FULL-LENGTH PRACTICE TEST 9

Practice Test 9: Gastroenterology

55 Questions — Recommended Time: 55 Minutes

1. A 45-year-old man presents with a two-month history of burning epigastric pain that improves with eating and worsens 2 to 3 hours after meals. He reports nighttime awakening from pain. He takes ibuprofen regularly for back pain. Helicobacter pylori stool antigen test is positive. Which of the following is the most appropriate initial treatment?

A. Proton pump inhibitor monotherapy for 8 weeks

B. Bismuth subsalicylate alone

C. Triple therapy with a proton pump inhibitor, clarithromycin, and amoxicillin for 14 days

D. Surgical vagotomy

2. A 55-year-old woman with a history of chronic alcohol use presents with hematemesis and melena. She is tachycardic and hypotensive. Physical examination reveals splenomegaly, ascites, and caput medusae. Endoscopy reveals large esophageal varices with active bleeding. Which of the following is the most appropriate immediate pharmacologic intervention in addition to endoscopic therapy?

A. Intravenous octreotide

B. Oral propranolol

C. Intravenous proton pump inhibitor

D. Oral lactulose

3. A 35-year-old woman presents with recurrent episodes of right upper quadrant pain lasting 30 to 60 minutes after eating fatty meals. She is afebrile with normal vital signs. Right upper quadrant ultrasound reveals multiple gallstones with no gallbladder wall thickening, no pericholecystic fluid, and a negative sonographic Murphy sign. Which of the following is the most likely diagnosis?

A. Acute cholecystitis

B. Acute cholangitis

C. Choledocholithiasis

D. Biliary colic (symptomatic cholelithiasis)

4. A 60-year-old man presents with progressive dysphagia to solids over four months, unintentional weight loss of 20 pounds, and odynophagia. He has a long history of gastroesophageal reflux disease. Barium swallow shows an irregular, asymmetric narrowing of the distal esophagus. Which of the following is the most appropriate next diagnostic step?

A. Esophageal manometry

B. Upper endoscopy with biopsy

C. 24-hour pH monitoring

D. CT scan of the chest

5. A 28-year-old woman presents with bloody diarrhea, abdominal cramping, tenesmus, and urgency for the past six weeks. Colonoscopy reveals continuous inflammation extending from the rectum to the splenic flexure with erythema, friability, and superficial ulcerations limited to the mucosal layer. Which of the following is the most likely diagnosis?

A. Ulcerative colitis

B. Crohn disease

C. Infectious colitis from Clostridioides difficile

D. Ischemic colitis

6. A 70-year-old man presents with painless jaundice, dark urine, clay-colored stools, and unintentional weight loss. Physical examination reveals a palpable, nontender gallbladder (Courvoisier sign). CT scan of the abdomen reveals a mass in the head of the pancreas with biliary ductal dilation. Which of the following is the most likely diagnosis?

A. Acute pancreatitis

B. Cholangiocarcinoma

C. Choledocholithiasis

D. Pancreatic adenocarcinoma

7. A 52-year-old woman presents with chronic watery diarrhea, bloating, and flatulence that worsens after consuming milk products. Symptoms resolve with avoidance of dairy. Hydrogen breath test is positive after lactose administration. Which of the following is the most likely diagnosis?

A. Celiac disease

B. Irritable bowel syndrome

C. Lactose intolerance

D. Small intestinal bacterial overgrowth

8. A 48-year-old man with a history of heavy alcohol use presents with sudden onset of severe epigastric pain radiating to the back, nausea, and vomiting. He is febrile with tachycardia. Serum lipase is elevated to 5 times the upper limit of normal. CT scan of the abdomen reveals pancreatic edema with peripancreatic fat stranding and no necrosis. Which of the following is the most likely diagnosis?

A. Peptic ulcer perforation

B. Acute pancreatitis

C. Acute cholecystitis

D. Mesenteric ischemia

9. A 65-year-old man presents with a six-month history of alternating constipation and diarrhea, rectal bleeding, and a 15-pound unintentional weight loss. Iron studies reveal iron deficiency anemia. Colonoscopy reveals a circumferential, apple-core lesion in the sigmoid colon. Biopsy confirms adenocarcinoma. Which of the following is the most important modifiable risk factor for colorectal cancer?

A. Diet low in fiber and high in processed red meat

B. Family history of colorectal cancer

C. Age over 50

D. Inflammatory bowel disease

10. A 42-year-old woman presents with episodic abdominal pain, bloating, and alternating diarrhea and constipation for the past year. She reports that symptoms worsen with stress. Physical examination and laboratory studies are normal. Colonoscopy is unremarkable. Rome IV criteria are met. Which of the following is the most likely diagnosis?

A. Celiac disease

B. Microscopic colitis

C. Crohn disease

D. Irritable bowel syndrome

11. A 55-year-old man with a history of chronic hepatitis C presents with ascites, jaundice, spider angiomata, palmar erythema, and gynecomastia. Laboratory studies reveal an albumin of 2.5 g/dL, total bilirubin of 4.2 mg/dL, INR of 1.8, and platelet count of 78,000/μL. Which of the following is the most likely underlying diagnosis?

A. Acute hepatitis C infection

B. Hepatic cirrhosis

C. Hepatocellular carcinoma

D. Budd-Chiari syndrome

12. A 30-year-old man presents with difficulty swallowing both solids and liquids equally, regurgitation of undigested food, and a nocturnal cough. Barium swallow reveals a dilated esophagus with smooth tapering at the gastroesophageal junction described as a "bird's beak" appearance. Esophageal manometry reveals absent peristalsis and failure of the lower esophageal sphincter to relax. Which of the following is the most likely diagnosis?

A. Esophageal stricture

B. Diffuse esophageal spasm

C. Achalasia

D. Scleroderma esophagus

13. A 50-year-old woman with obesity presents with intermittent heartburn and regurgitation that has been present for 10 years. She reports chronic cough and hoarseness. Upper endoscopy reveals salmon-colored mucosa extending 4 centimeters above the gastroesophageal junction. Biopsy reveals intestinal metaplasia with goblet cells replacing the normal squamous epithelium. Which of the following is the most likely diagnosis?

A. Barrett esophagus

B. Esophageal adenocarcinoma

C. Erosive esophagitis

D. Eosinophilic esophagitis

14. A 40-year-old man presents with right upper quadrant pain, fever of 103°F, and jaundice. He appears acutely ill and is hypotensive. Laboratory studies reveal leukocytosis, elevated total bilirubin, and elevated alkaline phosphatase. Ultrasound reveals a dilated common bile duct with a 1.2-centimeter stone in the distal CBD. Which of the following is the most likely diagnosis?

A. Acute cholecystitis

B. Biliary colic

C. Hepatitis A

D. Acute ascending cholangitis (Charcot triad)

15. A 25-year-old man presents with chronic diarrhea, abdominal cramping, and a 10-pound weight loss over three months. He also reports mouth ulcers and perianal fissures. Colonoscopy reveals skip lesions with cobblestoning, deep linear ulcers, and involvement from the terminal ileum to the ascending colon. Biopsy reveals transmural inflammation with non-caseating granulomas. Which of the following is the most likely diagnosis?

A. Ulcerative colitis

B. Crohn disease

C. Intestinal tuberculosis

D. Celiac disease

16. A 58-year-old woman presents with progressive dysphagia initially to solids and now to both solids and liquids over six months. She has a history of long-standing GERD with Barrett esophagus diagnosed 5 years ago. She has lost 25 pounds unintentionally. Which of the following is the most likely diagnosis?

A. Esophageal stricture from chronic GERD

B. Achalasia

C. Eosinophilic esophagitis

D. Esophageal adenocarcinoma arising from Barrett esophagus

17. A 38-year-old woman presents with fatigue, pruritus, and jaundice. Laboratory studies reveal an elevated alkaline phosphatase, elevated GGT, positive antimitochondrial antibody (AMA), and mildly elevated transaminases. Liver biopsy reveals destruction of intrahepatic bile ducts with granulomatous inflammation. Which of the following is the most likely diagnosis?

