1. An otherwise healthy 47-year-old woman comes to the physician because of a 2-year history of increasingly severe heartburn. Current medications are cimetidine for the past 2 years and an over-the-counter antacid as needed; neither medication has relieved the symptoms. She has smoked one pack of cigarettes daily for 20 years and drinks three to four beers daily. She is 157 cm (5 ft 2 in) tall and weighs 59 kg (130 lb); BMI is 24 kg/m^2. Vital signs are within normal limits. Scattered wheezes are heard bilaterally. Cardiac and abdominal examinations show no abnormalities. Findings on ECG are normal. A chest x-ray shows an air-fluid level posterior to the cardiac silhouette. A barium swallow shows the proximal stomach herniating through the esophageal hiatus. Which of the following is the most appropriate next step in diagnosis?

A) 24-Hour pH monitoring
B) Endoscopic ultrasonography
C) Esophageal manometry
D) Esophagogastroduodenoscopy
E) Thoracoscopy

2. A 77-year-old woman comes to the physician because of a 3-day history of nausea, vomiting, and midabdominal cramps. During the past 2 days, she has vomited within 1 hour of eating solid food. Her last bowel movement 2 days ago was normal. She usually has a bowel movement every 1 to 2 days. She has not had fever. She has type 2 diabetes mellitus. Ten years ago, she underwent an open cholecystectomy for cholecystitis. Current medications include intermediate-acting insulin, lisinopril, and aspirin. She does not smoke or drink alcohol. Her pulse is 100/min, and blood pressure is 110/70 mm Hg. Abdominal examination shows mild distention and tenderness without rebound or guarding. Bowel sounds are increased and high pitched. Laboratory studies show:

Hematocrit	45%
Leukocyte count	15,000/mm^3
Serum	
Na^+	147 mEq/L
K^+	3.5 mEq/L
Cl^-	112 mEq/L
HCO_3^-	24 mEq/L
Urea nitrogen	25 mg/dL
Creatinine	1.2 mg/dL

An x-ray of the abdomen shows dilated loops of small bowel and air-fluid levels without a clear transition zone or free air. Which of the following is the most likely diagnosis?

A) Adhesions
B) Diabetic neuropathy
C) Inguinal hernia
D) Mesenteric ischemia
E) Sigmoid volvulus

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3. A 42-year-old woman, gravida 3, para 3, comes to the physician because of a 3-month history of intermittent bloody discharge from her right nipple. Her mother died of breast cancer at the age of 60 years. On examination, bloody discharge can be expressed with pressure on the right areola. No masses are palpable. Palpation of the left breast and axilla shows no abnormalities. Mammography shows normal findings. Which of the following is the most likely diagnosis?

- A) Breast abscess
- B) Breast cancer
- C) Cystosarcoma phyllodes
- D) Galactocele
- E) Hematoma
- F) Inflammatory carcinoma of the breast
- G) Intraductal papilloma
- H) Sebaceous cyst

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4. A 62-year-old woman comes to the physician for a routine health maintenance examination. She feels well. Menarche was at the age of 13 years, and menopause occurred 19 years ago. She has no family history of breast disease. Examination shows a 2 × 2-cm mass in the upper outer quadrant of the left breast. Mammography of the left breast shows calcifications in the upper outer quadrant. A biopsy of the breast mass shows invasive estrogen receptor-positive carcinoma with positive margins. Which of the following is the most appropriate next step in management?

A) Observation only
B) Cytotoxin and doxorubicin therapy
C) Tamoxifen therapy
D) Radiation therapy
E) Reexcision of the biopsy site

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5. A 42-year-old man who is HIV positive comes to the emergency department because of a 6-week history of moderate pain and intermittent bleeding from his rectum. He also has an enlarging mass in his rectum that he first noticed 6 months ago; he has not sought treatment for the pain until today. He has a 10-year history of perianal warts that were last treated 2 years ago with topical podophyllin. His medications are triple-drug antiretroviral therapy; he also takes ibuprofen for pain. Vital signs are within normal limits. There is no inguinal lymphadenopathy. Examination shows a 10-cm, cauliflower-like mass involving the entire perineum. A photograph of the mass is shown. Laboratory studies show:

Hemoglobin	14 g/dL
Leukocyte count	16,000/mm^3
Segmented neutrophils	72%
Bands	8%
Eosinophils	4%
Basophils	4%
Lymphocytes	10%
Monocytes	2%
Platelet count	215,000/mm^3
CD4+ T-lymphocyte count	300/mm^3 (Normal≥500)
Serum	
Na^+	142 mEq/L
K^+	4.3 mEq/L
Cl^-	98 mEq/L
HCO_3^-	28 mEq/L
Urea nitrogen	26 mg/dL
Creatinine	0.9 mg/dL

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K^+	4.3 mEq/L
Cl^-	98 mEq/L
HCO_3^-	28 mEq/L
Urea nitrogen	26 mg/dL
Creatinine	0.9 mg/dL

Which of the following is the most appropriate next step in management?

