Gastroenterology and Hepatology:Question 1

A 28-year-old man has a 2-week history of watery stools and a 2.2-kg (5.0-Ib) weight loss. He has not traveled recently or taken antibiotics. The patients father has a history of 'inflammatory bowel disease." Physical examination reveals hyperactive bowel sounds and diffuse, mild abdominal tenderness without guarding. Stool cultures show no growth.

Which of the following would most strongly support the diagnosis of Crohns disease rather than ulcerative colitis in this patient?

A. Positive assay for antisaccharomyces cerevisiae antibody (ASCA); negative assay for perinuclear antineutrophil cytoplasmic antibody (p-ANCA)

B. Barium enema examination showing inflammation of the most distal 4 cm of ileum

C. Small bowel radiograph series showing inflammation of the most distal 4 cm of ileum

D. Colonic biopsy specimens showing mucosal and submucosal inflammation and crypt abscesses

E. The patients reporting that he stopped smoking 3 or 4 weeks ago

Gastroenterology and Hepatology:Question 2

A 21-year-old female college student has a 1-week history of malaise, anorexia, nausea, and vomiting. Three weeks ago, she returned from Guatemala, where she had engaged in missionary work.

On physical examination, temperature is 37.9 C (100.2 F). There is mild jaundice and a palpable, tender liver.

Laboratory studies:

Hematocrit	48%
Leukocyte count	9000/µL (normal differential)
INR	1.0
Serum alkaline phosphatase	110 U/L
Serum aspartate aminotransferase	1100 U/L
Serum alanine aminotransferase	1700 U/L
Serum total bilirubin	3.0 mg/dL

Which of the following laboratory tests is most likely to establish the diagnosis?

A. Antibody to hepatitis B surface antigen (anti-HBs)

B. Antibody to hepatitis C virus (anti-HCV)

C. Indirect hemagglutination test for Entamoeba histolytica

D. IgM antibody to hepatitis A virus (1gM anti-HAV)

E. Epstein-Barr virus DNA

Gastroenterology and Hepatology:Question 3

An otherwise healthy 28-year-old man has a 4-month history of epigastric discomfort and heartburn. Symptoms are usually exacerbated postprandially, especially after eating spicy foods. The patient denies dysphagia, weight loss, and decreased appetite. He has an active lifestyle and takes no medications. Physical examination is normal except for mild epigastric tenderness. Routine laboratory studies are normal.

Which of the following is most appropriate at this time?

A. Upper endoscopy

B. Esophageal manometry

C. Ambulatory 24-hour esophageal pH monitoring

D. Barium swallow

E. Trial of acid suppressive therapy

Gastroenterology and Hepatology:Question 4
A 46-year-old man with a history of alcoholism and known cirrhosis comes to the emergency department because of the abrupt onset of hematemesis. On physical examination, he is obtunded and confused. Temperature is 37.7 C (99.9 F), pulse rate is 100/min and regular, respiration rate is 20/min, and blood pressure is 90/60 mm Hg. He is not jaundiced. Rectal examination discloses black, tarry stool in the rectal vault. Hemoglobin is 10.6 g/dL, the platelet count is 70,000/µL, the INR is 2.4, and serum albumin is 3.0 g/dL.
Which of the following has the lowest priority in the initial management of this patient?
A. Immediate upper endoscopy
B. Fluid resuscitation
C. Endotracheal intubation
D. Transfer to the intensive care unit

Gastroenterology and Hepatology:Question 5
A 55-year-old man with chronic hepatitis C is being considered for liver transplantation. The patient has cirrhosis that was documented by liver biopsy 10 years ago. For the past 3 months, he has had ascites and edema, which are poorly controlled with diuretics. Lactulose was recently begun because of confusion.
Which of the following combinations of laboratory studies will be most helpful in estimating his survival over the next 6 months?
A. Serum total bilirubin and INR
B. Serum aspartate aminotransferase and gamma globulin
C. Serum alanine aminotransferase and hepatitis C RNA (HCV RNA)
D. Serum alkaline phosphatase and ammonia
E. Serum albumin and γ-glutamyltransferase

Gastroenterology and Hepatology:Question 6
A 52-year-old man comes for a routine physical examination. He feels well, has no significant medical history, takes no medications, and has no family history of colorectal cancer. Physical examination and complete blood count are normal. He returns three fecal occult blood test cards (six windows), and one window tests positive for occult blood.
Which of the following should be done next?
A. Colonoscopy
B. Flexible sigmoidoscopy
C. Barium enema examination
D. Digital rectal examination
E. Repeat fecal occult blood test

Gastroenterology and Hepatology:Question 7
A 71-year-old woman is hospitalized because of acute pancreatitis complicated by acute respiratory distress syndrome and hypotension. On the sixth day in the intensive care unit, her temperature increases to 38.2 C (100.8 F), and her leukocyte count increases to 16,000/µL. A CT scan of the abdomen with a rapid intravenous bolus of contrast shows hypodense, nonenhancing areas involving at least 50% of the pancreas. There is significant peripancreatic inflammation with diffuse pancreatic enlargement and fluid in the right perinephric space. The gallbladder is contracted and contains several small stones. The bile duct is not dilated.
Which of the following is most appropriate at this time?
A. Imipenem
B. A fluoroquinolone

C. Cholecystectomy
D. Total parenteral nutrition
E. Therapeutic endoscopic retrograde cholangiopancreatography

Gastroenterology and Hepatology:Question 8
A 32-year-old man has bloody diarrhea of 1 day's duration associated with abdominal pain, fever, and small, frequent stools. He was previously well.
Which of the following pathogens is most likely causing this patient's acute illness?
A. Giardia lamblia
B. Cryptosporidium
C. Campylobacter jejuni
D. Rotavirus
E. Enterotoxigenic Escherichia coli

Gastroenterology and Hepatology:Question 9
A 40-year-old woman is found to have abnormal liver chemistry test results during an evaluation for abnormal uterine bleeding. The patient states that she has had a dry mouth and mild pruritus for the past year. She does not drink alcoholic beverages and takes no medications. Physical examination shows only an enlarged, firm liver.
Laboratory studies:

Serum alkaline phosphatase	741 U/L
Serum aspartate aminotransferase	100 U/L
Serum alanine aminotransferase	150 U/L
Serum total bilirubin	1.4 mg/dL
Serum direct bilirubin	0.8 mg/dL

Serologic studies for hepatitis A, B, and C Negative
Abdominal ultrasonography shows no focal hepatic lesions.
Which of the following diagnostic studies is most likely to determine the cause of her abnormal liver chemistry test results?
A. Transferrin saturation
B. Antimitochondrial antibody titer
C. α1-Antitrypsin phenotype
D. Serum ceruloplasmin level
E. Anti-smooth muscle antibody titer

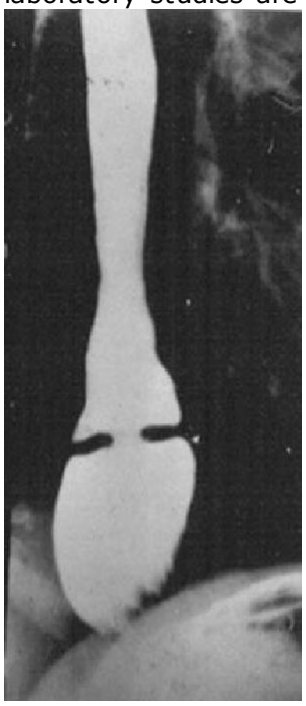
Gastroenterology and Hepatology:Question 10
A 27-year-old man with AIDS develops right-sided abdominal pain and nausea. His last CD4 cell count was 180/μL. On physical examination, he is afebrile. Abdominal examination discloses hepatomegaly and moderate epigastric and right upper quadrant tenderness.
Laboratory studies:

Serum aspartate aminotransferase	57 U/L
Serum alanine aminotransferase	59 U/L
Serum alkaline phosphatase	590 U/L
Serum total bilirubin	2.8 mg/dL
Serum albumin	3.3 g/dL

Abdominal ultrasonography shows common bile duct dilatation to 12 mm. No stones are seen in the common bile duct or gallbladder.
Which of the following diagnostic studies should be done next?
A. Liver biopsy
B. CT scan of the abdomen
C. Endoscopic retrograde cholangiopancreatography

D. Percutaneous transhepatic cholangiography

Gastroenterology and Hepatology:Question 11
An otherwise healthy 42-year-old man has a 3-month history of dysphagia for solid foods. Symptoms occur approximately twice weekly, especially when the patient eats rapidly. Hard bread and tough meats are particularly bothersome. He denies heartburn or weight loss. The patient exercises regularly, does not smoke or drink alcoholic beverages, and takes no medications. Physical examination and routine laboratory studies are normal. A barium swallow is shown.



Which of the following is the most likely diagnosis?
A. Esophageal adenocarcinoma
B. Esophageal squamous cell carcinoma
C. Achalasia
D. Schatzki's ring
E. Barretts esophagus

Gastroenterology and Hepatology:Question 12
A 35-year-old man and his 29-year-old girlfriend went to a buffet restaurant. They ate various foods between 6 p.m. and 8 p.m., including meat, seafood, and dairy dishes. The man awakened at 9 am. the next morning with watery diarrhea. He also had gas pains and nausea and vomited once. His girlfriend developed diarrhea later that morning. Both recovered completely within 24 hours.
Which of the following most likely caused their acute illness?
A. Staphylococcal enterotoxin
B. Hepatitis A virus
C. Clostridium perfringens
D. Campylobacter jejuni
E. Listeria monocytogenes

Gastroenterology and Hepatology:Question 13
A 25-year-old female injection drug user comes to the emergency department

because of a 10-day history of progressive malaise and fatigue, anorexia, and abdominal discomfort. The patient uses intravenous heroin on a daily basis and drinks approximately 2 to 3 cans of beer daily.
Physical examination discloses jaundice and a tender, enlarged liver. There are no other stigmata of chronic liver disease.
Laboratory studies:
Complete blood count Normal
INR1.1
Serum alkaline phosphatase 120 U/L
Serum aspartate aminotransferase 1250 U/L
Serum alanine aminotransferase 2120 U/L
Serum total bilirubin 3.5 mg/dL
Serum albumin 3.6 g/dL
Hepatitis B surface antigen (HBSAg) Negative
IgM antibody to hepatitis A virus (1gM anti-HAV) Negative
Antibody to hepatitis C virus (anti-HCV) Negative
IgM antibody to hepatitis B core antigen (1gM anti-HBc) Negative
Which of the following tests is the most likely to establish the diagnosis?
A. lgG antibody to hepatitis A virus (IgG anti-HAV)
B. lgG antibody to hepatitis B core antigen (IgG anti-HBc)
C. Hepatitis C virus RNA (HCV RNA)
D. Antibody to hepatitis B surface antigen (anti-HBs)
E. Antimitochondrial antibody titer

Gastroenterology and Hepatology:Question 14
A 51-year-old Hispanic man is evaluated because of severe epigastric pain, nausea, and vomiting. Abdominal examination discloses epigastric tenderness. On rectal examination, a stool specimen is positive for occult blood.
Laboratory studies:
Hemoglobin 15.3 g/dL
Leukocyte count 10,400/µL
Serum calcium 9.8 mg/dL
Serum electrolytes:
Sodium 136 meq/L
Potassium 3.1 meq/L
Chloride 90 meq/L
Bicarbonate 35 meq/L
Serum aspartate aminotransferase 104 U/L
Serum alanine aminotransferase 78 U/L
Serum alkaline phosphatase 216 U/L
Serum lipase 14 U/L
Serum total bilirubin 0.4 mg/dL
Serum albumin 3.7 g/dL
A CT scan of the abdomen shows thickened gastric mucosa. Upper endoscopy discloses duodenal ulcerations extending into the second portion of the duodenum and thickened gastric folds in the fundus. A fasting gastrin level is 520 pg/mL Basal acid output is markedly elevated.
In addition to starting a proton pump inhibitor, which of the following should be done next?
A. Endoscopic ultrasonography
B. Octreotide scan
C. Exploratory laparotomy
D. Mesenteric venous sampling for gastrin

E. Pentagastrin stimulation of maximal acid output

Gastroenterology and Hepatology:Question 15
A 21-year-old man develops a thin, yellow-white discharge from the perirectal area. Crohns colitis was diagnosed 1 year ago, after the patient developed bloody diarrhea. Colonic biopsy specimens at that time showed noncaseating granulomas and inflammation extending from the mucosa to the muscularis. He initially responded to a short course of corticosteroids and has taken high-dose sulfasalazine ever since. However, his bloody diarrhea recurred 1 month ago, followed by development of the perirectal discharge. A barium enema examination is obtained, which shows an enterocutaneous fistula originating in the sigmoid colon.
Which of the following medications is most likely to induce closure of the fistula within 4 to 6 weeks?
A. Intravenous infliximab infusions
B. Oral cyclosporine
C. A transdermal nicotine patch
D. Oral 6-mercaptopurine
E. Intramuscular methotrexate injections

Gastroenterology and Hepatology:Question 16
A 32-year-old woman has a 4-month history of hoarseness and throat clearing. Evaluation by an otolaryngologist disclosed laryngeal inflammation suggestive of gastroesophageal reflux disease, and the patient is referred to you. She is otherwise asymptomatic and denies heartburn, regurgitation,
dysphagia, and weight loss. The patient maintains an active lifestyle and currently takes no medications. Physical examination and routine laboratory studies are normal.
Which of the following should be done next?
A. Upper endoscopy
B. Esophageal manometry
C. Ambulatory 24-hour esophageal pH monitoring
D. Barium swallow
E. Trial of acid suppressive therapy

Gastroenterology and Hepatology:Question 17
An 80-year-old woman comes to the emergency department because of an acute episode of painless lower gastrointestinal bleeding. Physical examination discloses orthostatic hypotension. Anorectal examination is normal except for the presence of gross blood in the rectal vault. Nasogastric aspirate contains copious bile but no blood.
Which of the following is the most likely diagnosis?
A. Bleeding internal hemorrhoids
B. Diverticulosis
C. Vascular malformation
D. Ischemic colitis
E. Colorectal adenoma or adenocarcinoma

Gastroenterology and Hepatology:Question 18
A 66-year-old man has a 6-month history of dyspepsia without dysphagia or weight loss. Although his symptoms previously responded to antacids and over-the-counter H2-receptor antagonists, these medications have been ineffective for the past 2 months. Physical examination and complete blood count are normal.
Which of the following is the most appropriate next step in the management of this

patient?
A. Serologic testing for Helicobacter pylori
B. CT scan of the abdomen
C. Upper endoscopy
D. Radionuclide gastric emptying study
E. An 8-week trial of a proton pump inhibitor

Gastroenterology and Hepatology:Question 19

A 52-year-old white man is evaluated because of an enlarged liver. He is asymptomatic and has no prior history of liver disease. The patient takes no medications and has one or two alcoholic drinks daily. There is no family history of liver disease.

On physical examination, he appears well. Vital signs are normal. There is no jaundice and no cutaneous manifestations of liver disease. On abdominal examination, the liver is firm and enlarged; the spleen is not palpable. There is no ascites or edema.

Laboratory studies:

Hematocrit	45%
Leukocyte count	5200/µL
Platelet count	250,000/µL
Transferrin saturation	65% (normal: 20%-50%)
Serum ferritin	1200 ng/mL
Serum alkaline phosphatase	80 U/L
Serum aspartate aminotransferase	50 U/L
Serum alanine aminotransferase	65 U/L
Serum total bilirubin	1.0 mg/dL
Serum albumin	4.0 g/dL
Serologic studies for hepatitis A, B, and C	Negative
Antinuclear antibody	Negative

Liver biopsy specimens show extensive iron deposition in the periportal hepatocytes. There is no increase in fibrosis. Genetic testing for hereditary hemochromatosis is ordered.

Which of the following genetic test results is most likely in this patient?
A. Homozygous for H63D mutation
B. Homozygous for C282Y mutation
C. Heterozygous for C282Y mutation
D. Compound heterozygous for C282Y/H63D mutations
E. No mutation

Gastroenterology and Hepatology:Question 20

A 58-year-old black woman is evaluated because of fatigue and increasing dyspnea on exertion. She began menopause approximately 6 years ago and is taking hormone replacement therapy for debilitating hot flashes. Medical history is otherwise noncontributory. She does not take any other medications, eats a well-balanced diet, and has not lost weight. Although she goes for yearly mammograms, she has put off being screened for colorectal cancer. There is no family history of colorectal cancer.

Significant findings on physical examination are conjunctival pallor and a faint systolic flow murmur. Laboratory studies:

Hematocrit	30%
Mean corpuscular volume	72 fL
Serum ferritin	2 ng/mL
Serum transferrin saturation	10% (normal: 15% to 55%)

Serum electrolytes	Normal
Liver chemistry tests	Normal
Renal function tests	Normal
Urinalysis	Normal
Fecal occult blood test (six windows)	Normal

Which of the following should be done next?
A. Upper endoscopy
B. Colonoscopy
C. Barium enema examination
D. Flexible sigmoidoscopy
E. CT of the abdomen and pelvis

Gastroenterology and Hepatology:Question 21
A 53-year-old man with a history of recurrent alcoholic pancreatitis develops hematemesis and melena.
On physical examination, pulse rate is 136/min, and blood pressure is 82 mm Hg systolic. Abdominal examination is normal. Hemoglobin is 8.2 g/dL, INR is 1.1, and liver chemistry studies are normal. Nasogastric lavage shows fresh blood.
The patient is stabilized with intravenous fluids and packed red blood cells, following which upper endoscopy is performed. Endoscopic findings include varices of the gastric fundus and cardia and fresh blood in the stomach. No esophageal varices or other sources of bleeding are identified.
Which of the following is most appropriate at this time?
A. Repeat upper endoscopy with banding of varices
B. Transjugular intrahepatic portosystemic shunt (TIPS)
C. Splenectomy
D. Administration of β-blockers
E. Surgical portacaval shunt

Gastroenterology and Hepatology:Question 22
A 36-year-old woman with a long history of Crohns disease develops moon facies, a hump on the back of her neck, and hyperglycemia. She has been taking varying doses of prednisone for the past 3 years, but has been unable to stop prednisone completely without an exacerbation of the Crohns disease.
Which of the following is the most effective therapy for providing long-term improvement in this patient's new symptoms?
A. Changing from prednisone to budesonide
B. Adding 6-mercaptopurine; eventual tapering of the prednisone
C. Adding cyclosporine; eventual tapering of the prednisone
D. Adding metronidazole; eventual tapering of the prednisone
E. Changing to an every-other-day dose of prednisone

Gastroenterology and Hepatology:Question 23
A 63-year-old man comes to the emergency department because of significant epigastric pain, nausea, and fever of 24 hours duration. On physical examination, the patient is jaundiced. Temperature is 38.5 C (101.3 F), pulse rate is 100/min, and blood pressure is 100/68 mm Hg. Abdominal examination discloses significant right upper quadrant tenderness.
Laboratory studies:

Leukocyte count	12,100/μL.
Serum alkaline phosphatase	315 U/L
Serum aspartate aminotransferase	103 U/L
Serum alanine aminotransferase	117 U/L

Serum lipase 240 U/L
Serum total bilirubin 2.9 mg/dL
Abdominal ultrasonography shows an 11-mm common bile duct and a gallbladder containing multiple stones.
Which of the following is the most appropriate next step in this patient's management?
A. Intravenous antibiotics
B. Intravenous antibiotics and immediate cholecystectomy
C. Magnetic resonance cholangiopancreatography
D. CT scan of the abdomen

Gastroenterology and Hepatology:Question 24
A 50-year-old man undergoes colorectal cancer screening. He feels well, has no significant medical history, takes no medications, and has no family history of colorectal cancer. Physical examination and complete blood count are normal.
Which of the following is the most appropriate screening program for colorectal cancer in this patient?
A. Fecal occult blood testing every 2 to 3 years
B. Flexible sigmoidoscopy every 2 to 3 years
C. Barium enema examination every 3 years
D. Colonoscopy every 10 years
E. CT colonography (virtual colonoscopy) every 10 years

Gastroenterology and Hepatology:Question 25
A 20-year-old woman has had anorexia and fatigue for approximately 3 months but did not seek medical advice until her urine became dark. She takes no medications and has no risk factors for viral hepatitis.
On physical examination, she appears well except for jaundice. Mental status is normal. No Kayser-Fleischer rings are seen on ophthalmologic examination. The liver is slightly enlarged and tender; the spleen is not palpable. No ascites or edema is present.
Laboratory studies:
Complete blood count Normal
INR 1 .1
Serum alkaline phosphatase 155 U/L
Serum aspartate aminotransferase 1739 U/L
Serum alanine aminotransferase 2249 U/L
Serum total bilirubin 5.0 mg/dL
Serum direct bilirubin 3.5 mg/dL
Serum albumin 3.0 gIdL
Serologic studies for hepatitis A, B, and C Negative
At a return office visit 2 weeks later, serum aminotransferase values are unchanged, and serum total bilirubin is 8.0 mg/dL.
Additional laboratory studies are as follows:
Serum ceruloplasmin 32 mg/dL (normal: 18-45 mg/dL)
Antinuclear antibody<1:80
Antimitochondrial antibody<1:20
Anti-smooth muscle antibody 1:160
Liver biopsy specimens show a dense portal infiltrate consisting of lymphocytes and plasma cells with interface hepatitis and bridging fibrosis.
Which of the following is the most appropriate therapy at this time?
A. Ursodeoxycholic acid (ursodiol)
B. Penicillamine

C. Azathioprine
D. Prednisone
E. No therapy is indicated

Gastroenterology and Hepatology:Question 26
A 58-year-old white man has a 2-month history of dysphagia for solid foods. He has lost 6.7 kg (15 Ib) during this time. The patient has chronic heartburn that is relieved by antacids. He also has hypertension for which he takes atenolol and diltiazem.
Which of the following is the most likely diagnosis?
A. Infectious esophagitis
B. Pill-induced esophagitis
C. Esophageal web
D. Esophageal adenocarcinoma
E. Schatzkis ring

Gastroenterology and Hepatology:Question 27
A 45-year-old woman is evaluated because of epigastric fullness, bloating, and nausea of several months' duration. Antacids and an over-the-counter H2-receptor antagonist do not control her symptoms. Physical examination, routine laboratory studies, upper endoscopy, and abdominal ultrasonography are normal. Rapid urease testing of gastric mucosal biopsy specimens obtained at endoscopy is positive.
Which of the following should be done next?
A. Confirmation of the positive urease test by serologic studies for Helicobacter pylori
B. A course of therapy for eradication of H.pylori
C. A trial of a proton pump inhibitor
D. A trial of metoclopramide
E. A radionuclide gastric emptying study

Gastroenterology and Hepatology:Question 28
A 76-year-old man, who is in a rehabilitation facility after fracturing a leg, develops acute diarrhea. He has no history of intestinal disorders. The patient has regular colonoscopic screenings. His last colonoscopy, done 2 years ago, was normal. He has not received antibiotics in the past year. His roommate is taking oral metronidazole for a diarrheal syndrome that he developed while in the rehabilitation facility.
Use of which of the following would most likely have prevented development of the patients diarrheal syndrome?
A. Good hand-washing technique
B. Prophylactic antibiotics
C. Prophylactic probiotic agents
D. Prophylactic loperamide

Gastroenterology and Hepatology:Question 29
A 25-year-old woman is evaluated because of frequent headaches, epigastric and right upper quadrant abdominal pain, and ankle swelling. She is in the 36th week of her first pregnancy, which has been uncomplicated until now.
On physical examination, blood pressure is 160/100 mm Hg. The uterus is enlarged, consistent with the third trimester of pregnancy. Abdominal examination is otherwise normal. Peripheral edema is present.
Laboratory studies:
Hemoglobin 10.1 g/dL
Hematocrit 30%
Platelet count 57,000/ µL

Serum aspartate aminotransferase 200 U/L
Serum total bilirubin 1.5 mg/dL
Peripheral blood smear Schistocytes and burr cells
Which of the following is the most important management option for this patient at this time?
A. Plasmapheresis
B. Intravenous immunoglobulin
C. Evaluation for liver transplantation
D. Intravenous ciprofloxacin
E. Delivery of the fetus

