

Surgery Sample Items

1. A 52-year-old woman with glioblastoma multiforme in the frontal lobe tells her physician that she does not want operative treatment. She is mentally competent and understands that an operation is the only effective treatment of her tumor, and that without an operation she will die. She is afraid of the adverse effects of an operation and says she has lived a long and happy life. Two weeks later, she lapses into a coma, and her husband requests that the operation be carried out. Which of the following is the most appropriate consideration for her physician in deciding whether to operate?
 - (A) Her age
 - (B) Her husband's request
 - (C) Her previously expressed wishes
 - (D) Her quality of life
 - (E) Medical indications for treatment

2. Ten years ago, a 60-year-old woman underwent an aortic valve replacement with a porcine heterograft. She now has shortness of breath with exertion. Examination and x-ray of the chest show evidence of congestive heart failure. Which of the following is the most likely explanation for these findings?
 - (A) Degeneration of the valve
 - (B) Development of an ascending aortic aneurysm
 - (C) Development of mitral stenosis
 - (D) Development of a ventricular septal defect
 - (E) Embolus to the coronary circulation

3. A 42-year-old woman comes to the emergency department because of a 2-day history of intermittent lower abdominal pain and nausea and vomiting. She has not passed flatus or stool during this time. She describes the pain as waxing and waning. Initially, the vomitus was food that she had recently eaten, but it is now bilious; there has been no blood in the vomit. She underwent a hysterectomy 2 years ago for leiomyomata uteri. Vital signs are within normal limits. Examination shows a distended tympanitic abdomen with diffuse tenderness and no rebound. Bowel sounds are initially quiet but then become loud with the onset of pain. Abdominal x-rays show distended loops of bowel with air-fluid levels. Which of the following is the most likely mechanism of this patient's symptoms?
 - (A) Chronic postoperative infection
 - (B) Immunologic damage to the bowel wall due to exposure to occult antigens during the operation
 - (C) Inflammatory reaction to suture material left inside the abdomen
 - (D) Mechanical obstruction from implantation of leiomyomata uteri
 - (E) Proliferation of fibroblasts forming scar tissue in the area of the operation

4. A 4-year-old boy is brought to the physician by his parents because of a 4-month history of difficulty running and frequent falls. His parents report that his calves have been gradually increasing in size during this period. Examination shows diffusely enlarged muscles of the calves and lumbar lordosis. Sensation is intact. He has difficulty arising from a supine position. Which of the following is the most likely diagnosis?
 - (A) Duchenne muscular dystrophy
 - (B) Juvenile idiopathic arthritis
 - (C) Lumbosacral radiculopathy
 - (D) Rhabdomyosarcoma
 - (E) Spina bifida

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5. An 18-year-old man is brought to the emergency department 10 minutes after he sustained a stab wound to his chest. On arrival, he is unresponsive to painful stimuli. His pulse is 130/min, respirations are 8/min and shallow, and palpable systolic blood pressure is 60 mm Hg. He is intubated and mechanically ventilated, and infusion of 0.9% saline is begun. After 5 minutes, his pulse is 130/min, and blood pressure is 70/40 mm Hg. Examination shows a 2-cm wound at the left sixth intercostal space at the midclavicular line. There is jugular venous distention. Breath sounds are normal. The trachea is at the midline. Heart sounds are not audible. Which of the following is the most likely cause of these findings?
- (A) Bronchial disruption
 - (B) Hemothorax
 - (C) Myocardial infarction
 - (D) Pericardial tamponade
 - (E) Tension pneumothorax
6. A 70-year-old man is admitted to the hospital for elective coronary artery bypass grafting. On the day of his operation, an asymptomatic carotid bruit is found. Which of the following is the most appropriate immediate next step in diagnosis?
- (A) Duplex scan of the neck
 - (B) CT scan of the head
 - (C) PET scan of the brain
 - (D) MRI of the brain
 - (E) Cerebral angiography
7. Ten days after admission to the hospital because of acute pancreatitis, a 56-year-old man with alcoholism develops chills and temperatures to 39.4°C (103°F). Examination shows a tender abdomen with hypoactive bowel sounds. Which of the following is the most likely diagnosis?
- (A) Pancreatic abscess
 - (B) Pancreatic insufficiency
 - (C) Perforated duodenal ulcer
 - (D) Retroperitoneal hemorrhage
 - (E) Splenic vein thrombosis
8. A 24-year-old nulligravid woman is brought to the emergency department after a syncopal episode at work. She has had progressively severe cramps in the lower abdomen over the past 6 hours. She has had spotty vaginal bleeding for 2 days; her last menstrual period began 7 weeks ago. She is diaphoretic and anxious. Her temperature is 37°C (98.6°F), pulse is 130/min, respirations are 26/min, and blood pressure is 80/60 mm Hg. Examination shows blood in the vaginal vault and diffuse abdominal tenderness; there is pain with cervical motion. Which of the following is the most appropriate next step in management?
- (A) Intravenous administration of fluids
 - (B) Intravenous administration of broad-spectrum antibiotics
 - (C) Transfusion of O-negative blood
 - (D) Transfusion of type-specific blood
 - (E) Culdocentesis