A. Primary biliary cholangitis

B. Primary sclerosing cholangitis

C. Autoimmune hepatitis

D. Drug-induced liver injury

18. A 62-year-old man with a history of cirrhosis secondary to alcohol use presents with increasing abdominal distension. Paracentesis reveals a serum-ascites albumin gradient (SAAG) of 1.8 g/dL and a total protein of 1.5 g/dL in the ascitic fluid. Ascitic fluid cell count shows 50 polymorphonuclear cells/μL. Which of the following is the most likely cause of his ascites?

A. Peritoneal carcinomatosis

B. Tuberculous peritonitis

C. Portal hypertension from cirrhosis

D. Nephrotic syndrome

19. A 72-year-old man hospitalized for hip replacement surgery develops profuse watery diarrhea, abdominal cramping, and low-grade fever on hospital day 10. He received perioperative cefazolin. Stool testing for Clostridioides difficile toxin by PCR is positive. Which of the following is the most appropriate initial treatment for an initial, non-severe episode?

A. Metronidazole IV for 14 days

B. Oral vancomycin 125 mg four times daily for 10 days

C. Oral metronidazole 500 mg three times daily for 10 days

D. Fecal microbiota transplantation

20. A 55-year-old man with a history of chronic alcoholic liver disease and cirrhosis presents with confusion, asterixis, and disorientation. His ammonia level is elevated at 120 μmol/L. He has no signs of GI bleeding. Which of the following is the most appropriate initial treatment?

A. Neomycin

B. Flumazenil

C. Protein-restricted diet

D. Lactulose

21. A 45-year-old obese woman presents with sudden onset of severe right upper quadrant pain, fever of 101.5°F, nausea, and vomiting. Physical examination reveals a positive Murphy sign. Laboratory studies show leukocytosis with a white blood cell count of 14,000/μL. Right upper quadrant ultrasound reveals gallstones, gallbladder wall thickening greater than 4 mm, and pericholecystic fluid. Which of the following is the most likely diagnosis?

A. Acute cholecystitis

B. Biliary colic

C. Acute pancreatitis

D. Peptic ulcer disease

22. A 35-year-old woman presents with chronic diarrhea, bloating, iron deficiency anemia, and a pruritic vesicular rash on her elbows and knees (dermatitis herpetiformis). She reports worsening symptoms after eating bread and pasta. Tissue transglutaminase (tTG) IgA antibody is markedly elevated. Which of the following is the most appropriate next step to confirm the diagnosis?

A. Elimination diet alone

B. HLA-DQ2 and HLA-DQ8 genetic testing

C. Upper endoscopy with duodenal biopsy

D. Stool culture for bacterial pathogens

23. A 60-year-old man with cirrhosis and known ascites presents with acute onset of abdominal pain, fever, and worsening ascites. Paracentesis reveals an ascitic fluid absolute PMN count of 350 cells/μL. Gram stain is negative. Which of the following is the most likely diagnosis?

A. Secondary bacterial peritonitis from bowel perforation

B. Spontaneous bacterial peritonitis

C. Peritoneal carcinomatosis

D. Chylous ascites

24. A 50-year-old man with a history of chronic GERD presents with progressive dysphagia to solids only. He reports food getting stuck in his chest. Barium swallow reveals a smooth, concentric narrowing of the distal esophagus. Upper endoscopy reveals a circumferential narrowing that the endoscope cannot traverse. Biopsy shows benign fibrotic tissue without dysplasia. Which of the following is the most likely diagnosis?

A. Peptic esophageal stricture

B. Schatzki ring

C. Esophageal carcinoma

D. Eosinophilic esophagitis

25. A 68-year-old man presents with acute onset of painless, large-volume, bright red rectal bleeding. He is hemodynamically stable after fluid resuscitation. Colonoscopy reveals active bleeding from a single arterial vessel in the right colon without surrounding inflammation. Which of the following is the most likely diagnosis?

A. Hemorrhoids

B. Colorectal cancer

C. Inflammatory bowel disease

D. Diverticular bleeding (colonic angiodysplasia or arteriovenous malformation vs. diverticular hemorrhage)

26. A 32-year-old man presents with a three-day history of bloody diarrhea (10 to 15 stools per day), abdominal pain, fever of 102°F, and tachycardia. He has a known history of ulcerative colitis. Laboratory studies reveal hemoglobin 9.5 g/dL, albumin 2.8 g/dL, and ESR 55 mm/hr. Abdominal X-ray reveals colonic dilation of 7 centimeters. Which of the following is the most likely complication?

A. Colorectal cancer

B. Small bowel obstruction

C. Toxic megacolon

D. Appendicitis

27. A 48-year-old woman presents with dysphagia that occurs intermittently with both solids and liquids. She reports that it is worse when she is stressed or consuming cold beverages. Barium swallow reveals a "corkscrew" or "rosary bead" esophagus. Esophageal manometry shows simultaneous, high-amplitude, non-peristaltic contractions. Which of the following is the most likely diagnosis?

A. Achalasia

B. Diffuse esophageal spasm

C. Esophageal stricture

D. GERD with erosive esophagitis

28. A 55-year-old man with a history of cirrhosis presents for hepatocellular carcinoma screening. He has hepatitis B-related cirrhosis and has been compliant with antiviral therapy. Which of the following is the recommended surveillance strategy for HCC?

A. Serum AFP alone every 12 months

B. CT scan of the abdomen with contrast annually

C. MRI of the liver every 6 months

D. Abdominal ultrasound with or without serum alpha-fetoprotein every 6 months

29. A 22-year-old college student presents with a 5-day history of fatigue, malaise, dark urine, and jaundice. He reports recently eating at a restaurant with a hepatitis A outbreak. Laboratory studies reveal elevated AST and ALT (AST 1200, ALT 1500), elevated total bilirubin, and positive hepatitis A IgM antibody. Which of the following best describes the expected course of this infection?

A. Self-limited illness with full recovery expected and no progression to chronic hepatitis

B. High likelihood of progression to chronic hepatitis and cirrhosis

C. Requires immediate antiviral therapy to prevent chronicity

D. Liver transplant will likely be required

30. A 40-year-old man presents with epigastric pain, early satiety, and nausea for the past two months. He has no alarm features. He was recently treated with a 14-day triple therapy regimen for H. pylori. A repeat H. pylori stool antigen test performed 6 weeks after completing therapy is negative. Despite eradication, his symptoms persist. Which of the following is the most appropriate next step?

A. Repeat triple therapy for H. pylori

B. Empiric trial of a prokinetic agent

C. Proton pump inhibitor for 4 to 8 weeks with reassessment

D. Immediate surgical referral

31. A 55-year-old woman with a long history of type 2 diabetes presents with nausea, vomiting of undigested food several hours after eating, early satiety, bloating, and abdominal pain. An upper GI series reveals delayed gastric emptying with retained food after an overnight fast. Which of the following is the most likely diagnosis?

A. Gastric outlet obstruction from peptic ulcer disease

B. Gastroparesis

C. Small bowel obstruction

D. Chronic mesenteric ischemia

32. A 65-year-old man presents with acute left lower quadrant abdominal pain, fever, and leukocytosis. CT scan of the abdomen and pelvis reveals sigmoid colon wall thickening with pericolic fat stranding and a small contained pericolic abscess measuring 2.5 centimeters. Which of the following is the most likely diagnosis?

A. Sigmoid volvulus

B. Colorectal cancer with perforation

C. Ischemic colitis

D. Acute diverticulitis with pericolic abscess

33. A 40-year-old man presents with a two-year history of recurrent epigastric pain and diarrhea refractory to standard-dose PPI therapy. He has had multiple duodenal ulcers and an ulcer in the jejunum. Fasting serum gastrin level is markedly elevated at 1200 pg/mL (normal less than 100). Which of the following is the most likely diagnosis?

A. Zollinger-Ellison syndrome (gastrinoma)

B. H. pylori-associated peptic ulcer disease

C. NSAID-induced gastropathy

D. Gastric carcinoma

34. A 50-year-old man with a history of cirrhosis and portal hypertension presents for evaluation of rectal bleeding. Anoscopy reveals large, prolapsing internal hemorrhoids. He also has prominent rectal varices identified on lower endoscopy. Which of the following is the most important underlying mechanism contributing to his rectal varices?