- A) Topical podophyllin therapy
- B) Administration of the human papillomavirus vaccine
- C) Biopsy of the mass
- D) Chemotherapy
- E) Radiation therapy
- F) Local excision of the mass

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6. A 67-year-old man comes to the physician because of an ulcer on the glans penis that has been increasing in size over the past 6 months. He is sexually active with multiple partners and rarely uses a condom. Examination shows an uncircumcised penis with bilateral, firm inguinal adenopathy and a painless ulcer on the glans. A serologic VDRL test is nonreactive. Which of the following is the most likely diagnosis?

- A) Chancroid
- B) Epididymitis
- C) Gonococcal urethritis
- D) Herpes
- E) Inguinal hernia
- F) Nongonococcal urethritis
- G) Penile cancer
- H) Scrotal abscess
- I) Syphilis

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7. A 27-year-old woman, gravida 2, para 2, comes to the physician because of a 1-week history of painful bowel movements. She has noticed bright red blood on the surface of her stool during this period. She reports she has had bowel movements twice weekly since delivery of her youngest child 2 years ago. She has no history of serious illness and takes no medications. Examination of the perineum shows an ulcer in the posterior midline of the anal canal with an adjacent edematous skin tag at the anal verge. Rectal examination cannot be performed because of pain and increased anal sphincter tone. In addition to treatment with stool softeners, which of the following is the most appropriate next step in management?

- A) Sitz bath
- B) Hydrocortisone enemas
- C) Anal manometry
- D) Placement of elastic bands
- E) Surgical drainage of the abscess

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8. A 65-year-old woman is brought to the emergency department 1 hour after she fell. She has right wrist pain. Her last visit to a physician was 10 years ago. Examination shows swelling and tenderness of the right wrist. An x-ray of the wrist shows no fracture, but subperiosteal bone resorption is noted in the distal phalanges. Her serum calcium concentration is 12.4 mg/dL, and serum creatinine concentration is 1.2 mg/dL. Which of the following serum concentrations is most likely to be decreased in this patient?

A) 1,25-Dihydroxycholecalciferol
B) Magnesium
C) Parathyroid hormone
D) Phosphorus
E) Vitamin C

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9. A 40-year-old woman is brought to the emergency department after a motor vehicle collision. She is unresponsive and comatose with hyperextension of all extremities. Which of the following is the most appropriate first step in management?

A) Administration of a bolus of corticosteroids
B) Intravenous administration of mannitol
C) MRI of the brain
D) Intubation with hyperventilation
E) Bilateral burr holes

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10. A 52-year-old man comes to the physician for a follow-up examination. He has a 4-year history of hypertension and a 1-year history of hypokalemia. Current medications include labetalol, enalapril, and potassium chloride. His blood pressure is 154/90 mm Hg. The remainder of the examination shows no abnormalities. His fasting serum aldosterone:renin ratio is increased. A CT scan shows a 1-cm, left adrenal mass. Adrenal vein sampling before and after administration of ACTH shows bilateral hypersecretion of aldosterone. Which of the following is the most appropriate next step in management?

A) Candesartan therapy
B) Furosemide therapy
C) Spironolactone therapy
D) Bilateral adrenalectomy
E) Unilateral adrenalectomy

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11. A 47-year-old man comes to the physician because of a 5-week history of generalized itching and yellow skin. He underwent a total colectomy for ulcerative colitis 10 years ago. He has Gilbert syndrome, osteoarthritis, and obsessive-compulsive disorder. Current medications include fluoxetine and daily ibuprofen. He has smoked two packs of cigarettes daily for 20 years and drinks three alcoholic beverages daily. His temperature is 37°C (98.6°F), pulse is 90/min, and blood pressure is 120/70 mm Hg. Examination shows scleral icterus and jaundice. There are excoriations over the back. Abdominal examination shows no abnormalities. Laboratory studies show:

Hemoglobin	13 g/dL
Hematocrit	39%
Leukocyte count	8000/mm^3
Serum	
Bilirubin, total	12.2 mg/dL
Direct	10 mg/dL
Alkaline phosphatase	490 U/L

Endoscopic retrograde cholangiopancreatography shows narrowing of the biliary ducts. Which of the following is the strongest predisposing factor for this patient's condition?

A) Alcohol consumption
B) Cigarette smoking
C) Gilbert syndrome
D) Ibuprofen therapy
E) Ulcerative colitis

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12. A 25-year-old woman remains in the intensive care unit 5 days after undergoing pancreaticoduodenectomy for injuries sustained from a gunshot wound to the abdomen. A jejunostomy tube was placed distal to the anastomosis at the time of surgery. Current medications include morphine and cimetidine. She is 152 cm (5 ft) tall and weighs 100 kg (220 lb); BMI is 43 kg/m^2. Examination shows a well-healing incision. Which of the following is the most appropriate next step in providing nutrition to this patient?