Gastroenterology and Hepatology:Question 30
A 27-year-old man is evaluated because of two episodes of painless melena, the last of which occurred 6 hours ago. He has been taking naproxen for the past 6 weeks for a sports-related shoulder injury. Medical history is otherwise noncontributory.
On physical examination, temperature is 36.0 C (96.8 F), pulse rate is 98/min and regular, respiration rate is 18/min, and blood pressure is 104/89 mm Hg without orthostatic changes. Digital rectal examination discloses very dark stool that is positive for occult blood. Hemoglobin is 9.3 g/dL, leukocyte count is 10,800/µL, platelet count is 250,000/µL, and other routine laboratory studies are normal. Nasogastric aspirate is negative.
Which of the following should be done next?
A. Order red blood cell transfusion to achieve a hemoglobin value above 10 g/dL
B. Establish access with two intravenous lines and infuse isotonic saline, 500 mL/h for 6 to 8 hours; then reassess the hemoglobin value
C. Transfuse 6 units of platelets to correct the platelet dysfunction caused by naproxen
D. Perform upper endoscopy
E. Order an upper gastrointestinal series

Gastroenterology and Hepatology:Question 31
A 27-year-old woman is hospitalized because of acute-onset epigastric pain. The pain is worse after eating, is nonradiating, and is described as a dull ache that increases over a 30-minute period before reaching a plateau and then lasts for 2 to 3 hours before abating. This pain pattern has recurred eight times in the last 72 hours and is associated with nausea and vomiting but not with fever or chills. The patients eyes have been yellow for the past 24 hours. Medical history is noncontributory.
On physical examination, temperature is 37.3 C (99.2 F), pulse rate is 110/min, and blood pressure is 132/90 mm Hg. The sclerae are icteric. Abdominal examination discloses epigastric tenderness without hepatosplenomegaly, peritoneal signs, or Murphy's sign.
Laboratory studies:
Leukocyte count 10,000/ µ L (normal differential)
Serum total bilirubin 10.4 mg/dL
Serum direct bilirubin 5.8 mg/dL
Serum alkaline phosphatase 446 U/L
Serum aspartate aminotransferase 361 U/L
Serum alanine aminotransferase 389 U/L
Serum y-glutamyltransferase 485 U/L (normal: 2-30 U/L)
Serum amylase 42 U/L
Serum lipase 60 U/L
Abdominal ultrasonography shows multiple stones in the gallbladder, a common bile duct measuring 5 mm in diameter, a distal common hepatic duct measuring 9 mm in

diameter, dilated bilateral intrahepatic ducts, and no stones visualized in the bile duct. The gallbladder wall is not thickened. There is no pericholecystic fluid or sonographic Murphy's sign (a positive Murphy's sign that is elicited by palpating the abdomen with an ultrasound transducer).
Which of the following is the most likely explanation for this patient's jaundice?
A. Choledocholithiasis
B. Acute cholecystitis
C. Mirizzi's syndrome
D. Ascending cholangitis

Gastroenterology and Hepatology:Question 32
An 18-year-old man is evaluated because of severe diarrhea and cramping abdominal pain of 3 months' duration. Colonoscopy shows ulcerative colitis with moderate inflammatory changes from the rectum to the mid-transverse colon. Biopsy specimens show moderate chronic inflammation.
Which of the following will provide the optimal therapeutic regimen for this patient?
A. Oral prednisone followed by maintenance with oral sulfasalazine
B. Oral prednisone followed by maintenance with oral low-dose prednisone every other day
C. Oral prednisone followed by maintenance with oral budesonide
D. Intravenous cyclosporine followed by maintenance with oral 6-mercaptopurine
E. Intravenous cyclosporine followed by maintenance with oral sulfasalazine

Gastroenterology and Hepatology:Question 33
A 44-year-old male injection heroin user has a 5-day history of malaise, nausea, vomiting, right upper quadrant abdominal discomfort, and jaundice. He takes no medications and drinks about six cans of beer each day. He has not had any sexual contact for the past 18 months and has never traveled outside the United States. Review of his medical records shows normal serum aminotransferase values despite having repeated positive tests for hepatitis B surface antigen (HBSAg). Laboratory studies obtained 8 weeks ago were as follows:
Serum aspartate aminotransferase 24 U/L
Serum alanine aminotransferase 28 U/L
Hepatitis B virus DNA (HBV DNA) Undetectable
HBsAg Positive
Physical examination today discloses jaundice. The liver is mildly tender; liver span is 15 cm. Current laboratory studies:
Complete blood count Normal
Coagulation studies Normal
Serum alkaline phosphatase 117 U/L
Serum aspartate aminotransferase 900 U/L
Serum alanine aminotransferase 1050 U/L
Serum total bilirubin 7.8 mg/dL
Hepatitis B virus DNA (HBV DNA) Undetectable
Hepatitis B surface antigen (HBSAg) Positive
Hepatitis B e antigen (HBeAg) Negative
Antibody to hepatitis B e antigen (anti-HBe) Positive
Which of the following is the most likely cause of this patients current clinical presentation?
A. Hepatitis D virus superinfection
B. Hepatitis E virus infection
C. Acute Epstein-Barr virus hepatitis
D. Granulomatous hepatitis

E. Alcoholic hepatitis

Gastroenterology and Hepatology:Question 34
A 67-year-old woman had her first colonoscopy 1 month ago for routine colorectal cancer screening. A 6-mm tubular adenoma of the sigmoid colon was removed. She has no family history of colorectal cancer. She asks what can be done to decrease her risk of developing colorectal cancer.
Which of the following is the most appropriate surveillance for this patient?
A. Repeat colonoscopy in 1 year
B. Repeat colonoscopy in 5 years
C. Aspirin, 81 mg daily
D. A high-fiber, low-fat diet

Gastroenterology and Hepatology:Question 35
A 42-year-old man has a 6-week history of epigastric pain following meals and at night. The patient does not smoke cigarettes but does drink alcoholic beverages socially. He denies use of nonsteroidal anti-inflammatory drugs (NSAIDs) and aspirin. Physical examination and routine laboratory studies are normal.
A proton pump inhibitor is begun. One week later, upper endoscopy is performed, which shows a small, clean-based ulcer in the duodenal bulb. Rapid urease testing of an endoscopic gastric antral biopsy specimen is negative.
Which of the following is the most likely cause of this patient's ulcer?
A. Zollinger-Ellison syndrome
B. Helicobacter pylori infection
C. Duodenal adenocarcinoma
D. Alcohol consumption
E. Surreptitious NSAID use

Gastroenterology and Hepatology:Question 36
A 36-year-old woman has diarrhea of 6 weeks' duration. She has had six or seven high-volume bowel movements daily associated with urgency and has lost 1.3 kg (3.0 Ib) during this time. The patient is able to maintain adequate hydration.
Stool examination:

Leukocytes	Negative
Pathogens	Negative
Osmolality	290 mosm/kg
Sodium	100 meq/L
Potassium	40 meq/L

Which of the following is the most likely cause of this patient's diarrhea?
A. Lactose intolerance
B. Bacterial overgrowth syndrome
C. Hyperthyroidism
D. Chronic pancreatitis

Gastroenterology and Hepatology:Question 37
A 55-year-old man with a history of alcoholic cirrhosis is seen for a routine follow-up visit. He has no specific complaints and has not consumed alcoholic beverages for the past 5 years. The patient was last evaluated 18 months ago. At that time, ultrasonography of the liver was normal except for features of cirrhosis. His serum α-fetoprotein level was 19 ng/mL.
On physical examination, his mental status is normal and he is not jaundiced. Palmar erythema and a few spider angiomata are present. The abdomen is soft and nontender. The liver is firm and nontender; the spleen is palpable. No ascites or

edema is noted.
Laboratory studies:

Hematocrit	33%
Leukocyte count	4200/µL (normal differential)
Platelet count	90,000/µL
Serum alkaline phosphatase	130 U/L
Serum aspartate aminotransferase	45 U/L
Serum alanine aminotransferase	33 U/L
Serum total bilirubin	1.4 mg/dL
Serum α-fetoprotein	220 ng/mL

Ultrasonography of the liver shows features of cirrhosis and a 2-cm hypoechoic lesion in the right hepatic lobe. A triphasic CT scan shows that the lesion has arterial enhancement.
Which of the following is the most likely cause of this patient's focal hepatic defect?
A. Hepatic cyst
B. Hepatocellular carcinoma
C. Focal fatty infiltration of the liver
D. Hepatic hemangioma

Gastroenterology and Hepatology:Question 38
A 41-year-old woman has just undergone a right hemicolectomy for a mucinous cecal adenocarcinoma after being evaluated for iron deficiency anemia. She had a hysterectomy many years ago for uterine cancer but is otherwise healthy. Current physical examination is normal. Flexible sigmoidoscopy 2 years ago showed internal hemorrhoids but no mucosal abnormalities. Her mother died of uterine cancer at 54 years of age, and her maternal aunt had a colon cancer removed at 51 years of age. The aunt is alive and well. The patient has one child, a 22-year-old son. She asks your advice about the implications of her condition for herself and her son.
Which of the following should you tell her?
A. She should undergo genetic testing for a germline APC gene mutation
B. She should take a nonsteroidal anti-inflammatory drug or aspirin to prevent the development of subsequent colon cancers or polyps
C. Her syndrome is caused by a defect in a DNA mismatch repair gene
D. Because of her family history, her son should undergo colonoscopy starting at 40 years of age
E. Her son is not at increased risk for colon cancer because the syndrome affects only the women in her family

Gastroenterology and Hepatology:Question 39
A 63-year-old white man is hospitalized because of a 1-month history of severe epigastric pain. The pain initially occurred 4 weeks ago but then abated, and the patient did not seek medical attention. However, the pain recurred last week and is more severe now than initially. It is described as stabbing with radiation to the back, is worse after eating, and is not relieved by ranitidine. The patient also has nausea and vomiting. He denies fever, chills, weight loss, and early satiety. Medical and family history are noncontributory, and he does not drink alcoholic beverages.
On physical examination, temperature is 36.6 C (97.9 F), pulse rate is 110/min, and blood pressure is 146/92mm Hg. There is no jaundice. Abdominal examination shows epigastric tenderness. The liver and spleen are not enlarged.
Laboratory studies:

Hematocrit	44%
Leukocyte count	7000/µL (normal differential)
Serum calcium	8.6 mg/dL

Serum triglycerides 256 mg/dL
Serum total bilirubin 0.7 mg/dL
Serum albumin 4.0 g/dL
Serum alkaline phosphatase 106 U/L
Serum aspartate aminotransferase 19 U/L
Serum alanine aminotransferase 30 U/L
Serum amylase 123 U/L
Serum lipase 852 U/L

A CT scan of the abdomen shows an enlarged pancreatic head with peripancreatic inflammation and a small amount of fluid in the perirenal space. The body of the pancreas is atrophic with dilation of the main pancreatic duct to 5 mm. The splenic vein is not seen. A 7.2 X 7.8-cm collection of fluid and debris surrounded by a thin rim is present at the junction of the pancreatic head and neck.

The patient responds rapidly to intravenous fluids and narcotics. He tolerates a low-fat diet, although he continues to have some bloating and nausea.

Which of the following is the most appropriate management at this time?

A. Refer the patient for surgical drainage of the cyst
B. Refer the patient for surgical excision of the cyst
C. Perform fine-needle aspiration of the cyst
D. Repeat the CT scan in 6 weeks
E. Begin parenteral nutrition

Gastroenterology and Hepatology:Question 40

A 64-year-old woman with metastatic breast cancer develops new-onset constipation, difficulty defecating, and bloating. She is not taking any pain medications, and previous chemotherapy regimens usually resulted in diarrhea. Laboratory studies are ordered.

Which of the following laboratory results is most likely contributing to this patient's new symptoms?

A. Serum thyroid-stimulating hormone of 0.4 µU/mL
B. Serum calcium of 12.2 mg/dL
C. Serum sodium of 131 meq/L
D. Serum potassium of 5.2 meq/L

Gastroenterology and Hepatology:Question 41

A 40-year-old man comes to the emergency department because of a 1-month history of intermittent epigastric pain that abruptly increased several hours ago. He also reports intractable nausea and vomiting and had one episode of hematemesis this morning. Medical history is significant only for ankylosing spondylitis, for which he takes indomethacin.

On physical examination, the patient is lying quietly on his side with his legs flexed at the knees and hips. Temperature is 38.7 C (101 .7 F). Abdominal examination discloses tympany and diffuse tenderness to palpation and percussion in all four quadrants. A stool specimen is brown and is positive for occult blood.

Which of the following is the most likely diagnosis?

A. Gastropathy due to nonsteroidal anti-inflammatory drugs (NSAIDs)
B. An actively bleeding duodenal ulcer
C. A penetrating duodenal ulcer with pancreatitis
D. A pyloric channel ulcer with gastric outlet obstruction
E. A perforated peptic ulcer

Gastroenterology and Hepatology:Question 42

A 71-year-old man is evaluated because of nausea, vomiting, and upper abdominal

pain and distention of 2 days duration. He has no fever, chills, or jaundice.
On physical examination, he appears uncomfortable and has orthostatic hypotension. Abdominal examination discloses distention, tympany on percussion, and rushes on auscultation. Serum aspartate aminotransferase is 76 U/L, serum alanine aminotransferase is 64 U/L, and serum total bilirubin is 1.3 mgld L.
Plain radiographs of the abdomen show pneumobilia with multiple air-fluid levels in the jejunum. No free air is seen. Abdominal ultrasonography shows four gallstones measuring 2 to 4 cm. Because of pneumobilia, the biliary tree cannot be further visualized.
Which of the following is the most appropriate next step in this patient's management?
A. Cholecystectomy
B. Exploratory laparotomy for bowel obstruction
C. Endoscopic retrograde cholangiopancreatography
D. CT scan of the abdomen
E. Magnetic resonance cholangiopancreatography

Gastroenterology and Hepatology:Question 43
A 45-year-old woman is evaluated in the emergency department because of nausea and abdominal pain. She has not felt well for 3 weeks. One week ago, she noted that her urine had become dark. She is unable to eat because of anorexia and has developed right upper quadrant abdominal discomfort. Medical history is unremarkable.
On physical examination, vital signs and mental status are normal. The patient is jaundiced but has no other manifestations of liver disease. The liver is percussed over 10 cm in the midclavicular line and is tender to palpation. The spleen is not palpable. There is no ascites, edema, or asterixis.
Laboratory studies:

Hematocrit	38%
Leukocyte count	5200/µL (normal differential)
Platelet count	228,000/µL
INR	1.5
Serum creatinine	1.2 mg/dL
Serum alkaline phosphatase	80 U/L
Serum aspartate aminotransferase	2200 U/L
Serum alanine aminotransferase	2500 U/L
Serum total bilirubin	12.0 mgldL
Serum direct bilirubin	6.0 mg/dL
Serum albumin	3.4 g/dL
Serum acetaminophen	Undetectable
Urinalysis	Normal

The patient is hospitalized. Intravenous fluids are begun, and vitamin K is given subcutaneously. Serologic tests for hepatitis A, B, and C are negative, and serologic studies for autoimmune hepatitis are ordered. Ultrasonography shows a small liver without focal defects. The spleen is normal, and there is no ascites.
On the third hospital day, the patients serum total bilirubin level has increased to 20 mg/dL, and her INR is 3.0. Later that day, she becomes poorly responsive. Although she can be aroused, she does not answer questions appropriately and has marked asterixis. On physical examination, her pupils are equal and reactive, and there are no focal neurologic findings.
Which of the following is the most appropriate next step in managing this patient?
A. Neurologic consultation
B. CT scan of the head

C. Triphasic CT scan of the liver
D. Transjugular liver biopsy
E. Evaluation for liver transplantation

Gastroenterology and Hepatology:Question 44
A 43-year-old woman has a 1-day history of an acute diarrheal syndrome associated with mid-abdominal discomfort and bloating. She has no blood in her stool and has not taken antibiotics recently. The patient calls your office to request a prescription.
Which of the following should you prescribe?
A. A fluoroquinolone
B. Metronidazole
C. Tetracycline
D. Fluids and no specific antibiotics; request telephone follow-up in 24 to 48 hours

Gastroenterology and Hepatology:Question 45
A 55-year-old white man is evaluated because of a 2-month history of dysphagia for solid foods and a 7-kg (15-Ib) weight loss. He has had heartburn for many years that is relieved by antacids.
Which of the following should be done next?
A. Upper endoscopy
B. Esophageal manometry
C. Ambulatory 24-hour esophageal pH monitoring
D. Barium swallow
E. Trial of acid suppressive therapy

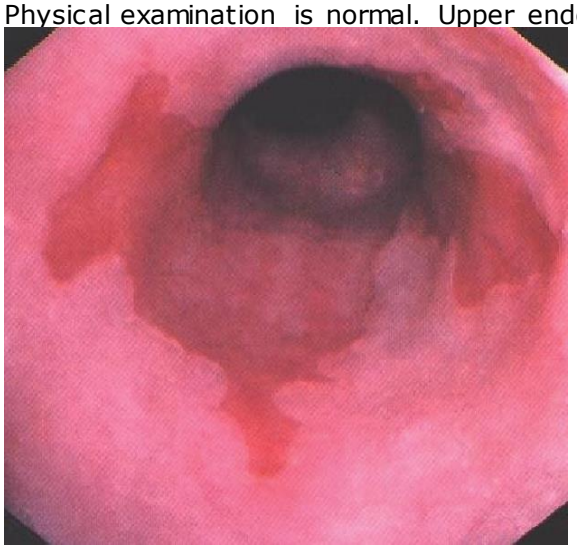
Gastroenterology and Hepatology:Question 46
A 30-year-old man comes to the emergency department because of a 1-week history of nausea, vomiting, arthralgias, and dark urine. The patient has a history of multiple sexually transmitted diseases. He drinks approximately two glasses of wine daily and denies the use of illicit drugs and over-the-counter or prescription medications. Physical examination reveals jaundice and a tender, enlarged liver. There are no other stigmata of chronic liver disease.
Laboratory studies:
Hematocrit 49%
Leukocyte count 11,000/µL (normal differential)
INR 1.1
Serum alkaline phosphatase 90 U/L
Serum aspartate aminotransferase 850 U/L
Serum alanine aminotransferase 1550 U/L
Serum total bilirubin 6.5 mg/dL
Which of the following laboratory studies is most likely to establish the correct diagnosis?
A. lgG antibody to hepatitis A virus (lgG anti-HAV)
B. 1gM antibody to hepatitis B core antigen (1gM anti-HBc)
C. lgG antibody to cytomegalovirus (lgG anti-CMV)
D. Antibody to hepatitis B surface antigen (anti-HBS)
E. Antibody to hepatitis B e antigen (anti-HBe)

Gastroenterology and Hepatology:Question 47
A 74-year-old woman has been deferring colon cancer screening because she is afraid to undergo colonoscopy. She learned of a new technique called virtual colonoscopy that she thinks may be more tolerable and asks you about the relative merits of this procedure.

Which of the following statements is true regarding virtual colonoscopy?
A. It is a noninvasive procedure that images the colon using ultrasound
B. It is more acceptable to patients because it does not require any bowel preparation
C. It detects colorectal cancers and large adenomas quite well, but may miss small polyps
D. Its sensitivity and specificity for detecting colon cancers and polyps is similar to that of conventional colonoscopy
E. It does not require any instrumentation of the bowel

Gastroenterology and Hepatology:Question 48
A 54-year-old woman has a 4-month history of diarrhea and a 4.5-kg (10.0-Ib) weight loss. She reports a childhood history of diarrhea.
Physical examination is normal. Routine laboratory studies show hypocalcemia, macrocytic anemia, and an increased prothrombin time. IgA anti-tissue transglutaminase antibody titer is positive. Bone densitometry reveals moderate osteoporosis. Upper endoscopy with small bowel biopsy is done. Biopsy specimens of the second portion of the duodenum show severe villous atrophy, crypt hyperplasia, and increased intraepithelial lymphocytes.
The patient is placed on a strict gluten-free diet, but her symptoms do not improve and she loses an additional 3.6 kg (8.0 Ib) in the subsequent 2 months.
Which of the following is the most likely reason that this patient is not responding to a gluten-free diet?
A. Presence of chronic pancreatitis
B. Development of intestinal lymphoma
C. Development of intestinal adenocarcinoma
D. Dietary noncompliance
E. Presence of ulcerative jejunitis

Gastroenterology and Hepatology:Question 49
A 57-year-old man has a 20-year history of epigastric discomfort and heartburn. The heartburn occurs both day and night. The patient denies dysphagia and weight loss. His only medication is an over-the-counter antacid.
Physical examination is normal. Upper endoscopy is performed; findings are shown.



Esophageal biopsy discloses intestinal metaplasia. A proton pump inhibitor is started, and the patient has an excellent response to therapy.
Which of the following is most appropriate for long-term management of this

patient?
A. Follow-up office visits every 4 to 6 months
B. Substitution of an H2-receptor antagonist for the proton pump inhibitor
C. Laparoscopic fundoplication
D. Upper endoscopy every 2 to 3 years
E. No follow-up is needed, as the patient is doing well

Gastroenterology and Hepatology:Question 50
A 65-year-old woman comes for a routine health maintenance visit. The patient has hyperlipidemia, hypertension, psoriasis, and chronic atrial fibrillation. Current medications are lovastatin (started 3 months ago), atenolol (started 18 months ago), methotrexate (started 6 months ago), and acetaminophen, 500 mg daily. She has no current complaints and does not drink alcoholic beverages.
Physical examination is remarkable only for an irregularly irregular heart rate and skin plaques over the extensor surfaces of her arms and legs.
Laboratory studies:

Complete blood count	Normal
INR	1.1
Serum alkaline phosphatase	75 U/L
Serum aspartate aminotransferase	469 U/L
Serum alanine aminotransferase	750 U/L
Serum total bilirubin	1.5 mg/dL
Serum albumin	4.1 g/dL

Which of the following is the most appropriate therapeutic intervention at this time?
A. Stop lovastatin
B. Stop atenolol
C. Stop methotrexate
D. Start N-acetylcysteine
E. No changes are necessary

Gastroenterology and Hepatology:Question 51
A 23-year-old man is evaluated because of dyspepsia of several months duration. Serologic studies for Helicobacter pylori are negative. Upper endoscopy reveals 10 to 15 small gastric polyps, primarily in the antrum. Endoscopic biopsy specimens show adenomatous polyps.
Which of the following is the most appropriate management at this time?
A. Serologic testing for herpes simplex virus type 1
B. H. pylori eradication therapy with follow-up endoscopy in 6 weeks
C. Administration of a selective COX-2 nonsteroidal anti-inflammatory drug
D. Colonoscopy

Gastroenterology and Hepatology:Question 52
A 24-year-old woman is scheduled to undergo flexible sigmoidoscopy because of bloody bowel movements of 4 days duration. She has had diarrhea for about 10 days, but 4 days ago she developed frequent, low-volume bloody stools that are associated with urgency. The patient has had episodic diarrhea for about 3 months, during which time she noted and ignored bloody bowel movements on four occasions.
Stool specimens obtained 3 days ago are negative for pathogens (including Salmonella, Shigella, Yersinia, Campylobacter, and Escherichia coli O157:H7). A complete blood count shows mild anemia; serum electrolytes are normal. The patient was found to be HIV negative 1 month ago, when she was tested as part of an insurance physical examination.

Flexible sigmoidoscopy with biopsy is performed. Sigmoidoscopic findings include inflammation from the rectum to 20 cm with no areas of normal intervening mucosa. Which of the following is the most likely diagnosis?
A. Ulcerative proctocolitis
B. Crohn's disease
C. Cytomegalovirus colitis
D. Ischemic colitis

Gastroenterology and Hepatology:Question 53
Which of the following tests will be most helpful in the evaluation of a patient with lower gastrointestinal bleeding who presents with massive hemorrhage and a negative nasogastric lavage?
A. Colonoscopy
B. Radionuclide bleeding scan
C. Upper endoscopy
D. Capsule endoscopy
E. Arteriography

Gastroenterology and Hepatology:Question 54
A 54-year-old man from Taiwan, who is visiting the United States, develops right upper quadrant abdominal pain of 12 hours duration accompanied by intermittent fever and nausea.
On physical examination, he is jaundiced and in moderate distress. Temperature is 38.6 C (101.5 F). There is significant right upper quadrant abdominal tenderness, and bowel sounds are decreased. The abdomen is not distended.
Laboratory studies:

Leukocyte count	15,000/µL
Serum alkaline phosphatase	280 U/L
Serum aspartate aminotransferase	115 U/L
Serum alanine aminotransferase	110 U/L
Serum total bilirubin	4.5 mg/dL
Serum albumin	3.8 g/dL

Abdominal ultrasonography shows intrahepatic and extrahepatic ductal dilatation with round intrahepatic filling defects.
Which of the following is the most likely diagnosis?
A. Cholangiocarcinoma
B. Primary sclerosing cholangitis
C. Recurrent pyogenic cholangitis
D. Primary biliary cirrhosis

Gastroenterology and Hepatology:Question 55
A 63-year-old woman has a 3-month history of abdominal distention and 4.5-kg (10-Ib) weight gain despite maintaining her normal diet. She denies abdominal discomfort or a change in bowel habits. The patient has chronic hepatitis C contracted from a blood transfusion received 25 years ago.
Physical examination shows spider angiomata, mild abdominal distention with shifting dullness, and peripheral edema.
Laboratory studies:

Hemoglobin	9.0 g/dL
Leukocyte count	3000/µL
Platelet count	85,000/µL
Blood urea nitrogen	10 mg/dL
Serum creatinine	1.0 mg/dL
Serum sodium	140 meq/L

Serum potassium 4.0 meq/L
Serum alkaline phosphatase 150 U/L
Serum aspartate aminotransferase 60 U/L
Serum alanine aminotransferase 50 U/L
Serum total bilirubin 1.7 mg/dL
Serum direct bilirubin 1.0 mg/dL
Serum total protein 5.5 g/dL
Serum albumin 2.6 g/dL

Abdominal ultrasonography demonstrates a moderate amount of ascites, morphologic features of hepatic cirrhosis without focal hepatic lesions, and splenomegaly. Paracentesis is done; the ascitic fluid polymorphonuclear leukocyte count is 50/µL and the albumin is 1.2 g/dL.

