PART I Opening Round

Case 1

History: 22-year-old female patient presents with right lower quadrant pain.

1. Which of the following would be included in the differential diagnosis for the images presented? (Choose all that apply.)
   A. Pelvic inflammatory disease (PID)
   B. Acute cholecystitis
   C. Acute appendicitis
   D. Irritable bowel syndrome (IBD)
2. Which of the following is a common symptom in acute appendicitis?
   A. Pain in the right upper quadrant
   B. Inability to pass gas
   C. Abdominal swelling
   D. Increased appetite
3. What is the most common tool to diagnose acute appendicitis in the adult population?
   A. Computed tomography (CT)
   B. Ultrasonography (US)
   C. Exploratory laparotomy
   D. Radiography
4. Which of the following statements regarding the pathogenesis of acute appendicitis is *false*?
   A. Increased pressure and distention of the appendix can be caused by luminal obstruction.
   B. Lumen obstruction is always the cause of acute appendicitis.
   C. Viral or bacterial infections can occur after an appendectomy.
   D. Obstruction of venous outflow and then arterial inflow can result in gangrene.

Fig. 1.1

Fig. 1.2

Case 2

History: 72-year-old male with acute right-sided hemiparesis.

1. Which of the following would be included in the differential diagnosis for the images presented? (Choose all that apply.)
   A. Transient ischemic attack (TIA)
   B. Meningitis
   C. Acute middle cerebral artery (MCA) infarction
   D. Hypertensive intracranial hemorrhage
2. Which of the following is the most likely cause of the salient finding in Fig. 2.1?
   A. Hemoconcentration
   B. Intravascular thrombus
   C. Atherosclerotic calcification
   D. Contrast material
3. On CT perfusion imaging, which combination describes the characteristic blood flow within the penumbra?
   A. Decreased mean transit time (MTT), decreased cerebral blood volume (CBV), increased cerebral blood flow (CBF)
   B. Increased MTT, decreased CBV, increased CBF
   C. Decreased MTT, increased CBV, decreased CBF
   D. Increased MTT, normal CBV, decreased CBF
4. What time frame and percentage of MCA territory involvement pair is desired for a patient to receive intravenous (IV) tissue plasminogen activator (tPA) therapy?
   A. 4.5 hours or less; <33%
   B. 8 hours or less; <66%
   C. 4.5 hours or less; >33%
   D. 8 hours or less; >66%