A) Enteral tube feedings
B) Intravenous administration of 10% dextrose in water
C) Parenteral administration of lipid emulsion
D) Total parenteral nutrition
E) No nutrients should be given at this time

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13. A hospitalized 37-year-old man has moderate abdominal pain and diarrhea 3 days after undergoing gastric bypass for morbid obesity. He has passed 10 watery stools during the past 24 hours. He received antibiotic prophylaxis during the operation. His initial postoperative course was uncomplicated. Current medications include propranolol, morphine, and omeprazole. He is 178 cm (5 ft 10 in) tall and weighs 199 kg (440 lb); BMI is 63 kg/m^2. His temperature is 38.2°C (100.8°F), pulse is 92/min, respirations are 18/min, and blood pressure is 120/70 mm Hg. Abdominal examination shows moderate distention and diffuse tenderness. The surgical wounds are clean, dry, and intact. Bowel sounds are normal. An upper gastrointestinal series with a water-soluble contrast shows normal postoperative findings. Colonoscopy shows multiple areas of patchy, white mucosa. Which of the following is the most likely cause of this patient's diarrhea?

A) Blind loop syndrome
B) *Clostridium difficile* infection
C) Dumping syndrome
D) Ischemic colitis
E) Loss of vagal innervation to the ileum
F) Mesenteric vein thrombosis

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14. A previously healthy 37-year-old woman comes to the physician because of a 2-month history of intermittent, right upper abdominal pain that usually occurs after meals. She has not had fever, chills, vomiting, nausea, weight loss, or change in bowel movements. She takes no medications. Her temperature is 37°C (98.6°F), pulse is 68/min, respirations are 16/min, and blood pressure is 110/70 mm Hg. Examination shows no jaundice or scleral icterus. Abdominal examination shows no abnormalities. Her leukocyte count is 5000/mm^3. Results of liver function tests are within the reference ranges. Abdominal ultrasonography shows a thickened gallbladder wall, cholelithiasis, and a 4.2-cm hepatic mass in the right lobe. An abdominal CT scan shows the mass to be 4.2 × 3.5 cm with a central scar. Which of the following is the most appropriate next step in diagnosis?

A) Measurement of serum α-fetoprotein concentration
B) Hepatitis B virus serology
C) Radionuclide liver scan
D) MRI of the liver
E) Fine-needle aspiration biopsy of the mass
F) No further testing is indicated

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15. An 87-year-old woman is brought to the emergency department from a skilled nursing care facility because of six episodes of loose brown stools daily during the past week. There is no visible blood or mucus in the stool, and she has not had fever or abdominal pain. Five years ago, she sustained a cerebral infarction and has residual left hemiparesis. She has atrial fibrillation and multiple compression fractures from osteoporosis. Her medications include warfarin, digoxin, and famotidine. One month ago, she began taking acetaminophen with codeine for her most recent compression fracture. Her temperature is 37.1°C (98.8°F), pulse is 80/min and irregular, respirations are 16/min, and blood pressure is 130/75 mm Hg. Abdominal examination shows mild tenderness in the left lower quadrant. Bowel sounds are normal. Rectal examination shows normal tone with hard stool in the vault. Test of the stool for occult blood is negative. An abdominal x-ray shows copious stool throughout the bowel. There is no evidence of free air or obstruction. Which of the following is the most appropriate next step in management?

- A) Elevation of the head of the bed during sleep
- B) Elimination of milk from the diet
- C) Elimination of spicy food from the diet
- D) Enemas
- E) Esophagogastroduodenoscopy
- F) Left hemicolectomy
- G) Low-fat diet
- H) Mesenteric angiography
- I) Omeprazole therapy
- J) Recommendation to increase her milk consumption
- K) Stress management
- L) Total proctocolectomy
- M) Ultrasonography of the abdomen
- N) Upper gastrointestinal series

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16. A 72-year-old man is brought to the emergency department immediately after he fainted. He was eating breakfast 5 minutes before he collapsed and had the sudden onset of back pain localized to the L1 vertebral body. He has no history of back pain or any other symptoms. His temperature is 37°C (98.6°F), pulse is 140/min, respirations are 30/min, and blood pressure is 85/40 mm Hg. Breath sounds are normal. Peripheral pulses are palpated. Abdominal examination shows moderate distention and tenderness to deep palpation. Which of the following is the most likely diagnosis?

A) Acute hemorrhagic pancreatitis
B) Compression fracture
C) Ruptured abdominal aortic aneurysm
D) Thoracic aortic dissection
E) Tuberculous spinal abscess

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17. A 42-year-old construction worker is brought to the emergency department 20 minutes after falling 30 feet from a scaffold. En route to the hospital, he received 1 L of lactated Ringer solution. On arrival, he is awake and alert and has severe abdominal and leg pain. He can move all extremities. His temperature is 37°C (98.6°F), pulse is 110/min, respirations are 16/min, and blood pressure is 120/70 mm Hg. Examination shows ecchymoses over the left forehead and lower abdomen. There is an obvious deformity of the left lower extremity. There is no neck tenderness. Cardiopulmonary examination shows no abnormalities. The lower abdomen is slightly distended and exquisitely tender. There is no blood at the urethral meatus. Rectal examination shows no abnormalities. Insertion of a urinary catheter yields 30 mL of grossly bloody fluid. An additional 1.5 L of lactated Ringer solution is administered, and the left lower extremity is placed in traction. Thirty minutes later, his pulse is 95/min, and blood pressure is 140/80 mm Hg. No additional urine has drained from the catheter. Which of the following is the most likely cause of this patient's anuria?