Which of the following is the most appropriate treatment at this time?

A. Ciprofloxacin
B. Spironolactone
C. Peritoneovenous shunt
D. Transjugular intrahepatic portosystemic shunt (TIPS)
E. Large-volume paracentesis

Gastroenterology and Hepatology:Question 56

A 76-year-old woman has a 2-year history of progressive fatigue, a 9.5-kg (21.0-Ib) weight loss, and easy bruisability, which she ascribes to 'getting older." She also reports three or four foul-smelling stools daily, occasional bloating, and abdominal cramping. The patient immigrated to the United States from India 6 months ago. Examination of three separate stool specimens was done in India prior to her departure. No ova or parasites were reported in any of the specimens.

Current physical examination is normal. Repeat stool examination for ova and parasites is again negative. Anti-tissue transglutaminase antibody titer is also negative. Upper endoscopy with small bowel biopsy is performed. Specimens show villous blunting and crypt hyperplasia.

Which of the following treatment regimens is most likely to improve this patient's symptoms?

A. Tetracycline
B. Folic acid
C. Tetracycline plus folic acid
D. A gluten-free diet
E. Cholestyramine

Gastroenterology and Hepatology:Question 57

A 22-year-old female licensed practical nurse is about to start a new position. Hepatitis B vaccination is required prior to beginning work. The patient refuses to have this done because she believes that she has already received the vaccine.

Which of the following laboratory studies would support prior vaccination for hepatitis B virus?

A. Antibody to hepatitis B surface antigen (anti-HBs)
B. Antibody to hepatitis B e antigen (anti-HBe)
C. IgM antibody to hepatitis B core antigen (IgM anti-HBc)
D. IgG antibody to hepatitis B core antigen (IgG anti-HBc)
E. Hepatitis B surface antigen (HBsAg)

Gastroenterology and Hepatology:Question 58

A 71-year-old man comes to the emergency department because of the acute onset of maroon-colored stools. He has experienced at least three episodes in the past 6 hours and is lightheaded, but has no chest pain, abdominal pain, or shortness of

breath.
On physical examination, temperature is 36.9 C (98.6 F), pulse rate is 120/min, respiration rate is 20/min, and blood pressure is 96/55 mm Hg. Cardiac examination discloses tachycardia with a regular rhythm. The lungs are clear. The abdomen is soft and nontender with hyperactive bowel sounds.
Rectal examination discloses bright red blood on the gloved finger; no masses are palpated.
Laboratory studies:

Hemoglobin	9.8 g/dL
Leukocyte count	9000/µL
Platelet count	256,000/µL
Blood urea nitrogen	55 mg/dL
Serum creatinine	1.0 mg/dL

Other routine laboratory studies Normal
Fluid resuscitation is begun.
Which of the following is the most appropriate immediate management of this patient?
A. Administration of polyethylene glycol electrolyte solution for colonic purge followed by colonoscopy
B. Colonoscopy without colonic purge
C. Mesenteric arteriography
D. Passage of a nasogastric tube

Gastroenterology and Hepatology:Question 59
A 26-year-old woman with ulcerative colitis has been taking prednisone for the past year. Each time the prednisone is tapered below 20 mg/d, her symptoms return. She is subsequently started on 6-mercaptopurine, 50 mg/d. Three days after beginning the new drug, she develops worsening abdominal pain with radiation to her back. She does not have a rash. Her leukocyte count is 3200/µL.
Which of the following is the most likely cause of this patients new symptoms?
A. Flare of ulcerative colitis
B. Pancreatitis due to continuation of prednisone
C. Pancreatitis due to initiation of 6-mercaptopurine
D. An abdominal and psoas abscess secondary to 6-mercaptopurine-induced neutropenia
E. An allergic reaction to 6-mercaptopurine

Gastroenterology and Hepatology:Question 60
A 37-year-old nurse is evaluated because of diarrhea of 2 months duration. She has gained 2.7 kg (6.0 Ib) during this time. Medical history is significant for an appendectomy, cholecystectomy, and hysterectomy. The patient also sees a rheumatologist for fibromyalgia.
Stool examination:

Osmolality	Very high
Sodium	175 meq/L
Potassium	100 meq/L

The stool examination findings are most consistent with which of the following?
A. Osmotic diarrhea
B. Secretory diarrhea
C. Contamination of the specimen with water
D. Contamination of the specimen with concentrated urine

Gastroenterology and Hepatology:Question 61

A 50-year-old man who recently emigrated from China comes for a routine office visit. The patient is asymptomatic. Medical history is unremarkable, and he does not take prescription or over-the-counter medications. His mother and one of his siblings were diagnosed with hepatocellular carcinoma. Physical examination is normal.

Laboratory studies:

Hematocrit	41%
Platelet count	250,000/µL
Serum alkaline phosphatase	77 U/L
Serum aspartate aminotransferase	25 U/L
Serum alanine aminotransferase	22 U/L
Serum total bilirubin	0.5 mg/dL
Serum albumin	3.9 g/dL

Which of the following laboratory studies should also be done at this time?

A. Antibody to hepatitis C virus (anti-HCV)
B. Hepatitis B surface antigen (HBSAg)
C. Serum α-fetoprotein
D. Serum ceruloplasmin
E. Serum α1-antitrypsin

Gastroenterology and Hepatology:Question 62

A 35-year-old woman has a 4-month history of epigastric discomfort and heartburn. Symptoms are usually exacerbated postprandially, especially if she eats spicy foods. The patient denies dysphagia, weight loss, and decreased appetite. Treatment with a proton pump inhibitor, once daily for 4 weeks, resulted in only minimal improvement. Increasing the medication to twice daily for an additional 4 weeks did not improve her symptoms, and the patient wants to know what other management options are available.

Referral for which of the following procedures is most appropriate at this time?

A. Upper endoscopy with esophageal dilation
B. Ambulatory 24-hour esophageal pH monitoring
C. Barium swallow
D. Surgical fundoplication

Gastroenterology and Hepatology:Question 63

A 50-year-old man with well-compensated cirrhosis due to chronic hepatitis C comes for a follow-up office visit 4 weeks after beginning pegylated interferon and ribavirin. The patient was asymptomatic when therapy was started. Physical examination at that time showed a palpable spleen tip, palmar erythema , and spider angiomata.

Laboratory studies before starting therapy were as follows:

Hematocrit	40%
Leukocyte count	5000/µL
Mean corpuscular volume	90 fL
Platelet count	150,000/µL
Serum alkaline phosphatase	100 U/L
Serum aspartate aminotransferase	128 U/L
Serum alanine aminotransferase	109 U/L
Serum total bilirubin	1.2 mg/dL
Serum albumin	3.6 g/dL

At todays visit, he reports fever, fatigue, myalgias, palpitations, and dyspnea on exertion. He also has anorexia but has not lost any weight. He denies suicidal ideation.

On physical examination, temperature is 37.3 C (99.1 F), pulse rate is 98/min, and

blood pressure is 105/66 mm Hg. There is mild jaundice. Cardiopulmonary examination is normal, and abdominal examination demonstrates a palpable spleen. Current laboratory studies are as follows:

Hematocrit	19%
Mean corpuscular volume	103 fL
Leukocyte count	2500/µL (60% neutrophils)
Platelet count	105,000/µL
Serum alkaline phosphatase	105 U/L
Serum aspartate aminotransferase	167 U/L
Serum alanine aminotransferase	69 U/L
Serum total bilirubin	2.8 mg/dL
Serum albumin	3.2 g/dL

Which of the following is most appropriate at this time?

A. Discontinue pegylated interferon
B. Discontinue ribavirin
C. Begin iron supplementation
D. Begin folate supplementation
E. Begin vitamin B12 supplementation

Gastroenterology and Hepatology:Question 64

A 26-year-old Hispanic woman who is 12 weeks pregnant has had recurrent episodes of biliary colic for the past 6 months. The episodes are now increasing in frequency, and one episode was associated with mild pancreatitis. Abdominal ultrasonography shows multiple gallstones. Results of routine laboratory studies are normal.

When is the most appropriate time for this patient to undergo laparoscopic cholecystectomy?

A. Immediately
B. During the second trimester
C. During the third trimester
D. Post partum

Gastroenterology and Hepatology:Question 65

A 75-year-old woman is evaluated because of dyspepsia. The patient has advanced rheumatoid arthritis treated with diclofenac and several disease-modifying anti-rheumatic drugs.

Upper endoscopy reveals a 1-cm gastric ulcer. Biopsy specimens of the ulcer show no evidence of malignancy, and tests for Helicobacter pylori are negative. The patient refuses to stop taking the diclofenac because this is the only drug that helps her function despite the arthritis.

Assuming that diclofenac is continued, which of the following is the most appropriate treatment for healing of this patient's gastric ulcer?

A. Sucralfate
B. Misoprostol
C. Ranitidine
D. A proton pump inhibitor
E. Partial gastrectomy

Gastroenterology and Hepatology:Question 66

A 67-year-old woman has a 6-month history of diarrhea and weight loss. She otherwise feels well. Physical examination is normal. Routine stool studies, upper endoscopy with small bowel biopsy, and colonoscopy with multiple biopsies are all negative. A barium radiograph of the upper gastrointestinal tract shows three jejunal diverticula but is otherwise normal.

Which of the following diagnostic studies should be done next?
A. Anti-tissue transglutaminase antibody assay
B. Urine 5-hydroxyindoleacetic acid (5-HIAA)
C. Glucose hydrogen breath test
D. Stool α1-antitrypsin determination

Gastroenterology and Hepatology:Question 67
A 56-year-old white man has a 15-year history of epigastric discomfort and heartburn. He denies dysphagia and weight loss and currently takes no medications. Physical examination is normal. A once-daily proton pump inhibitor is begun, and the patients symptoms resolve rapidly.
Which of the following should be done next?
A. Barium swallow
B. Upper endoscopy
C. Ambulatory 24-hour esophageal pH monitoring
D. Esophageal manometry
E. No diagnostic studies are needed

Gastroenterology and Hepatology:Question 68
A 55-year-old man has a 3-day history of sharp, diffuse abdominal pain and fever. The patient has alcoholic cirrhosis that was documented by liver biopsy 2 years ago. Current medications are spironolactone, 200 mg/d; furosemide, 80 mg/d; and nadolol, 20 mg/d.
On physical examination, temperature is 38.9 C (102.0 F), pulse rate is 62/min, and blood pressure is 110/62 mm Hg. The abdomen is distended and tender to palpation with shifting dullness and a small reducible umbilical hernia.
Laboratory studies:

Hemoglobin	8.3 g/dL
Leukocyte count	8800/µL
Platelet count	55,000/µL
Blood urea nitrogen	60 mg/dL
Serum creatinine	2.5 mg/dL
Serum sodium	120 meq/L
Serum potassium	3.0 meq/L
Serum alkaline phosphatase	250 U/L
Serum aspartate aminotransferase	90 U/L
Serum alanine aminotransferase	30 U/L
Serum total bilirubin	3.7 mg/dL
Serum direct bilirubin	2.0 mgldL
Serum total protein	5.3 g/dL
Serum albumin	2.2 g/dL

Abdominal ultrasonography shows a large amount of ascites, cirrhosis without focal hepatic lesions, varices, and an enlarged spleen. Paracentesis is done; the ascitic fluid polymorphonuclear leukocyte count is 6504/µL and the albumin is less than 1.0 g/dL.
Which of the following is the most appropriate treatment at this time?
A. Large-volume paracentesis
B. Increase in the diuretic dosage
C. Intravenous cefotaxime
D. Transjugular intrahepatic portosystemic shunt (TI PS)
E. Surgical correction of the umbilical hernia

Gastroenterology and Hepatology:Question 69
A 34-year-old man has Crohns ileocolitis complicated by perianal fistulae. Ileocecal resection was performed 5 years ago. Approximately 4 months ago, he developed abdominal pain, cramping, and a new enterocutaneous fistula. An upper gastrointestinal series with small bowel follow-through showed 4 cm of inflammatory changes at the neoterminal ileum plus an enterocutaneous fistula originating from this area. After treatment with metronidazole and mesalamine, his abdominal pain improved and the fistula appeared to resolve.
Which of the following is most appropriate for maintaining remission in this patient?
A. Continue metronidazole
B. Start 6-mercaptopurine
C. Start budesonide
D. Start prednisone
E. Start oral cyclosporine

Gastroenterology and Hepatology:Question 70
A 35-year-old woman is evaluated because of the recent onset of blood per rectum. She is otherwise well and has no family history of colon polyps or colon cancer. Physical examination is normal except for several soft-tissue tumors on her scalp and back. Flexible sigmoidoscopy reveals numerous small polyps throughout the sigmoid colon and rectum. Biopsies of several polyps show adenomatous polyps.
Which of the following is most appropriate for this patient at this time?
A. Total proctocolectomy because of her almost 100% chance of developing colon cancer
B. Colectomy with ileorectal anastomosis and administration of sulindac to prevent colon cancer in the remaining rectum
C. Colonoscopy to better define the phenotype of the poiyps
D. Genetic testing forAPC gene mutations, and if positive, total proctocolectomy
E. No further testing for familial adenomatous polyposis because there is no family history of colon polyps or cancer

Gastroenterology and Hepatology:Question 71
A 57-year-old man is evaluated because of epigastric pain. Upper endoscopy discloses a gastric ulcer, and endoscopic biopsy specimens of the ulcer show gastric adenocarcinoma.
Which of the following is most likely to be associated etiologically with this patients gastric adenocarcinoma?
A. Gastric hyperplastic polyps
B. Tyrosine kinase activity
C. Helicobacter pylori infection
D. Cytomegalovirus infection
E. Amyloid deposition

Gastroenterology and Hepatology:Question 72
Which of the following patients is most likely to benefit from cholecystectomy at this time?
A. An asymptomatic 68-year-old man with gallbladder calcification (eggshell appearance) seen on plain radiographs of the abdomen
B. An asymptomatic 38-year-old woman who is beginning a weight loss program and has gallbladder sludge seen on abdominal ultrasonography
C. An asymptomatic 59-year-old woman with multiple 7-to 10-mm gallstones seen on abdominal ultrasonography
D. A 35-year-old woman with right upper quadrant abdominal pain who has normal

liver chemistry studies and a normal gallbladder on abdominal ultrasonography
E. An asymptomatic 45-year-old man with diabetes mellitus who has a single gallstone seen on abdominal ultrasonography

Gastroenterology and Hepatology:Question 73
A 48-year-old woman has a 3-month history of malaise and fatigue. She was involved in a motor vehicle accident in 1982 and required multiple blood transfusions. Medical history is otherwise unremarkable. Physical examination is normal.
Laboratory studies:

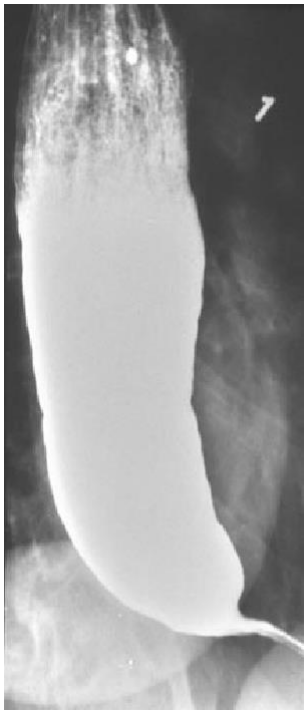
Hematocrit	46%
Platelet count	300,000/µL
Serum ferritin	180 ng/mL
Serum alkaline phosphatase	120 U/L
Serum aspartate aminotransferase	58 U/L
Serum alanine aminotransferase	89 U/L
Serum total bilirubin	1.0 mg/dL
Serum albumin	4.3 g/dL
Antinuclear antibody	Positive (titer of 1:80)
Hepatitis B surface antigen (HBSAg)	Negative
Antibody to hepatitis B surface antigen (anti-HBS)	Positive
Hepatitis C virus RNA (HCV RNA)	450,000 copies/mL; genotype 2b

Which of the following is the most appropriate treatment at this time?
A. Pegylated interferon plus ribavirin
B. Lamivudine
C. Phlebotomy
D. Ursodeoxycholic acid (ursodiol)
E. Milk thistle

Gastroenterology and Hepatology:Question 74
A 20-year-old woman comes to the emergency department because of a 1-week history of nausea, vomiting, and abdominal bloating. Physical examination discloses a mass in the right lower abdominal quadrant and moderate abdominal distention. A stool specimen is negative for occult blood. An obstructive radiographic series shows multiple air-fluid levels and a paucity of air in the small intestine.
The patient is hospitalized and is treated with bowel rest, nasogastric suction, and intravenous fluids. She improves rapidly and is discharged 3 days later. She is told to follow a normal diet, and an appointment is made for outpatient colonoscopy and follow-up radiographic studies.
Colonoscopy is grossly and histologically normal; the terminal ileum cannot be cannulated. A small bowel radiographic series shows a 10-cm narrow stricture of the terminal ileum and dilatation of the more proximal small intestine. One week later, the patient comes to the emergency department again because of abdominal pain, bloating, nausea, and vomiting.
Which of the following treatment options is most likely to provide the best long-term outcome for this patient?
A. Intravenous infliximab infusions every 8 weeks
B. Intravenous cyclosporine
C. Oral 6-mercaptopurine
D. Surgical resection of the stricture

Gastroenterology and Hepatology:Question 75
A 36-year-old man has a 6-month history of dysphagia for both solid foods and

liquids. He notes regurgitation and chest pain with every meal and occasionally vomits undigested food particles. The patient has mild heartburn but denies weight loss and decreased appetite. He currently takes no medications.
Physical examination and routine laboratory studies are normal. A barium swallow is shown.



Which of the following is the most likely diagnosis?
A. Esophageal adenocarcinoma
B. Candida esophagitis
C. Achalasia
D. Barrett's esophagus
E. Gastroesophageal reflux disease

Gastroenterology and Hepatology:Question 76
A 34-year-old woman is hospitalized after a minor episode of hematemesis. She denies current use of nonsteroidal anti-inflammatory drugs. Two years ago, a duodenal ulcer and Helicobacter pylori infection were diagnosed by upper endoscopy, and bismuth subsalicylate, metronidazole, tetracycline, and ranitidine were prescribed for 14 days. However, the patient took the medications for only 8 days because of nausea.
Upper endoscopy performed during the current admission shows a clean-based duodenal ulcer, and rapid urease testing of an endoscopic mucosal biopsy specimen is positive for H. pylori.
Which of the following is the most appropriate management at this time?
A. Bismuth subsalicylate, metronidazole, tetracycline, and ranitidine for 4 days
B. Bismuth subsalicylate, metronidazole, amoxicillin, and ranitidine for 14 days
C. A proton pump inhibitor for 14 days
D. A proton pump inhibitor, clarithromycin, and amoxicillin for 14 days

Gastroenterology and Hepatology:Question 77
A 74-year-old woman has a 3-year history of iron deficiency anemia. She has not had melena or hematochezia, but her stools are persistently positive for occult blood.

Oral iron supplementation has not maintained her hemoglobin at a stable level, and she has required blood transfusions every 3 months. Medical history includes hypertension, coronary artery disease, aortic stenosis, and mild renal insufficiency. Upper endoscopy and total colonoscopy were performed twice and were normal both times. Small bowel follow-through and CT scan of the abdomen were also negative. Push enteroscopy is performed. The lesion pictured is found 30 cm beyond the ligament of Treitz.

Which of the following statements is correct regarding this patient's lesion?

A. Endoscopic therapy cannot be provided for this lesion

B. This lesion is a common cause of bleeding in patients of this age group who have normal findings on upper endoscopy and colonoscopy

C. Small bowel enteroclysis would have detected this lesion, which was missed on small bowel follow-through

D. The lesion represents a paraneoplastic syndrome, and further evaluation for underlying cancer should be undertaken

Gastroenterology and Hepatology:Question 78

A 55-year-old woman with chronic alcoholism has a 2-day history of nausea, vomiting, and upper abdominal discomfort. The patient drinks about 6 or 7 alcoholic beverages each day. She denies using prescription medications but recently has been taking several acetaminophen tablets each day for a right rotator cuff injury suffered 1 week ago. Physical examination shows epigastric and right upper quadrant abdominal tenderness to deep palpation.

Laboratory studies:

Complete blood count	Normal
INR	1.4
Serum creatinine	1.9 mg/dL
Serum alkaline phosphatase	175 U/L
Serum aspartate aminotransferase	15,750 U/L
Serum alanine aminotransferase	12,500 U/L
Serum total bilirubin	2.5 mg/dL
Serum albumin	3.5 g/dL

Administration of which of the following is most appropriate at this time?

A. An antiemetic agent

B. A corticosteroid

C. Pentoxifylline

D. N-acetylcysteine

E. Multivitamins

Gastroenterology and Hepatology:Question 79

Two weeks ago, a 40-year-old man went to an urgent care center and requested "liver function tests and a hepatitis C test" because of his history of past injection drug use. Test results were as follows:

Serum aspartate aminotransferase	18 U/L
Serum alanine aminotransferase	22 U/L
Serum total bilirubin	0.9 mg/dL
Serum albumin	3.9 g/dL
Antibody to hepatitis C virus (anti-HCV)	Positive

The patient now asks you whether he should be treated for hepatitis C. He is asymptomatic, and his medical history is unremarkable except for his prior injection drug use. Physical examination is normal.

Which of the following diagnostic studies should be obtained next?

A. CT scan of the abdomen

B. Abdominal ultrasonography
C. HCV RNA determination
D. Liver biopsy
E. No further tests

Gastroenterology and Hepatology:Question 80
A 28-year-old man has a 2-month history of abdominal pain and bloating. An upper gastrointestinal series with small bowel follow-through shows ulcerations and inflammatory changes in the distal 12 cm of the terminal ileum. Colonoscopy is normal except for erythema and small linear ulcerations seen on cannulation of the terminal ileum.
Which of the following is the most appropriate therapy for this patient at this time?
A. pH-release mesalamine
B. Mesalamine enemas
C. Balsalazide
D. Olsalazine
E. Sulfasalazine

Gastroenterology and Hepatology:Question 81
A 28-year-old man has a 3-day history of fever, sore throat, and anorexia. His children have similar symptoms. On physical examination, temperature is 38.3 C (101 .0 F). Significant findings include mild jaundice, pharyngeal erythema, and maxillary sinus tenderness.
Laboratory studies:

Hemoglobin	14.0 g/dL
Leukocyte count	12,000/µL
Serum alkaline phosphatase	75 U/L
Serum aspartate aminotransferase	28 U/L
Serum alanine aminotransferase	20 U/L
Serum total bilirubin	3.6 mg/dL
Serum direct bilirubin	0.3 mg/dL

Which of the following diagnostic studies should be ordered next?
A. Bone marrow aspiration
B. CT scan of the abdomen
C. Liver biopsy
D. Endoscopic retrograde cholangiopancreatography
E. No further testing is needed

Gastroenterology and Hepatology:Question 82
A 58-year-old woman is evaluated because of a 6-day history of dysphagia. She denies weight loss, odynophagia, heartburn, and regurgitation and has never been treated for gastroesophageal reflux disease. Hypertension and osteoporosis were diagnosed 6 months ago and are currently being treated with furosemide and alendronate.
Upper endoscopy reveals a stricture in the mid-esophagus. Biopsy specimens show only chronic inflammation. The stricture is dilated endoscopically.
Which of the following is the most appropriate next step in managing this patient?
A. Refer for surgical fundoplication
B. Refer for esophagectomy
C. Begin a prokinetic agent
D. Stop the furosemide
E. Stop the alendronate

Gastroenterology and Hepatology:Question 83

A 37-year-old woman comes to the emergency department because of a 2-week history of fatigue, weakness, arthralgias, anorexia, and weight loss. The patient had Hashimoto's thyroiditis several years ago and is taking L-thyroxine. She does not drink alcoholic beverages or use illicit drugs. The only significant finding on physical examination is an enlarged liver that is tender to palpation.

