Examples of questions & ideal answers

Study the following case histories and select the best answer to the question following them.
The answer under each question

A 61-year-old man was seen in the emergency department complaining of a feeling of pressure within his chest. On questioning, he said that he had several attacks before and that they had always occurred when he was climbing stairs or digging in the garden. He found that the discomfort disappeared with rest after about 5 minutes. The reason he came to the emergency department was that the chest discomfort had occurred with much less exertion.

6. The following comments concerning this case are correct except which?

(a) The diagnosis is a classic case of angina pectoris.

(b) The sudden change in history, that is, pain caused by less exertion, should cause the physician concern that the patient now has unstable angina or an actual myocardial infarction.

(c) The afferent pain fibers from the heart ascend to the central nervous system through the cardiac branches of the sympathetic trunk to enter the spinal cord.

(d) The afferent pain fibers enter the spinal cord via the posterior roots of the 10th to the 12th thoracic nerves.

(e) Pain is referred to dermatomes supplied by the upper four intercostal nerves and the intercostal brachial nerve.

Hide Answer

6. D. The afferent pain fibers from the heart enter the spinal cord via the posterior nerve roots of the upper four thoracic spinal nerves

A 55-year-old woman has severe aortic incompetence, with the blood returning to the cavity of the left ventricle during ventricular diastole
7. To hear the aortic valve with the least interference from the other heart sounds, the best place to place your stethoscope on the chest wall is
(a) the right half of the lower end of the body of the sternum.
(b) the medial end of the second right intercostal space.
(c) the medial end of the second left intercostal space.
(d) the apex of the heart.
(e) the fifth left intercostal space 3.5 in. (9 cm) from the midline.
Hide Answer
7. B

A 33-year-old woman was jogging across the park at 11 p.m. when she was attacked by a gang of youths. After she was brutally mugged and raped, one of the youths decided to stab her in the heart to keep her silent. Later in the emergency department she was unconscious and in extremely poor shape. A small wound about 0.5 in. in diameter was present in the left fifth intercostal space about 0.5 in. from the lateral sternal margin. Her carotid pulse was rapid and weak, and her neck veins were distended. No evidence of a left-sided pneumothorax existed. A diagnosis of cardiac tamponade was made
8. The following observations are in agreement with the diagnosis except which?
(a) The tip of the knife had pierced the pericardium.
(b) The knife had pierced the anterior wall of the left ventricle.
(c) The blood in the pericardial cavity was under right ventricular pressure.
(d) The blood in the pericardial cavity pressed on the thin-walled atria and large veins as they traversed the pericardium to enter the heart.
(e) The backed-up venous blood caused congestion of the veins seen in the neck.
(f) The poor venous return severely compromised the cardiac output.
(g) A left-sided pneumothorax did not occur because the knife passed through the cardiac notch.
Hide Answer

8. B. The knife had pierced the anterior wall of the right ventricle.

A 55-year-old man states that he has noticed an alteration in his voice. He has lost 40 lb (18 kg) and has a persistent cough with blood-stained sputum. He smokes 40 cigarettes a day. On examination, the left vocal fold is immobile and lies in the adducted position. A posteroanterior chest radiograph reveals a large mass in the upper lobe of the left lung with an increase in width of the mediastinal shadow on the left side.

1. The symptoms and signs displayed by this patient can be explained by the following statements except which?

(a) This patient has advanced carcinoma of the bronchus in the upper lobe of the left lung, which was seen as a mass on the chest radiograph.

(b) The carcinoma has metastasized to the bronchomediastinal lymph nodes, causing their enlargement and producing a widening of the mediastinal shadow seen on the chest radiograph.

(c) The enlarged lymph nodes had pressed on the left recurrent laryngeal nerve.

(d) Partial injury to the recurrent laryngeal nerve resulted in paralysis of the abductor muscles of the vocal cords, leaving the adductor muscles unopposed.

(e) The enlarged lymph nodes pressed on the left recurrent nerve as it ascended to the neck anterior to the arch of the aorta.

Hide Answer

1. E. The left recurrent laryngeal nerve ascends to the neck by passing under the arch of the aorta; it ascends in the groove between the trachea and the esophagus.

A 35-year-old woman had difficulty in breathing and sleeping at night. She says she falls asleep only to wake up with a choking sensation. She finds that she has to sleep propped up in bed on pillows with her neck flexed to the right.