- A) Acute tubular necrosis
- B) Hypovolemia
- C) Rupture of the bladder
- D) Syndrome of inappropriate secretion of ADH (vasopressin)
- E) Transection of the urethra

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18. An unconscious 27-year-old man is brought to the emergency department immediately after being involved in a motor vehicle collision. He was the unrestrained driver of a vehicle that struck a tree. At the scene, he was unconscious. He was not breathing spontaneously and was intubated and mechanically ventilated. On arrival, his Glasgow Coma score is 9/15. He breathes spontaneously when mechanical ventilation is discontinued. His temperature is 37°C (98.6°F), pulse is 124/min, respirations are 16/min, and palpable systolic blood pressure is 100 mm Hg. Examination shows copious bleeding from a laceration over the scalp. There is a pool of blood around his head. There is an obvious fracture of the left humerus. Breath sounds are heard bilaterally. The abdomen is soft. The pelvis is stable. In addition to intravenous administration of crystalloid solution, which of the following is the most appropriate next step in management?

- A) Direct pressure to the bleeding laceration
- B) CT scan of the abdomen
- C) Intravenous administration of a vasopressor
- D) Transfusion of type-specific packed red blood cells
- E) Closed reduction of the fracture

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19. A 62-year-old man is brought to the emergency department because of a 12-hour history of fever, fatigue, and severe pain in the toes of his left foot. He rates the pain as a 9 on a 10-point scale. He has not had abdominal pain. Six weeks ago, he was discharged from the hospital following antibiotic treatment for diverticulitis; at that time, he was prescribed a 14-day course of intravenous piperacillin and tazobactam to be administered at home via percutaneous intravenous catheter. He has hypertension treated with atenolol. His temperature is 38.9°C (102°F), pulse is 120/min and regular, respirations are 22/min, and blood pressure is 100/60 mm Hg. There is an intravenous catheter in his medial right arm. A grade 2/6, decrescendo, diastolic murmur is heard best at the upper right sternal border. The abdomen is flat and nontender. There is no pedal edema. The second and third toes of the left foot are pale blue and tender. His leukocyte count is 17,000/mm^3 (70% segmented neutrophils, 10% bands, and 20% lymphocytes). A blood culture is positive for *Staphylococcus aureus*. Echocardiography shows vegetations on the aortic valve. Which of the following is most likely to have prevented this complication?

A) Implantation of a port instead of a catheter for administration of piperacillin and tazobactam
B) Initiation of ampicillin and gentamicin therapy instead of piperacillin and tazobactam
C) Addition of fluconazole to the medication regimen for his diverticulitis
D) Removal of the percutaneous intravenous catheter after completion of piperacillin and tazobactam therapy
E) Administration of the pneumococcal polysaccharide vaccine, 23-valent, at discharge

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20. A previously healthy 37-year-old woman is brought to the emergency department immediately after her husband found her lying in bed in a deep stupor. She has no history of a seizure disorder, and she does not take any medications. Her temperature is 37.5°C (99.5°F), pulse is 54/min, and blood pressure is 180/100 mm Hg. Examination shows a dense left hemiparesis and early decerebrate posturing. There is no evidence of trauma. Which of the following is the most likely diagnosis?

A) Arteriovenous malformation
B) Brain abscess
C) Meningioma
D) Ruptured intracerebral aneurysm
E) Thrombosed middle cerebral artery

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21. A 37-year-old woman comes to the physician because of a 2-day history of increasing shortness of breath and fatigue. At the age of 5 years, she underwent successful repair of a ventricular septal defect. She has no other history of serious illness and takes no medications. She does not smoke cigarettes. Her pulse is 110/min and irregularly irregular, respirations are 28/min, and blood pressure is 110/60 mm Hg. Examination shows perioral cyanosis. The lungs are clear to auscultation. On cardiac examination, a grade 4/6, soft holosystolic murmur is heard best at the left sternal border. There is 3+ pretibial edema. Which of the following is the most likely explanation for this patient's symptoms?

A) Decreased pulmonary artery flow
B) Decreased pulmonary vascular resistance
C) Decreased systemic vascular resistance
D) Increased pulmonary artery blood flow
E) Increased pulmonary vascular resistance
F) Increased systemic vascular resistance

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22. A 46-year-old man comes to the emergency department 2 hours after the sudden onset of high epigastric pain. He has recently developed rheumatic pains, requiring frequent use of aspirin and ibuprofen. Examination shows an acutely ill man who is perspiring freely. His temperature is 37°C (98.6°F), pulse is 112/min, and blood pressure is 130/70 mm Hg. The lungs are clear to auscultation. The abdomen is diffusely tender with boardlike rigidity. The liver cannot be outlined by percussion. No peristalsis is audible. His leukocyte count is 14,200/mm^3 with 88% segmented neutrophils. An x-ray of the chest shows free air under the diaphragm. Which of the following is the most appropriate next step?