A. Chronic constipation

B. Coagulopathy from liver dysfunction

C. Portal hypertension with portosystemic shunting

D. Low-fiber diet

35. A 28-year-old man presents with acute onset of right lower quadrant abdominal pain that began periumbilically and migrated over 12 hours. He reports anorexia, nausea, and low-grade fever. Physical examination reveals tenderness at McBurney point, rebound tenderness, and a positive Rovsing sign. White blood cell count is 13,500/µL with a left shift. Which of the following is the most likely diagnosis?

A. Mesenteric lymphadenitis

B. Acute appendicitis

C. Crohn disease of the terminal ileum

D. Right-sided diverticulitis

36. A 58-year-old woman with cirrhosis presents with hepatic encephalopathy that is refractory to lactulose therapy alone. Her ammonia levels remain elevated despite adequate lactulose dosing achieving 2 to 3 soft bowel movements daily. Which of the following is the most appropriate add-on therapy?

A. Oral neomycin as first-line monotherapy

B. Intravenous ammonia scavenger

C. High-protein diet

D. Rifaximin

37. A 45-year-old man presents for colorectal cancer screening. He has no family history of colorectal cancer, no personal history of polyps, and no symptoms. According to current guidelines, which of the following is the recommended initial screening strategy?

A. Fecal occult blood testing annually beginning at age 40

B. Flexible sigmoidoscopy every 10 years

C. Colonoscopy beginning at age 45, repeated every 10 years if normal

D. CT colonography annually beginning at age 50

38. A 35-year-old woman presents with a three-month history of progressive fatigue, jaundice, and elevated transaminases (AST 450, ALT 520). She has no history of alcohol use, viral hepatitis, or medication use. Laboratory studies reveal markedly elevated IgG levels, positive anti-smooth muscle antibodies (ASMA), and positive antinuclear antibodies (ANA). Liver biopsy reveals interface hepatitis with lymphoplasmacytic infiltration. Which of the following is the most likely diagnosis?

A. Autoimmune hepatitis

B. Primary biliary cholangitis

C. Wilson disease

D. Non-alcoholic steatohepatitis

39. A 55-year-old obese man presents with mildly elevated transaminases (AST 55, ALT 72) discovered on routine blood work. He denies alcohol use. Hepatitis B and C serologies are negative. Liver ultrasound reveals diffuse hepatic steatosis. His BMI is 34. Which of the following is the most likely diagnosis?

A. Alcoholic liver disease

B. Hemochromatosis

C. Drug-induced liver injury

D. Non-alcoholic fatty liver disease (NAFLD/metabolic dysfunction-associated steatotic liver disease)

40. A 62-year-old man presents with new-onset ascites. Diagnostic paracentesis reveals a SAAG of 0.8 g/dL, elevated total protein in the ascitic fluid, and positive cytology for malignant cells. Which of the following is the most likely cause of his ascites?

A. Cirrhosis

B. Peritoneal carcinomatosis

C. Congestive heart failure

D. Nephrotic syndrome

41. A 70-year-old woman presents with acute onset of severe, diffuse abdominal pain that is "out of proportion to physical examination findings." She has a history of atrial fibrillation and congestive heart failure. Physical examination reveals a soft, non-tender abdomen despite the patient's severe distress. Serum lactate is elevated. CT angiography reveals occlusion of the superior mesenteric artery. Which of the following is the most likely diagnosis?

A. Acute mesenteric ischemia

B. Acute pancreatitis

C. Small bowel obstruction

D. Perforated peptic ulcer

42. A 48-year-old man with chronic hepatitis B presents for evaluation. His HBV DNA viral load is 45,000 IU/mL, HBeAg is positive, ALT is 85 U/L, and liver biopsy shows moderate fibrosis (Metavir F2). Which of the following is the most appropriate management?

A. Observation with repeat labs in 6 months

B. Hepatitis B vaccination

C. Initiation of antiviral therapy with entecavir or tenofovir

D. Interferon-alpha therapy as first-line only

43. A 65-year-old woman presents with severe abdominal pain 30 minutes after eating, progressive weight loss due to fear of eating (sitophobia), and an abdominal bruit on auscultation. CT angiography reveals significant stenosis of the celiac artery and superior mesenteric artery. Which of the following is the most likely diagnosis?

A. Gastroparesis

B. Peptic ulcer disease

C. Pancreatic cancer

D. Chronic mesenteric ischemia (intestinal angina)

44. A 30-year-old man presents with sudden onset of severe, constant epigastric pain radiating to the back following a heavy drinking episode. His serum lipase is 8 times the upper limit of normal. CT scan reveals pancreatic necrosis involving 40% of the pancreas with peripancreatic fluid collections. On day 12, he develops fever and rising WBC. CT-guided aspiration of the necrotic collection grows gram-negative organisms. Which of the following is the most appropriate management?

A. Conservative management with IV fluids only

B. Immediate total pancreatectomy

C. Observation without antibiotics

D. Intravenous antibiotics targeting gram-negative organisms with consideration for necrosectomy if clinical deterioration occurs

45. A 40-year-old man with a history of primary sclerosing cholangitis presents with worsening jaundice, pruritus, and fatigue. MRCP reveals multifocal strictures and dilation of the intrahepatic and extrahepatic bile ducts producing a "beads-on-a-string" appearance. Which of the following is the most commonly associated gastrointestinal condition?

A. Ulcerative colitis

B. Crohn disease

C. Celiac disease

D. Colorectal cancer

46. A 55-year-old man with known portal hypertension from cirrhosis has never had variceal bleeding. Upper endoscopy reveals large esophageal varices with red wale markings. Which of the following is the most appropriate primary prophylaxis to prevent the first variceal hemorrhage?

A. Elective surgical portosystemic shunt

B. Prophylactic sclerotherapy

C. Non-selective beta-blocker (propranolol or nadolol) or endoscopic variceal ligation

D. Transjugular intrahepatic portosystemic shunt (TIPS)

47. A 72-year-old woman presents with vague abdominal discomfort and iron deficiency anemia. Colonoscopy reveals a large, sessile polyp in the cecum. Biopsy shows a villous adenoma with high-grade dysplasia. Which of the following is the most appropriate next step?

A. Surveillance colonoscopy in 10 years

B. Observation with repeat biopsy in 1 year

C. Iron supplementation and reassessment

D. Complete polypectomy or surgical resection if endoscopic removal is not feasible

48. A 60-year-old man with a history of chronic pancreatitis presents with steatorrhea, weight loss, and new-onset diabetes mellitus. Fecal elastase is severely reduced. Which of the following is the most appropriate treatment for his malabsorption?

A. High-dose proton pump inhibitor therapy

B. Pancreatic enzyme replacement therapy with meals

C. Oral bile acid supplementation

D. Medium-chain triglyceride supplementation alone

49. A 42-year-old woman presents with dysphagia to solid foods and recurrent food impaction episodes. She has a history of asthma and seasonal allergies. Upper endoscopy reveals concentric mucosal rings (trachealization of the esophagus) and a narrow-caliber esophagus. Biopsy shows greater than 15 eosinophils per high-power field in the esophageal mucosa. Which of the following is the most likely diagnosis?

A. Eosinophilic esophagitis

B. GERD with erosive esophagitis

C. Achalasia

D. Esophageal adenocarcinoma

50. A 58-year-old man with a history of hepatitis C-related cirrhosis presents for routine surveillance. Abdominal ultrasound reveals a 3-centimeter hypoechoic liver mass. Serum AFP is 450 ng/mL (markedly elevated). Which of the following is the most appropriate next step?

A. Repeat ultrasound in 6 months

B. Percutaneous liver biopsy as the immediate next step

C. Multiphasic contrast-enhanced CT or MRI of the liver

D. Immediate liver transplant listing without further imaging

51. A 55-year-old woman presents with chronic, painless, watery diarrhea for the past three months. Colonoscopy reveals grossly normal-appearing mucosa. Random biopsies of the colon reveal a thickened subepithelial collagen band with a lymphocytic inflammatory infiltrate. Which of the following is the most likely diagnosis?