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9. A 52-year-old man comes to the physician because of a 5-month history of pain in his left knee that is exacerbated by walking long distances. There is no history of trauma. He has hypertension well controlled with enalapril. His job does not require carrying heavy loads. He is 180 cm (5 ft 11 in) tall and weighs 95 kg (210 lb); BMI is 29 kg/m². His pulse is 82/min and regular, respirations are 16/min, and blood pressure is 130/82 mm Hg. Examination of the left knee shows mild crepitus with flexion and extension; there is no effusion or warmth. X-rays of the knees show narrowing of the joint space in the left knee compared with the right knee. Which of the following is most likely to improve this patient's symptoms?

- (A) High-impact aerobics program
- (B) Weight loss program
- (C) Daily colchicine prophylaxis
- (D) Daily shark cartilage supplementation
- (E) Daily vitamin D supplementation

10. A previously healthy 32-year-old man comes to the emergency department because of a 3-day history of pain and swelling of his right knee. Two weeks ago, he injured his right knee during a touch football game and has had swelling and bruising for 5 days. One week ago, he underwent extraction of a molar for severe dental caries. He is sexually active with one male partner and uses condoms consistently. HIV antibody testing was negative 3 months ago. His temperature is 38.6°C (101.5°F), pulse is 100/min, and blood pressure is 120/60 mm Hg. Examination of the right knee shows warmth, erythema, and a joint effusion. Flexion and extension of the right knee are severely limited. An x-ray of the knee confirms the joint effusion. Which of the following is the most appropriate next step in diagnosis?

- (A) Venous Doppler ultrasonography
- (B) Bone scan
- (C) MRI of the knee
- (D) Arthroscopic exploration of the knee
- (E) Arthrocentesis

11. A 57-year-old woman with inoperable small cell carcinoma of the lung has had lethargy, loss of appetite, and nausea for 1 week. She received radiation therapy 2½ years ago. She has stable angina pectoris controlled with nitrates. Her pulse is 68/min, respirations are 16/min, and blood pressure is 118/72 mm Hg. There is no jugular venous distention, and skin turgor is normal. She is oriented to person and place but not to time. Laboratory studies show:

Serum	
Na ⁺	128 mEq/L
Cl ⁻	100 mEq/L
K ⁺	4.2 mEq/L
HCO ₃ ⁻	24 mEq/L
Urea nitrogen	11 mg/dL
Glucose	92 mg/dL
Creatinine	0.8 mg/dL
Osmolality	270 mOsmol/kg H ₂ O
Urine	
Na ⁺	78 mEq/L
Osmolality	310 mOsmol/kg H ₂ O

An x-ray of the chest shows a mass in the right upper lobe of the lung that is unchanged from an x-ray taken 3 months ago. Which of the following is the most likely explanation for these findings?