A) Nasogastric suction, administration of antibiotics, and admission for observation
B) Immediate x-ray of the upper gastrointestinal tract
C) Immediate administration of an H_2-receptor blocking agent
D) Immediate endoscopy of the upper gastrointestinal tract
E) Immediate surgical exploration of the upper abdomen

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23. Two days after undergoing laparoscopic cholecystectomy for symptomatic cholelithiasis, an 82-year-old woman vomits and has the onset of choking followed by difficulty breathing. Her initial postoperative course was uncomplicated. She has Parkinson disease treated with carbidopa-levodopa. She has had significant bradykinesia for 2 years. She is currently receiving hydromorphone and acetaminophen therapy. She is now confused and appears slightly cyanotic. She has shortness of breath. Her temperature is 38.3°C (101°F), pulse is 108/min, respirations are 22/min, and blood pressure is 100/60 mm Hg. Pulse oximetry on room air shows an oxygen saturation of 90%. Diffuse rhonchi are heard. Which of the following is the most likely explanation for this patient's current condition?

- A) Adverse effect of carbidopa-levodopa
- B) Adverse effect of hydromorphone
- C) Impaired cough mechanism
- D) Impaired esophageal motility
- E) Increased salivation

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24. A 32-year-old man comes to the physician for evaluation of infertility. Two months ago, he was found to have a low sperm count during an infertility workup. There is no family history of infertility. Examination shows no abnormalities except for dilated veins in the left scrotum. Which of the following is the most likely mechanism of this patient's infertility?

A) Decreased serum testosterone concentration
B) Idiopathic
C) Increased scrotal temperature
D) Increased serum corticosteroid concentration
E) Isolated luteinizing hormone deficiency

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The response options for the next **2** items are the same. Select one answer for each item in the set.

For each patient with a limp, select the most likely diagnosis.

- A) Legg-Calvé-Perthes disease
- B) Osgood-Schlatter disease
- C) Osteomyelitis
- D) Recurrent sprain
- E) Septic arthritis
- F) Slipped capital femoral epiphysis
- G) Stress fracture
- H) Tibia vara
- I) Toxic synovitis

25. A previously healthy 14-year-old boy is brought to the physician because of a 2-week history of severe pain in his right knee and hip and an associated limp. He has had intermittent, mild pain in the same knee and hip for 3 months. He plays on his junior high school football team. He is at the 50th percentile for height and greater than the 95th percentile for weight. His temperature is 37°C (98.6°F). Abduction of the right hip is slightly decreased compared with the left. There is mild tenderness of the right hip. Examination of the left hip shows no abnormalities. He walks with a limp and is unable to bear his full weight on the right.

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For each patient with a limp, select the most likely diagnosis.

- A) Legg-Calvé-Perthes disease
- B) Osgood-Schlatter disease
- C) Osteomyelitis
- D) Recurrent sprain
- E) Septic arthritis
- F) Slipped capital femoral epiphysis
- G) Stress fracture
- H) Tibia vara
- I) Toxic synovitis

26. A 3-year-old girl is brought to the physician because of a 2-day history of a limp. Two weeks ago, she had fever and upper respiratory symptoms that resolved spontaneously. She has no history of serious illness and takes no medications. Her temperature is 37°C (98.6°F). Examination of the left hip shows moderate pain to palpation. Her leukocyte count is 11,000/mm^3 (60% segmented neutrophils, 2% eosinophils, 30% lymphocytes, and 8% monocytes), and erythrocyte sedimentation rate is 12 mm/h.

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27. An obese 72-year-old man is brought to the emergency department 15 minutes after he collapsed at home. His wife reports that he has had upper abdominal pain, nausea, and vomiting for the past 24 hours. He has hypertension and coronary artery disease. He is diaphoretic. His temperature is 36.5°C (97.7°F), pulse is 115/min and irregularly irregular, respirations are 22/min, and palpable systolic blood pressure is 80 mm Hg. There is no jugular venous distention. The lungs are clear to auscultation. No murmurs or gallops are heard. The abdomen is tender and rigid. Pulmonary artery catheterization shows:

Cardiac index	1.2 L/min/m^2 (N=2.5–4.2)
Mean pulmonary arterial pressure	5 mm Hg (N=9–16)
Pulmonary capillary wedge pressure	1 mm Hg (N=5–16)
Systemic vascular resistance	1929 dyn·s/cm^5 (N=770–1500)

Which of the following is the predominant type of shock in this patient?

A) Anaphylactic
B) Cardiogenic
C) Hypovolemic
D) Neurogenic
E) Septic

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28. Four days after admission to the hospital for treatment of metastatic breast cancer with chemotherapy, a 42-year-old woman has increased pain of the extremities and ribs. She has a history of hypertension and renal insufficiency. She underwent bilateral mastectomy 4 years ago. She is currently taking acetaminophen with codeine (two tablets four times daily) and amitriptyline (50 mg at bedtime) with no relief of pain. She sleeps well but awakens early because of pain. Her appetite is good. Her pulse is 100/min and regular, respirations are 20/min, and blood pressure is 100/80 mm Hg. The pupils are round and reactive. There is tenderness to palpation of the chest wall and vertebrae. She is alert and oriented but winces in pain when she moves. She says that she does not feel depressed but occasionally wishes that she would not wake up. She is hopeful that she will get better. Her mood is reserved, but she smiles when she discusses her children. Laboratory studies are pending. Which of the following is the most appropriate next step in management?