A. Irritable bowel syndrome

B. Ulcerative colitis

C. Celiac disease

D. Collagenous colitis (microscopic colitis)

52. A 45-year-old man presents with right upper quadrant pain, hepatomegaly, and elevated serum ferritin (2500 ng/mL) with a transferrin saturation of 68%. He also reports joint pain in his metacarpophalangeal joints, skin hyperpigmentation ("bronze diabetes"), and new-onset diabetes. Liver biopsy reveals marked hepatic iron deposition. Which of the following is the most likely diagnosis?

A. Wilson disease

B. Hereditary hemochromatosis

C. Alpha-1 antitrypsin deficiency

D. Non-alcoholic steatohepatitis

53. A 28-year-old woman presents with acute onset of right upper quadrant pain, nausea, vomiting, fatigue, and dark urine. She recently returned from a trip to Central America two weeks ago. Laboratory studies reveal AST 1800 U/L, ALT 2200 U/L, total bilirubin 6.5 mg/dL, and alkaline phosphatase 120 U/L. Hepatitis serologies reveal positive hepatitis A IgM antibody. All other hepatitis markers are negative. Which of the following laboratory patterns is most consistent with acute viral hepatitis?

A. Markedly elevated transaminases (often greater than 1000 U/L) with a relatively modest elevation in alkaline phosphatase

B. Normal transaminases with markedly elevated alkaline phosphatase

C. Isolated elevation of GGT with normal transaminases

D. Elevated alkaline phosphatase with normal bilirubin

54. A 65-year-old man with a history of alcoholic cirrhosis (Child-Pugh Class C) presents for evaluation. His MELD score is 22. He has been abstinent from alcohol for 8 months. He has had recurrent episodes of ascites requiring large-volume paracentesis and two episodes of spontaneous bacterial peritonitis in the past year. Which of the following is the most appropriate definitive management?

A. Lifelong diuretic therapy with periodic paracentesis

B. TIPS placement for definitive ascites management

C. Referral for liver transplant evaluation

D. Palliative care without further intervention

55. A 50-year-old woman presents with right upper quadrant pain, elevated alkaline phosphatase, and pruritus. MRCP reveals multiple intrahepatic and extrahepatic bile duct strictures and dilations. She has a history of ulcerative colitis. P-ANCA is positive. Which of the following is the most likely diagnosis?

A. Cholangiocarcinoma

B. Primary biliary cholangitis

C. Autoimmune hepatitis

D. Primary sclerosing cholangitis

PRACTICE TEST 9: ANSWER KEY WITH EXPLANATIONS

Gastroenterology

1. C. Triple therapy with a proton pump inhibitor, clarithromycin, and amoxicillin for 14 days. H. pylori-positive peptic ulcer disease requires eradication therapy to heal the ulcer and prevent recurrence. Standard triple therapy consists of a PPI (omeprazole or lansoprazole) twice daily, clarithromycin 500 mg twice daily, and amoxicillin 1000 mg twice daily for 14 days. The pain pattern described — epigastric burning that improves with eating and worsens 2-3 hours later with nocturnal symptoms — is classic for duodenal ulcer. H. pylori and NSAID use are the two most common causes of peptic ulcer disease. After eradication therapy, confirmation of cure with a urea breath test or stool antigen test should be performed at least 4 weeks after completing treatment.

2. A. Intravenous octreotide. Acute variceal hemorrhage from portal hypertension is a life-threatening emergency requiring simultaneous resuscitation, pharmacologic therapy, and endoscopic intervention. IV octreotide (a somatostatin analog) reduces splanchnic blood flow and portal pressure by inhibiting vasodilatory hormone release, and should be initiated as soon as variceal bleeding is suspected even before endoscopy. Endoscopic variceal ligation (banding) is the definitive endoscopic therapy. IV antibiotics (ceftriaxone) are also administered prophylactically to reduce bacterial infection risk. Propranolol is used for primary and secondary prophylaxis but not during acute hemorrhage due to its hypotensive effects.

3. D. Biliary colic (symptomatic cholelithiasis). Biliary colic results from transient cystic duct obstruction by a gallstone during gallbladder contraction, typically triggered by fatty meals. Pain is episodic, lasting 30 minutes to several hours, localizing to the right upper quadrant or epigastrium. The absence of fever, gallbladder wall thickening, pericholecystic fluid, and negative sonographic Murphy sign distinguishes biliary colic from acute cholecystitis. Biliary colic is self-limited as the stone dislodges from the cystic duct. Elective laparoscopic cholecystectomy is the definitive treatment for symptomatic cholelithiasis to prevent recurrent episodes and complications.

4. B. Upper endoscopy with biopsy. Progressive dysphagia to solids, weight loss, and odynophagia in a patient with longstanding GERD are alarm features highly suspicious for esophageal malignancy. An irregular, asymmetric narrowing on barium swallow further supports this concern. Upper endoscopy with tissue biopsy is the gold standard diagnostic study, allowing direct visualization of the lesion, tissue sampling for histologic diagnosis, and assessment of extent and location. Barrett esophagus from chronic GERD is the primary risk factor for esophageal adenocarcinoma. Esophageal manometry evaluates motility disorders, and pH monitoring assesses reflux — neither provides tissue diagnosis.

5. A. Ulcerative colitis. Ulcerative colitis is characterized by continuous mucosal inflammation beginning at the rectum and extending proximally in an uninterrupted pattern. Key features include bloody diarrhea, tenesmus, urgency, and endoscopic findings of erythema, friability, and superficial ulcerations limited to the mucosa and submucosa. This contrasts with Crohn disease, which produces skip lesions with transmural inflammation and can affect any part of the GI tract. Left-sided colitis (rectum to splenic flexure) is the most common distribution pattern. First-line treatment is 5-aminosalicylates (mesalamine) for mild-moderate disease, with corticosteroids and immunomodulators for moderate-severe disease.

6. D. Pancreatic adenocarcinoma. Painless obstructive jaundice with dark urine (conjugated bilirubinuria), clay-colored stools (absence of bilirubin in stool), weight loss, and a palpable nontender gallbladder (Courvoisier sign) in the setting of a pancreatic head mass is the classic presentation of pancreatic adenocarcinoma. Courvoisier sign indicates gradual bile duct obstruction from malignancy allowing progressive gallbladder distension, as opposed to gallstone disease where chronic inflammation produces a fibrotic, non-distensible gallbladder. Pancreatic adenocarcinoma has a dismal prognosis with a five-year survival rate below 10%. CA 19-9 is a supportive tumor marker. Whipple procedure (pancreaticoduodenectomy) is the surgical treatment for resectable tumors.

7. C. Lactose intolerance. Lactose intolerance results from deficiency of the brush border enzyme lactase in the small intestinal mucosa, leading to inability to hydrolyze lactose into glucose and galactose. Undigested lactose is fermented by colonic bacteria producing hydrogen gas, carbon dioxide, and short-chain fatty acids, causing bloating, flatulence, cramping, and osmotic diarrhea after dairy consumption. Symptom resolution with dairy avoidance and a positive hydrogen breath test (rise in breath hydrogen greater than 20 ppm after lactose ingestion) confirm the diagnosis. Primary lactase deficiency is the most common form, affecting approximately 65-70% of the global population with highest prevalence in Asian, African, and Hispanic populations.

8. B. Acute pancreatitis. The diagnosis of acute pancreatitis requires two of three criteria — characteristic abdominal pain (severe epigastric pain radiating to the back), serum lipase or amylase elevated to three or more times the upper limit of normal, and characteristic imaging findings. This patient meets all three criteria. Alcohol and gallstones account for approximately 80% of cases. Serum lipase is more sensitive and specific than amylase and remains elevated longer. Ranson criteria and APACHE II score assess severity at admission and 48 hours. Initial management includes aggressive IV fluid resuscitation, pain control, NPO until symptoms improve, and identification and treatment of the underlying cause.