Laboratory studies:

Hemoglobin	13.0 g/dL
Leukocyte count	7500/µL
Platelet count	275,000/µL
Serum alkaline phosphatase	120 U/L
Serum aspartate aminotransferase	1324 U/L
Serum alanine aminotransferase	1450 U/L
Serum total bilirubin	2.0 mg/dL
Serum direct bilirubin	1.5 mg/dL
Serum total protein	9.0 g/dL
Serum albumin	3.0 g/dL

A CT scan of the abdomen shows only an enlarged liver.

Which of the following tests is most likely to establish the diagnosis?

A. IgG antibody to hepatitis A virus (IgG anti-HAV)
B. Antibody to hepatitis C virus (anti-HCV)
C. Smooth muscle antibody titer
D. Antimitochondrial antibody titer
E. Endoscopic retrograde cholangiopancreatography

Gastroenterology and Hepatology:Question 84

A 29-year-old woman is evaluated because of vague epigastric and right upper quadrant abdominal pain that is occasionally worse after eating. Initial laboratory studies, including liver chemistry tests and measurement of serum amylase and lipase, are normal. Abdominal ultrasonography suggests the presence of focal dilatation of the common bile duct. No stones are seen in the duct or gallbladder. Magnetic resonance cholangiopancreatography (MRCP) shows an area of dilated common bile duct measuring 2 cm in length by 1 .2 cm in diameter. The bile duct diameter above and below this dilated area measures 4 to 5 mm. MRCP findings are compatible with a choledochal cyst. There is no intrahepatic ductal dilatation.

Which of the following is the most appropriate management at this time?

A. Endoscopic retrograde cholangiopancreatography with papillotomy
B. Surgical resection and biliary tree reconstruction
C. Administration of ursodeoxycholic acid (ursodial) and annual follow-up MRCP
D. No further diagnostic studies or treatment

Gastroenterology and Hepatology:Question 85

A 32-year-old woman has had irritable bowel syndrome since adolescence. Her most prominent symptom is constipation. She also has pain that is associated with infrequent defecation and is relieved by bowel movements. The patient has no other bowel disorders. Various medications have been tried but have not been very effective.

Which of the following drugs is most likely to be helpful in controlling her problem?

A. Tegaserod
B. Alosetron
C. A selective serotonin reuptake inhibitor
D. Metoclopramide

Gastroenterology and Hepatology:Question 86
A 45-year-old white female business executive comes for routine physical examination. She is asymptomatic, has no significant medical history, and takes no medications. Her father developed colorectal cancer at 63 years of age. Physical examination is normal, and a stool specimen obtained during digital rectal examination is negative for occult blood.
Which of the following statements is correct regarding colorectal cancer screening for this patient?
A. Screening can be deferred until she is 50 years of age
B. Screening should be done now because of her family history of colorectal cancer
C. Genetic testing is indicated because her father had colorectal cancer
D. She is not at increased risk of colon cancer because of her sex and ethnicity

Gastroenterology and Hepatology:Question 87
A 68-year-old woman has a 6-month history of right upper quadrant abdominal pain that is described as dull, constant, and nonradiating. The patient is obese and has hypertension that is controlled with hydrochlorothiazide. She does not smoke or drink alcoholic beverages.
On physical examination, blood pressure is 160/90 mm Hg. The liver is enlarged and is slightly tender. Laboratory studies:

Hemoglobin	13.0 g/dL
Leukocyte count	6000/µ L
Platelet count	155,000/µL
Serum ferritin	50 ng/mL
Plasma cholesterol	200 mg/dL
Serum triglycerides	300 mg/dL
Serum iron	100 µg/dL
Serum total iron-binding capacity	200 µg/dL
Serum alkaline phosphatase	120 U/L
Serum aspartate aminotransferase	60 U/L
Serum alanine aminotransferase	80 U/L
Serum total bilirubin	1.1 mg/dL
Serum total protein	6.5 g/dL
Serum albumin	3.6 g/dL
Antinuclear antibody	1:80
Hepatitis B surface antigen (HBSAg)	Negative
Antibody to hepatitis B surface antigen (anti-HBs)	Positive
Antibody to hepatitis B core antigen (anti-HBc)	Negative
Antibody to hepatitis C virus (anti-HCV	Negative

Abdominal ultrasonography shows an enlarged liver with increased echogenicity. Liver biopsy reveals lipid droplets in hepatocytes, hepatocellular ballooning, Mallory bodies, panlobular lymphocytic inflammation, and pericellular fibrosis.
Which of the following is the most likely diagnosis?
A. Chronic hepatitis B
B. Hemochromatosis
C. Nonalcoholic steatohepatitis
D. Autoimmune hepatitis

Gastroenterology and Hepatology:Question 88
A 46-year-old man comes to the emergency department because of fever and right upper quadrant abdominal pain of 2 weeks duration. The pain is described as constant and nonradiating. The patient has been drinking at least 6 cans of beer daily for approximately 20 years. Medical history is otherwise noncontributory.

On physical examination, temperature is 38.3 C (101.0 F), pulse rate is 110/min, and blood pressure is 120/70mm Hg. Pertinent physical findings include jaundice; spider angiomata; a tender, enlarged liver; an enlarged spleen; and ascites.
Laboratory studies:

Hemoglobin	10.0 g/dL
Leukocyte count	11,000/µL
Platelet count	75,000/µL
INR	2.0
Serum alkaline phosphatase	150 U/L
Serum aspartate aminotransferase	260 U/L
Serum alanine aminotransferase	80 U/L
Serum total bilirubin	10.1 mg/dL
Serum direct bilirubin	7.1 mg/dL
Serum total protein	5.5 g/dL
Serum albumin	1 .8 g/dL
Serum amylase	60 U/L
Serum lipase	80 U/L
Serum α-fetoprotein	10 ng/mL

Abdominal ultrasonography shows gallbladder wall thickening but no gallstones or bile duct dilatation.
Hepatomegaly with fatty infiltration and ascites are present. No focal hepatic lesions are seen.
Paracentesis is done; the ascitic fluid polymorphonuclear leukocyte count is 100/µL.
Which of the following is the most likely diagnosis?
A. Hepatocellular carcinoma
B. Alcoholic hepatitis
C. Spontaneous bacterial peritonitis
D. Acute pancreatitis
E. Acute cholecystitis

Gastroenterology and Hepatology:Question 89
A 49-year-old man was admitted to the intensive care unit 3 weeks ago because of severe acute pancreatitis. His course has been complicated by hypocalcemia, pancreatic ascites, and multi-system organ failure requiring hemodialysis and intubation and mechanical ventilation.
Today, the patient suddenly develops hypotension and tachycardia. Findings on physical examination include a temperature of 37.8 C (100.0 F) and a tense abdomen without tympany. On rectal examination, a stool specimen is negative for occult blood. Hemoglobin is 6.6 g/dL (baseline hemoglobin is 10.8 g/dL), and the leukocyte count is 21,000/µL with a left shift. Nasogastric lavage shows no blood.
After the patient is resuscitated, a CT scan of the abdomen reveals significant peripancreatic inflammation and heterogeneous fluid collections with a collection on the right side of the abdomen that is consistent with blood.
Which of the following is the most likely cause of this patients current clinical deterioration?
A. Bleeding from gastric varices that formed secondary to a splenic vein thrombosis
B. Rupture of a pseudoaneurysm
C. Hemorrhage from a gastric stress ulcer
D. Sepsis with disseminated intravascular coagulation due to a pancreatic abscess

Gastroenterology and Hepatology:Question 90
A 68-year-old man with coronary artery disease and advanced chronic obstructive pulmonary disease has an 8-month history of dysphagia for both solid foods and

liquids. He also reports regurgitation of undigested food particles and a 4.5-kg (10-Ib) weight loss. Esophageal manometry discloses achalasia. A chest radiograph shows bullous emphysema; findings are unchanged from a film obtained 18 months ago.
Which of the following is the most appropriate treatment for this patient?
A. Pneumatic dilation
B. Surgical myotomy
C. Pneumatic dilation followed by surgical myotomy
D. Botulinum toxin injection
E. Nifedipine and isosorbide dinitrate sublingually before each meal

Gastroenterology and Hepatology:Question 91
A 38-year-old woman with ulcerative colitis develops hematochezia, diarrhea, tenesmus, and bilateral painful red nodules in the pretibial region. She also has severe back pain, which she believes is due to ankylosing spondylitis and sacroiliitis that were diagnosed by spinal radiographs approximately 1 year ago. The patient has a history of pyoderma gangrenosum that was treated successfully with intravenous cyclosporine. Two years prior to the diagnosis of ulcerative colitis, she developed primary sclerosing cholangitis, which was diagnosed by liver biopsy performed because of elevated liver chemistry test results.
Which of the following findings is most likely to improve in association with successful treatment of her ulcerative colitis flare?
A. Ankylosing spondylitis
B. Pretibial nodules
C. Pyoderma gangrenosum
D. Primary sclerosing cholangitis
E. Sacroiliitis

Gastroenterology and Hepatology:Question 92
An 18-year-old man is evaluated because of right upper quadrant abdominal pain of 36 hours' duration. The pain radiates to his back and is associated with nausea and vomiting. The patient's mother was born in Mexico and has Crohn's disease. His father was born in Chicago and died in a motor vehicle accident at 20 years of age. The patient travels to Mexico each year to visit relatives.
On physical examination, he is somewhat pale and in moderate distress. Height is 173 cm (69 in), and weight is 109 kg (240 Ib). BMI is 35.5. Abdominal examination is significant for a positive Murphy's sign.
Laboratory studies:

Hemoglobin	10.8 g/dL
Leukocyte count	14,800/µL
Platelet count	395,000/µL
Reticulocyte count	7.2% of erythrocytes
Serum total bilirubin	1.4 mg/dL
Serum direct bilirubin	0.2 mg/dL
Serum aspartate aminotransferase	85 U/L
Serum alanine aminotransferase	100 U/L
Serum alkaline phosphatase	202 U/L

Abdominal ultrasonography shows a distended gallbladder containing multiple stones measuring 4 to 8 mm. The common bile duct measures 6 mm in diameter. Cholecystectomy is performed. lntraoperative cholangiography shows a common bile duct stone, which is removed. The surgical specimen shows an acutely inflamed, distended, thickened gallbladder containing multiple black pigment stones.
Which of the following best explains the type of gallstones that this patient has?

A. His ethnicity
B. His obesity
C. Hereditary spherocytosis
D. Infection caused byAscaris lumbricoides
E. Subclinical Crohns disease involving the ileum

Gastroenterology and Hepatology:Question 93
A 49-year-old man comes to the emergency department after vomiting dark red blood with clots before eating breakfast this morning. He denies abdominal pain, retching prior to vomiting, and use of nonsteroidal anti-inflammatory drugs. The patient has well-compensated cirrhosis due to chronic hepatitis B.
Physical examination is notable for a temperature of 37.2 C (99.0 F), pulse rate of 112/min, and blood pressure of 90/60 mm Hg.
Laboratory studies:

Hemoglobin	12.3 g/dL
Leukocyte count	8800/µL
Platelet count	115,000/µL
Serum alkaline phosphatase	100 U/L
Serum aspartate aminotransferase	40 U/L
Serum alanine aminotransferase	20 U/L
Serum total bilirubin	1.7 mg/dL
Serum direct bilirubin	1.0 mg/dL
Serum total protein	6.3 g/dL
Serum albumin	3.5 g/dL

Abdominal ultrasonography shows varices, an enlarged spleen, and cirrhosis without focal hepatic lesions. There is no ascites.
After volume replacement, which of the following is most appropriate for managing this patient at this time?
A. Transjugular intrahepatic portosystemic shunt (TIPS)
B. A nonselectivef3-blocker
C. Upper endoscopy
D. Surgical portosystemic shunt
E. Lamivudine

Gastroenterology and Hepatology:Question 94
A 34-year-old man is seen for a routine evaluation. At age 16, he was diagnosed with ulcerative colitis with involvement of the entire colon. Following medical treatment for 1 year, he had complete remission and has been in remission ever since. The patient has one or two normal bowel movements each day without evidence of hematochezia. He last saw a physician for a college physical examination at age 18. One of the patients uncles also has ulcerative colitis.
Physical examination is normal. His abdomen is soft and nontender, and a stool specimen is negative for occult blood. Hemoglobin and erythrocyte sedimentation rate are normal. The patient asks whether he should be screened for colon cancer.
Which of the following is the optimal recommendation for colon cancer screening for this patient?
A. No additional studies now; schedule yearly rectal examination, fecal occult blood testing, and flexible sigmoidoscopy every 3 to 5 years beginning at age 45 or 50
B. Flexible sigmoidoscopy now to assess the presence of active inflammation; if negative, perform screening colonoscopy at age 45 or 50
C. Colonoscopy now to assess the presence of active inflammation; if negative, repeat colonoscopy at age 45 or 50
D. Colonoscopy now with extensive biopsies for dysplasia; if negative, repeat

colonoscopy with extensive biopsies at age 45 or 50
E. Colonoscopy now with extensive biopsies for dysplasia; if negative, repeat colonoscopy with extensive biopsies every 1 to 2 years

Gastroenterology and Hepatology:Question 95
A 45-year-old woman undergoes upper endoscopy for symptoms of dyspepsia. The endoscopic examination is normal. Physical examination, routine laboratory studies, serologic tests forHelicobacter pylori, and abdominal ultrasonography are also normal. The patient has not received any medications for her symptoms.
Which of the following is the most appropriate initial empiric therapy for this patient?
A. A proton pump inhibitor
B. Alosetron
C. Ondansetron
D. Tegaserod
E. Sumatriptan

Gastroenterology and Hepatology:Question 96
Which of the following tests allows comprehensive evaluation of the small intestine and provision of treatment without sedation or significant risk to the patient?
A. Small bowel enteroclysis
B. Mesenteric arteriography
C. Technetium labeled bleeding scan
D. Capsule endoscopy
E. None of the above

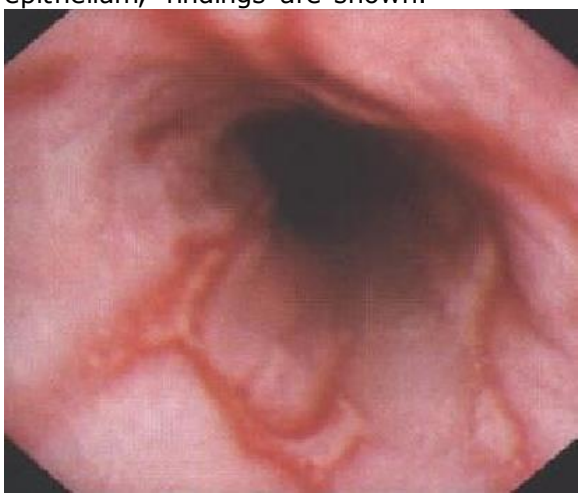
Gastroenterology and Hepatology:Question 97
A 55-year-old woman has a 3-month history of increasing fatigue and malaise. She has clinical depression that is currently being treated with paroxetine, 40 mg/d. Even though she denies suicidal ideations, she feels 'hopeless and sad' almost every day. She denies illicit drug use but claims to drink 2 or 3 glasses of wine each week. Physical examination discloses palmar erythema, spider angiomata, an enlarged liver and spleen, and mild lower extremity edema.
Laboratory studies:

Hematocrit	36%
Leukocyte count	3500/µL
Platelet count	48,000/µL
Serum alkaline phosphatase	66 U/L
Serum aspartate aminotransferase	128 U/L
Serum alanine aminotransferase	109 U/L
Serum total bilirubin	1.9 mg/dL
Serum albumin	3.4 g/dL
Serum α-fetoprotein	3 ng/mL
Hepatitis B surface antigen (HBSAg)	Positive
Hepatitis B e antigen (HBeAg)	Positive
Antibody to hepatitis B e antigen (anti-H Be)	Negative
Hepatitis B virus DNA (HBV DNA)	5 million copies/mL
lgG antibody to hepatitis A virus (lgG anti-HAV)	Positive
Antibody to hepatitis C virus (anti-HCV)	Negative

Abdominal ultrasonography shows a liver with a cirrhotic configuration. No focal hepatic lesions are seen.
Which of the following is the most appropriate therapy at this time?
A. Interferon-alfa
B. Hepatitis B immune globulin

C. Lamivudine
D. Ribavirin
E. No additional therapy

Gastroenterology and Hepatology:Question 98
A 54-year-old man is evaluated because of regurgitation for the past 4 months. He also has longstanding heartburn for which an H2-receptor antagonist provides only partial relief.
Upper endoscopy shows severe erosive esophagitis without evidence of Barrett's epithelium; findings are shown.



A proton pump inhibitor is substituted for the H2-receptor antagonist, and his symptoms resolve. However, his symptoms return when he forgets to take his medication.
Which of the following is most appropriate for managing this patient at this time?
A. Continue the proton pump inhibitor
B. Change back to an H2-receptor antagonist
C. Change to a prokinetic agent
D. Perform ambulatory 24-hour esophageal pH monitoring while the patient is on medication to document control of the acid reflux
E. Repeat the upper endoscopy to document healing of the esophagitis

Gastroenterology and Hepatology:Question 99
A 65-year-old man has a 3-day history of left lower quadrant abdominal pain and low-grade fever. The patient has also had decreased bowel movements for past 2 days, but has not eaten much during this time because of mild nausea.
Physical examination reveals tenderness in left lower abdominal quadrant without guarding or rebound. Bowel sounds are slightly hypoactive. Routine laboratory studies are normal except for mild leukocytosis. A CT scan of abdomen and pelvis shows multiple air-filled sigmoid diverticula and pericolic stranding.
The patient is treated with oral ciprofloxacin and metronidazole on an outpatient basis. However, over the next 72 hours, his abdominal pain increases, and he develops severe nausea, vomiting, and fever to 40.0 C (104.0 F).
In addition to arranging for hospitalization and initiation of intravenous antibiotics, which of the following should be done next in managing this patient?
A. Barium enema examination
B. Repeat CT scan of the abdomen and pelvis
C. Colonoscopy

D. Tagged leukocyte scan

Gastroenterology and Hepatology:Question 100

A 45-year-old man is evaluated because of fatigue and pruritus of 1 years duration. The pruritus is generalized and is not associated with a rash. He has no allergies, and antihistamines have not improved the itching. The patient has ulcerative colitis that is well controlled with mesalamine.

Physical examination is normal except for excoriations on his extremities and back from scratching. Laboratory studies:

Complete blood count	Normal
Serum alkaline phosphatase	760 U/L
Serum aspartate aminotransferase	15 U/L
Serum alanine aminotransferase	20 U/L
Serum y-glutamyltransferase	350 U/L
Serum total bilirubin	2.2 mg/dL
Serum direct bilirubin	1.5 mg/dL
Serum total protein	6.4 g/dL
Serum albumin	4.0 g/dL

Which of the following tests is most likely to establish the diagnosis?

A. CT scan of the abdomen
B. Hepatitis C virus RNA (HCV RNA)
C. Hepatitis B surface antigen (HBSAg)
D. Endoscopic retrograde cholangiopancreatography
E. Smooth muscle antibody titer

Gastroenterology and Hepatology:Question 101

A 65-year-old white man is evaluated because of a longstanding history of epigastric discomfort and heartburn. He denies dysphagia or weight loss. Physical examination is normal.

Following initiation of a proton pump inhibitor once daily, his symptoms resolve. Upper endoscopy shows a 10-cm segment of Barrett's esophagus with a small nodular area within the Barrett's epithelium in the distal esophagus. Biopsy specimens from the nodular abnormality reveal adenocarcinoma.

Which of the following is the most appropriate next step in managing this patient?

A. Refer for hospice care
B. Refer for esophagectomy
C. Refer for chest CT scans and endoscopic ultrasonography to stage the cancer
D. Refer for combined chemotherapy and radiation therapy
E. Refer for esophageal dilation

Gastroenterology and Hepatology:Question 102

A 69-year-old man is brought to the emergency department by his son because of behavioral changes over the past week. The son reports that his father has had several episodes of somnolence, visual disturbance, irritability, and confusion and has not eaten since yesterday evening. Medical history is noncontributory. Physical examination is normal. Plasma glucose is 35 mg/dL.

The patient improves following rapid administration of 50% glucose intravenously. He now reports that he has been having discomfort in the epigastric region for the past month. A CT scan of the abdomen is normal except for a possible small (<1 cm) hypodense lesion in the region of the body of the pancreas.

Which of the following diagnostic studies should be done next?

A. MRI
B. Endoscopic ultrasonography

C. Endoscopic retrograde cholangiopancreatography
D. Octreotide scan
E. Magnetic resonance cholangiopancreatography

Gastroenterology and Hepatology:Question 103
Which of the following statements is correct regarding push enteroscopy?
A. Most of the small intestine is typically visualized by this procedure
B. Therapy for a bleeding lesion cannot be provided when using this procedure
C. Push enteroscopy is typically performed using general anesthesia
D. Push enteroscopy should be reserved for patients with gastrointestinal bleeding who have negative findings on upper endoscopy and colonoscopy

Gastroenterology and Hepatology:Question 104
A 38-year-old woman is evaluated because of a 6-month history of abnormal liver chemistry test results. She is asymptomatic and does not smoke cigarettes or drink alcoholic beverages. Physical examination discloses obesity and an enlarged liver.
Laboratory studies:

Serum ferritin	150 ng/mL
Plasma glucose (fasting)	90 mg/dL
Serum iron	50 µg/dL
Serum total iron-binding capacity	250 µg/dL
Plasma cholesterol	180 mg/dL
Serum triglycerides	250 mg/dL
Serum alkaline phosphatase	120 U/L
Serum aspartate aminotransferase	55 U/L
Serum alanine aminotransferase	90 U/L
Serum total bilirubin	1.1 mg/dL
Serum total protein	6.5 g/dL
Serum albumin	3.6 g/dL
Antibody to hepatitis B surface antigen (anti-HBS)	Positive
Antibody to hepatitis A virus (anti-HAV)	Positive
Antibody to hepatitis C virus (anti-HCV)	Negative
Serum ceruloplasmin	30 mg/dL
Antinuclear antibody	Negative
Autoimmune liver disease panel	Negative
α1 -Antitrypsin phenotype MM	(normal)

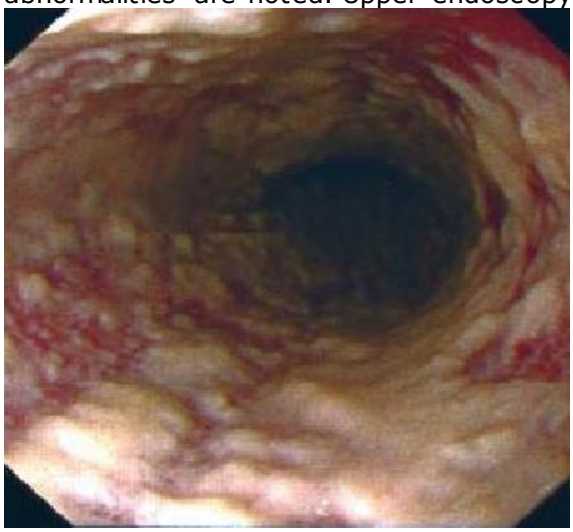
Abdominal ultrasonography shows an enlarged liver with fatty infiltrates.
Which of the following is most likely to be effective for treating this patients liver disease?
A. Interferon-alfa
B. Lamivudine
C. Weight reduction
D. Prednisone

Gastroenterology and Hepatology:Question 105
A 45-year-old woman undergoes upper endoscopy for evaluation of epigastric pain and weight loss. Gastric erythema and mild gastric nodularity are observed, and endoscopic mucosal biopsy specimens show Helicobacter pylori and a mucosa-associated lymphoid tissue (MALT) lymphoma. CT scan of the abdomen reveals gastric wall thickening, and endoscopic ultrasonography shows that the tumor is confined to the gastric mucosa.
Which of the following is the most appropriate next step in the management of this patient?