- (A) Compulsive water drinking
- (B) Congestive heart failure
- (C) Hypothyroidism
- (D) Surreptitious use of diuretics
- (E) Syndrome of inappropriate secretion of ADH (vasopressin)

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12. A 3799-g (8-lb 6-oz) female newborn is born by cesarean delivery because of a breech presentation. Apgar scores are 7 and 9 at 1 and 5 minutes, respectively. Initial examination shows a palpable clunk when the left hip is abducted, flexed, and lifted forward. Posterior pressure on the flexed hip elicits a similar clunk. The remainder of the examination shows no abnormalities. Which of the following is the most likely diagnosis?
- (A) Congenital hip dysplasia
 - (B) Legg-Calvé-Perthes disease
 - (C) Osgood-Schlatter disease
 - (D) Osteogenesis imperfecta
 - (E) Slipped capital femoral epiphysis
13. A previously healthy 72-year-old man comes to the physician because of decreased urinary output during the past 2 days; he has had no urinary output for 8 hours. Examination shows suprapubic fullness and an enlarged prostate. His serum urea nitrogen concentration is 88 mg/dL, and serum creatinine concentration is 3.5 mg/dL. Which of the following is the most appropriate next step in management?
- (A) Ultrasonography of the prostate
 - (B) Ultrasonography of the kidneys
 - (C) CT scan of the abdomen
 - (D) Bladder catheterization
 - (E) Intravenous pyelography
14. A 3-year-old boy is brought to the emergency department because of a 2-week history of persistent cough and wheezing. His mother states that his symptoms occur when he laughs or runs. He has not had any other symptoms, and no one else at home is sick. Three weeks ago, he had an episode of choking and coughing while eating dinner. His temperature is 37.6°C (99.7°F), pulse is 90/min, respirations are 20/min, and blood pressure is 70/45 mm Hg. Expiratory wheezes are heard on the right with normal airflow. The remainder of the examination shows no abnormalities. His symptoms do not improve after administration of nebulized albuterol. An expiratory chest x-ray shows hyperinflation of the right lung; there is no mediastinal or tracheal shift. Which of the following is the most likely diagnosis?
- (A) Asthma
 - (B) Foreign body aspiration
 - (C) Laryngotracheobronchitis (croup)
 - (D) Psychogenic cough
 - (E) Tension pneumothorax
15. Two hours after undergoing a right hepatic lobectomy, a 59-year-old woman has a distended abdomen. Her pulse is 120/min, and blood pressure is 100/60 mm Hg. Which of the following is the most likely cause of these findings?
- (A) Deficiency of factor III
 - (B) Deficiency of factor VII
 - (C) Deficiency of factor XII
 - (D) Deficiency of platelets
 - (E) Poor mechanical hemostasis

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16. Three days after undergoing elective laparoscopic cholecystectomy for cholelithiasis, a 42-year-old woman has the onset of hematomas at all surgical sites. She was treated for deep venous thrombosis 3 years ago but was not taking any medications at the time of this admission. Results of preoperative laboratory studies were within the reference range. Prior to the operation, she received heparin and underwent application of compression stockings. Her initial postoperative course was uncomplicated. Her only medication is ibuprofen. She is 163 cm (5 ft 4 in) tall and weighs 87 kg (192 lb); BMI is 33 kg/m². Her temperature is 37.3°C (99.2°F), pulse is 94/min, respirations are 16/min, and blood pressure is 112/74 mm Hg. Examination shows mild hematomas at all surgical sites. The abdomen is soft and nontender. There is no organomegaly. Bowel sounds are normal. Laboratory studies show:

Hemoglobin	10.3 g/dL
Hematocrit	30%
Leukocyte count	12,00/mm ³
Platelet count	45,000/mm ³

Which of the following is the most likely cause of this patient's current findings?