9. A. Diet low in fiber and high in processed red meat. Modifiable risk factors for colorectal cancer include dietary factors (high consumption of processed and red meat, low fiber intake), obesity, physical inactivity, smoking, and heavy alcohol use. Family history, age, and inflammatory bowel disease are important non-modifiable risk factors. The iron deficiency anemia results from chronic occult blood loss from the right-sided or distal tumor. An apple-core (napkin-ring) lesion on colonoscopy or barium enema represents a circumferential, constricting adenocarcinoma. Colorectal cancer staging uses the TNM system, with treatment including surgical resection and adjuvant chemotherapy for node-positive disease.

10. D. Irritable bowel syndrome. IBS is a functional gastrointestinal disorder diagnosed using Rome IV criteria — recurrent abdominal pain at least 1 day per week for the past 3 months, associated with two or more of the following: related to defecation, associated with a change in stool frequency, or associated with a change in stool form. The diagnosis requires absence of alarm features and structural disease. IBS is classified as diarrhea-predominant (IBS-D), constipation-predominant (IBS-C), or mixed (IBS-M). Stress is a common exacerbating factor. Treatment includes dietary modification (low-FODMAP diet), fiber supplementation, antispasmodics, and addressing psychosocial factors.

11. B. Hepatic cirrhosis. This patient demonstrates the classic constellation of cirrhosis with portal hypertension and hepatic synthetic dysfunction. Ascites, spider angiomata (from hyperestrogenism), palmar erythema, and gynecomastia are stigmata of chronic liver disease. Low albumin and elevated INR reflect impaired hepatic synthetic function. Thrombocytopenia results from splenic sequestration due to portal hypertension-induced splenomegaly and decreased thrombopoietin production. Elevated bilirubin indicates impaired hepatic conjugation and excretion. The Child-Pugh score (using albumin, bilirubin, INR, ascites, and encephalopathy) and MELD score (bilirubin, INR, creatinine) assess disease severity and prognosis.

12. C. Achalasia. Achalasia is an esophageal motility disorder caused by degeneration of inhibitory neurons in the myenteric (Auerbach) plexus, resulting in failure of lower esophageal sphincter relaxation and absent esophageal peristalsis. Dysphagia to both solids and liquids equally from the onset is characteristic of motility disorders (as opposed to mechanical obstruction, which initially affects solids). The "bird's beak" appearance on barium swallow reflects the dilated esophageal body tapering to a narrowed, non-relaxing LES. Manometry is the gold standard showing aperistalsis and incomplete LES relaxation. Treatment options include pneumatic dilation, Heller myotomy, and peroral endoscopic myotomy (POEM).

13. A. Barrett esophagus. Barrett esophagus is a premalignant condition in which the normal stratified squamous epithelium of the distal esophagus undergoes intestinal metaplasia, characterized histologically by the presence of goblet cells. It develops as a consequence of chronic GERD and is the primary risk factor for esophageal adenocarcinoma. The salmon-colored mucosa visualized endoscopically extending above the GEJ represents the metaplastic epithelium. Surveillance endoscopy intervals depend on dysplasia status — every 3-5 years for non-dysplastic Barrett, every 6-12 months for low-grade dysplasia, and endoscopic eradication therapy (radiofrequency ablation) for high-grade dysplasia.

14. D. Acute ascending cholangitis (Charcot triad). Charcot triad — right upper quadrant pain, fever, and jaundice — is the classic presentation of acute ascending cholangitis, a bacterial infection of the biliary system caused by obstruction (most commonly choledocholithiasis). Reynolds pentad adds altered mental status and hypotension to Charcot triad, indicating suppurative cholangitis with sepsis, as seen in this patient. The dilated common bile duct with a visible stone confirms the obstructive etiology. Treatment requires emergent biliary decompression (ERCP with sphincterotomy and stone extraction) in addition to IV antibiotics and fluid resuscitation. Without biliary drainage, mortality approaches 100%.

15. B. Crohn disease. Crohn disease is a chronic inflammatory bowel disease characterized by transmural inflammation that can affect any part of the GI tract from mouth to anus, with the terminal ileum being the most common site. Pathognomonic features include skip lesions (discontinuous inflammation), cobblestoning (from intersecting linear and transverse ulcers separated by edematous mucosa), transmural inflammation, and non-caseating granulomas on biopsy. Extraintestinal manifestations include oral aphthous ulcers, perianal disease (fissures, fistulas, abscesses), erythema nodosum, pyoderma gangrenosum, and uveitis. Treatment includes corticosteroids for acute flares, immunomodulators (azathioprine, methotrexate), and biologic agents (anti-TNF, anti-integrin).

16. D. Esophageal adenocarcinoma arising from Barrett esophagus. Progressive dysphagia (initially solids, then both solids and liquids), significant unintentional weight loss, and a history of Barrett esophagus are highly concerning for esophageal adenocarcinoma. Barrett esophagus is the strongest risk factor for esophageal adenocarcinoma, with the metaplasia-dysplasia-carcinoma sequence representing the pathologic progression. The incidence of esophageal adenocarcinoma has increased dramatically over the past several decades, correlating with rising obesity and GERD prevalence. Progressive dysphagia to both solids and liquids indicates advanced luminal obstruction. Five-year survival for esophageal cancer remains poor at approximately 20%.

17. A. Primary biliary cholangitis. Primary biliary cholangitis (formerly primary biliary cirrhosis) is a chronic autoimmune cholestatic liver disease characterized by progressive destruction of small and medium intrahepatic bile ducts. It predominantly affects middle-aged women. Antimitochondrial antibody (AMA) is positive in approximately 95% of cases and is the serologic hallmark. Elevated alkaline phosphatase and GGT reflect cholestasis, while transaminases are mildly elevated. Granulomatous destruction of bile ducts is the histologic hallmark. Fatigue and pruritus are the most common presenting symptoms. First-line treatment is ursodeoxycholic acid (UDCA), which improves biochemical markers and delays disease progression.

18. C. Portal hypertension from cirrhosis. A SAAG of 1.1 g/dL or greater indicates portal hypertension as the cause of ascites (this patient's SAAG is 1.8). Portal hypertension-related ascites from cirrhosis typically has a low total protein (less than 2.5 g/dL) in the ascitic fluid, distinguishing it from cardiac ascites (SAAG $\geq$1.1 but high protein). The low PMN count (below 250 cells/μL) excludes spontaneous bacterial peritonitis. Peritoneal carcinomatosis produces a low SAAG (less than 1.1) with high protein. Cirrhotic ascites management includes sodium restriction (less than 2 g/day), diuretic therapy (spironolactone plus furosemide), and therapeutic paracentesis for tense ascites.

19. B. Oral vancomycin 125 mg four times daily for 10 days. Current IDSA/SHEA guidelines recommend oral vancomycin or fidaxomicin as first-line treatment for initial C. difficile infection regardless of severity. Oral metronidazole is no longer recommended as first-line due to inferior cure rates. Vancomycin acts locally in the gut lumen where C. difficile resides and is minimally absorbed systemically. Fidaxomicin has similar efficacy with lower recurrence rates. Fecal microbiota transplantation is reserved for recurrent C. difficile infection (third or subsequent episode). Risk factors

for C. difficile include antibiotic exposure (fluoroquinolones, clindamycin, cephalosporins), hospitalization, advanced age, and proton pump inhibitor use.

20. D. Lactulose. Hepatic encephalopathy results from accumulation of neurotoxins (primarily ammonia) that are inadequately metabolized by the failing liver. Lactulose is the first-line treatment, working through multiple mechanisms — osmotic laxative effect accelerates intestinal transit (reducing ammonia absorption time), acidification of colonic contents converts ammonia (NH_3) to ammonium (NH_4^+) which cannot be absorbed, and promotion of bacterial ammonia uptake. The dose is titrated to achieve 2-3 soft bowel movements daily. Protein restriction is no longer recommended as it worsens sarcopenia and nutritional status. Rifaximin is added for recurrent or refractory encephalopathy.