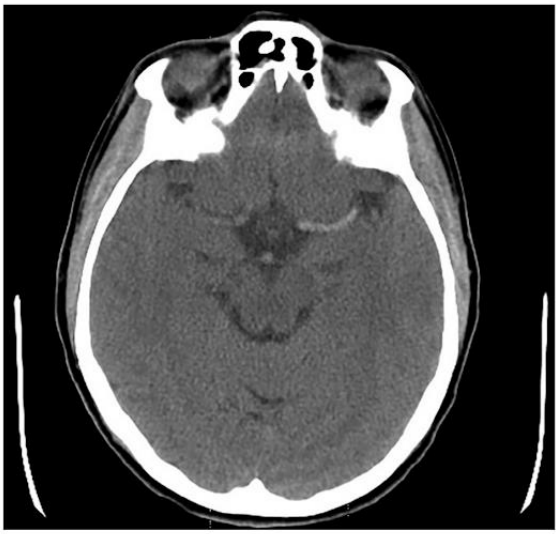

Fig. 2.1

Fig. 2.2

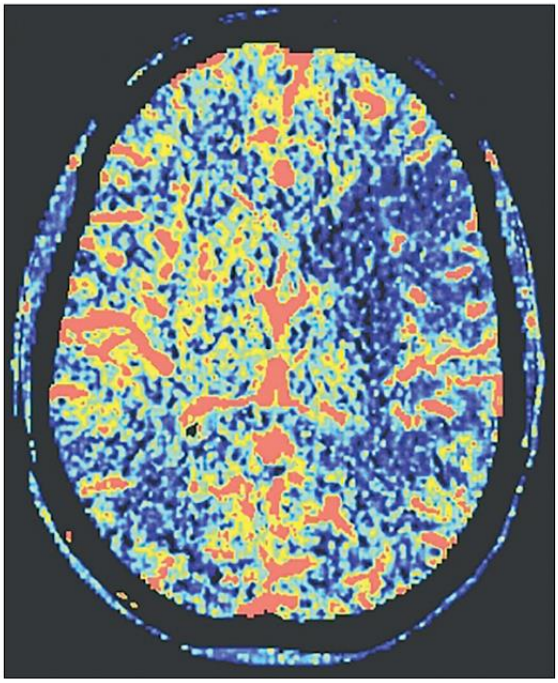

Fig. 2.3

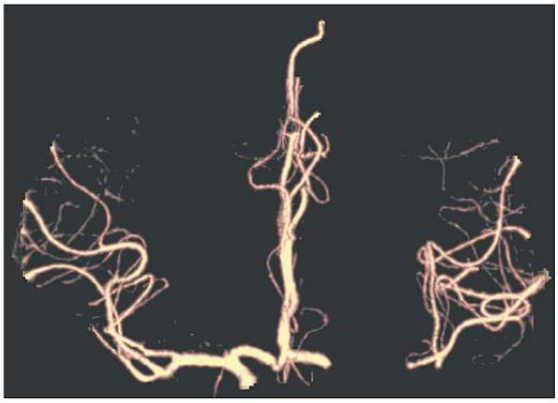

Fig. 2.4

Case 3

History: 69-year-old female presenting with right lower extremity pain.

1. Which of the following differential diagnoses is *rarely* associated with the imaging presented? (Choose all that apply.)
   A. Baker's cyst
   B. Cellulitis
   C. Lymphedema
   D. Chronic venous insufficiency
   E. Superficial thrombosis
2. Which of the following can be a symptom seen in patients with deep venous thrombosis (DVT)?
   A. Deep pain and swelling in both arms
   B. Frequent redness and swelling in left hand
   C. Leg pain on right side of calf
   D. Leg pain on the back of the calf
3. Which of the following treatments should be considered for patients with a DVT if anticoagulation is contraindicated?
   A. Low-molecular-weight heparin
   B. Warfarin
   C. Inferior vena cava filter
   D. tPA
4. Which of these patients with DVT is the best candidate for an inferior vena cava (IVC) filter?
   A. 32-year-old with second occurrence of DVT and protein S deficiency
   B. 45-year-old with DVT and pulmonary embolism (PE)
   C. 22-year-old pregnant women with first-time DVT
   D. 76-year-old on warfarin develops atrial fibrillation, pulmonary embolus, and DVT

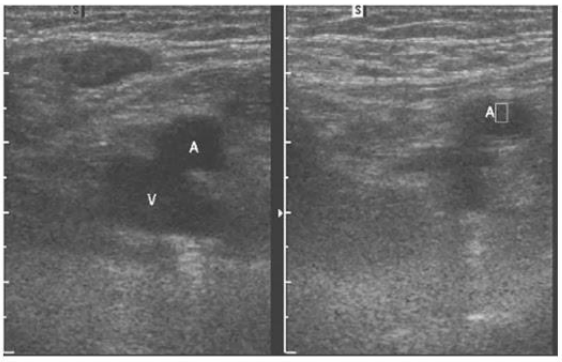

Fig. 3.1

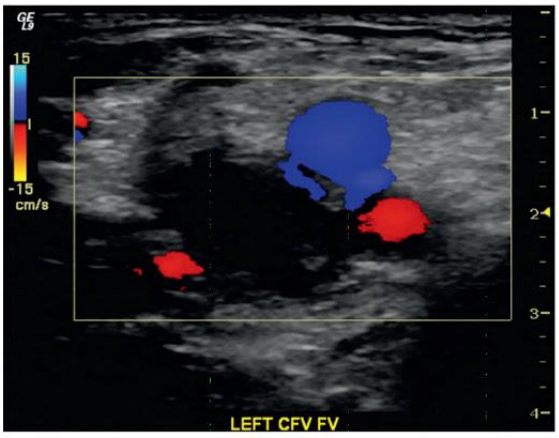

Fig. 3.2

Case 4

History: 30-year-old male presenting with dull chest pain and dyspnea.