A. Referral for subtotal gastrectomy
B. Referral to an oncologist for systemic chemotherapy
C. H. pylori eradication therapy with follow-up endoscopy in 6 weeks
D. Referral for staging laparoscopy

Gastroenterology and Hepatology:Question 106
A 79-year-old woman comes to the emergency department because of a large amount of hematochezia. She was feeling well until 2 days ago, when she felt the sudden urge to defecate. She went to the bathroom and passed bright red blood without clots or stool but otherwise felt well. The patient has no history of gastrointestinal bleeding and takes no medications. Colonoscopy, performed 5 years ago for evaluation of constipation, showed extensive left-sided diverticulosis.
On physical examination, supine blood pressure is 160/90 mm Hg and pulse rate is 80/min. Blood pressure remains the same on sitting, but her pulse rate increases to 110/min. Abdominal examination is normal. Digital rectal examination reveals bright red blood; no masses or stool is palpated. Hemoglobin is 11.0 g/dL (baseline hemoglobin was 13.4 g/dL 6 weeks ago). Coagulation parameters and platelet count are normal.
The patient is given 1.5 L of normal saline, and the orthostatic changes resolve promptly.
Which of the following is the next best step in her management?
A. Colonoscopy
B. Bleeding scan
C. Angiography
D. Upper endoscopy
E. Immediate surgical consultation

Gastroenterology and Hepatology:Question 107
A 28-year-old man with HIV infection (current CD4 cell count of 115/µL) has a 2-month history of odynophagia described as pain in the substernal area that is made worse with swallowing. Proton pump inhibitors are ineffective. The patient denies gastroesophageal reflux disease and heartburn.
On physical examination, the patient is thin. There is no oral thrush, and no other abnormalities are noted. Upper endoscopy is performed; findings are shown.



Which of the following is the most likely diagnosis?
A. Gastroesophageal refl ux disease
B. Achalasia

C. Pill-induced esophagitis
D. Candida esophagitis
E. Cytomegalovirus esophagitis

Gastroenterology and Hepatology:Question 108

A 59-year-old woman is evaluated because of abnormal liver chemistry test results of 2 months duration. Medical history is noncontributory. She takes no medications and does not drink alcoholic beverages. Physical examination is normal.

Laboratory studies:

Serum ferritin	80 ng/mL
Plasma cholesterol	220 mg/dL
Serum triglycerides	150 mg/dL
Serum iron	50 µg/dL
Serum total iron-binding capacity	250 µg/dL
Serum alkaline phosphatase	375 U/L
Serum aspartate aminotransferase	45 U/L
Serum alanine aminotransferase	60 U/L
Serum y-glutamyltransferase	200 U/L
Serum total bilirubin	3.1 mg/dL
Serum direct bilirubin	2.1 mg/dL
Serum total protein	6.5 g/dL
Serum albumin	3.6 g/dL

Which of the following diagnostic studies should be done next?

A. CT scan of the abdomen
B. Magnetic resonance cholangiopancreatography
C. Endoscopic retrograde cholangiopancreatography
D. Liver biopsy
E. Abdominal ultrasonography

ANSWERS

Gastroenterology and Hepatology:Question 1

The correct answer is A

Educational Objectives

Recall how to differentiate ulcerative colitis from Crohns disease.

Critique

This patient has the typical clinical findings of new-onset inflammatory bowel disease. Based on his presentation and results of initial studies, the type of inflammatory bowel disease cannot be established. The differentiation of Crohns disease from ulcerative colitis cannot be made in up to 5% of patients who present with features of indeterminate colitis. These patients require additional testing. The most useful tests are an assay for anti-Saccharomyces cerevisiae antibody (ASCA), which is usually positive in patients with Crohn's disease, and an assay for perinuclear antineutrophil cytoplasmic antibody (p-ANCA), which is usually positive in patients with ulcerative colitis. This patient most likely has Crohns disease, based on ASCA positivity.

Colonic biopsy findings of continuous pancolitis are more consistent with ulcerative colitis, although neither granulomas nor the transmural nature of the inflammation of Crohn's disease may be evident on biopsy. Distal ileitis can be found on contrast radiographic studies in patients with either ulcerative colitis (backwash ileitis') or Crohns disease. No specific findings for Crohn's disease such as cobblestoning or fistulae are noted in this patient. Smoking protects against ulcerative colitis but often aggravates the course of Crohn's disease, and patients with ulcerative colitis are sometimes first diagnosed soon after they quit smoking.

Gastroenterology and Hepatology:Question 2

The correct answer is D

Educational Objectives

Recall the diagnostic tests for acute hepatitis **A virus infection.**

Critique

This patients clinical and biochemical findings suggest acute hepatitis. She has recently returned from a country where hepatitis A virus is endemic, and testing for IgM antibody to hepatitis A virus (IgM anti-HAV) is indicated.

A positive test for antibody to hepatitis B surface antigen (anti-HBS) indicates only that the patient has been exposed to HBV. It does not indicate that she has acute HAV infection. There is nothing in the history to suggest acute hepatitis C virus infection. In addition, determination of antibody to hepatitis C virus (anti-HCV) is not the appropriate test to diagnose this infection, as up to 40% of patients may have a negative test. The clinical picture is not consistent with an amebic liver abscess, and serum aminotransferase elevations to the degree noted in the patient are not typical for amebic liver disease. Therefore, an indirect hemagglutination test for Entamoeba histolytica is not indicated. Acute Epstein-Barr virus infection is usually associated with pharyngeal discomfort, lymphadenopathy, and atypical lymphocytosis, which this patient does not have.

Gastroenterology and Hepatology:Question 3

The correct answer is E

Educational Objectives

Recall how to manage **a** patient with uncomplicated gastroesophageal reflux disease.

Critique

This patient has the classic symptoms and findings of uncomplicated

gastroesophageal reflux disease (GERD). A response to acid suppressive therapy is the best way to confirm the diagnosis, since additional testing is not indicated if the patient's symptoms resolve with therapy.
Upper endoscopy is usually indicated only for patients with complications of GERD. Patients with such complications usually present with warning symptoms (dysphagia, odynophagia, weight loss, and/or anemia), none of which the current patient has. Esophageal manometry is used to diagnose esophageal motility disorders or to evaluate patients prior to antireflux surgery. Ambulatory 24-hour esophageal pH monitoring is indicated for patients who do not respond to initial acid suppressive therapy or who may have a diagnosis other than GERD. Barium swallow is used in the evaluation of esophageal function and in assessing structural abnormalities of the esophagus.

Gastroenterology and Hepatology:Question 4
The correct answer is A
Educational Objectives
Recall the most appropriate initial management for a patient with acute upper gastrointestinal bleeding.
Critique
Upper endoscopy should not be performed immediately because the patient must be resuscitated, stabilized, and intubated for airway protection prior to this procedure. If upper endoscopy is done immediately, the patient is at high risk for aspiration or other cardiopulmonary complications.

Gastroenterology and Hepatology:Question 5
The correct answer is A
Educational Objectives
Recall how to use the MELD score and the Child-Turcotte-Pugh score to prioritize patients for liver transplantation.
Critique
In February 2002 the United Network for Organ Sharing adopted the Model for End-Stage Liver Disease (MELD) score to prioritize patients with chronic liver disease for liver transplantation. This score was found to provide a reliable estimate of short-term survival for patients with a wide range of chronic liver diseases. It is determined by a formula that includes the INR, serum creatinine, and serum total bilirubin. The Child-Turcotte-Pugh scoring system, which has been used for many years to classify the severity of cirrhosis, also uses the INR and serum total bilirubin. Serum aminotransferase, alkaline phosphatase, and y-glutamyltransferase levels do not provide prognostic information for patients with chronic liver diseases.

Gastroenterology and Hepatology:Question 6
The correct answer is A
Educational Objectives
Recall how to evaluate a patient with a positive fecal occult blood test.
Critique
Colonoscopy is the most appropriate test for patients with a positive fecal occult blood test. Annual fecal occult blood testing, followed by colonoscopy if the test is positive, reduces colorectal cancer mortality by as much as 33%. Colonoscopy can detect subtle mucosal abnormalities such as telangiectasias, areas of inflammation or ulceration, and neoplasms. In addition, most polyps and some early-stage cancers can be removed during the procedure.
Flexible sigmoidoscopy evaluates only the distal colon and rectum. A barium enema examination misses approximately 50% of small polyps that can be seen on

colonoscopy and is therefore not recommended unless the patient is unable to undergo colonoscopy. Digital rectal examination detects very few colorectal neoplasms. Because even one positive window on a fecal occult blood test constitutes a positive study, there is no reason to repeat this test.

Gastroenterology and Hepatology:Question 7
The correct answer is A
Educational Objectives
Recall the appropriate therapy for a patient with necrotizing pancreatitis.
Critique
Antibiotic prophylaxis is of renewed interest in treating patients with necrotizing pancreatitis. Reports of older clinical trials failed to show a difference in outcome when antibiotics were used, but limitations of these trials included selection of patients who had less severe pancreatitis and administration of antibiotics that had poor penetration into the pancreas or did not cover the spectrum of pathogens causing pancreatic abscesses.
A more recent multi-center trial studied 60 patients with severe pancreatitis and necrosis affecting at least 50% of the pancreas. The patients were randomized to receive either intravenous pefloxacin (a fluoroquinolone) or imipenem for 2 weeks. Infected necrotic pancreatitis and extrapancreatic infections were significantly reduced in the group that received imipenem.
Cholecystectomy prevents recurrent attacks of biliary pancreatitis associated with passage of stones and sludge. However, this procedure does not influence the outcome of acute pancreatitis and should be delayed until after the patient has recovered from the severe pancreatitis.
Nutrition becomes a significant concern in patients with severe pancreatitis because this disorder is often associated with an extensive hospital stay, ileus, or inability to maintain sufficient caloric intake. However, when hyperalimentation and enteral feedings were compared, enteral feedings were associated with a decreased number of infectious complications and lower costs.
Therapeutic endoscopic retrograde cholangiopancreatography is effective in decreasing the complications associated with acute biliary pancreatitis. However, the benefit appears to be limited to patients who have a retained common duct stone associated with cholangitis or severe pancreatitis. This patient's bile duct is not dilated, and no data are provided that suggest the presence of a retained stone.

Gastroenterology and Hepatology:Question 8
The correct answer is C
Educational Objectives
Recall how to differentiate watery noninflammatory diarrhea syndromes from inflammatory processes.
Critique
This patient has an acute diarrheal syndrome that is most consistent with an inflammatory process with mucosal erosions and ulcerations (hence, the bleeding). Campylobacter jejuni is a common cause of inflammatory diarrhea. Giardia lamblia, Cryptosporidium, rotavirus, and enterotoxigenic Escherichia coli usually cause a watery noninflammatory process with larger stool volumes, and there are generally no leukocytes or blood in the stool.

Gastroenterology and Hepatology:Question 9
The correct answer is B
Educational Objectives
Recall the most appropriate laboratory studies for the diagnosis of primary biliary

cirrhosis.

Critique

In middle-aged women, primary biliary cirrhosis classically presents as a cholestatic disorder associated with a significantly elevated serum alkaline phosphatase level. Pruritus is a common symptom at presentation. Most patients have a positive test for antimitochondrial antibody at a titer of 1:40 or greater.

Determination of the transferrin saturation is used to diagnose hereditary hemochromatosis, which is not associated with this patients pattern of liver chemistry abnormalities.α1-Antitrypsin deficiency is usually first noted during childhood. When α1-antitrypsin deficiency is initially identified in an adult, it is generally associated with cryptogenic cirrhosis and does not have the pattern of biochemical abnormalities found in this patient. Determination of serum ceruloplasmin is a test for Wilson's disease, and determination of the anti-smooth muscle antibody titer is an assay for autoimmune hepatitis, neither of which usually has the clinical presentation or pattern of biochemical abnormalities present in this patient.

Gastroenterology and Hepatology:Question 10

The correct answer is C

Educational Objectives

Recognize the clinical features of AIDS cholangiopathy and recall the most appropriate diagnostic studies.

Critique

This patient has AIDS cholangiopathy, which can present in various ways. Biliary tract disease is suggested by a markedly elevated serum alkaline phosphatase value, which is disproportionate to the other liver chemistry values. Bile duct dilatation without choledocholithiasis is usually due to papillary stenosis, which is diagnosed by endoscopic retrograde cholangiopancreatography (ERCP). ERCP sphincterotomy is usually performed to improve symptoms.

Other presentations of AIDS cholangiopathy include sclerosing cholangiopathy and extrahepatic biliary strictures. Most patients have CD4 cell counts less than 200/μL. The underlying cause is usually infectious, and pathogens include Cryptosporidium, Isospora, microsporidia, cytomegalovirus, Mycobacterium avium complex, and HIV itself.

A CT scan is inappropriate because it is unlikely to provide additional information. Liver biopsy and percutaneous transhepatic cholangiography are invasive procedures that are not needed at this time.

Gastroenterology and Hepatology:Question 11

The correct answer is D

Educational Objectives

Recognize the clinical presentation of Schatzki's ring in a patient with dysphagia.

Critique

A patient with intermittent dysphagia for solid foods most likely has an esophageal ring or web. Schatzki's ring is a smooth, symmetric mucosal ring at the junction of the esophageal and gastric mucosa. The barium swallow shown highlights the classic findings. Symptoms generally occur when the intraluminal diameter of the esophagus is less than 13 mm. Schatzki's ring is usually treated by dilation, and most patients have an excellent response.

Esophageal adenocarcinoma or squamous cell carcinoma typically occurs in older patients who report dysphagia and weight loss. Patients with achalasia have dysphagia for both solid foods and liquids and also have regurgitation. Barrett's esophagus is usually diagnosed endoscopically, as patients with this disorder

frequently have a normal barium swallow.

Gastroenterology and Hepatology:Question 12
The correct answer is C
Educational Objectives
Recall the different pathogens that can cause food poisoning.
Critique
Clostridium perfringens is sometimes known as a 'buffet pathogen. Symptoms of C. perfringens infection typically begin 8 to 24 hours after eating, are generally mild, and usually resolve within 24 hours.
Staphylococcal food poisoning usually develops within 1 to 8 hours after eating, lasts 1 to 2 days, and may be associated with more severe vomiting. Hepatitis A virus has been associated with eating seafood. However, this infection is usually characterized by fever and fatigue that develop 14 to 50 days after ingestion. Campylobacter jejuni infection develops 2 to 10 days after eating contaminated food, and diarrhea may be severe and even bloody. Listeria monocytogenes infection develops within 2 to 30 days after eating contaminated food and is most commonly associated with fever, chills, and flu-like symptoms.

Gastroenterology and Hepatology:Question 13
The correct answer is C
Educational Objectives
Recall the diagnostic tests for acute hepatitis C virus infection.
Critique
This patient has clinical and biochemical features of acute hepatitis. The key element in her history is the use of injection drugs, which suggests that she has developed acute hepatitis C virus (HCV) infection. Determination of HCV RNA is the most appropriate test for diagnosing the acute infection because up to 40% of patients may not have developed antibody to HCV at the time of clinical illness.
The presence of IgG antibody to hepatitis A virus (lgG anti-HAV) indicates prior exposure to HAy. The presence of lgG antibody to hepatitis B core antigen (lgG anti-HBc) suggests exposure to hepatitis B virus. However, this antibody develops several weeks after the acute illness. Similarly, the appearance of antibody to hepatitis B surface antigen (anti-HBS) follows clearance of HBSAg and confers immunity. A positive antimitochondrial antibody titer supports the diagnosis of primary biliary cirrhosis, which is a chronic cholestatic disorder that does not have the clinical and biochemical features present in this patient.

Gastroenterology and Hepatology:Question 14
The correct answer is B
Educational Objectives
Understand the differences in the evaluation of neuroendocrine tumors involving the peripancreatic region.
Critique
The elevated fasting gastrin level and the marked elevation in basal acid output are diagnostic of gastrinoma (Zollinger-Ellison syndrome). Approximately 65% of gastrinomas are malignant with the potential for metastasis. Postbulbar ulcers are uncommon and can be caused by Crohns disease, lymphoma, and Zollinger-Ellison syndrome (as in this patient).
An octreotide scan is the most effective study for demonstrating a gastrinoma. This study can show not only the primary lesion but also any metastases to the liver or lymph nodes. Endoscopic ultrasonography is preferred for determining that a pancreatic tumor is an insulinoma. Exploratory laparotomy may not be appropriate if

hepatic metastases are present, as suggested by this patients elevated liver enzyme values. Mesenteric venous sampling is less efficient than an octreotide scan for demonstrating a gastrinoma and is more invasive and expensive. Pentagastrin stimulation of maximal acid secretion is not required because of the high basal acid output. Furthermore, pentagastrin is no longer available commercially.

Gastroenterology and Hepatology:Question 15
The correct answer is A
Educational Objectives
Recall the currently available treatments for fistulae in patients with Crohn's disease.
Critique
This patient presents with an enterocutaneous fistula, which is a common complication of Crohns disease. Infliximab infusions have become a popular choice for the treatment of fistulous Crohns disease. Cyclosporine, 6-mercaptopurine, and methotrexate also have evidence-based support for treatment. However, 6-mercaptopurine and methotrexate have a long median response time of approximately several months. Use of cyclosporine is limited by long-term side effects, including hypertension and renal damage. Transdermal nicotine has been used with some success in treating patients with ulcerative colitis but is unlikely to be helpful in patients with Crohn's disease, which is usually exacerbated by cigarette smoking.

Gastroenterology and Hepatology:Question 16
The correct answer is E
Educational Objectives
Recall the evaluation of a patient with extraesophageal manifestations of gastroesophageal reflux disease.
Critique
This patients laryngeal findings are suggestive of an acid injury. Acid suppressive therapy, usually with a proton pump inhibitor twice daily, helps to define the causal relationship between these findings and gastric acid exposure. Several months of therapy may be required before symptoms resolve and signs improve.
Ambulatory 24-hour esophageal pH monitoring may identify gastroesophageal reflux disease (GERD) but does not document a cause-and-effect relationship between the symptoms and GERD. The other studies have little utility in a patient with an extraesophageal presentation of GERD.

Gastroenterology and Hepatology:Question 17
The correct answer is B
Educational Objectives
Identify common causes of acute lower gastrointestinal bleeding in an elderly patient.
Critique
In large clinical series, diverticular disease and, less commonly, vascular malformations and neoplasms were among the most common causes of acute lower gastrointestinal bleeding. Hemorrhoids and ischemic colitis rarely produce the massive bleeding that this patient is experiencing.

Gastroenterology and Hepatology:Question 18
The correct answer is C
Educational Objectives
Recall the appropriate management of a patient with dyspepsia.
Critique

An important early decision in the evaluation of patients with dyspepsia is to determine whether the presenting symptoms and signs suggest the possibility of gastric malignancy or an ulcer complication (that is, alarm symptoms). These include the new onset of symptoms after age 50, anorexia, dysphagia, gross or occult gastrointestinal bleeding, unexplained anemia, weight loss, significant vomiting, or findings on an upper gastrointestinal barium radiograph that are suspicious for cancer. The presence of any of these features is an indication for early upper endoscopy. Since the patient is over 50 years of age, he should undergo endoscopic evaluation before any other diagnostic studies or medication trials are begun.

Gastroenterology and Hepatology:Question 19
The correct answer is B
Educational Objectives
Recognize the clinical presentation and type of genetic mutation in a patient with hereditary hemochromatosis.
Critique
This patient has biochemical and histologic features of hereditary hemochromatosis, which is the most common genetic disease in white persons. More than 85% of individuals with clinical and biochemical features of hereditary hemochromatosis are homozygous for the C282Y mutation. First-degree relatives of the patient should be screened for this disorder by genetic testing and by measurement of transferrin saturation.

Gastroenterology and Hepatology:Question 20
The correct answer is B
Educational Objectives
Recall the appropriate evaluation of a patient with unexplained iron deficiency anemia.
Critique
Colorectal cancer is of greatest concern in this postmenopausal black woman who has symptomatic iron deficiency anemia. Black race and iron deficiency anemia in a postmenopausal woman are both risks for colorectal cancer. Colonoscopy is the most appropriate test because it has the best diagnostic accuracy and allows for biopsy or removal of any lesions. A negative fecal occult blood test in a patient with iron deficiency anemia does not rule out the need for colonoscopy.
Upper endoscopy should be reserved for patients with upper gastrointestinal tract symptoms or negative findings on colonoscopy. Barium enema examination is less accurate than colonoscopy and cannot be used for therapy. However, it may be considered for the rare patient in whom colonoscopy is unsuccessful or who cannot tolerate the procedure. Flexible sigmoidoscopy is inappropriate because it does not evaluate the proximal colon. In addition, if a distal lesion is detected, colonoscopy would still be required to look for synchronous neoplasms. CT is not a sensitive test for detecting an early neoplasm or a mucosal process such as an arteriovenous malformation.

Gastroenterology and Hepatology:Question 21
The correct answer is C
Educational Objectives
Recognize splenic vein thrombosis as a complication of chronic pancreatitis and recall the most appropriate therapy.
Critique
This patient probably has splenic vein thrombosis that has caused isolated gastric varices. The varices are the source of bleeding. Splenic vein thrombosis occurs in

patients with either acute or chronic pancreatitis (more commonly in the latter). Therapy is splenectomy.
In patients with cirrhosis, endoscopic changes include portal hypertensive gastropathy and esophageal varices. Gastric varices may also be seen in these patients. Treatment of portal hypertension includes medical therapy with 3-blockers for primary and secondary prevention of bleeding, endoscopic banding, transjugular intrahepatic portosystemic shunt (TIPS), and surgical portacaval shunt. However, this patient has no evidence of chronic liver disease.

Gastroenterology and Hepatology:Question 22
The correct answer is B
Educational Objectives
Recall the toxicity of corticosteroids and the use of steroid-sparing agents in treating patients with Crohns disease.
Critique
This patient has prednisone-induced side effects and requires a steroid-sparing regimen and eventual taper of prednisone. Azathioprine and 6-mercaptopurine are the most effective steroid-sparing medications for treating patients with Crohns disease. Cyclosporine and metronidazole are less effective.
Budesonide, a recently approved corticosteroid, is available in an ileal release form and is primarily used for treating Crohn's ileitis and right-sided colitis. Budesonide undergoes rapid first-pass metabolism that eliminates more than 90% of the drug and has fewer acute side effects than conventional corticosteroids. However, it has a much higher affinity for corticosteroid receptors than does prednisone and may be associated with significant long-term systemic side effects.

Gastroenterology and Hepatology:Question 23
The correct answer is A
Educational Objectives
Recognize the clinical presentation of a patient with acute cholangitis and recall the appropriate management.
Critique
This patient has classic Charcots triad (fever, jaundice, and right upper quadrant abdominal pain). In this setting, bile duct dilatation with stones in the gallbladder suggests acute cholangitis due to choledocholithiasis. Broad-spectrum antibiotics to cover aerobic and anaerobic gram-negative bacilli and enterococci should be started immediately. Endoscopic retrograde cholangiopancreatography with sphincterotomy should then be performed to remove impacted stones.
Surgical management of a patient with acute cholangitis is associated with increased morbidity and mortality and is therefore not indicated at this time. However, surgery may eventually be needed to prevent future episodes. Additional imaging of the biliary tract by CT scans or magnetic resonance cholangiopancreatography is unnecessary and will delay treatment.

Gastroenterology and Hepatology:Question 24
The correct answer is D
Educational Objectives
Recall the currently recommended screening program for colorectal cancer in an average-risk person Critique
This patient is considered to be at average risk for colorectal cancer because he is at least 50 years of age, is asymptomatic, and has no personal or family history of colorectal neoplasia. Current guidelines recommend any of the following for screening average-risk individuals: fecal occult blood testing every year, flexible

sigmoidoscopy every 5 years, fecal occult blood testing every year plus flexible sigmoidoscopy every 5 years, barium enema examination every 5 years, or colonoscopy every 10 years. Colonoscopy with polypectomy of any adenomas can reduce the incidence of colorectal cancer by approximately 75% to 90%.
Data from prospective randomized controlled studies demonstrate that fecal occult blood testing reduces colorectal cancer mortality by 33% if performed annually and by 18% if performed biennially. Retrospective studies indicate that sigmoidoscopy reduces mortality from distal colorectal cancer by approximately 65% to 70% even if this examination had been performed only once in the previous 5 to 10 years. To date, the efficacy of barium enema examination has not been determined in longitudinal screening trials. CT colonography (virtual colonoscopy) is a promising modality, but it has not yet been incorporated into colorectal cancer screening guidelines.

Gastroenterology and Hepatology:Question 25
The correct answer is D
Educational Objectives
Recall the treatment of a patient with autoimmune hepatitis.
Critique
Patients with autoimmune hepatitis typically present with features of hepatocellular damage. In approximately 25% of cases, the onset cannot be distinguished from that of acute viral hepatitis. This patients serologic and histologic findings are typical for autoimmune hepatitis. Prednisone alone or in combination with azathioprine significantly improves the prognosis, and patients with or without cirrhosis generally respond well to this regimen.
Ursodeoxycholic acid (ursodiol) is beneficial for treating cholestatic liver disease but is not used in the management of autoimmune hepatitis. Penicillamine is administered to patients with Wilson's disease, which must always be considered in a young person who develops hepatic abnormalities. However, this patients histologic and serologic features are atypical for Wilson's disease, and she also has a normal serum ceruloplasmin level. Azathioprine is used in combination with prednisone to reduce the amount of prednisone needed, but it is not used alone in the initial treatment of autoimmune hepatitis.