21. A. Acute cholecystitis. Acute cholecystitis is inflammation of the gallbladder, most commonly from persistent cystic duct obstruction by a gallstone leading to distension, inflammation, and secondary bacterial infection. A positive Murphy sign (inspiratory arrest during palpation of the right upper quadrant), fever, leukocytosis, and ultrasound findings of gallstones with gallbladder wall thickening greater than 3-4 mm and pericholecystic fluid are diagnostic. HIDA (hepatobiliary iminodiacetic acid) scan showing non-visualization of the gallbladder is confirmatory when ultrasound is equivocal. Treatment is IV antibiotics and early laparoscopic cholecystectomy (preferably within 72 hours of symptom onset).

22. C. Upper endoscopy with duodenal biopsy. While serologic testing (tTG IgA) is highly sensitive and specific for celiac disease, upper endoscopy with duodenal biopsy remains the gold standard for definitive diagnosis. Histologic findings include villous atrophy, crypt hyperplasia, and increased intraepithelial lymphocytes (Marsh classification). Dermatitis herpetiformis (pruritic vesicular rash on extensor surfaces) is pathognomonic for celiac disease and is found in approximately 15-25% of patients. Celiac disease is an immune-mediated enteropathy triggered by gluten (gliadin) in genetically susceptible individuals (HLA-DQ2/DQ8). Lifelong strict gluten-free diet is the treatment. Biopsies should be obtained before starting a gluten-free diet.

23. B. Spontaneous bacterial peritonitis. SBP is defined as infection of ascitic fluid without a surgically treatable intra-abdominal source, diagnosed by an ascitic fluid absolute PMN count of 250 cells/μL or greater (this patient has 350). SBP typically involves a single organism (most commonly E. coli, Klebsiella, or pneumococcus) and often has negative Gram stain. It occurs in approximately 10-30% of hospitalized cirrhotic patients with ascites due to impaired immune defenses and bacterial translocation from the gut. Treatment is empiric IV ceftriaxone or cefotaxime. IV albumin (1.5 g/kg on day 1 and 1 g/kg on day 3) reduces hepatorenal syndrome and mortality. Secondary prophylaxis with daily oral norfloxacin or trimethoprim-sulfamethoxazole is recommended after an episode.

24. A. Peptic esophageal stricture. Peptic stricture is a complication of chronic GERD caused by repeated cycles of inflammation and healing with fibrosis, resulting in progressive narrowing of the esophageal lumen. Dysphagia to solids only (not liquids) indicates mechanical obstruction. Smooth, concentric narrowing on barium swallow and benign fibrotic tissue on biopsy distinguish peptic stricture from malignancy (which produces irregular, asymmetric narrowing). A Schatzki ring is a thin, circumferential

mucosal ring at the squamocolumnar junction causing intermittent dysphagia. Treatment is endoscopic dilation (bougie or balloon) combined with long-term PPI therapy to prevent recurrence.

25. D. Diverticular bleeding. Diverticular bleeding is the most common cause of acute, painless, large-volume lower GI bleeding in elderly patients. It results from arterial bleeding at the base of a diverticulum where the vasa recta are stretched over the dome of the diverticulum. Although diverticula are more common in the left colon, right-sided diverticula are more likely to bleed. Bleeding is typically abrupt, painless, and self-limited (stops spontaneously in 70-80% of cases). Colonoscopy after adequate bowel preparation is both diagnostic and therapeutic (endoscopic hemostasis with clips or cautery). Angiography with embolization is used for ongoing bleeding when colonoscopy fails.

26. C. Toxic megacolon. Toxic megacolon is a life-threatening complication of inflammatory bowel disease (more common in ulcerative colitis) characterized by total or segmental non-obstructive colonic dilation (greater than 6 cm) with systemic toxicity. Diagnostic criteria include colonic dilation on plain radiograph plus systemic signs of toxicity (fever, tachycardia, leukocytosis, anemia). Risk of perforation increases significantly when colonic diameter exceeds 6 cm. Management includes IV corticosteroids, broad-spectrum antibiotics, bowel rest, and serial abdominal imaging. Emergent colectomy is indicated for perforation, clinical deterioration, or failure to improve within 48-72 hours of medical therapy.

27. B. Diffuse esophageal spasm. Diffuse esophageal spasm is a motility disorder characterized by simultaneous, uncoordinated, high-amplitude esophageal contractions interspersed with normal peristalsis. The "corkscrew" or "rosary bead" appearance on barium swallow results from simultaneous, non-progressive contractions producing a segmented esophageal lumen. Manometry (the diagnostic gold standard) reveals simultaneous contractions in greater than 20% of wet swallows with intermittent normal peristalsis. This distinguishes it from achalasia, which shows absent peristalsis. Symptoms include intermittent dysphagia to both solids and liquids and chest pain that may mimic cardiac disease. Treatment includes calcium channel blockers, nitrates, and in refractory cases, peroral endoscopic myotomy.

28. D. Abdominal ultrasound with or without serum alpha-fetoprotein every 6 months. Current AASLD guidelines recommend surveillance for hepatocellular carcinoma in all patients with cirrhosis (regardless of etiology) and in select non-cirrhotic hepatitis B carriers using abdominal ultrasound every 6 months. AFP alone has insufficient sensitivity for screening but may be used in combination with ultrasound. CT and MRI are used for diagnostic confirmation and staging of lesions detected on surveillance ultrasound, not for routine screening due to cost, radiation exposure, and lack of demonstrated superiority over ultrasound for surveillance. Early detection through surveillance improves access to curative therapies including resection, ablation, and transplantation.

29. A. Self-limited illness with full recovery expected and no progression to chronic hepatitis. Hepatitis A is transmitted via the fecal-oral route and causes acute, self-limited hepatitis that does not progress to chronic infection. The presence of anti-HAV IgM confirms acute infection, while IgG indicates prior infection or vaccination with lifelong immunity. The illness typically resolves within 2-6 months. Unlike hepatitis B and C, hepatitis A does not cause chronic hepatitis, cirrhosis, or hepatocellular carcinoma. Fulminant hepatic failure occurs rarely (less than 1% of cases), primarily in patients with pre-

existing liver disease or advanced age. Treatment is supportive with rest, hydration, and avoidance of hepatotoxins.

30. C. Proton pump inhibitor for 4 to 8 weeks with reassessment. After successful H. pylori eradication (confirmed by negative stool antigen test performed at least 4 weeks after treatment completion), persistent dyspeptic symptoms may represent functional dyspepsia, ongoing mucosal healing, or an alternative diagnosis. An empiric trial of PPI therapy for 4-8 weeks is the appropriate next step for persistent dyspepsia without alarm features. If symptoms persist despite PPI therapy, upper endoscopy is indicated to evaluate for structural abnormalities. Repeating H. pylori treatment is inappropriate given confirmed eradication. Alarm features warranting immediate endoscopy include unintentional weight loss, dysphagia, persistent vomiting, GI bleeding, and age over 60 with new-onset symptoms.

31. B. Gastroparesis. Gastroparesis is delayed gastric emptying in the absence of mechanical obstruction, most commonly caused by diabetes mellitus (from vagal neuropathy), postsurgical damage, and idiopathic causes. Symptoms include nausea, vomiting of undigested food hours after eating, early satiety, bloating, and abdominal pain. Gastric scintigraphy (4-hour solid-phase gastric emptying study) is the gold standard diagnostic test — retention of greater than 10% of a radiolabeled meal at 4 hours is diagnostic. Treatment includes dietary modification (small, frequent, low-fat, low-fiber meals), prokinetic agents (metoclopramide, domperidone, erythromycin), and antiemetics. Gastric electrical stimulation may be considered for refractory cases.

32. D. Acute diverticulitis with pericolic abscess. Acute diverticulitis results from microperforation of a diverticulum with localized inflammation and infection. Left lower quadrant pain is the hallmark presentation due to sigmoid colon predominance of diverticula in Western populations. CT scan is the imaging study of choice, revealing colonic wall thickening, pericolic fat stranding, and complications including abscess, fistula, or free perforation. Small abscesses (less than 3-4 cm) may resolve with IV antibiotics alone, while larger abscesses typically require CT-guided percutaneous drainage in addition to antibiotics. Hinchey classification grades diverticulitis severity from I (pericolic abscess) to IV (fecal peritonitis).