2. The following statements concerning this case are correct except which?

(a) Veins in the skin at the root of the neck are congested.
(b) The U-shaped cartilaginous rings in the wall of the trachea prevent it from being kinked or compressed.
(c) The left lobe of the thyroid gland is larger than the right lobe.
(d) On falling asleep, the patient tends to flex her neck laterally over the enlarged left thyroid lobe.
(e) The enlarged thyroid gland extends down the neck into the superior mediastinum.
(f) The brachiocephalic veins in the superior mediastinum were partially obstructed by the enlarged thyroid gland.
Hide Answer
2. B. The trachea is a mobile, fibroelastic tube that can be kinked or compressed despite the presence of the cartilaginous rings

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A 15-year-old boy was rescued from a lake after falling through thin ice. The next day, he developed a severe cold, and 3 days later his general condition deteriorated. He became febrile and started to cough up blood-stained sputum. At first, he had no chest pain, but later, when he coughed, he experienced severe pain over the right fifth intercostal space in the midclavicular line.
3. The following statements would explain the patient's signs and symptoms except which?
(a) The patient had developed lobar pneumonia and pleurisy in the right lung.
(b) Disease of the lung does not cause pain until the parietal pleura is involved.
(c) The pneumonia was located in the right middle lobe.
(d) The visceral pleura is innervated by autonomic nerves that contain pain fibers.
(e) Pain associated with the pleurisy was accentuated when movement of the visceral and parietal pleurae occurred, for example, on deep inspiration or coughing.
Hide Answer
3. D. Lung tissue and the visceral pleura are not innervated with pain fibers. The costal parietal pleura is innervated by the intercostal nerves, which have pain endings in the pleura.

A 2-year-old boy was playing with his toy car when his baby-sitter noticed that a small metal nut was missing from the car. Two days later the child developed a cough and became febrile

4. This child's illness could be explained by the following statements except which?

(a) The child had inhaled the nut.

(b) The metal nut could easily be seen on posteroanterior and right oblique radiographs.

(c) The left principal bronchus is the more vertical and wider of the two principal bronchi, and inhaled foreign bodies tend to become lodged in it.

(d) The nut was successfully removed through a bronchoscope.

(e) Children who are teething tend to suck on hard toys.

Hide Answer

4. C. The right principal (main) bronchus is the more vertical and wider of the two principal bronchi and for this reason an inhaled foreign body passes down the trachea and tends to enter the right main bronchus, where it was lodged in this patient.

A 23-year-old woman was examined in the emergency department because of the sudden onset of respiratory distress. The physician was listening to breath sounds over the right hemithorax and was concerned when no sounds were heard on the front of the chest at the level of the 10th rib in the midclavicular line.

5. The following comments concerning this patient are correct except which?

(a) In a healthy individual, the lower border of the right lung in the midclavicular line in the midrespiratory position is at the level of the sixth rib.

(b) The parietal pleura in the midclavicular line crosses the 10th rib.

(c) The costodiaphragmatic recess is situated between the lower border of the lung and the parietal pleura.

(d) The lung on extreme inspiration could descend in the costodiaphragmatic recess only as far as the eighth rib.

(e) No breath sounds were heard because the stethoscope was located over the liver.

Hide Answer

5. B. The parietal pleura in the midclavicular line only extends down as far as the eighth rib

A 36-year-old woman with a known history of emphysema (dilatation of alveoli and destruction of alveolar walls with a tendency to form cystic spaces) suddenly experiences a severe pain in the left side of her chest, is breathless, and is obviously in a state of shock.

9. Examination of this patient reveals the following findings except which?

(a) The trachea is displaced to the right in the suprasternal notch.
(b) The apex beat of the heart can be felt in the fifth left intercostal space just lateral to the sternum.
(c) The right lung is collapsed.
(d) The air pressure in the left pleural cavity is at atmospheric pressure.
(e) The air has entered the left pleural cavity as the result of rupture of one of the emphysematous cysts of the left lung (left-sided pneumothorax).
(f) The elastic recoil of the lung tissue caused the lung to collapse.

Hide Answer

9. C. The left lung collapsed immediately when air entered the left pleural cavity because the air pressures within the bronchial tree and in the pleural cavity were then equal.

A wife was told that her husband was suffering from cancer of the lower end of the esophagus. The physician told her that to save his life, the surgeon would have to remove the lower part of the esophagus, the stomach, the spleen, and the upper part of the duodenum. The wife could not understand why such a drastic operation was required to remove such a small tumor.