- (A) Acute intermittent porphyria
 - (B) Heparin-induced thrombocytopenia
 - (C) Hypersplenism
 - (D) Inhibition of cyclooxygenase
 - (E) von Willebrand disease
17. Two days after undergoing surgical repair of a ruptured abdominal aortic aneurysm, a 67-year-old man requires increasing ventilatory support. He remains intubated and is being mechanically ventilated at an FIO₂ of 0.6 and a positive end-expiratory pressure of 7.5 cm H₂O. He has chronic obstructive pulmonary disease. He had a myocardial infarction 2 years ago. His only medication is a sedative. He has smoked two packs of cigarettes daily for 40 years. He appears diaphoretic. His temperature is 38.1°C (100.6°F), pulse is 120/min, and blood pressure is 90/60 mm Hg; the ventilatory rate is 25/min. Examination shows jugular venous distention. Breath sounds are absent on the left. The trachea is shifted to the right. Pulse oximetry shows an oxygen saturation of 82%. Which of the following is the most appropriate next step in diagnosis?
- (A) ECG
 - (B) Transthoracic echocardiography
 - (C) CT scan of the chest
 - (D) Needle aspiration of the left side of the chest
18. A previously healthy 62-year-old man comes to the physician because of a 2-month history of cough. He has smoked two packs of cigarettes daily for 40 years. Examination shows no abnormalities. An x-ray of the chest shows a 2.5-cm noncalcified pulmonary nodule in the right upper lobe. A CT scan of the chest confirms the x-ray findings. An x-ray of the chest obtained 1 year ago showed no abnormalities. Which of the following is the most appropriate next step in diagnosis?
- (A) Measurement of serum calcium concentration
 - (B) Second x-ray of the chest in 6 weeks
 - (C) Ventilation-perfusion lung scans
 - (D) Bronchoscopy with transbronchial biopsy
 - (E) Median sternotomy

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19. A 57-year-old woman comes to the physician for a routine follow-up examination. She has a 5-year history of hypertension treated with captopril. She has had a 6.8-kg (15-lb) weight gain since her last visit 1 year ago; she is 165 cm (5 ft 5 in) tall and currently weighs 72 kg (160 lb); BMI is 27 kg/m². Her temperature is 37°C (98.6°F), pulse is 88/min, respirations are 14/min, and blood pressure is 160/86 mm Hg. The lungs are clear to auscultation. Cardiac examination shows no abnormalities. The abdomen is soft and nontender with no palpable masses. Pedal pulses and sensation to pinprick are diminished bilaterally. Fasting serum studies show a total cholesterol concentration of 240 mg/dL and glucose concentration of 182 mg/dL. Which of the following is the most likely cause of these findings?
- (A) Abnormal insulin secretion with insulin resistance
 - (B) Autoimmune β -cell destruction
 - (C) Excess glycogen breakdown
 - (D) Excess release of glucagon and catecholamines
 - (E) Insulin allergy
20. A 3-year-old girl is brought to the emergency department because of left leg pain after falling at preschool 2 hours ago. She has a history of fractures after minor trauma. She has consistently been at the 10th percentile for height and weight since birth. Examination shows blue sclerae. There is an obvious deformity of the left thigh. An x-ray shows a new fracture of the left femur and evidence of previous fracturing. Which of the following is the most likely cause of these findings?
- (A) Child abuse
 - (B) Defective type I collagen
 - (C) Deficient sulfate ion transport
 - (D) Hypocalcemia
 - (E) Hypophosphatemia
 - (F) Vitamin D deficiency

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Answer Form for Surgery Sample Questions

(Questions 1–20)

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Answer Key for Surgery Sample Questions

(Questions 1–20)

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| 1. | C | 11. | E |
| 2. | A | 12. | A |
| 3. | E | 13. | D |
| 4. | A | 14. | B |
| 5. | D | 15. | E |
| 6. | A | 16. | B |
| 7. | A | 17. | D |
| 8. | A | 18. | D |
| 9. | B | 19. | A |
| 10. | E | 20. | B |