- A) Carbamazepine therapy
- B) Clonazepam therapy
- C) Oxycodone therapy
- D) Paroxetine therapy
- E) Valproic acid therapy
- F) Regional nerve blockade

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29. A 67-year-old man is brought to the physician because of severe pain in the right foot for 6 hours. On examination, the right foot is pale and cool, and pedal pulses are not palpable. He can wiggle his toes. Examination of the left foot shows no abnormalities. There are bilateral femoral pulses and pulsatile masses in the popliteal fossae. Which of the following is the most appropriate next step in diagnosis?

A) Cardiolipin antibody assay
B) Measurement of transcutaneous oxygen tension in the feet
C) Measurement of serum antithrombin III concentration
D) Impedance plethysmography
E) Arteriography with runoff
F) Venography of the right lower extremity

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30. Three days after undergoing an appendectomy for a perforated appendix, a 42-year-old man develops dyspnea. Arterial blood gas analysis on room air shows:

pH	7.34
Pco_2	35 mm Hg
Po_2	85 mm Hg
HCO_3^-	22 mEq/L

Ventilation-perfusion lung scans show a large perfusion defect in the left lower lobe with adequate ventilation. Which of the following is the most appropriate next step in management?

A) Administration of heparin
B) Administration of warfarin
C) Pulmonary angiography
D) Placement of a vena cava filter
E) Pulmonary embolectomy

31. A 37-year-old woman comes to the physician because of a 3-month history of neck swelling and tightness in her throat. She has not had weakness, weight change, or heat or cold intolerance. Examination shows a diffusely enlarged and firm thyroid gland; there is no nodularity. Serum thyroid-stimulating hormone, thyroxine (T_4), and triiodothyronine (T_3) concentrations are within normal limits. Serum studies show circulating antibodies against thyroid peroxidase and thyroglobulin. Which of the following is the most likely diagnosis?

A) Anaplastic thyroid carcinoma
B) Chronic lymphocytic thyroiditis (Hashimoto disease)
C) Graves disease
D) Papillary carcinoma of the thyroid gland
E) Subacute thyroiditis

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32. A 12-year-old girl is brought to the emergency department 30 minutes after falling off a second-floor balcony. On arrival, her pulse is 105/min, respirations are 22/min, and blood pressure is 105/77 mm Hg. The chest is clear to auscultation. The abdomen is soft and nontender. An x-ray of the chest shows no abnormalities. Which of the following is the most appropriate next step in diagnosis?

A) X-ray of the cervical spine
B) X-rays of the abdomen and pelvis
C) Cystography
D) Ultrasonography
E) CT scan of the abdomen
F) CT scan of the chest
G) Peritoneal lavage
H) Arteriography

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33. A 57-year-old woman is admitted to the hospital for an elective gastrectomy. During insertion of a subclavian venous catheter via a left infraclavicular approach, the patient suddenly begins squirming under the drapes and has shortness of breath. Her pulse is 100/min, respirations are 24/min, and blood pressure is 100/70 mm Hg. Examination shows jugular venous distention. Breath sounds are decreased on the left. Which of the following is the most likely diagnosis?

- A) Air embolism
- B) Cardiac tamponade
- C) Claustrophobia
- D) Massive hemothorax
- E) Tension pneumothorax

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34. A 67-year-old woman has required mechanical ventilation to maintain adequate tissue oxygenation since she sustained a severe head injury 2 weeks ago. Serial x-rays of the chest during hospitalization show findings consistent with acute respiratory distress syndrome. Cultures of bronchial washings have grown numerous organisms for which she is receiving broad-spectrum antibiotic therapy. A current x-ray of the chest shows a cavitary lesion in the right upper lobe of the lung. Which of the following is the most likely diagnosis?

- A) Aspergillosis
- B) Atelectasis
- C) Lung abscess
- D) Pneumatocele
- E) Tuberculosis

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35. Three weeks after undergoing arteriography through the right groin for evaluation of progressive left calf claudication, a 64-year-old man is noted to have a palpable thrill and a continuous machinery murmur at the arteriography site. Examination shows decreased pedal pulses on the right; pulses had been normal prior to the procedure. The arteriogram is shown. Which of the following factors is most predictive of the development of heart failure in this patient?

- A) Degree of edema in the lower extremity
- B) Groin compression causing bradycardia
- C) Presence of pallor with elevation and dependent rubor
- D) Presence of a pseudoaneurysm
- E) Size of the abnormality

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36. A 10-year-old girl has had fatigue and pallor for 3 weeks. Six weeks ago, she underwent aortic valve replacement with a mechanical prosthesis. She is receiving digoxin therapy. Her temperature is 37°C (98.6°F), pulse is 115/min, respirations are 24/min, and blood pressure is 100/60 mm Hg. A grade 2/6, systolic ejection murmur is heard along the left sternal border, and a grade 2/6, decrescendo diastolic murmur is heard along the left sternal border to the cardiac apex. The liver and spleen are palpable. Her hemoglobin concentration is 4.6 g/dL. A blood smear shows schistocytes. Which of the following is the most appropriate next step in management?