10. The following statements explain this extensive operation except which?

(a) Carcinoma of the esophagus tends to spread via the lymphatic vessels.
(b) The lymphatic vessels descend through the aortic opening in the diaphragm to enter the celiac lymph nodes.
(c) The tumor of the esophagus and an area of normal adjacent esophagus have to be removed.

(d) The lymphatic vessels and nodes that drain the diseased area have to be removed.
(e) Because of the risk that retrograde spread had occurred, the other organs draining into the lymph nodes also have to be removed.
Hide Answer
10. B. The lymphatic vessels draining the esophagus accompany the left gastric blood vessels through the esophageal opening in the diaphragm to reach the celiac nodes.

A 50-year-old man with chronic alcoholism was told by his physician that he had cirrhosis of the liver with portal hypertension.
11. The following statements explain why the patient recently vomited a cupful of blood except which?
(a) The lower third of the esophagus is the site of a portalâ€“systemic anastomosis.
(b) At the lower third of the esophagus the esophageal veins of the left gastric vein anastomose with the esophageal veins of the inferior vena cava.
(c) In cirrhosis of the liver, the portal circulation through the liver is obstructed by fibrous tissue, producing portal hypertension.
(d) Many of the dilated veins that lie within the mucous membrane and submucosa are easily damaged by swallowed food.
(e) Copious hemorrhage from these veins is difficult to treat and is often terminal.
Hide Answer
11. B. The esophageal veins of the azygos system of veins anastomose with the esophageal veins of the left gastric vein.

A 5-year-old boy was seen in the emergency department after an attack of breathlessness during which he had lost consciousness. The mother said that her child had had several attacks before and sometimes his skin had become bluish. Recently, she had noticed that he breathed more easily when he was playing in a squatting position; he also seemed to sleep more easily with his knees drawn up. An extensive workup, including angiography, demonstrated that the patient had severe congenital heart diseases

12. The following observations in this patient are consistent with the diagnosis of tetralogy of Fallot except which?

(a) The child was thinner and shorter than normal.
(b) His lips, fingers, and toes were cyanotic.
(c) A systolic murmur was present down the left border of the sternum.
(d) The heart was considerably enlarged to the left.
(e) Pulmonary stenosis impairs the pulmonary circulation so that a right to left shunt occurs and the arterial blood is poorly oxygenated.
(f) A large ventricular septal defect was present.
(g) The aortic opening into the heart was common to both ventricles.

Hide Answer

12. D. Because of the pulmonary stenosis and the ventricular septal defect, right ventricular hypertrophy is causing the heart to enlarge to the right.

On percussing the anterior chest wall of a patient, you find the right margin of the heart to lie 2 in. (5 cm) to the right of the edge of the sternum.

1. Which chamber of the heart is likely to be enlarged?
(a) The left ventricle
(b) The left atrium
(c) The right ventricle
(d) The right atrium

Hide Answer

1. D

A 31-year-old soldier received a shrapnel wound in the neck during the Persian Gulf War. Recently, during a physical examination, it was noticed that when he blew his nose or sneezed, the skin above the right clavicle bulged upward.

2. The upward bulging of the skin could be explained by
(a) injury to the cervical pleura.
(b) damage to the suprapleural membrane.
(c) damage to the deep fascia in the root of the neck.
(d) ununited fracture of the first rib.

Hide Answer

2. B. The suprapleural membrane prevents the cervical dome of the pleura from bulging up into the neck.

A 52-year-old woman was admitted to the hospital with a diagnosis of right-sided pleurisy with pneumonia. It was decided to remove a sample of pleural fluid from her pleural cavity. The resident inserted the needle close to the lower border of the eighth rib in the anterior axillary line. The next morning he was surprised to hear that the patient had complained of altered skin sensation extending from the point where the needle was inserted downward and forward to the midline of the abdominal wall above the umbilicus.

3. The altered skin sensation in this patient after the needle thoracostomy could be explained by which of the following?
(a) The needle was inserted too low down in the intercostal space.
(b) The needle was inserted too close to the lower border of the eighth rib and damaged the eighth intercostal nerve.
(c) The needle had impaled the eighth rib.