Gastroenterology and Hepatology:Question 26
The correct answer is D
Educational Objectives
Recognize the symptoms and signs associated with esophageal adenocarcinoma in a patient with longstanding gastroesophageal reflux disease.
Critique
Dysphagia and weight loss are classic characteristics of a malignant esophageal obstruction. Esophageal adenocarcinoma usually occurs in white men with longstanding gastroesophageal reflux disease and Barrett's esophagus. In many patients with gastroesophageal reflux disease, Barrett's esophagus is identified only after the development of dysphagia leads to a diagnosis of adenocarcinoma.
The unintended weight loss in this patient tends to exclude a diagnosis of infectious or pill-induced esophagitis or an esophageal ring or web.

Gastroenterology and Hepatology:Question 27
The correct answer is B
Educational Objectives
Recall the most appropriate management of **a** patient with non-ulcer dyspepsia and Helicobacter pylori infection.

Critique
This patient has non-ulcer dyspepsia and Helicobacter pylori infection. Non-ulcer dyspepsia probably comprises various pathophysiologic abnormalities such asH. pylori infection, gastric dysmotility, delayed gastric emptying, and visceral hypersensitivity. However, testing for these abnormalities, other than the routine diagnostic studies that this patient has already undergone, is usually not warranted in clinical practice.
Whether H. pylori infection causes dyspepsia is currently controversial. Several large, randomized, double-blind, multicenter studies with long-term follow-up have not demonstrated significant symptom resolution after administration of therapy for H. pylori eradication compared with administration of placebo. However, clinical trials suggest that symptoms of dyspepsia may resolve in 10% to 20% of patients who are treated for H. pylori infection. Therefore, a trial of eradication therapy for H. pylori is warranted in this patient. Therapy may also provide additional benefits, such as a reduced incidence of peptic ulcers and perhaps of gastric malignancies.
Because rapid urease testing of gastric mucosal biopsy specimens is more accurate than serologic testing for H. pylori, serologic confirmation of the positive rapid urease test is not needed. A trial of a proton pump inhibitor would be expensive and is unlikely to benefit this patient because her symptoms have not responded to H2-receptor antagonists. Likewise, a trial of metoclopramide without documenting slow gastric emptying (gastroparesis) is not warranted because of the potential for neurologic side effects from this drug. If the patient's symptoms continue after a trial of H. pylori eradication therapy, a gastric emptying study for gastroparesis may be warranted.

Gastroenterology and Hepatology:Question 28
The correct answer is A
Educational Objectives
Recall the importance of hand washing in the prevention of Clostridium difficile colitis.
Critique
This patient most likely has nosocomial Clostridium difficile colitis. Good hand-washing techniques in hospitals and other settings may prevent this infection. There is no role for prophylactic antibiotics, especially since antibiotics are often the cause of the problem. Probiotic agents may be helpful for treatment of this infection. Loperamide has no role in prevention but can be used cautiously for symptom control. Caution is advised because of concern that patients with severe inflammatory conditions who receive medications for symptomatic treatment of diarrhea may be at increased risk for developing toxic megacolon.

Gastroenterology and Hepatology:Question 29
The correct answer is E
Educational Objectives
Recall the management of the HELLP syndrome in a pregnant patient.
Critique
This patient has the HELLP syndrome, which occurs in the third trimester of pregnancy and is characterized by microangiopathic hemolytic anemia, elevated liver enzymes, and a low platelet count (<100,000/µL). The syndrome is associated with pre-eclampsia, and the cornerstone of therapy is delivery of the fetus.
Plasmapheresis has been tried with variable results in patients with the HELLP syndrome. Intravenous immunoglobulin is used in treating patients with idiopathic thrombocytopenic purpura but has no role in the treatment of those with the HELLP syndrome. Liver transplantation has been needed for patients with the HELLP

syndrome who develop hepatic rupture and uncontrolled hemorrhage. However, transplantation is not indicated for this patient at this time. Bacterial infection has no role in the development of the HELLP syndrome, and antibiotics are therefore not indicated as primary therapy.

Gastroenterology and Hepatology:Question 30
The correct answer is D
Educational Objectives
Recall the management of **a young** patient with upper gastrointestinal bleeding.
Critique
The most appropriate management for the patient at this time is upper endoscopy to confirm the location of the bleeding site and to ascertain the risk of rebleeding. An upper gastrointestinal series is less sensitive than upper endoscopy for diagnosing the source of upper gastrointestinal bleeding and, although safer, does not allow the endoscopist to assess signs for risks of rebleeding or to administer endoscopic therapy.
Blood transfusions are used to prevent complications of blood loss, such as myocardial infarction. There is no magic level" below which blood transfusions should automatically be given. The risks associated with transfusion in this young, healthy patient very likely outweigh the risks of complications related to acute gastrointestinal blood loss. Likewise, establishing two intravenous lines and infusing saline at the rate given (3 to 4 liters over 6 hours) is unnecessary for this patient. There is no evidence that transfusing platelets is beneficial for a patient with gastrointestinal bleeding who has taken nonsteroidal anti-inflammatory drugs. In addition, the effect of naproxen on platelets is rapidly reversible.

Gastroenterology and Hepatology:Question 31
The correct answer is C
Educational Objectives
Recognize the clinical presentation of a patient with Mirizzi's syndrome.
Critique
This patient has symptomatic cholelithiasis now complicated by Mirizzi's syndrome, which is the cause of her jaundice. Mirizzi's syndrome is defined as narrowing of the extrahepatic bile duct, usually the common hepatic duct, from mechanical compression or inflammation because of a gallstone impacted in the cystic duct or gallbladder infundibulum. This obstruction results in dilatation of the bile duct proximally with normal caliber distally. Mirizzi's syndrome is a complication that occurs in 0.7% to 1 .4% of patients undergoing surgery for gallstones. The diagnosis is difficult to establish by abdominal ultrasonography alone, and endoscopic retrograde cholangiopancreatography is used to make the diagnosis preoperatively. This patients clinical picture may be consistent with choledocholithiasis, but Mirizzis syndrome is more likely, based on the abdominal ultrasound findings. Acute cholecystitis results from persistent obstruction by gallstones in either the neck of the gallbladder or the cystic duct and is the most common complication of cholelithiasis. However, this patient has no clinical or radiographic evidence of acute cholecystitis. She does not have Charcot's triad (fever, jaundice, right upper quadrant abdominal pain) or a clinical picture consistent with sepsis. Therefore, she is unlikely to have ascending cholangitis.

Gastroenterology and Hepatology:Question 32
The correct answer is A
Educational Objectives
Recall the treatment of a patient with ulcerative colitis of moderate severity.

Critique
Mild to moderate ulcerative colitis that extends beyond the distal colon can be treated initially with either oral aminosalicylates, such as sulfasalazine, or oral or intravenous corticosteroids. Oral prednisone is an excellent choice for induction of remission in this symptomatic patient, and sulfasalazine is a good choice for maintenance of remission.
Neither prednisone nor budesonide has been shown to maintain remission, and both are associated with more side effects than sulfasalazine. Intravenous cyclosporine should be reserved for patients with severe ulcerative colitis who have failed to respond to corticosteroids or who wish to avoid surgery.

Gastroenterology and Hepatology:Question 33
The correct answer is A
Educational Objectives
Recognize the clinical syndrome associated with hepatitis D virus superinfection.
Critique
In addition to a flare of hepatitis B virus infection, hepatitis D virus superinfection should be considered in any patient with chronic hepatitis B who suddenly develops worsening hepatic function.
Hepatitis E virus infection is endemic in Asia, Africa, and certain Latin American countries and is unlikely in this patient, who has no history of travel outside the United States. Epstein-Barr virus hepatitis generally is mild, is self-limited, and usually causes fever, lymphadenopathy, and pharyngitis. Granulomatous hepatitis may result from infections (for example, tuberculosis, histoplasmosis), sarcoidosis, autoimmune disorders (for example, primary biliary cirrhosis), or exposure to medications (for example, allopurinol, carbamazepine). Patients with granulomatous hepatitis typically have a serum alkaline phosphatase level that is higher than the serum aminotransferase levels. Alcoholic hepatitis is not associated with the degree of serum aminotransferase elevations noted in this patient.

Gastroenterology and Hepatology:Question 34
The correct answer is B
Educational Objectives
Recall the management of **a** patient with a history of a colorectal adenomatous polyp.
Critique
A personal history of an adenomatous polyp increases the risk of subsequent colorectal cancer. Repeat surveillance colonoscopy for someone with a small (<1-cm) tubular adenoma is recommended in 5 years, even in the absence of a family history of colorectal cancer.
Because of the slow natural history of colonic polyps, performing colonoscopy 1 year after polypectomy is excessive. Low-dose aspirin can reduce adenoma recurrence rates, but it is not considered a substitute for surveillance colonoscopy. Although a high-fiber, low-fat diet is healthy, interventional studies have not shown that it reduces adenoma recurrence rates.

Gastroenterology and Hepatology:Question 35
The correct answer is B
Educational Objectives
Recall the factors associated with peptic ulcer disease and the appropriate diagnostic evaluation of a patient with a peptic ulcer.
Critique
This patient most likely has a duodenal ulcer caused by Helicobacter pylori, although

he had a negative rapid urease test for H. pylori while taking a proton pump inhibitor. False-negative tests for H. pylori may occur following recent administration of antibiotics, bismuth-containing compounds, proton pump inhibitors, and possibly H2-receptor antagonists. Patients should not receive proton pump inhibitors for at least 2 weeks before undergoing rapid urease testing, urea breath or urea blood testing, or stool antigen testing for H. pylori.
Zollinger-Ellison syndrome should always be considered in a patient with an ulcer but with negative tests for H. pylorL However, this patient has no symptoms suggestive of this syndrome. Adenocarcinoma is much less common in patients presenting with a duodenal ulcer (1 per 1000 or less) than in those presenting with a gastric ulcer (20 per 1000 or more). Tobacco use, but not moderate alcohol consumption, is associated with peptic ulcer. Surreptitious NSAID use is another cause of ulcers, as some patients conceal their use of NSAIDs from physicians for psychological reasons. However, this is much less common than H. pylori as a cause of duodenal ulcers.

Gastroenterology and Hepatology:Question 36
The correct answer is C
Educational Objectives
Recall how to differentiate osmotic from secretory diarrhea based on the calculated osmotic gap.
Critique
This patient has a secretory diarrhea because she has an osmotic gap of less than 50. The osmotic gap is determined by using the formula 290-2 ([Na+] + [K+]). Hyperthyroidism is the only one of the options listed that is not associated with an osmotic diarrhea.

Gastroenterology and Hepatology:Question 37
The correct answer is B
Educational Objectives
Recall the diagnosis of a patient with alcoholic cirrhosis and a focal hepatic lesion.
Critique
The development of a focal hepatic lesion in a patient with cirrhosis should raise concerns about the possibility of hepatocellular carcinoma. The triphasic CT scan shows that the lesion has arterial enhancement, which is characteristic of hepatocellular carcinoma.
None of the other diagnoses listed is characteristic for the pattern of radiologic abnormalities described. Hepatic cyst and focal fatty infiltration of the liver do not show arterial enhancement on a triphasic CT scan, and hepatic hemangioma is hyperechoic on ultrasonography. The patient's serum α-fetoprotein level is also increased, although it has not reached the level (>400 ng/mL) that is of concern for establishing the diagnosis of hepatocellular carcinoma.

Gastroenterology and Hepatology:Question 38
The correct answer is C
Educational Objectives
Recall the appropriate colorectal cancer management for a patient with hereditary nonpolyposis colorectal cancer.
Critique
The diagnosis of colon cancer in this patient, together with the family history of colon and uterine cancer, defines this patient and her family as being at risk for hereditary nonpolyposis colorectal cancer (HNPCC). HNPCC is caused by a germline mutation in one of the DNA mismatch repair genes. Germline mutations of hMLH1 and hMSH2 genes are the most common genetic alterations associated with HNPCC, whereas

germline APC gene mutations are associated with familial adenomatous polyposis. Although colon cancers are common in patients with familial adenomatous polyposis, this patient has no evidence of polyposis. In addition, uterine cancers are more typical of HNPCC than of familial adenomatous polyposis.
Patients with HNPCC have a much higher rate of developing subsequent colon cancers than the general population, and there is no evidence that nonsteroidal anti-inflammatory drugs or aspirin can reduce this risk. Because HNPCC has an autosomal-dominant inheritance pattern, children of both sexes have a 50% chance of inheriting the mutated gene from an affected parent. At-risk relatives in a family known to have HNPCC should undergo colonoscopy by 20 to 25 years of age, or when they are approximately 10 years younger than the family member with the earliest cancer.

Gastroenterology and Hepatology:Question 39
The correct answer is D
Educational Objectives
Recall the appropriate management of **a patient with a** pancreatic pseudocyst in the setting of acute pancreatitis.
Critique
This patient has newly diagnosed chronic pancreatitis complicated by a large (>6 cm) pseudocyst. The etiology is most likely idiopathic, as he does not drink alcoholic beverages, has no family history of pancreatitis, and is not from an endemic area (Southeast Asia) for tropical pancreatitis. The CT scan shows no evidence of a pancreatic neoplasm. As the patient no longer has symptoms caused by the pseudocyst and there is no evidence of complications (hemorrhage, infection, rupture), the most appropriate intervention at this time is a CT scan in 6 weeks to reassess the size of the lesion.
Surgical drainage is not indicated because the size of a pseudocyst is no longer a criterion for this procedure. However, if the patient develops symptoms or if the pseudocyst has significantly enlarged on repeat CT scanning, he should be referred for a drainage procedure. Whether endoscopic, radiologic, or surgical intervention is the optimal drainage procedure is controversial. If the pseudocyst can be accessed by endoscopy, this method is preferred because of the lower morbidity compared with surgical cyst drainage. If the pseudocyst cannot be accessed by endoscopy and the patient is a poor surgical candidate, percutaneous cyst drainage by interventional radiology should be considered.
Surgical excision is inappropriate because the pseudocyst is not a cystic neoplasm.
Fine-needle aspiration is inappropriate because the history is consistent with pancreatitis and the CT findings show a pseudocyst rather than a cystic neoplasm. However, if a patient has no history of pancreatitis or the CT findings are not characteristic of a pseudocyst, a pancreatic neoplasm must be included in the differential diagnosis. Since the patient is improving and is tolerating oral feedings, exposing him to the risks associated with total parenteral nutrition is not justified.

Gastroenterology and Hepatology:Question 40
The correct answer is B
Educational Objectives
Recall the metabolic disorders that may contribute to or cause constipation.
Critique
Hypothyroidism and hypercalcemia are the two metabolic disorders that most often result in constipation. This patient's constipation is most likely due to hypercalcemia, as her low serum thyroid-stimulating hormone value is more indicative of subclinical hyperthyroidism. Neither mild hyponatremia nor mild hyperkalemia usually causes

constipation.

Gastroenterology and Hepatology:Question 41
The correct answer is E
Educational Objectives
Recognize the clinical presentation of a patient with a perforated peptic ulcer.
Critique
This patient has peritoneal signs (fever, abdominal pain, rebound tenderness, and preferential flexion of the hips and knees), all of which suggest a viscus perforation with peritoneal irritation. An NSAID-induced ulcer is the most likely cause of the perforation. The mild hematemesis is probably secondary to intractable vomiting and a resultant Mallory-Weiss tear.
N SAID gastropathy is an asymptomatic condition that is characterized by the presence of multiple erosions and superficial hemorrhage on endoscopic examination and is typically not associated with major complications. The patients findings are not suggestive of an actively bleeding or penetrating ulcer with pancreatitis or of gastric outlet obstruction.

Gastroenterology and Hepatology:Question 42
The correct answer is B
Educational Objectives
Recognize the clinical presentation of gallstone ileus and recall the appropriate therapy.
Critique
This patient has an intestinal obstruction with pneumobilia suggestive of a communication of the biliary tree with the gastrointestinal tract. The finding of gallstones and a fistula is consistent with gallstone ileus. Gallstone ileus is actually a misnomer because the stone is impacted, which causes an obstruction. The obstruction is more common in the ileum but may also occur in the proximal duodenum (Bouverets syndrome). The band obstruction may also cause strangulation as a result of ischemic changes. Exploratory laparotomy is therefore required for the obstruction. Cholecystectomy and possible closure of a fistula are indicated, but can be done on an elective basis. Endoscopic lithotripsy has been performed for stones obstructing the duodenum. However, this patients stones are not accessible to endoscopic therapy. CT scanning, endoscopic retrograde cholangiopancreatography, and magnetic resonance cholangiopancreatography are not necessary in this patient with an acute intestinal obstruction that requires urgent surgical intervention.

Gastroenterology and Hepatology:Question 43
The correct answer is E
Educational Objectives
Recall the management of a patient with fulminant hepatic failure.
Critique
This patient meets the criteria for fulminant hepatic failure, which is defined as the development of hepatic encephalopathy within 8 weeks of onset of acute, severe liver injury. Because patients with fulminant hepatic failure from any cause have a high mortality rate, this patient should be considered for liver transplantation without undergoing additional detailed studies.
Neurologic consultation is unlikely to provide additional insight into the cause of this patients encephalopathy. Although cerebral edema may occur as her condition progresses, it is too early in the patient's course for this to be seen on CT scans of the head. A triphasic CT scan of the liver will show only a small liver, which has

already been documented by ultrasonography. Transjugular liver biopsy is unlikely to show more than severe hepatic necrosis, although features consistent with autoimmune liver disease might be noted.

Gastroenterology and Hepatology:Question 44
The correct answer is D
Educational Objectives
Recall the most appropriate treatment for **a** patient with acute diarrhea.
Critique
This patient has been ill for only 24 hours. Most acute diarrheal syndromes are self-limited and do not require antibiotic treatment. It is prudent to arrange follow-up in 24 to 48 hours to reassess her symptoms. If she is not better at that time, evaluation and possible treatment should be considered.

Gastroenterology and Hepatology:Question 45
The correct answer is A
Educational Objectives
Recall the evaluation of a patient with suspected esophageal adenocarcinoma.
Critique
This patient has the classic symptoms and signs of esophageal adenocarcinoma. His dysphagia and weight loss are characteristic symptoms of malignant esophageal obstruction. Upper endoscopy is most appropriate because it allows visualization and biopsy of the lesion in order to establish a definitive diagnosis. The other choices do not include a biopsy and therefore will not provide a definitive diagnosis of this patients suspected esophageal mass.

Gastroenterology and Hepatology:Question 46
The correct answer is B
Educational Objectives
Recall the diagnostic tests for acute hepatitis B virus infection.
Critique
This patient most likely has acute hepatitis B virus infection. The history of multiple sexually transmitted diseases suggests that he does not engage in safe sex practices. In the United States, the major risk factor for acquisition of hepatitis B virus is heterosexual transmission. IgM antibody to hepatitis B core antigen (IgM anti-HBc) is the test of choice in this case.
The presence of lgG antibody to hepatitis A virus (lgG anti-HAV) and cytomegalovirus (lgG anti-CMV) indicates prior exposure to these viruses and is of limited value for the diagnosis of acute hepatitis for which the IgM fraction should be assessed.
Antibody to hepatitis B surface antigen (anti-HBS) and hepatitis B e antigen (anti-HBe) will not have developed so soon after the start of the illness.

Gastroenterology and Hepatology:Question 47
The correct answer is C
Educational Objectives
Understand the newer diagnostic tests for colorectal cancer.
Critique
CT colonography (virtual colonoscopy) provides two- and three-dimensional computer-generated images that resemble the images seen on standard colonoscopy. The new procedure does not require sedation and is less time-consuming.
Preliminary results from several centers indicate that although the sensitivity and specificity are lower than that of conventional colonoscopy, CT colonography is quite

good at detecting large polyps and cancers. However, polyps measuring less than 1 cm may be missed. Patients must perform a standard bowel preparation. Air is insufflated into the rectum by a thin catheter, and this can create some discomfort because the procedure is performed without sedation.

Gastroenterology and Hepatology:Question 48
The correct answer is D
Educational Objectives
Understand the causes of refractory celiac sprue in a patient on a gluten-free diet.
Critique
More than 70% of patients with celiac sprue respond symptomatically within 2 weeks of starting a gluten-free diet. Inadvertent or deliberate dietary lapses are the most common reasons for failure to improve or for relapse of symptoms. A much smaller number of patients develop intestinal lymphoma, adenocarcinoma, ulcerative jejunitis, or pancreatitis. All of these disorders are associated with celiac sprue and may be the cause of failure to respond to treatment or relapse of symptoms. However, checking for compliance with the gluten-free diet should be the first step in evaluating this patient's failure to respond.

Gastroenterology and Hepatology:Question 49
The correct answer is D
Educational Objectives
Recall the need for surveillance upper endoscopy in a patient with Barrett's esophagus.
Critique
This patient has Barrett's esophagus, as shown by the endoscopic findings and confirmed by histologic studies. Surveillance upper endoscopy and biopsy of Barrett's epithelium are currently recommended for long-term management in order to identify dysplasia and allow for early intervention, which is associated with increased survival.
All other choices are incorrect because they do not incorporate endoscopic surveillance in the long-term follow-up.

Gastroenterology and Hepatology:Question 50
The correct answer is A
Educational Objectives
Recall the treatment of a patient with drug-induced hepatotoxicity.
Critique
This patient has significant serum aminotransferase elevations that are most likely related to lovastatin therapy. Although mild elevations are not uncommon and tend to normalize even if therapy is continued, elevations greater than three times the upper limit of normal should prompt discontinuation of this medication.
Serious hepatotoxic reactions due to atenolol have not been reported. Hepatic fibrosis may develop in patients who consume alcoholic beverages while taking methotrexate for more than 2 years and/or receive a cumulative methotrexate dose of greater than 1.5 g. This patients dose of acetaminophen is not sufficient to have caused the liver injury (in the absence of chronic alcohol use), and administration of N-acetylcysteine is therefore not indicated.

Gastroenterology and Hepatology:Question 51
The correct answer is D
Educational Objectives
Recall the disease associations and the appropriate management of a patient with

gastric adenomatous polyps.

Critique

The incidence of gastric adenomatous poiyps is relatively high in patients with familial adenomatous polyposis (FAP) syndrome. Given the young age of this patient and the number of gastric polyps found, colonoscopy is appropriate in order to screen for colonic manifestations of FAP.

Herpes simplex virus type 1 is a rare cause of gastric ulcers and has not been described in association with adenomatous polyps. Adenomatous gastric polyps are frequently found in the setting of atrophic gastritis and hypochlorhydria (reduced gastric acid secretion). Although chronicHelicobacter pylori infection of several years duration may lead to atrophic gastritis, this patient is young and has no evidence of H. pylori infection at this time.

Clinical trials have shown a reduced frequency of colonic and small intestinal adenomas in patients with FAP syndrome who were given selective COX-2 nonsteroidal anti-inflammatory drugs (NSAIDs), although the role of NSAIDs in reducing the frequency of gastric adenomas is less clear. Moreover, colonoscopy is the first step in this patient's management.

Gastroenterology and Hepatology:Question 52

The correct answer is A

Educational Objectives

Recall that patients with ulcerative colitis and other inflammatory bowel diseases may present with subacute diarrhea.

Critique

The findings on sigmoidoscopy are suggestive of possible ulcerative proctocolitis but could be consistent with an infectious diarrhea. However, the confluent area of inflammation from the rectum to 20 cm is more consistent with colitis. Crohns disease is unlikely because of the absence of pseudomembranes and granulomas. Cytomegalovirus colitis is unlikely, given this patient's negative HIV status. Ischemic colitis rarely involves the rectum and is unlikely in a patient of this age.

Gastroenterology and Hepatology:Question 53

The correct answer is E

Educational Objectives

Recall the most appropriate diagnostic study for evaluating a patient with massive lower gastrointestinal bleeding.

Critique

Only arteriography offers the opportunity to make the diagnosis and control the bleeding in a patient with hemorrhage who is bleeding rapidly. Colonoscopy is very difficult to perform in the rapidly bleeding patient and does not assess the small intestine. A radionuclide bleeding scan may establish the diagnosis, but other procedures will be required to treat the cause. Upper endoscopy is helpful in only about 10% of patients who have gastrointestinal bleeding secondary to a duodenal ulcer. Capsule endoscopy is reserved for low-grade bleeding in a stable patient.