A) Discontinuation of digoxin therapy
B) Transfusion of packed red blood cells
C) Transfusion of whole blood
D) Furosemide therapy
E) Intravenous methylprednisolone therapy

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37. A previously healthy 47-year-old man is admitted to the hospital because of a 3-day history of constant increasingly severe abdominal pain. A diagnosis of diverticulitis is made, and bowel rest and antibiotic treatment are recommended. The patient insists that he undergo an operation to relieve the pain. A second opinion is obtained from an independent physician who states that an operation is contraindicated, because it carries an unacceptable level of risk and will not improve the patient's condition. After prolonged discussion with the patient and his wife, the patient continues to insist that he undergo an operation. Which of the following is the most appropriate course of action?

- A) Ask the patient's wife to formally refuse the operation on the patient's behalf
- B) Obtain a court order to refuse the operation
- C) Obtain permission from the hospital ethics committee not to perform the operation
- D) Proceed with the operation
- E) Refuse to proceed with the operation

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38. A 60-year-old man with alcoholism has had diarrhea and generalized weakness for 5 days. Abdominal examination shows an enlarged liver and mild diffuse tenderness with shifting dullness. His serum calcium concentration is 6 mg/dL, and serum amylase activity is within normal limits. Which of the following is the most likely cause of the hypocalcemia?

A) Acute pancreatitis
B) Acute renal failure
C) Hypokalemia
D) Hypomagnesemia
E) Type IV hyperlipoproteinemia

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39. A 27-year-old man comes to the emergency department 6 hours after being bitten during a fistfight. He has a 3 × 2-cm flap laceration on the dorsum of the right hand that extends into the subcutaneous fat. The surrounding tissues are contused. No tendons are exposed. The avulsed skin is cyanotic and insensate on a 1-cm margin. There is no bleeding. Which of the following is the most appropriate management?

A) Debridement and application of a sterile dressing to the open wound
B) Debridement and primary closure of the wound by mobilization of adjacent skin
C) Debridement and flap rotation to achieve tension-free primary closure of the wound
D) Debridement and split-thickness skin grafting to the soft-tissue defect

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40. A 38-year-old man has vomited small amounts of bright red blood on several occasions over the past 9 months. He has a duodenal ulcer and has had four episodes of abdominal pain and indigestion over the past 3 years, with the most recent episode occurring 5 months ago. Over the past year, he has had severe, persistent diarrhea, with four to six stools daily. Current examination shows a temperature of 37.3°C (99.1°F) and marked abdominal tenderness. The most appropriate next step is measurement of which of the following serum concentrations?

A) Amylase
B) α_1-Antitrypsin
C) Carcinoembryonic antigen
D) Cortisol
E) Gastrin

41. A 12-year-old boy has had weakness, pallor, and black, shiny stools for 5 days. He has had no abdominal pain or other symptoms. Laboratory studies show:

Hematocrit	26%
Mean corpuscular volume	70 μm^3
Mean corpuscular hemoglobin concentration	22% Hb/cell

An abdominal scintigram, using technetium 99m pertechnetate, shows uptake in the right lower quadrant separate from the activity in the stomach, kidneys, and bladder. Which of the following is the most likely diagnosis?

A) Henoch-Schönlein purpura
B) Ileocecal intussusception
C) Juvenile colonic polyp
D) Meckel diverticulum
E) Ulcerative colitis

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42. A 19-year-old man is brought to the emergency department 15 minutes after his motorcycle collided head-on with a truck. No loss of consciousness at the scene is reported. On arrival, he is agitated but oriented to person, place, and time. He responds to verbal commands. Supplemental oxygen and intravenous fluids are administered. His pulse is 115/min, respirations are 18/min, and blood pressure is 110/70 mm Hg. There are multiple abrasions over the forehead, chest, abdomen, and right lower extremity. The pupils are equal and reactive to light. The trachea is midline, and breath sounds are equal bilaterally. Heart sounds are normal. The abdomen is mildly distended, soft, and diffusely tender. His hemoglobin concentration is 11.8 g/dL, and leukocyte count is 14,000/mm^3. Urinary catheterization yields clear urine. X-rays of the cervical spine and pelvis show no abnormalities. An x-ray of the chest shows a moderate amount of free intra-abdominal air under the diaphragm. Which of the following is the most appropriate next step in management?

- A) Lateral decubitus x-ray
- B) CT scan of the abdomen
- C) Upper gastrointestinal endoscopy
- D) Diagnostic peritoneal lavage
- E) Laparotomy

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43. A previously healthy 52-year-old woman comes to the emergency department because of a 2-day history of abdominal cramps and vomiting. She has not passed stool or flatus during this period. She has no history of similar symptoms. She underwent an abdominal hysterectomy 10 years ago. Her temperature is 37.7°C (99.8°F), pulse is 110/min, and blood pressure is 140/70 mm Hg. The lungs are clear to auscultation and percussion. Abdominal examination shows distention and mild tenderness but no peritoneal signs; bowel sounds are active and in rushes. Laboratory studies show:

Hematocrit	42%
Leukocyte count	11,500/mm^3
Serum	
Na^+	140 mEq/L
Cl^-	101 mEq/L
K^+	3.6 mEq/L
HCO_3^-	28 mEq/L
Urea nitrogen	40 mg/dL
Glucose	110 mg/dL
Creatinine	1.7 mg/dL

Which of the following is the most likely diagnosis?