(d) The needle had penetrated too deeply and pierced the lung.
Hide Answer
3. B

A 68-year-old man complained of a swelling in the skin on the back of the chest. He had noticed it for the last 3 years and was concerned because it was rapidly enlarging. On examination, a hard lump was found in the skin in the right scapula line opposite the seventh thoracic vertebra. A biopsy revealed that the lump was malignant.
4. Because of the rapid increase in size of the tumor, which of the following lymph nodes were examined for metastases?
(a) Superficial inguinal nodes
(b) Anterior axillary nodes
(c) Posterior axillary nodes
(d) External iliac nodes
(e) Deep cervical nodes
Hide Answer
4. C

A 65-year-old man and a 10-year-old boy were involved in a severe automobile accident. In both patients the thorax had been badly crushed. Radiographic examination revealed that the man had five fractured ribs but the boy had no fractures.
5. What is the most likely explanation for this difference in medical findings?
(a) The patients were in different seats in the vehicle.
(b) The boy was wearing his seat belt and the man was not.
(c) The chest wall of a child is very elastic, and fractures of ribs in children are rare.
(d) The man anticipated the impact and tensed his muscles, including those of the shoulder girdle and abdomen.
Hide Answer
5. C

On examination of a posteroanterior chest radiograph of an 18-year-old woman, it was seen that the left dome of the diaphragm was higher than the right dome and reached to the upper border of the fourth rib.
6. The position of the left dome of the diaphragm could be explained by one of the following conditions except which?
(a) The left lung could be collapsed.
(b) There is a collection of blood under the diaphragm on the left side.
(c) There is an amebic abscess in the left lobe of the liver.
(d) The left dome of the diaphragm is normally higher than the right dome.
(e) There is a peritoneal abscess beneath the diaphragm on the left side.
Hide Answer
6. D

A 43-year-old man was involved in a violent quarrel with his wife over another woman. In a fit of rage, the wife picked up a carving knife and lunged forward at her husband, striking his anterior neck over the left clavicle. The husband collapsed on the kitchen floor, bleeding profusely from the wound. The distraught wife called an ambulance.
7. On examination in the emergency department of the hospital, the following conditions were found except which?
(a) A wound was seen about 1 in. (2.5 cm) wide over the left clavicle.
(b) Auscultation revealed diminished breath sounds over the left hemithorax.
(c) The trachea was deflected to the left.
(d) The left upper limb was lying stationary on the table, and active movement of the small muscles of the left hand was absent.
(e) The patient was insensitive to pin prick along the lateral side of the left arm, forearm, and hand.
Hide Answer
7. E. The lower trunk of the brachial plexus was cut by the knife. This would explain the loss of movement of the small muscles of the left hand. It would also explain the loss of skin sensation that occurred in the C8 and T1 dermatomes on the medial, not on the lateral, side of the left forearm and hand. The knife had also pierced the left dome of the cervical pleura, causing a left pneumothorax with left-sided diminished breath sounds and a deflection of the trachea to the left.

A 72-year-old man complaining of burning pain on the right side of his chest was seen by his physician. On examination the patient indicated that the pain passed forward over the right sixth intercostal space from the posterior axillary line forward as far as the midline over the sternum. The physician noted that there were several watery blebs on the skin in the painful area.

8. The following statements are correct except which?

(a) This patient has herpes zoster.

(b) A virus descends along the cutaneous nerves, causing dermatomal pain and the eruption of vesicles.

(c) The sixth right intercostal nerve was involved.

(d) The condition was confined to the anterior cutaneous branch of the sixth intercostal nerve.

Hide Answer

8. D. The skin over the sixth intercostal space is innervated by the lateral cutaneous branch as well as the anterior cutaneous branch of the sixth intercostal nerve.

An 18-year-old woman was thrown from a horse while attempting to jump a fence. She landed heavily on the ground, striking the lower part of her chest on the left side. On examination in the emergency department she was conscious but breathless. The lower left side of her chest was badly bruised, and the 9th and 10th ribs were extremely tender to touch. She had severe tachycardia, and her systolic blood pressure was low.

9. The following statements are possibly correct except which?

(a) There was evidence of tenderness and muscle spasm in the left upper quadrant of the anterior abdominal wall.

(b) A posteroanterior radiograph of the chest revealed fractures of the left 9th and 10th ribs near their angles.

(c) The blunt trauma to the ribs had resulted in a tear of the underlying spleen.

(d) The presence of blood in the peritoneal cavity had irritated the parietal peritoneum, producing reflex spasm of the upper abdominal muscles.

(e) The muscles of the anterior abdominal wall are not supplied by thoracic spinal nerves.

Hide Answer

9. E. The 7th to the 11th intercostal nerves supply the muscles of the anterior abdominal wall.

An obese 40-year-old woman was seen in the emergency department complaining of a severe pain over the right shoulder and in her right side and back below the shoulder blade. She said that she had experienced the pain on several occasions before and that when she ate fatty foods it seemed to make the pain worse. Ultrasound demonstrated the presence of gallstones. Her condition was diagnosed as cholelithiasis, and the pain was attributed to gallstone colic.