33. A. Zollinger-Ellison syndrome (gastrinoma). ZES is caused by a gastrin-secreting neuroendocrine tumor (gastrinoma), most commonly located in the duodenum or pancreas (gastrinoma triangle). Excessive gastrin stimulates massive gastric acid hypersecretion, causing severe, refractory, and atypically located peptic ulcers (jejunal ulcers are particularly suggestive). Fasting serum gastrin greater than 1000 pg/mL with gastric pH below 2 is virtually diagnostic. For equivocal cases, a secretin stimulation test is confirmatory (paradoxical rise in gastrin after secretin administration). Approximately 25% of gastrinomas occur as part of MEN 1 syndrome (parathyroid, pituitary, and pancreatic tumors). Treatment includes high-dose PPIs for acid suppression and surgical resection of the tumor when localized.

34. C. Portal hypertension with portosystemic shunting. Rectal varices are dilated portosystemic collateral veins in the rectal submucosa that develop as a consequence of portal hypertension. When portal pressure increases, blood is diverted through portosystemic anastomoses including the superior rectal veins (portal system) connecting to the middle and inferior rectal veins (systemic system). These are

distinct from hemorrhoids, which are dilated submucosal venous cushions of the hemorrhoidal plexus not directly related to portal hypertension. Other portosystemic collateral sites include esophageal varices, caput medusae (periumbilical), and retroperitoneal collaterals.

35. B. Acute appendicitis. Acute appendicitis is the most common surgical emergency of the abdomen. The classic progression of periumbilical pain migrating to the right lower quadrant over 12-24 hours reflects initial visceral pain (from appendiceal distension stimulating afferent fibers entering the spinal cord at T10) followed by parietal pain (from inflammation irritating the adjacent peritoneum overlying McBurney point). Rebound tenderness indicates peritoneal irritation. Rovsing sign (right lower quadrant pain elicited by palpation of the left lower quadrant) confirms peritoneal inflammation. CT scan with IV contrast is the imaging study of choice (sensitivity greater than 95%). Treatment is appendectomy (laparoscopic preferred).

36. D. Rifaximin. Rifaximin is a non-absorbable antibiotic that reduces ammonia-producing intestinal bacteria and is the recommended add-on therapy for hepatic encephalopathy refractory to lactulose alone or for prevention of recurrent episodes. The landmark RFHE trial demonstrated that rifaximin plus lactulose significantly reduced the risk of recurrent hepatic encephalopathy compared to lactulose alone. Rifaximin's non-systemic absorption minimizes systemic side effects. Neomycin is an alternative but carries risk of ototoxicity and nephrotoxicity with prolonged use. High-protein diets are not avoided — adequate protein intake (1.2-1.5 g/kg/day) is recommended to prevent sarcopenia, which itself worsens encephalopathy.

37. C. Colonoscopy beginning at age 45, repeated every 10 years if normal. Current USPSTF and ACS guidelines recommend initiating average-risk colorectal cancer screening at age 45 (updated from age 50 in 2021). Colonoscopy every 10 years is the preferred screening modality due to its ability to both detect and remove premalignant polyps during the same procedure. Alternative screening options include annual fecal immunochemical testing (FIT), FIT-DNA (Cologuard) every 1-3 years, CT colonography every 5 years, and flexible sigmoidoscopy every 5 years. Patients with increased risk factors (family history, IBD, prior polyps) require earlier initiation and more frequent surveillance.

38. A. Autoimmune hepatitis. Autoimmune hepatitis is a chronic inflammatory liver disease characterized by interface hepatitis, hypergammaglobulinemia (elevated IgG), and circulating autoantibodies. Type 1 AIH (most common, approximately 80%) is associated with ANA and anti-smooth muscle antibodies (ASMA). Type 2 AIH is associated with anti-liver-kidney microsomal (anti-LKM-1) antibodies and typically presents in children. Liver biopsy showing interface hepatitis with lymphoplasmacytic infiltration is characteristic. AIH predominantly affects women and can present acutely or insidiously. Treatment is immunosuppression with prednisone (induction) followed by azathioprine (maintenance), with most patients requiring long-term therapy.

39. D. Non-alcoholic fatty liver disease (NAFLD/MASLD). NAFLD is the most common cause of chronic liver disease worldwide, affecting approximately 25-30% of the general population. It is defined as hepatic steatosis (by imaging or histology) in the absence of significant alcohol consumption (less than 20-30 g/day) and other secondary causes. Risk factors include obesity, insulin resistance, type 2 diabetes,

dyslipidemia, and metabolic syndrome. NAFLD encompasses a spectrum from simple steatosis (benign) to nonalcoholic steatohepatitis (NASH, now called metabolic dysfunction-associated steatohepatitis), which can progress to fibrosis, cirrhosis, and hepatocellular carcinoma. Treatment centers on weight loss (7-10% body weight), exercise, and metabolic risk factor management.

40. B. Peritoneal carcinomatosis. A SAAG below 1.1 g/dL indicates a non-portal hypertensive cause of ascites. Peritoneal carcinomatosis is the most common malignant cause of ascites and produces a low SAAG with elevated total protein (greater than 2.5 g/dL) due to increased capillary permeability from tumor implants on the peritoneal surface. Positive cytology for malignant cells confirms the diagnosis. Common primary tumors causing peritoneal carcinomatosis include ovarian, gastric, colorectal, and pancreatic cancer. In contrast, cirrhotic ascites produces a high SAAG (≥1.1) with low protein, and cardiac ascites produces a high SAAG with high protein.

41. A. Acute mesenteric ischemia. The hallmark of acute mesenteric ischemia is severe abdominal pain "out of proportion to physical examination findings" — patients report excruciating pain while the abdomen remains soft and non-tender early in the course. Atrial fibrillation is the most common source of arterial embolism to the SMA. Elevated serum lactate indicates tissue ischemia and anaerobic metabolism. CT angiography is the diagnostic study of choice, identifying the site of vascular occlusion. Without prompt treatment, bowel infarction and necrosis develop, leading to peritonitis, sepsis, and death. Emergency management includes anticoagulation, fluid resuscitation, and surgical or endovascular revascularization with resection of nonviable bowel.

42. C. Initiation of antiviral therapy with entecavir or tenofovir. Antiviral treatment for chronic hepatitis B is indicated when HBV DNA is elevated (above 2000 IU/mL for HBeAg-negative or above 20,000 IU/mL for HBeAg-positive patients), ALT is elevated (indicating active liver injury), and/or significant fibrosis is present on biopsy. This patient meets multiple treatment criteria with a viral load of 45,000 IU/mL, elevated ALT, HBeAg positivity, and moderate fibrosis. Entecavir and tenofovir are preferred first-line agents due to high potency and high genetic barrier to resistance. The goal of treatment is sustained viral suppression to prevent progression to cirrhosis and hepatocellular carcinoma. Treatment is typically long-term or lifelong.

43. D. Chronic mesenteric ischemia (intestinal angina). Chronic mesenteric ischemia results from progressive atherosclerotic narrowing of the mesenteric arteries (celiac, SMA, IMA), producing postprandial abdominal pain (intestinal angina) from inadequate blood flow to meet the metabolic demands of digestion. The classic triad includes postprandial pain (typically 15-30 minutes after eating), weight loss from fear of eating (sitophobia), and an abdominal bruit. Diagnosis requires imaging demonstrating significant stenosis in at least two of three mesenteric vessels (single-vessel disease rarely causes symptoms due to collateral circulation). Treatment is revascularization through surgical bypass or endovascular stenting.

44. B. Intravenous antibiotics targeting gram-negative organisms with consideration for necrosectomy. Infected pancreatic necrosis is a serious complication of acute necrotizing pancreatitis with high mortality (20-40%). Infection is suspected when clinical deterioration occurs (new fever, rising

WBC) typically after the first week, and is confirmed by CT-guided fine needle aspiration showing organisms on Gram stain or culture. Treatment includes broad-spectrum IV antibiotics (carbapenems have the best pancreatic tissue penetration) and delayed necrosectomy (preferably after 4 weeks to allow demarcation and walling-off of necrosis). The step-up approach — progressing from antibiotics to percutaneous drainage to minimally invasive necrosectomy — is preferred over immediate open surgery.