1. Which of the following would be included in the differential diagnosis for the imaging presented? (Choose all that apply.)
   A. Pulmonary embolism (PE)
   B. Intrinsic intraluminal tumor
   C. Esophagitis
   D. Angina
2. Which of the following symptoms is most commonly associated with PE?
   A. Cyanosis
   B. Mastalgia
   C. Cephalgia
   D. Delusional disorders
3. What is the most appropriate examination to evaluate a 30-week pregnant patient with suspected PE?
   A. Lung scintigraphy
   B. Transthoracic echocardiography (TTE)
   C. Pulmonary angiography
   D. CT pulmonary angiography (CTPA)
   E. Venous duplex ultrasound
4. How would the CT finding of right ventricular strain alter immediate clinical management?
   A. Shock and death are a risk; patient should receive intense monitoring.
   B. Shock and death are a risk; patient should receive thrombolytic therapy.
   C. There is a high risk for recurrent PE; patient should receive heparin rather than warfarin.
   D. There is a high risk for ongoing embolization; patient should receive an IVC filter.

Fig. 4.1

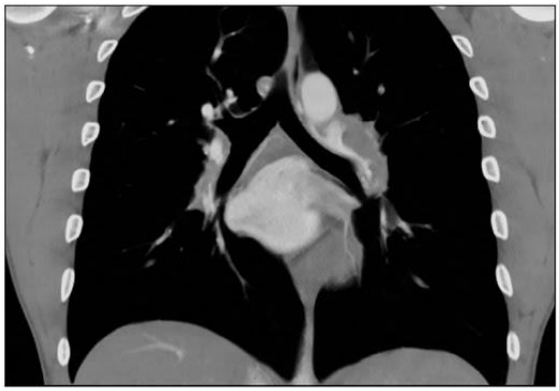

Fig. 4.2

Fig. 4.3

Case 5

History: 43-year-old male presenting with left lower quadrant abdominal pain.

1. Which of the following would be included in the differential diagnosis for the imaging findings presented? (Choose all that apply.)
   A. Colon adenocarcinoma
   B. Epiploic appendagitis
   C. Acute diverticulitis
   D. Acute appendicitis
2. Which of the following is a risk factor for developing acute diverticulitis?
   A. Increasing age
   B. Low body mass index
   C. Dietary nuts and corn
   D. High-fiber diet
3. Which imaging finding is more consistent with colon adenocarcinoma than with diverticulitis?
   A. Gradual increase in colonic wall thickness
   B. Presence of free fluid
   C. Lymphadenopathy
   D. Long (5–10 cm) segment of affected colon
4. Which complication is *not* commonly associated with acute diverticulitis?
   A. Fistula formation
   B. Small bowel obstruction
   C. Perforation
   D. Infectious colitis

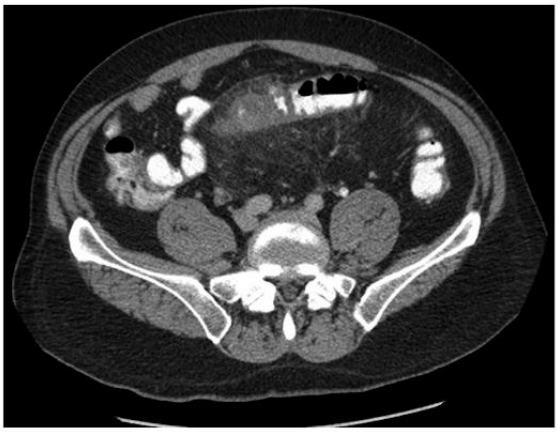

Fig. 5.1

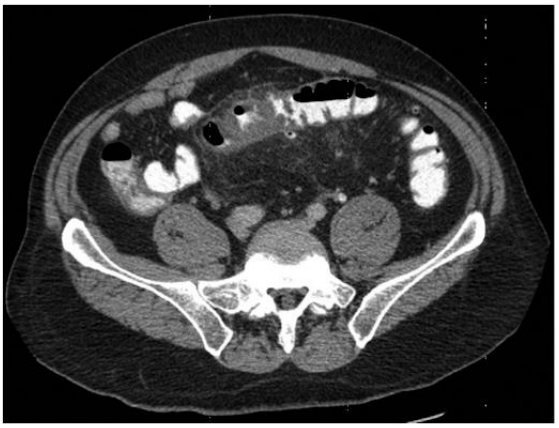

Fig. 5.2