A) Acute cholecystitis
B) Colon cancer
C) Complete small-bowel obstruction
D) Ileus secondary to renal failure
E) Perforated viscus

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44. A 25-year-old construction worker has had fever and a painful, swollen right hand for 2 days. His temperature is 39°C (102.2°F). The dorsum of the hand is swollen, erythematous, and tender; there is a small traumatic laceration on the dorsum of the hand with a beefy-red expanding margin and red streaks extending up the arm. The axillary lymph nodes are palpable and tender. Which of the following is the most likely pathogen?

A) *Bacteroides fragilis*
B) *Clostridium difficile*
C) *Clostridium perfringens*
D) *Clostridium tetani*
E) *Enterobacter cloacae*
F) *Enterococcus faecalis*
G) *Escherichia coli*
H) *Staphylococcus epidermidis*
I) *Streptococcus pneumoniae*
J) *Streptococcus pyogenes* (group A)

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45. A 63-year-old man has had dysphagia and chest pain during meals for 4 months. He has a 6-year history of gastroesophageal reflux. He has limited his intake to liquids for 3 weeks because he regurgitates solid food. Which of the following is the most likely cause of his symptoms?

A) Disordered neuromuscular transmission in the esophagus
B) Disordered neuromuscular transmission in the oropharynx
C) Failure of oropharyngeal propulsion
D) Paraesophageal hiatal hernia
E) Stricture of the distal esophagus

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46. A 57-year-old man comes to the physician because of persistent increasingly severe left-sided chest pain for 1 month. He works as an industrial engineer. Examination shows absent breath sounds and dullness to percussion over the lower portion of the left hemithorax. An x-ray of the chest shows a left-sided pleural effusion with an extensive peripheral soft-tissue density. Thoracentesis shows a bloody, exudative effusion; cultures are negative. Cytology of pleural fluid shows malignant cells of uncertain type. An open biopsy specimen shows a dimorphic picture; there are areas of spindle cells with numerous mitotic figures and areas of cuboidal epithelial cells. Exposure to which of the following agents is the most likely cause of his condition?

- A) Asbestos
- B) Nickel
- C) Talc
- D) Tobacco
- E) Toluene diisocyanate

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47. A 62-year-old man with hypertension and type 2 diabetes mellitus comes to the physician for a routine ophthalmologic examination. He reports no visual problems. A cholesterol embolus is seen in a branch of the left retinal artery. Which of the following is the most likely cause?

A) Carotid plaque
B) Diabetic retinopathy
C) Hypertensive retinal artery changes
D) Idiopathic retinal artery thrombosis
E) Mural thrombus in the left ventricle

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48. A previously healthy 25-year-old woman is brought to the emergency department 20 minutes after being struck by an automobile. On arrival, she has pelvic and left lower extremity pain. Her temperature is 36.8°C (98.3°F), pulse is 135/min, respirations are 26/min, and blood pressure is 90/48 mm Hg. Examination shows an unstable pelvis and an obvious deformity of the left thigh. X-rays show fractures of the left iliac wing and left midshaft femur. Ten units of packed red blood cells are administered, and her blood pressure stabilizes. Nine days after operative repair of her fractures, she develops jaundice. Abdominal examination shows no abnormalities. Serum studies show:

Bilirubin, total	5 mg/dL
Direct	2.3 mg/dL
Alkaline phosphatase	150 U/L
γ-Glutamyltransferase	35 U/L (N=5–50)

Which of the following is the most likely underlying cause of these findings?

A) Decreased excretion of bilirubin into the bile
B) Decreased hepatic conjugation of bilirubin
C) Decreased hepatic uptake of bilirubin
D) Obstruction of common bile duct
E) Overproduction of bilirubin

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49. Two weeks ago, a 37-year-old woman noticed a small painless sore on her right thigh that now measures 2 cm in diameter. She has a 9-year history of chronic ulcerative colitis, for which she takes sulfasalazine. She currently has 3 to 4 semiformed stools daily. The ulcer has sharply defined edges and a flat base containing purulent debris. Which of the following is the most likely explanation?

A) Allergic drug reaction
B) Erythema nodosum
C) Infarction
D) Necrobiosis
E) Pyoderma gangrenosum

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50. An 87-year-old woman is brought to the emergency department from a skilled nursing care facility because of a change in mental status during the past 12 hours. She has severe dementia, Alzheimer type, and is unable to give a history. She is currently taking donepezil, atenolol, digoxin, lisinopril, sertraline, docusate, psyllium, and aspirin. On arrival, she is agitated and does not respond to verbal stimuli. Her temperature is 38°C (100.4°F), pulse is 92/min, respirations are 24/min, and blood pressure is 148/86 mm Hg. The lungs are clear to auscultation. The abdomen is distended. There is diffuse guarding with no rebound. Test of the stool for occult blood is negative. Her hematocrit is 34%, leukocyte count is 9500/mm^3, and platelet count is 267,000/mm^3. An x-ray of the abdomen is shown. Which of the following is the most appropriate next step in management?

- A) Serial measurement of cardiac enzyme activities
- B) CT scan of the abdomen
- C) Discontinuation of sertraline
- D) Sigmoidoscopy-guided placement of a rectal tube
- E) Exploratory laparotomy

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