45. A. Ulcerative colitis. Primary sclerosing cholangitis is strongly associated with inflammatory bowel disease, with approximately 70-80% of PSC patients having concurrent ulcerative colitis (PSC-UC). The association is so strong that all patients diagnosed with PSC should undergo colonoscopy to screen for IBD even without GI symptoms. The "beads-on-a-string" appearance on MRCP from alternating strictures and dilations of the bile ducts is characteristic of PSC. PSC itself is a risk factor for cholangiocarcinoma, and the combination of PSC and UC increases colorectal cancer risk, requiring annual surveillance colonoscopy. There is no proven medical therapy that alters PSC progression, and liver transplantation is the definitive treatment for advanced disease.

46. C. Non-selective beta-blocker (propranolol or nadolol) or endoscopic variceal ligation. Primary prophylaxis to prevent first variceal hemorrhage is indicated for patients with medium to large varices or varices with red wale markings (indicating high rupture risk). The two evidence-based strategies are non-selective beta-blockers (propranolol or nadolol, which reduce portal pressure by decreasing cardiac output and splanchnic blood flow) or endoscopic variceal ligation (banding). Both strategies have similar efficacy in reducing first bleeding episodes. TIPS is reserved for secondary prophylaxis after variceal bleeding refractory to medical and endoscopic therapy. Sclerotherapy is no longer recommended for primary prophylaxis due to higher complication rates compared to banding.

47. D. Complete polypectomy or surgical resection if endoscopic removal is not feasible. Villous adenomas with high-grade dysplasia represent the highest-risk premalignant colorectal polyps with approximately 40% harboring or progressing to invasive carcinoma. Complete removal is essential for both diagnostic (to assess for invasive carcinoma in the entire specimen) and therapeutic purposes. Large sessile polyps may require piecemeal endoscopic mucosal resection (EMR) or endoscopic submucosal dissection (ESD), and surgical resection is indicated when endoscopic removal is incomplete or not feasible. Surveillance colonoscopy intervals are accelerated after high-risk adenoma removal — typically 6 months to verify complete removal, then 1 year, then 3 years.

48. B. Pancreatic enzyme replacement therapy with meals. Exocrine pancreatic insufficiency from chronic pancreatitis results in maldigestion and steatorrhea due to inadequate pancreatic lipase, protease, and amylase secretion. Severely reduced fecal elastase (below 100 μg/g) confirms the diagnosis. Pancreatic enzyme replacement therapy (PERT) containing lipase as the critical component is taken with each meal and snack to replace the missing digestive enzymes. A PPI may be added to prevent gastric acid degradation of the enzymes. The new-onset diabetes reflects endocrine pancreatic insufficiency (destruction of islet cells). Patients also require fat-soluble vitamin supplementation (A, D, E, K) and alcohol cessation.

49. A. Eosinophilic esophagitis. EoE is a chronic, immune-mediated esophageal disease characterized by eosinophil-predominant inflammation causing esophageal dysfunction. It predominantly affects young men with atopic conditions (asthma, allergies, eczema). Endoscopic findings include concentric mucosal rings ("trachealization" or "feline esophagus"), linear furrows, white exudates (eosinophilic microabscesses), and narrow-caliber esophagus. Histologic diagnosis requires 15 or more eosinophils per high-power field in esophageal mucosal biopsies. Treatment options include PPI therapy (many patients respond), swallowed topical corticosteroids (fluticasone, budesonide), elimination diets (six-food elimination or targeted elimination), and esophageal dilation for symptomatic strictures.

50. C. Multiphasic contrast-enhanced CT or MRI of the liver. A liver mass discovered on surveillance ultrasound in a cirrhotic patient requires characterization with multiphasic contrast-enhanced CT or MRI. Hepatocellular carcinoma has a distinctive enhancement pattern — arterial phase hyperenhancement followed by washout in the portal venous or delayed phase — that allows non-invasive diagnosis without biopsy in the setting of cirrhosis (LI-RADS classification). The elevated AFP supports the diagnosis but alone is insufficient. Percutaneous biopsy carries risks of bleeding and tumor seeding and is reserved for lesions with indeterminate imaging characteristics. Treatment options based on staging include resection, liver transplantation (within Milan criteria), locoregional therapies (ablation, TACE), and systemic therapy.

51. D. Collagenous colitis (microscopic colitis). Microscopic colitis encompasses two subtypes — collagenous colitis (thickened subepithelial collagen band greater than 10 μm) and lymphocytic colitis (increased intraepithelial lymphocytes without collagen thickening). Both present with chronic, painless, watery, non-bloody diarrhea with a grossly normal-appearing colon on endoscopy — random biopsies are essential for diagnosis. Microscopic colitis predominantly affects middle-aged to elderly women and is associated with autoimmune conditions and medications (NSAIDs, PPIs, SSRIs). First-line treatment is oral budesonide, which achieves clinical remission in approximately 80% of patients.

52. B. Hereditary hemochromatosis. Hereditary hemochromatosis is an autosomal recessive disorder (most commonly from C282Y mutation of the HFE gene) causing excessive intestinal iron absorption and progressive iron deposition in parenchymal organs. The classic triad of "bronze diabetes" includes skin hyperpigmentation, diabetes mellitus (from pancreatic iron deposition), and hepatomegaly/cirrhosis. Additional manifestations include arthropathy (characteristically involving the second and third MCP joints), hypogonadism, and cardiomyopathy. Diagnosis is suggested by elevated transferrin saturation (above 45%) and confirmed by HFE genetic testing. Treatment is therapeutic phlebotomy targeting serum ferritin below 50 ng/mL.

53. A. Markedly elevated transaminases with a relatively modest elevation in alkaline phosphatase. Acute viral hepatitis produces a hepatocellular injury pattern characterized by markedly elevated aminotransferases (often greater than 1000 U/L, sometimes exceeding 10,000) reflecting massive hepatocyte necrosis, with relatively modest elevation of alkaline phosphatase. This "hepatocellular" pattern (AST/ALT much greater than ALP) contrasts with the "cholestatic" pattern (ALP elevated out of proportion to transaminases) seen in biliary obstruction, drug-induced cholestasis, and infiltrative liver

disease. In this case, AST 1800 and ALT 2200 with ALP only mildly elevated at 120 is a classic acute hepatocellular injury pattern consistent with acute viral hepatitis.

54. C. Referral for liver transplant evaluation. Liver transplantation is the definitive treatment for decompensated cirrhosis (Child-Pugh Class C) refractory to medical management. A MELD score of 22 exceeds the threshold for transplant listing (generally MELD ≥15). Recurrent decompensation events (refractory ascites requiring repeated large-volume paracentesis, recurrent SBP) indicate progressive hepatic failure with poor prognosis without transplantation. The median survival for Child-Pugh C cirrhosis without transplant is approximately 1-2 years. For alcohol-related liver disease, most transplant programs require a period of documented abstinence (traditionally 6 months, though this is evolving). This patient's 8-month abstinence period meets standard criteria.

55. D. Primary sclerosing cholangitis. PSC is a chronic cholestatic liver disease characterized by inflammation, fibrosis, and stricturing of intrahepatic and/or extrahepatic bile ducts. The "beads-on-a-string" pattern on MRCP (alternating strictures and dilations) is the radiographic hallmark. PSC predominantly affects young to middle-aged men and is strongly associated with ulcerative colitis (70-80% of PSC patients have concurrent UC). P-ANCA positivity supports the diagnosis. Unlike primary biliary cholangitis (which has positive AMA), PSC has no specific diagnostic serologic marker. PSC carries a lifetime risk of cholangiocarcinoma of approximately 10-15%. Ursodeoxycholic acid may improve biochemical parameters but has not been proven to alter disease progression. Liver transplantation is the only curative treatment.