Gastroenterology and Hepatology:Question 54

The correct answer is C

Educational Objectives

Recognize the clinical presentation of a patient with recurrent pyogenic cholangitis.

Critique

This patient presents with symptoms of acute cholangitis suggested by fever, right upper quadrant abdominal pain, and jaundice. Laboratory tests confirm obstructive cholestasis, and ultrasonography suggests hepatolithiasis. The most likely diagnosis

is recurrent pyogenic cholangitis, also known as oriental cholangiopathy. This disorder occurs almost exclusively in persons from Southeast Asia and is characterized by recurrent episodes of suppurative cholangitis. Pigmented stones may be seen in the intrahepatic bile ducts, and less commonly in the extrahepatic bile ducts, resulting in dilatation of the ducts. Classically, Charcots triad (fever, jaundice, and right upper quadrant abdominal pain) occurs during attacks. Many patients report recurrent episodes over several years, and many have a history of prior biliary tract surgery. Treatment includes antibiotics for cholangitis and decompression using endoscopic retrograde cholangiopancreatography. Surgical removal of stones is eventually necessary but challenging. Long-term complications of recurrent pyogenic cholangitis include secondary biliary cirrhosis and cholangiocarcinoma.
The patient has no evidence of cholangiocarcinoma at this time. Because he is Asian, he is less likely to have primary sclerosing cholangitis or primary biliary cirrhosis

Gastroenterology and Hepatology:Question 55
The correct answer is B
Educational Objectives
Recall the treatment of a patient with new-onset ascites.
Critique
This patient has cirrhosis as a consequence of chronic hepatitis C and has developed ascites that is consistent with portal hypertension, as reflected by the serum-to-ascites albumin gradient (SAAG) of greater than 1.1. The initial management requires a low-salt diet and spironolactone, which is the diuretic of choice in a cirrhotic patient with ascites.
Antibiotics are not indicated at this time because the ascitic fluid is not infected, as demonstrated by the polymorphonuclear leukocyte count of less then 250/µL.
Peritoneovenous shunt and transjugular intrahepatic portosystemic shunt (TIPS) are reserved for patients with refractory ascites. Large-volume paracentesis is not needed because the patient does not have abdominal pain or shortness of breath.

Gastroenterology and Hepatology:Question 56
The correct answer is C
Educational Objectives
Recall the symptomatic treatment of a patient with tropical sprue.
Critique
Since this patient came to the United States from India, which is an endemic area for tropical sprue, this
diagnosis is most likely. Tropical sprue is associated with small bowel overgrowth of aerobic coliform bacteria. Although the small bowel biopsy findings are nonspecific (villous blunting can occur in celiac sprue, bacterial overgrowth, and tropical sprue), celiac sprue is unlikely in a patient with a negative anti-tissue transglutaminase antibody titer.
Patients from an endemic area who have chronic or subacute symptoms of tropical sprue require treatment with both folic acid and tetracycline. Even with treatment, the clinical response is slow and relapse is common, especially if the patient remains in the endemic area. A gluten-free diet is used for patients with celiac sprue.
Although cholestyramine may help control this patient's diarrhea, it may exacerbate malabsorption.

Gastroenterology and Hepatology:Question 57
The correct answer is A
Educational Objectives

Recall the diagnostic test for determining immunity to hepatitis **B virus.**

Critique

The presence of antibody to hepatitis B surface antigen (anti-HBS) confers immunity to hepatitis B virus. Current hepatitis B virus vaccines consist of recombinant HBSAg and result in the development of anti-HBs in greater than 90% of healthy individuals. The presence of antibody to hepatitis B e antigen (anti-HBe) results from exposure to natural infection. The appearance of **Ig**M and lgG antibodies to hepatitis B core antigen (IgM anti-HBc and lgG anti-HBc) also results from exposure to natural infection. HBSAg is present during acute and chronic infection with hepatitis B virus.

Gastroenterology and Hepatology:Question 58

The correct answer is D

Educational Objectives

Recall how to identify the site of acute gastrointestinal bleeding.

Critique

The passage of red blood per rectum does not always represent lower gastrointestinal bleeding. If the pace of bleeding is brisk, a patient with an upper gastrointestinal source of bleeding may present with bright red blood per rectum. In this patient, the elevated blood urea nitrogen level, hyperactive bowel sounds, and severe tachycardia raise the possibility of brisk bleeding from an upper gastrointestinal source. Passage of a nasogastric tube is fast and can help determine whether the patient is bleeding from the upper gastrointestinal tract. An upper gastrointestinal source is unlikely if the nasogastric aspirate contains bile (indicating sampling distal to the pylorus) but does not contain blood.

Immediate colonoscopy is not appropriate because diagnosis and therapy will be significantly delayed if the patient is bleeding from an upper gastrointestinal source. Although mesenteric arteriography could show an upper or lower gastrointestinal bleeding source, this is an invasive procedure that has recognized complications. In addition, mesenteric arteriography requires moving a still unstable patient to a less-well-monitored setting.

Gastroenterology and Hepatology:Question 59

The correct answer is C

Educational Objectives

Recognize the clinical presentation of pancreatitis as a side effect of 6-mercaptopurine.

Critique

Azathioprine and its active metabolite, 6-mercaptopurine (6-MP), are relatively safe when given to patients with inflammatory bowel disease. When given in adequate doses, these agents usually allow a patients corticosteroid dose to be decreased and help prolong remission of the bowel disease. Both corticosteroids and 6-MP have been associated with pancreatitis. However, this patients current findings are most likely due to the 6-MP because this agent was started only recently and is associated with a relatively high risk of pancreatitis.

A flare of ulcerative colitis is unlikely to involve pain radiating to the back or to be induced by starting 6-MP. Although 6-MP frequently causes neutropenia, the development of abscesses outside of the intestinal wall would be a very unusual adverse reaction in a patient with ulcerative colitis. Finally, allergic reactions to 6-MP usually involve a rash, which this patient does not have.

Gastroenterology and Hepatology:Question 60

The correct answer is D

Educational Objectives

Recall how to assess stool examination results to determine osmolality, osmotic versus secretory diarrhea, and contamination of a stool sample.

Critique

The value for measured stool osmolality should be close to that of plasma osmolality (about 290 mosm/kg). Very high stool osmolality can only be accounted for by the addition of solutes to the stool or fermentation of unabsorbed nutrients by bacteria after the sample has been collected but before it is measured in the laboratory. This most commonly is due to contamination by urine, which may have occurred accidentally. In some cases, however, purposeful contamination with urine (and, if very dilute, with water) must be considered.

Gastroenterology and Hepatology:Question 61

The correct answer is B

Educational Objectives

Recall the most appropriate diagnostic tests for a patient with chronic hepatitis B.

Critique

Measurement of hepatitis B surface antigen (HBSAg) will have prognostic and therapeutic implications for this patient, who is from an area endemic for hepatitis B virus infection and whose family history of hepatocellular carcinoma suggests vertical transmission of hepatitis B virus. He is probably a chronic asymptomatic carrier based on his normal liver chemistry studies.

Determination of anti-HCV is not indicated because the patient has no risk factors for hepatitis C virus infection. Serum α-fetoprotein determination is appropriate only if he is found to have chronic hepatitis B virus infection. His ethnicity, clinical features, and biochemical data do not suggest Wilsons disease or α1-antitrypsin deficiency. Therefore, determinations of serum ceruloplasmin and serum α1-antitrypsin levels are not indicated.

Gastroenterology and Hepatology:Question 62

The correct answer is B

Educational Objectives

Recall the evaluation of suspected symptomatic gastroesophageal reflux disease in a patient who is unresponsive to medical therapy.

Critique

This patient has the classic symptoms and presentation for gastroesophageal reflux disease (GERD). However, she does not respond to proton pump inhibitors, which are the most effective nonsurgical therapy for this disorder. Ambulatory 24-hour esophageal pH monitoring performed while this patient takes her usual proton pump inhibitor will help define whether her symptoms are actually related to continued GERD or to some other disorder.

Upper endoscopy has a low yield in this clinical setting, especially since the patient is young and does not have warning symptoms for cancer (dysphagia, odynophagia, weight loss, and/or choking). In addition, esophagitis would most likely have resolved after 1 week of therapy with a proton pump inhibitor. Barium swallow has a low sensitivity in this clinical setting. Surgical fundoplication is usually not indicated in patients with symptomatic GERD who do not respond to proton pump inhibitors.

Gastroenterology and Hepatology:Question 63

The correct answer is B

Educational Objectives

Recall the complications of therapeutic agents for treatment of chronic hepatitis C.

Critique

This patient has a severe hemolytic reaction from ribavirin, which requires

discontinuing the drug. Pegylated interferon may be continued because of the absence of significant neutropenia, thrombocytopenia, and clinical depression. Iron or vitamin supplementation alone will not improve the hematocrit value.

Gastroenterology and Hepatology:Question 64
The correct answer is B
Educational Objectives
Recall the risks of cholelithiasis and cholecystectomy during pregnancy.
Critique
Recurrent biliary colic with worsening symptoms warrants cholecystectomy and should not be postponed until after delivery in a pregnant patient. However, there is a higher risk of complications during pregnancy, especially during the first and third trimesters. The first trimester should be avoided because of the increased risk of spontaneous abortion during fetal organogenesis. The third trimester is also a high-risk period because of potential laparoscopic trocar injury to the uterus and possible impairment of fetal circulation as a result of pneumoperitoneum. Surgery should therefore be performed during the second trimester.

Gastroenterology and Hepatology:Question 65
The correct answer is D
Educational Objectives
Understand the therapy for NSAID-induced ulcers when NSAID treatment cannot be stopped during the period of active ulcer healing.
Critique
Nonsteroidal anti-inflammatory drugs (NSAIDs) should be discontinued if possible in patients with symptomatic NSAID-induced ulcers, as ulcer healing is delayed when these drugs are continued. However, this patient insists on taking the diclofenac during the period of ulcer healing and will probably continue to take this medication even if advised against doing so.
Any of the four drugs listed may heal this patients ulcer, but a proton pump inhibitor is the most effective agent because it works more rapidly than the other drugs. Previous clinical trials of ulcer healing in patients who continued to use NSAIDs showed that the proton pump inhibitors omeprazole and lansoprazole were associated with higher healing rates than either the prostaglandin El analog misoprostol or the H2-receptor antagonist ranitidine. Sucralfate has been ineffective in clinical studies. Partial gastrectomy is not a reasonable initial option for a patient who has not received a trial of medical therapy for ulcer healing.

Gastroenterology and Hepatology:Question 66
The correct answer is C
Educational Objectives
Recall the appropriate laboratory studies for diagnosing bacterial overgrowth.
Critique
This patient may have bacterial overgrowth secondary to bacteria in the jejunal diverticula. The test of choice would be either a glucose hydrogen breath test or a lactulose hydrogen breath test. An anti-tissue transglutaminase antibody assay is used to detect celiac sprue, which is unlikely because of the patients negative small bowel biopsy results. Determination of urine 5-hydroxyindoleacetic acid (5-HIAA) is done to rule out carcinoid syndrome, but the patient has no signs or symptoms of this syndrome. Determination of stool α1-antitrypsin is used to rule out a protein-losing enteropathy.

Gastroenterology and Hepatology:Question 67
The correct answer is B
Educational Objectives
Recall the need for upper endoscopy in a patient with gastroesophageal reflux disease who is at risk for Barretts esophagus.
Critique
This patients longstanding symptoms of gastroesophageal reflux disease along with his sex, race, and age place him at high risk for Barrett's esophagus. Upper endoscopy is therefore indicated despite his good response to acid suppressive therapy.
Barium swallow, ambulatory 24-hour esophageal pH monitoring, and esophageal manometry have poor sensitivity for identifying Barrett's epithelium and are therefore not indicated.

Gastroenterology and Hepatology:Question 68
The correct answer is C
Educational Objectives
Recall the treatment of **a** patient with spontaneous bacterial peritonitis.
Critique
This patient has advanced liver disease complicated by spontaneous bacterial peritonitis. The diagnosis is supported by the ascitic fluid polymorphonuclear leukocyte count of greater than 250/µL. Spontaneous bacterial peritonitis is most often secondary to translocation of enteric bacteria, and a third-generation cephalosporin or a fluoroquinolone should be given while awaiting results of blood and ascitic fluid cultures.
Large-volume paracentesis is not indicated at this time because removal of a significant amount of ascitic fluid from a patient with renal insufficiency is potentially dangerous and may cause hepatorenal syndrome. Increasing the dosage of diuretics is also unsafe in a patient with renal insufficiency and electrolyte disturbances.
Transjugular intrahepatic portosystemic shunt (TIPS) is used for patients with refractory ascites (that is, persistent ascites despite maximal doses of diuretics, such as spironolactone, 400 mg/d, and furosemide, 160 mg/d) or the inability to use maximal diuretic doses because of electrolyte imbalance or azotemia. Umbilical hernias are not uncommon in patients with cirrhosis and ascites, and reducible hernias do not require intervention.

Gastroenterology and Hepatology:Question 69
The correct answer is B
Educational Objectives
Recall the most appropriate medication for maintenance therapy in a patient with Crohn's disease.
Critique
Both 6-mercaptopurine and metronidazole prolong remission in patients with Crohns disease and are helpful in treating fistulizing disease. Although metronidazole is especially useful in treating fistulizing Crohn's disease, long-term use is limited by gastrointestinal side effects and the development of peripheral neuropathy.
Corticosteroids and cyclosporine have no proven role in maintaining remission in patients with inflammatory bowel disease.

Gastroenterology and Hepatology:Question 70
The correct answer is A
Educational Objectives
Recall the most appropriate measures to prevent colon cancer in **a** patient with

familial adenomatous polyposis.

Critique

Patients with familial adenomatous polyposis (FAP) have an almost 100% chance of developing colorectal cancer if the colon and rectum are not removed. Although nonsteroidal anti-inflammatory drugs have been shown to decrease the size and number of adenomas in patients with FAP, their effect is reversible after stopping the drugs, they do not provide complete protection against colorectal cancer, and they have many adverse effects. Approximately 25% of patients with FAP have no family history of this syndrome or of colon cancer. Because polyps typically are distributed throughout the colon, sigmoidoscopy that shows numerous adenomas is sufficient to make the diagnosis. Therefore, colonoscopy is unnecessary. Testing this patients blood for an APC gene mutation would provide very useful information for counseling of the patients children and siblings, but such testing would not alter the decision to proceed with total proctocolectomy.

Gastroenterology and Hepatology:Question 71

The correct answer is C

Educational Objectives

Recall the etiologic factors associated with gastric adenocarcinoma.

Critique

Helicobacter pylori infection increases the risk of gastric adenocarcinoma by approximately twofold to sixfold. The cancer risk is much higher for patients who become infected at a young age and who have a prolonged course of infection Tyrosine kinase activity is a feature of gastrointestinal stromal tumors, not of gastric adenocarcinoma. Gastric hyperplastic polyps, amyloid deposition, and cytomegalovirus infections do not pose a risk for progression to gastric adenocarcinoma.

Gastroenterology and Hepatology:Question 72

The correct answer is A

Educational Objectives

Recall the recommendations for cholecystectomy.

Critique

Calcium deposits in a fibrotic gallbladder may cause an eggshell appearance seen on plain radiographs, termed porcelain gallbladder. Cholecystectomy is recommended because approximately 20% of patients with a porcelain gallbladder are found to have cancer at the time of surgery. The development of malignant tumors of the gallbladder, namely adenocarcinoma, is increased in women and in persons older than 50 years of age. Additionally, chronic cholelithiasis has been suggested as a risk factor for cancer. Polyps of the gallbladder, particularly adenomas larger than 1 cm, have an increased risk of malignant transformation. Other risk factors include a long common channel to which the pancreatic duct and common bile duct join and the chronic typhoid carrier state.

There is no evidence that cholecystectomy benefits asymptomatic patients with gallstones.

Furthermore, there is no clear benefit in removing the gallbladder in a patient with unexplained right upper quadrant abdominal pain, especially because of the risks associated with this procedure. Diabetes mellitus in a patient with even a single gallstone was previously considered an indication for cholecystectomy. However, recent studies suggest that surgery is generally not needed.

Gastroenterology and Hepatology:Question 73

The correct answer is A

Educational Objectives
Recall the current treatment of chronic hepatitis C virus infection.
Critique
This patient has chronic hepatitis C virus infection. The current treatment of choice is combination therapy with pegylated interferon and ribavirin. This regimen is associated with an overall sustained virologic response in 50% to 55% of treated individuals (higher in those with genotype 2 or 3 infection).
Lamivudine is used for treatment of chronic hepatitis B virus infection, but this patient has a negative test for hepatitis B surface antigen (HBSAg). She has no evidence of iron overload; therefore, phlebotomy is unnecessary. Ursodeoxycholic acid (ursodiol) is of benefit in treating primary biliary cirrhosis, which this patient does not have. Milk thistle may have a small effect on decreasing serum aminotransferase levels but has not been shown to eradicate hepatitis C virus infection.

Gastroenterology and Hepatology:Question 74
The correct answer is D
Educational Objectives
Recall the role of surgical treatment for a patient with stricturing Crohns disease.
Critique
This patient developed a stricture of the terminal ileum, which is one of the relatively common complications of Crohns disease and is sometimes seen as a string sign on small bowel radiographic series. Acute bouts of small bowel obstruction often resolve spontaneously after conservative management. However, only surgery provides definitive treatment for patients with recurrent bouts of obstruction or with definitive stricturing with proximal dilatation. Cyclosporine, infliximab, and 6-mercaptopurine are not indicated in the treatment of Crohns strictures, and infliximab may actually hasten or enhance stricture formation.

Gastroenterology and Hepatology:Question 75
The correct answer is C
Educational Objectives
Recognize the presenting symptoms and findings in a patient with achalasia.
Critique
This patient has the classic symptoms and presentation for achalasia. Dysphagia for both solid foods and liquids suggests an esophageal motility disorder. Regurgitation and nocturnal cough are secondary to retained food and saliva. Paradoxically, heartburn is common but is secondary to irritation caused by retained acid foods or fermentation of bacteria rather than to reflux of gastric acid. Achalasia is confirmed by the barium swallow findings of a dilated esophagus with retained barium and distal esophageal narrowing (birds-beak' appearance).
Patients with esophageal adenocarcinoma are usually older, generally have weight loss, and typically have dysphagia for solid foods only. Patients with tumors of the gastric cardia may have similar radiographic findings, and upper endoscopy is usually needed to rule out this lesion in patients suspected of having idiopathic achalasia. The patients age and clinical presentation make this diagnosis less likely. He is extremely unlikely to haveCandida esophagitis, Barrett's esophagus, or gastroesophageal reflux disease based on his history and the barium swallow findings.

Gastroenterology and Hepatology:Question 76
The correct answer is D
Educational Objectives

Recall the appropriate use of second-line therapies after failure of an initial course of Helicobacter pylori eradication therapy.

Critique

This patient has active duodenal ulceration associated with Helicobacter pylori infection. Although she was previously treated forH. pylori infection, she did not complete the prescribed course. The most appropriate regimen at this time is a 14-day course of a proton pump inhibitor, clarithromycin, and amoxicillin.

Because her initial regimen contained metronidazole, it can be assumed that her strain of H. pylori is now resistant to this drug. Therefore, any regimen containing metronidazole would not provide optimal therapy. Furthermore, prescribing medications that the patient had previously failed to tolerate would be inappropriate. Monotherapy with a proton pump inhibitor is not effective for eradication ofH. pylori.

Gastroenterology and Hepatology:Question 77

The correct answer is B

Educational Objectives

Recognize a bleeding vascular ectasia as a cause of obscure bleeding in an elderly patient.

Critique

The lesion pictured is a bleeding vascular ectasia or angiectasia. These are more common in elderly patients with comorbid illnesses and are among the most common findings reported in published clinical series of patients with normal upper endoscopy and colonoscopy who undergo push enteroscopy or capsule endoscopy for persistent gastrointestinal bleeding.

Endoscopic therapy is an option; the accompanying image shows the same lesion after thermal ablation. Barium studies of any type will not detect such lesions. Finally, these lesions are frequently encountered in patients without underlying cancer.

Gastroenterology and Hepatology:Question 78

The correct answer is D

Educational Objectives

Recall the treatment of a patient with acetaminophen hepatotoxicity.

Critique

This patient most likely has acetaminophen hepatotoxicity and requires prompt administration of N

-acetylcysteine. Chronic alcoholism induces the cytochrome P450 system and results in enhanced production of N-acetyl-p-benzoquinoneimine (NAPQI), the toxic metabolite of acetaminophen. Serious acetaminophen hepatotoxicity may result from a dose as low as 4 g/d, and a high index of suspicion for ‘therapeutic m isadventu re is necessary.

Antiemetics may be used for symptomatic control but do not treat the hepatic injury. Corticosteroids are used for patients with autoimmune hepatitis, and pentoxifylline may be useful in the treatment of patients with alcoholic hepatitis, neither of which this patient most likely has based on epidemiologic, clinical, and biochemical parameters. Multivitamins will not treat her underlying condition.

Gastroenterology and Hepatology:Question 79

The correct answer is C

Educational Objectives

Recall the diagnostic tests for chronic hepatitis **C** virus infection.

Critique

Chronic hepatitis C virus (HCV) infection develops in 80% to 85% of individuals

following acute infection. It is characterized by the persistence of viremia, which is assessed by a test for HCV RNA. Normal serum aminotransferase levels may be observed at any time in individuals with chronic HCV infection and therefore do not exclude the presence of this infection.
Imaging studies such as CT scanning and abdominal ultrasonography provide information about the morphology of the liver, the presence of focal lesions, and signs of portal hypertension (for example, splenomegaly, ascites, intra-abdominal varices) but do not establish the presence of chronic HCV infection. A liver biopsy may be done after chronic HCV infection is found in order to determine the grade of inflammation and the stage of fibrosis.

Gastroenterology and Hepatology:Question 80
The correct answer is A
Educational Objectives
Recall the most appropriate treatment for a patient with mild to moderate Crohn's ileitis.
Critique
This patient has Crohns ileitis. Two formulations of mesalamine (5-aminosalicylic acid, 5-ASA) are available for treatment of ileal disease. One formulation reaches a pH of 7.0 (and is therefore released in the ileum), and the other is a time-release agent. Both formulations can be used for treating Crohns ileitis.
The other agents listed are not appropriate for this patient because they are released in the colon.
Mesalamine in suppository or enema form is available for treatment of distal left-sided colitis. The 5-ASA compounds that are conjugated by an azo bond are dependent upon colonic bacteria for release and include sulfasalazine, olsalazine, and the more recently approved balsalazide.

Gastroenterology and Hepatology:Question 81
The correct answer is E
Educational Objectives
Recall the diagnostic studies for **a patient** with Gilbert's syndrome.
Critique
This patients history is consistent with an upper respiratory tract viral infection. The liver chemistry studies reveal unconjugated (indirect) hyperbilirubinemia consistent with Gilbert's syndrome. Gilbert's syndrome is a common cause of unconjugated hyperbilirubinemia that affects approximately 2% to 7% of the population. Serum total bilirubin levels can reach 5 mg/dL and characteristically fluctuate during concurrent illnesses. Conjugation of bilirubin is essential for normal bilirubin excretion and is mediated by hepatic bilirubin uridinediphosphate glucuronosyltransferase activity, which is decreased in patients with Gilbert's syndrome. The diagnosis is supported by demonstrating an increased serum unconjugated bilirubin level after fasting or after administration of rifampin (rifampicin).
Because persons with Gilbert's syndrome have a normal life expectancy, only reassurance is necessary. Expensive and invasive diagnostic studies are not indicated.

Gastroenterology and Hepatology:Question 82
The correct answer is E
Educational Objectives
Recall the presentation and management of **a** patient with pill-induced esophageal stricture.

Critique
This patient has an alendronate-induced esophageal stricture. The mid-esophageal location of the stricture and the temporal association of starting alendronate shortly before symptoms developed are highly suggestive of this diagnosis.
Although a mid-esophageal stricture may also be due to Barrett's epithelium, the biopsy specimens show only chronic inflammation. The most appropriate management after endoscopic dilation is to stop the causative agent. Surgical procedures or additional changes in the patient's drug regimen are not needed.

