1. A focal liver lesion that is hypointense relative to liver on an opposed phase image and hyperintense to liver on a corresponding in phase contains:
   a. Hepatic adenoma
   b. Hepatocellular carcinoma
   c. Iron
   d. Lipid

Correct Answer: D

Explanation:
Loss of signal intensity on opposed phase imaging indicates the presence of lipid and water hydrogen protons within the same voxel. While some hepatocellular adenomas and hepatocellular carcinomas can contain lipid, the more general answer of “lipid” can be stated with greatest certainty.

References:

Modality: C03.F MRI
Primary Content: C03.C Pathology
Anatomy: C03.F Liver
Pathology C03.G Metabolic

2. Which of the following is an ancillary LI-RADS feature of malignancy?
   a. Homogeneous marked hyperintensity on T2-WI
   b. Homogeneous marked hypointensity on T2-WI
   c. Isointensity on hepatobiliary phase imaging (e.g. gadoxetate disodium)
   d. Lesional iron sparing
   e. Washout

Correct Answer: D

Explanation:
One needs to become familiar with the major LI-RADS criteria for malignancy along with the ancillary features of benignity and malignancy. Homogeneous marked hyperintensity on T2-weighted imaging is an ancillary MR imaging feature of benignity and is suggestive of a hemangioma or cyst. Homogeneous marked hypointensity on T2-weighted images is another ancillary MR imaging feature of benignity and suggests either a benign regenerative nodule or siderotic nodule. Isointensity on hepatobiliary phase imaging is a third ancillary feature of benignity as almost all hepatocellular carcinomas will be hypointense on this pulse sequence (see Sano et. al). However, rare examples of hepatocellular carcinomas that are isointense on
hepatobiliary phase imaging have been reported (see Chen et. al.) Lesional iron sparing is the correct answer and is an ancillary imaging feature for malignancy. When a siderotic nodule develops an iron poor focus, this has been termed the “nodule in nodule” sign on T2 and T2* weighted images and is very suggestive of HCC.

References:

Web Reference:

Modality: C03.F MRI
Primary Content: C03.C Pathology
Anatomy: C03.F Liver
Pathology: C03.C Neoplasm

3. The accuracy of CT for detecting or excluding lower GI bleeding is felt to be:
   a. Under 20%
   b. 20-30%
   c. 50%
   d. 50-70%
   e. Over 80%

Correct answer: E

Explanation:
Articles by Marti et al have shown that “CT angiography performed in the emergency setting in patients with acute lower intestinal bleeding is feasible and correctly depicts the presence and location of active or recent hemorrhage, as well as the potential cause, in the majority of patients.” In his series “CT angiography
depicted or helped exclude active or recent bleeding with an accuracy of 98% (46 of 47 patients).” Raman et al. also noted, “Not only can CT be valuable in those patients for whom colonoscopy is not feasible or impractical, but it can also identify a variety of extra luminal findings which may not be visible to the endoscopes. Moreover, CT can provide a wealth of valuable information beyond the presence or absence of active contrast extravasation/bleeding, such as bowel wall inflammation, perirectal inflammation, or the presence of an underlying vascular anomaly.”

References:
1) Acute Lower Intestinal Bleeding: Feasibility and Diagnostic Performance of CT Angiography
2) MDCT and CT Angiography Evaluation of Rectal Bleeding: The Role of Volume Visualization
   Raman SP, Horton KM, Fishman EK AJR 2013; 201: 589-597

Modality: C03.E
Primary Content: C03.C
Anatomy: C03.E
Pathology: C03.E

4. What is the most common cause today of small bowel obstruction?
   a. Malignant small bowel tumors
   b. Benign small bowel tumor
   c. Abdominal wall hernias
   d. Inflammatory bowel disease
   e. Adhesions

Correct Answer: E

Explanation: While small bowel obstruction can be caused by all of the choices listen the most common cause of small bowel obstruction is adhesions which accounts for 75% of cases. External hernia (10%) and neoplasms (5%) are the most common other causes. Use of multiplanar and 3D reconstruction can be very helpful in defining the site and source of obstruction. “wCT enterography allows excellent visualization of the entire thickness of the bowel wall and depicts extraenteric involvement as well, providing more detailed and comprehensive information about the extent and severity of the disease process.”

References:
1) Small Bowel Obstruction: The Value of Coronal Reformatted Images from 16-Multidetector Computed Tomography-A Clinicoradiological Perspective
2) CT Evaluation of Small Bowel Neoplasms: Spectrum of Disease
3) CT Enterography: Principles, Trends, and Interpretation of Findings

Modality: C03.A
Primary Content: C03.A
Anatomy: C03.D
Pathology: C03.F
5. Accurate staging of pancreatic cancer can be done on a CT scan performed with dual phase imaging and 3D mapping as long as:
   a. The scan was done within the last 60 days.
   b. The scan was done within the past 30 days
   c. The patient has no interval chemotherapy
   d. The patient has no interval radiotherapy
   e. The patient has not had a recent biopsy

Correct answer: B

Explanation:
CT scanning is accurate for staging pancreatic adenocarcinoma as long as the study is performed within the last month. “MDCT is an accurate method to stage patients with pancreatic cancer, but its accuracy in excluding distant metastatic disease depreciates over time. Patients should undergo a repeat MDCT within 25 days of any planned definitive operative intervention for pancreatic cancer to avoid unexpectedly finding metastatic disease at surgery.” Raman et al. found that “MDCT was more accurate in predicting the absence of metastatic disease if the study was performed within 25 days of surgery than it was if the study was performed within more than 25 days of surgery (89.3% vs 77.0%; p = 0.0097). Furthermore, regression models showed that the negative predictive value of a given MDCT significantly decreased after approximately 4 weeks.”

References:
1) Impact of the time interval between MDCT imaging and surgery on the accuracy of identifying metastatic disease in patients with pancreatic cancer.
   AJR Am J Roentgenol. 2015 Jan;204(1):W37-42

Modality: C03.E
Primary Content: C03.C
Anatomy: C03.H
Pathology: C03.C