.

References


ABDOMEN IMAGING GUIDELINES

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®74177) or CT abdomen and pelvis with contrast (CPT®74178) if:
  o Suspected complicated: diabetes, immune-compromised, history of stones, prior renal surgery, elevated creatinine, or fever ≥101 F (≥38.5 C)
  o Not responding to therapy after 3 days
  o Recurrent pyelonephritis (at least 1 prior pyelonephritis)
  o 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 as requested).

AB-40.2 Lower
✓ CT abdomen and pelvis without and with contrast (CPT®74178) if:
  o Suspected complicated: diabetes or immunocompromised or history of stones or prior renal surgery, elevated creatinine or fever ≥101 F(≥ 38.5 C)
  o Not responding to therapy after 3 days
  o Males with first time UTI, or recurrent UTI without etiology
  o Recurrent UTI >3 per year
  o Recommendation by Urologist or specialists

✓ MRI pelvis without and with contrast (CPT®72197) if:
  o Suspected urethral diverticulum or other urethral abnormalities

✓ Also see PV-13~Periurethral Cysts and Urethral Diverticula in the Pelvis Imaging Guidelines.

References
ABDOMEN IMAGING GUIDELINES

AB-41~TRANSPLANT

AB-41.1 Liver Transplant, Pre-Transplant

Individuals on the liver transplant waiting list can undergo advanced imaging per that 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:
  o Liver ultrasound (CPT®76705) with Doppler (CPT®93975) every six months
  o CT or MRI abdomen (CPT®74170 or CPT®74183) every year
  o CT chest (CPT®71260) for initial placement on the transplant list, but repeat chest CT is not required
  o MRI Bone Marrow Blood Supply (CPT®77084) or bone-scan one time

✓ If known Hepatocellular Carcinoma:
  o Liver ultrasound (CPT®76705) with Doppler (CPT®93975) every six months
  o CT or MRI abdomen (CPT®74170 or CPT®74183) every three months
  o CT chest (CPT®71260) every six months
  o Bone scan every six months

✓ If known Primary Sclerosing Cholangitis (PSC)
  o MRCP (see: AB-27~MRCP for correct reporting/coding)

✓ Pre-operative studies immediately prior to liver transplant:
  o 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
  o CT pelvis (CPT®72193)
  o CTA abdomen (CPT®74175) or MRA abdomen (CPT®74185)
  o CT chest (CPT®71260)
  o MRI Bone Marrow Blood Supply (CPT®77084) or bone scan

AB-41.2 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-41.3 Liver Transplant, Post-transplant

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

- **If known Hepatocellular Carcinoma:**
  - 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:**
  - Liver ultrasound (CPT®76705) every 6 months until 5 years post-transplantation
  - Chest CT (CPT®72160) every 6 months until 5 years post-transplantation
  - MRI abdomen and MRCP (CPT®74183) every 6 months until 5 years post-transplantation

- **All other post-transplant patients:**
  - 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-41.4 Liver Transplant, Post-Transplant Lymphoproliferative Disease (PTLD)

- Most cases of PTLD are observed in the first year following transplant. Frequency of developing PTLD:
  - Small bowel transplant—20% of patients are at risk of developing PTLD
  - Lung transplant—10% risk
  - Heart transplant—6% risk
  - Liver transplant—1%-3% risk
  - 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-41.5 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) one time

AB-41.6 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-41.7 Heart Transplant

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

References