Gastroenterology and Hepatology:Question 83
The correct answer is C
Educational Objectives
Recall the clinical presentation and evaluation of **a patient** with acute hepatitis.
Critique
The patient presents with symptoms and laboratory test results that are consistent with acute hepatocellular injury. Possible causes include autoimmune hepatitis, acute viral hepatitis, prescription and over-the-counter medications, and Wilson's disease. The smooth muscle antibody titer (or antinuclear antibody titer) is often increased in patients with autoimmune hepatitis and should be determined when a patient presents with either acute or chronic elevations of serum aminotransferase levels. Acute hepatitis A or acute hepatitis C could possibly cause this patient's abnormalities, although her serum protein values are atypical because of the markedly elevated serum total globulin level of 6.0 g/dL (serum total protein level of 9.0 g/dL minus serum albumin level of 3.0 g/dL). However, neither determination of lgG antibody to hepatitis A virus (lgG anti-HAV) nor determination of antibody to hepatitis C virus (anti-HCV) assesses acute hepatitis. lgG anti-HAV only establishes prior exposure to HAy, whereas IgM anti-HAV is elevated in patients with acute infection. Because anti-HCV (and also lgG anti-HCV) is positive weeks to months after an acute infection, only a positive hepatitis C virus RNA (HCV-RNA) titer together with a negative anti-HCV titer is diagnostic for acute hepatitis C. Determination of the antimitochondrial antibody titer assesses cholestatic abnormalities (elevated alkaline phosphatase and γ-glutamyltransferase levels) and, if positive, suggests primary biliary cirrhosis. Endoscopic retrograde cholangiopancreatography is used to examine the biliary tree for stones and other anomalies such as primary sclerosing cholangitis (another chronic cholestatic condition). However, this patient is unlikely to have choledocholithiasis because partial or complete biliary tree obstruction is an uncommon cause of serum aminotransferase elevations greater than 10-fold above normal, and the serum alkaline phosphatase level would be several-fold elevated.

Gastroenterology and Hepatology:Question 84
The correct answer is B
Educational Objectives
Recall the clinical presentation and management of a patient with a choledochal cyst.
Critique
This patient has a type I choledochal cyst, which is a congenital anomaly that occurs most often in women and is usually identified before patients are 30 years of age. Such cysts can occur throughout the intrahepatic and extrahepatic biliary tree and are associated with an increased risk of cancer. This patient requires surgical resection and biliary tree reconstruction because the other management options will not decrease the risk of malignant transformation.

Gastroenterology and Hepatology:Question 85
The correct answer is A
Educational Objectives
Recall the currently available therapy for a woman with irritable bowel syndrome.
Critique
In 2002, tegaserod, a 5-hydroxytryptamine-4 (5HT-4) partial receptor agonist, was approved by the U.S. Food and Drug Administration for the treatment of women with constipation-predominant irritable bowel syndrome.
Alosetron, a 5-hydroxytryptamine-3 (5-HT3) receptor antagonist, was initially approved for treating women with diarrhea-predominant irritable bowel syndrome. It was voluntarily withdrawn from the market shortly after its release in 2000 because of an association with ischemic colitis. Alosetron has since been re-released, but prescribing is restricted to qualified experts.
Although selective serotonin reuptake inhibitors have been used for treatment of irritable bowel syndrome, their efficacy has not been determined. Metoclopramide is a prokinetic agent used for treating gastroparesis and gastroesophageal reflux disease. It has limited use in the treatment of constipation.

Gastroenterology and Hepatology:Question 86
The correct answer is B
Educational Objectives
Recall the appropriate surveillance for a person with a first-degree relative diagnosed with colorectal cancer at older than 60 years of age.
Critique
This patient is at greater than average risk for development of colorectal cancer because of her family history, and therefore she should not wait until 50 years of age to undergo colorectal cancer screening. Current guidelines recommend performing screening beginning at age 40 for persons with a family history of colorectal cancer in a first-degree relative who was over 60 years of age when the cancer was diagnosed. Screening can be performed using any of the methods utilized for the average-risk population, although many experts would suggest that colonoscopy is most appropriate
Although the risk of colorectal cancer is higher in men and in the black population, screening guidelines do not differ based on sex or ethnicity. Genetic testing is not recommended for this patient because results are likely to be negative in someone with a minimal family history and no obvious high-risk syndrome.

Gastroenterology and Hepatology:Question 87
The correct answer is C
Educational Objectives
Recall the clinical presentation and histologic findings in a patient with nonalcoholic steatohepatitis.
Critique
This patient is obese and has hyperlipidemia, both of which are predisposing factors for nonalcoholic fatty liver disease. Although most persons with fatty liver disease are asymptomatic, some may have right upper quadrant abdominal discomfort due to hepatomegaly and stretching of Glisson's capsule. The histologic findings in this patient strongly suggest nonalcoholic steatohepatitis.
She does not have chronic hepatitis B because of the positive antibody to hepatitis B surface antigen (anti-HBS), which indicates immunity to this infection.
Hemochromatosis can be excluded because of the normal serum iron studies and absence of iron deposition in the biopsy specimens. Although the antinuclear antibody titer is positive, liver biopsy specimens do not show a plasma cell portal

infiltrate, rosettes, and interface hepatitis that are characteristic for autoimmune hepatitis. In addition, an antinuclear antibody titer of this degree is nonspecific.

Gastroenterology and Hepatology:Question 88
The correct answer is B
Educational Objectives
Recall the clinical presentation of a patient with alcoholic hepatitis.
Critique
This patients clinical features are most consistent with alcoholic hepatitis. Hepatocellular carcinoma can cause fever and pain, but none of the patients findings support this diagnosis and no lesions were noted on ultrasonography. Although spontaneous bacterial peritonitis should always be considered in a patient with cirrhosis and ascites who has fever and abdominal pain, this diagnosis is excluded by the normal ascitic fluid polymorphonuclear leukocyte count. Acute pancreatitis is unlikely because the serum amylase and serum lipase values are normal. Acute cholecystitis can be confused with alcoholic hepatitis. However, a thickened gallbladder wall is nonspecific and is often noted in patients with cirrhosis and hypoalbuminemia. The absence of pericholecystic fluid and gallstones makes this diagnosis unlikely.

Gastroenterology and Hepatology:Question 89
The correct answer is B
Educational Objectives
Recognize the clinical presentation of a ruptured gastroduodenal artery pseudoaneurysm complicating the course of a patient with acute necrotizing pancreatitis.
Critique
This patient has acute necrotizing pancreatitis complicated by hypovolemic shock due to rupture of an intra-abdominal pseudoaneurysm. The collection of blood in the right abdomen is in the distribution of the gastroduodenal artery. Pseudoaneurysm formation results from autodigestion of arterial walls by elastase and other pancreatic enzymes and occurs as a complication in up to 10% of patients with acute pancreatitis. The location is primarily influenced by the distribution of pancreatic pseudocysts and fluid collections. The splenic artery is the most frequently involved, followed by the gastroduodenal artery (as in this patient) and the pancreaticoduodenal arteries. A splenic artery pseudoaneurysm is manifested by blood collecting in the left side of the abdomen.
A pseudoaneurysm often ruptures and causes life-threatening hemorrhage manifested by melena, hematemesis, or intraperitoneal bleeding. Since the mortality rate exceeds 50%, prompt detection and early treatment are critical. Angiography is used for confirmation of the diagnosis and treatment of the lesion by embolization. Transarterial embolization has an 80% to 100% success rate for controlling bleeding. Surgery should be reserved for patients in whom transarterial embolization has been unsuccessful.
The clear nasogastric lavage and absence of blood in the stool rule out ruptured gastric varices or hemorrhage from a gastric stress ulcer. There is no evidence of a pancreatic abscess on the CT scan.

Gastroenterology and Hepatology:Question 90
The correct answer is D
Educational Objectives
Recall the treatment of a patient with coronary artery disease and chronic obstructive pulmonary disease who develops achalasia.

Critique
This patient has achalasia. However, because of his coronary artery disease and lung disease, he is a poor candidate for surgical myotomy. Pneumatic dilation is also contraindicated because this procedure may cause an esophageal perforation that requires surgical repair. Treatment options for this patient include injection of botulinum toxin into the lower esophageal sphincter or oral or sublingual administration of calcium channel blockers or nitrates. Injection of botulinum toxin is preferred because this involves only a simple endoscopic procedure that has no major complications and provides symptom relief for more than 1 year for some patients. Other medical therapies such as calcium channel blockers or isosorbide dinitrate may also be used but are frequently associated with side effects in elderly patients.

Gastroenterology and Hepatology:Question 91
The correct answer is B
Educational Objectives
Recall how to differentiate extraintestinal manifestations of inflammatory bowel disease that correlate with the course of the disease from manifestations that have an independent course.
Critique
Recent studies have shown that extraintestinal manifestations of inflammatory bowel disease are grouped more frequently than previously thought. Nonetheless, certain manifestations usually appear concurrently with relapse of inflammatory bowel disease and usually respond readily to treatment of the underlying disease. Examples are erythema nodosum and peripheral arthritis. In contrast, central arthritis (ankylosing spondylitis, sacroiliitis), pyoderma gangrenosum, and primary sclerosing cholangitis are conditions that are associated with inflammatory bowel disease but usually have an independent clinical presentation and response to treatment.

Gastroenterology and Hepatology:Question 92
The correct answer is C
Educational Objectives
Recall the predisposing factors and characteristics of pigmented gallstones.
Critique
Gallstones are classified as either cholesterol or pigmented stones. This patient has black pigment gallstones due to hemolysis. Pigmented gallstones can be either black or brown. Black pigment stones are commonly formed in patients with chronic hemolytic conditions such as sickle cell
hemoglobinopathy, thalassemia, and spherocytosis. They are also increased in patients with cirrhosis and pancreatitis. Black pigment stones are composed mostly of calcium bilirubinate but contain some calcium carbonate and calcium phosphate. Brown pigment stones are more common in patients who reside in areas where biliary tract infections are common, such as Southeast Asia. Biliary infections due toAscaris lumbricoides, Opisthorchis sinensi Escherichia coli, and Klebsiella species are common in patients with brown pigment stones, which may contain bacterial cytoskeletons.
Genetic predisposition has been described as a risk factor for cholesterol gallstones and has been studied extensively in certain ethnic groups. Mexican-American women, Pima Indians and other Native Americans, and native Indians in Chile, Peru, and Canada all have an increased incidence of cholesterol gallstones. Populations at lower risk include those of sub-Saharan Africa and Asia. In the United States, black persons have a lower risk than white persons.

Ileal diseases such as Crohns disease impair bile reabsorption. The altered bile pool allows cholesterol precipitation and cholesterol stone formation. Cholesterol gallstones are more prevalent in obese persons. Supersaturation of cholesterol in bile results from the greater cholesterol production and increased biliary excretion of cholesterol.

Gastroenterology and Hepatology:Question 93
The correct answer is C
Educational Objectives
Recall the treatment of a patient with an esophageal variceal hemorrhage.
Critique
This patient with cirrhosis presents with upper gastrointestinal bleeding. Although upper gastrointestinal hemorrhage has many causes, variceal bleeding must be one of the first considerations. Upper endoscopy is most likely to identify the presence of varices and document active variceal bleeding or stigmata of recent hemorrhage. If varices are found, endoscopic variceal band ligation can be done to prevent further bleeding.
Transjugular intrahepatic portosystemic shunt (TIPS) is used to lower portal pressure and treat refractory variceal bleeding. Because complications of this procedure include infection, encephalopathy, and liver failure, TIPS is used only when medical therapy and endoscopic banding of varices have failed. Nonselectivej3-blockers (for example, propranolol and nadolol) are used for preventing variceal bleeding but are not helpful in the acute setting. A surgical portosystemic shunt is used in the compensated patient to treat refractory esophageal variceal bleeding that fails to improve following medical and endoscopic therapy. Lamivudine is used to treat chronic active hepatitis B virus
infection but has no role in the management of upper gastrointestinal hemorrhage.

Gastroenterology and Hepatology:Question 94
The correct answer is E
Educational Objectives
Recall the need for colon cancer screening in patients with ulcerative colitis.
Critique
This patient has had ulcerative colitis for 18 years. Patients with ulcerative colitis develop a significantly increased risk for colon cancer approximately 8 years after diagnosis, independent of disease activity. These patients, as well as patients with Crohns colitis involving more than 50% of the colon, require surveillance colonoscopy every 1 to 2 years commencing 8 to 10 years after diagnosis. Each colonoscopic examination should include extensive biopsies to detect the presence of dysplasia.

Gastroenterology and Hepatology:Question 95
The correct answer is A
Educational Objectives
Recall the appropriate empiric treatment for a patient with non-ulcer dyspepsia.
Critique
A subset of patients with non-ulcer dyspepsia may actually have gastric acid hypersensitivity or gastroesophageal reflux disease with atypical symptoms. Acid inhibitory therapy with a proton pump inhibitor results in complete resolution of symptoms in 25% to 50% of patients with non-ulcer dyspepsia. The efficacy of 5-HT3 antagonists (alosetron, granisetron, and ondansetron) has not yet been demonstrated for treatment of this disorder. The 5-HT4 antagonist tegaserod is currently undergoing clinical testing for treatment of non-ulcer dyspepsia. Clinical studies of 5-HT1 agonists (sumatriptan, buspirone) demonstrate improved gastric

accommodation in patients with non-ulcer dyspepsia. However, these agents may cause significant side effects and currently are not recommended for treatment of this disorder.

Gastroenterology and Hepatology:Question 96
The correct answer is E
Educational Objectives
Recall the available tests for evaluation of bleeding from the small intestine.
Critique
None of these tests is able to satisfy the criteria in the question for evaluating the small intestine. Small bowel enteroclysis may miss vascular lesions and subtle changes and cannot be used for therapy. Bleeding scans and mesenteric arteriography have limited ability to define bleeding lesions in the small intestine. In addition, arteriography involves probable risk to the patient, including the possibility of renal failure due to contrast dye. Capsule endoscopy is able to visualize the entire small intestine in most cases, does not require sedation, and may accurately identify vascular lesions, masses, and ulcers. However, at the present stage of development, capsule endoscopy is unable to provide therapy.

Gastroenterology and Hepatology:Question 97
The correct answer is C
Educational Objectives
Recall the treatment of chronic hepatitis B virus infection.
Critique
This patient has chronic hepatitis B virus infection with cirrhosis. Lamivudine is a safe and well-tolerated drug that results in seroconversion (loss of hepatitis B e antigen [HBeAg] positivity and development of antibody to hepatitis B e antigen [anti-HBe]) in 15% to 20% of patients. Clinical and histologic improvement may also occur, even in patients with advanced liver disease.
Interferon-alfa is associated with a similar seroconversion rate but may have significant side effects. Since this patient has uncontrolled depression and significant thrombocytopenia, the risks of interferon-alfa may outweigh the benefits. Hepatitis B immune globulin and ribavirin have no role in the management of a patient with chronic hepatitis B virus infection.

Gastroenterology and Hepatology:Question 98
The correct answer is A
Educational Objectives
Recall the role of maintenance therapy for **a** patient with gastroesophageal reflux disease.
Critique
This patient has erosive esophagitis that was only partially relieved by an H2-receptor antagonist. In addition, his symptoms returned when he stopped this medication. Therefore, chronic maintenance therapy with a proton pump inhibitor is indicated. Long-term therapy is required because of the high relapse rate (75% to 90%) after healing when acid suppressive therapy is discontinued.
Resumption of an H2-receptor antagonist is not warranted because the patients symptoms were not adequately controlled with this medication. A prokinetic agent has no role in the treatment of this patient. Documentation of acid suppression by ambulatory 24-hour esophageal pH monitoring is not needed because symptom control is the therapeutic end-point. Repeat upper endoscopy is not necessary because Barrett's esophagus was excluded by the first study and the response to the

current therapy can be judged symptomatically.

Gastroenterology and Hepatology:Question 99
The correct answer is B
Educational Objectives
Recall the treatment of **a** patient with simple diverticulitis that evolves into complicated diverticulitis.
Critique
At initial presentation, this patient had the symptoms and signs of simple diverticulitis. The CT scan demonstrated pericolic stranding, suggesting transmural inflammation extending into the surrounding fatty tissue. These findings are associated with a high risk of complicated diverticulitis. In addition to hospitalization and intravenous antibiotics, a repeat CT scan is indicated to detect a possible abscess or other diverticular complications. If an abscess is now present, CT scanning will also provide a route for percutaneous drainage, which, along with parenteral antibiotics, may allow definitive treatment.
Barium enema examination and colonoscopy are contraindicated, as they may perforate a previously contained diverticulum. A tagged leukocyte scan may help define inflammation in the setting of diverticulosis. However, it will not differentiate between simple and complicated diverticulitis.

Gastroenterology and Hepatology:Question 100
The correct answer is D
Educational Objectives
Recall the diagnostic studies for a patient with cholestasis-induced pruritus and primary sclerosing cholangitis.
Critique
Generalized pruritus is often a presenting symptom for cholestatic liver disease, which is indicated by marked elevations of both serum alkaline phosphatase and serum γ-glutamyltransferase levels. Cholestatic liver injury in a patient with inflammatory bowel disease should suggest primary sclerosing cholangitis as the diagnosis. The frequency of ulcerative colitis in patients with primary sclerosing cholangitis is about 70%. The most appropriate diagnostic test is endoscopic retrograde cholangiopancreatography (ERCP) to detect strictures and diverticulum-like dilatations of the intrahepatic and extrahepatic biliary tree that may require treatment.
CT scans are neither as sensitive nor as specific as ERCP. Serologic studies for viral hepatitis and smooth muscle antibody titer are used to evaluate patients with elevated serum aminotransferase levels, which indicate possible hepatocellular injury.

Gastroenterology and Hepatology:Question 101
The correct answer is C
Educational Objectives
Recall the role of CT scanning and endoscopic ultrasonography for staging esophageal adenocarcinoma.
Critique
This patient has esophageal adenocarcinoma in the setting of Barrett's esophagus. His cancer needs to be staged. A CT scan helps to identify metastatic spread to the liver or chest. Endoscopic ultrasonography is important for detecting the extent of disease progression within the esophageal wall and regional lymph node involvement.
Referral for hospice care is inappropriate at this time because staging may show that

his tumor may be curable. Esophagectomy is only indicated if the patient is found to have localized disease after endoscopic ultrasonography. Similarly, the role for chemotherapy or radiotherapy is best assessed after the staging with CT scanning and endoscopic ultrasonography. Dilation of the esophagus is risky and unnecessary because the patient does not have dysphagia.

Gastroenterology and Hepatology:Question 102
The correct answer is B
Educational Objectives
Recognize the clinical features and diagnostic studies for a patient with a pancreatic endocrine tumor.
Critique
This patient has symptoms of neuroglycopenia and a possible pancreatic lesion, suggesting insulinoma. Classically, patients with insulinoma have Whipples triad (symptoms of hypoglycemia, decreased fasting plasma glucose values [<50 mgldL], and relief of symptoms with the administration of glucose). Symptoms often occur during periods of fasting.
Endoscopic ultrasonography has an overall sensitivity of close to 80% for detection of insulinomas. MRI only rarely identifies this lesion. In contrast to patients with other pancreatic endocrine tumors, almost 50% of patients with insulinomas have negative octreotide scans, and the lesion in this patient is probably too small to light up' with octreotide. Most insulinomas (especially the smaller ones) do not encroach on the pancreatic duct, making endoscopic retrograde cholangiopancreatography and magnetic resonance cholangiopancreatography insensitive tests for detecting these lesions.

Gastroenterology and Hepatology:Question 103
The correct answer is D
Educational Objectives
Recall facts about push enteroscopy in the evaluation of bleeding from the small intestine.
Critique
In most studies, push enteroscopy examines only the proximal small intestine and is unlikely to visualize the entire small intestine. The procedure is usually performed using moderate conscious sedation. Therapy may be provided if vascular lesions are encountered. Push enteroscopy should be performed only after more common lesions of the esophagus, stomach, and duodenum have been excluded by upper endoscopy and more common lesions of the large intestine have been excluded by colonoscopy.

Gastroenterology and Hepatology:Question 104
The correct answer is C
Educational Objectives
Recall the most appropriate therapy for a patient with nonalcoholic steatohepatitis.
Critique
This patient most likely has nonalcoholic fatty liver disease (nonalcoholic steatohepatitis). Serologic evaluation for viral and autoimmune hepatitis is negative, and ultrasonography demonstrates fatty liver infiltrates. Weight loss is the only management option that has been shown to improve liver chemistry test results and histologic findings. An exercise program should be part of the weight loss program. Interferon-alfa or lamivudine is used for treatment of chronic hepatitis B infection, and this patient is already immune to hepatitis B. Prednisone and phlebotomy have no role in treating nonalcoholic fatty liver disease. The underlying pathogenesis for nonalcoholic fatty liver disease is insulin resistance, and studies are being done to

determine if medications such as rosiglitazone and metformin are effective. Other agents that are being investigated include vitamin E,N-acetylcysteine, betaine, ursodeoxycholic acid (ursodiol), and gemfibrozil.

Gastroenterology and Hepatology:Question 105
The correct answer is C
Educational Objectives
Recall the clinical presentation and therapy for a patient with a gastric mucosa-associated lymphoid tissue (MALT) lymphoma.
Critique
Approximately 50% of patients with mucosa-associated lymphoid tissue (MALT) lymphomas will have complete regression of their tumors after eradication of Helicobacter pylori. Patients with MALT lymphomas who have normal-appearing gastric mucosa on endoscopy, tumor that is histologically confined to the mucosa on biopsy, and no lymph node involvement (tumor stage NO [stage 1]) are much more likely to have complete remission after administration of antibiotics than are patients with gastric ulcers, gastric masses, or submucosal, serosal, or nodal disease. Therefore, the most appropriate next step for this patient is to administer a course of antibiotics directed againstH. pylori.
Patients with more advanced disease should receive eradication therapy forH. pylori as well but should also be considered for initial treatment with traditional forms of therapy for gastric lymphoma, such as surgery or systemic chemotherapy. Based upon this patients endoscopic ultrasound findings, staging laparoscopy will add little additional information to justify this invasive and expensive procedure.

Gastroenterology and Hepatology:Question 106
The correct answer is A
Educational Objectives
Recall the management of an elderly patient with diverticular bleeding.
Critique
This patient has the findings of a moderate diverticular bleed. It is important to identify the source of the bleeding. Although acute bleeding stops spontaneously in about 75% of patients, re-bleeding is relatively common. Although upper gastrointestinal bleeding should be considered in all patients with hematochezia, this patient presented with only orthostatic tachycardia associated with bleeding that was easily corrected with intravenous fluids alone, suggesting a blood volume loss of approximately 10%. Upper gastrointestinal bleeding associated with hematochezia would likely cause a large bleed and be accompanied by a brisker cardiovascular response. Thus, colonoscopy should be done first. If bleeding appears to be occurring proximal to the colon, upper endoscopy can be performed. Colonoscopy may allow the identification of the bleeding diverticulum as well as provide possible treatment by means of an epinephrine injection or the use of a heater probe or laser. Angiography may identify the bleeding source, providing the bleeding rate is greater than 0.5 mL/min (which is unlikely in this patient at this time) and allow for embolization of the bleeding vessel. Similarly, a bleeding scan requires a minimum bleeding rate of 0.1 mL/min for diagnosis. Surgical consultation is not required at this time.

Gastroenterology and Hepatology:Question 107
The correct answer is D
Educational Objectives
Recall the most common causes of infectious esophagitis in an immunocompromised patient.

Critique
This immunocompromised patient has the classic presentation for infectious esophagitis, which is most commonly caused by Candida infection. Oral thrush may or may not be present in a patient with Candida esophagitis. Therefore, a normal examination does not exclude this disorder. Oral antifungal agents are the first line of therapy.
Odynophagia is not the classic symptom for gastroesophageal reflux disease or achalasia. Pill-induced esophagitis most commonly causes odynophagia and/or dysphagia for solid foods. Although cytomegalovirus esophagitis may also affect immunocompromised patients, it is not as common as Candida esophagitis and typically appears as multiple discrete lesions on upper endoscopy.

Gastroenterology and Hepatology:Question 108
The correct answer is E
Educational Objectives
Recall the diagnostic studies for evaluation of cholestatic liver abnormalities.
Critique
This patient has cholestatic liver injury demonstrated by elevated serum alkaline phosphatase andy
-glutamyltransferase levels. This type of injury can be caused by intrahepatic or extrahepatic bile duct disease (primary biliary cirrhosis, primary sclerosing cholangitis), infiltrative liver disease (metastatic disease, granulomatous disorders), and medications. Abdominal ultrasonography is the preferred initial diagnostic test to evaluate the biliary system and liver parenchyma.
A CT scan of the abdomen is less sensitive than ultrasonography for detecting dilated biliary ducts. It is also more expensive and more invasive. If ultrasonography shows that the biliary ducts are dilated, endoscopic retrograde cholangiopancreatography or magnetic resonance cholangiopancreatography should be obtained. It there is evidence of an infiltrative hepatic process, liver biopsy should be considered next.