1. The symptoms and signs displayed by this patient can be explained by the following statements except which?

(a) The fundus of the gallbladder lies against the anterior abdominal wall next to the tip of the right ninth costal cartilage.

(b) The parietal peritoneum in this area is innervated by the 10th and 11th intercostal nerves, which give rise to referred pain in the 10th and 11th dermatomes on the side and back.

(c) The parietal peritoneum on the central part of the undersurface of the diaphragm is supplied by the phrenic nerve.

(d) The spinal segmental nerves within the phrenic nerve are C3, C4, and C5.

(e) The pain was referred to the shoulder along the supraclavicular nerves (C3 and C4).

Hide Answer

1. B. The parietal peritoneum in the region of the fundus of the gallbladder is innervated by the eighth and ninth intercostal nerves, which give rise to referred pain in the eighth and ninth thoracic dermatomes on the side and back.

An 8-year-old boy was admitted to the hospital with a temperature of 101Â°F, a furred tongue, and pain in the right lower quadrant. On examination, the skin on the right lower quadrant was tender to the touch, and the abdominal muscles were contracted and rigid. A diagnosis of acute appendicitis was made.

2. The symptoms and signs displayed by this patient can be explained by the following statements except which?

(a) An acutely inflamed appendix produces an inflammation of the peritoneal coat covering it.

(b) Should the inflammatory process spread, for example, if the appendix should rupture, the parietal peritoneum would become involved.

(c) The parietal peritoneum, the abdominal muscles, and the overlying skin are supplied by the same segmental spinal nerves.

(d) The segmental nerves supplying the right lower quadrant of the abdominal wall are T7, T8, and T9.

(e) The pain in the right lower quadrant and the regional contraction of the abdominal muscles are an attempt by the body to keep the inflamed appendix immobile so that the inflammatory process remains localized.

Hide Answer

2. D. The segmental nerves supplying the right lower quadrant of the abdominal wall are T11, T12, and L1.

A workman engaged in demolishing a building lost his balance and fell astride a girder on the floor below. On examination, he was found to have extensive swelling of his perineum, scrotum, and penis. He was unable to urinate normally, passing only a few drops of blood-stained urine. The lower part of the anterior abdominal wall was also swollen, but his thighs were normal.

3. The symptoms and signs displayed by this patient can be explained by the following statements except which?

(a) The patient's fall ruptured the urethra in the perineum.

(b) When the patient attempted to micturate, the urine extravasated beneath Colles' fascia.

(c) The urine passed over the scrotum and penis under the membranous layer of superficial fascia.

(d) The urine passed upward beneath the membranous layer of superficial fascia on the anterior abdominal wall.

(e) The urine could not extend posteriorly because of the attachment of Colles' fascia to the tip of the coccyx.
(f) The urine did not extend into the thigh because of the attachment of the membranous layer of superficial fascia to the fascia lata, just below the inguinal ligament.
Hide Answer
3. E. The urine could not extend posteriorly because of the attachment of the Colles' fascia to the posterior edge of the perineal membrane.

A 45-year-old woman was shopping in a liquor store when an armed robbery took place. A shoot-out occurred and a bullet ricocheted off the wall and entered her left side. Fortunately, the bullet did not enter the peritoneal cavity. One year later, in addition to diminished skin sensation over the left lumbar region and umbilicus, she noticed a bulging forward of the left side of her anterior abdominal wall.
4. The symptoms and signs displayed by this patient can be explained by the following statements except which?
(a) The bullet cut the 9th and 10th intercostal nerves just below the costal margin on the left side.
(b) The diminished skin sensation was caused by the loss of the sensory nerve supply to the 9th and 10th thoracic dermatomes.
(c) Portions of the oblique, transversus, and rectus abdominis muscles on the left side were paralyzed.
(d) Atrophy of the pyramidalis muscle resulted in loss of support to the abdominal viscera, which then sagged forward.
Hide Answer
4. D. The pyramidalis muscle (if present) is innervated by the 12th thoracic nerve.

A 9-week-old boy was admitted to the hospital with a swelling in the right groin that extended down into the upper part of the scrotum. When he cried, the swelling enlarged. On careful palpation it was possible to reduce the size of the swelling, and this procedure was accompanied by a gurgling noise.
5. The symptoms and signs displayed by this patient can be explained by the following statements except which?

(a) The swelling was situated above and medial to the pubic tubercle on the right side.
(b) The child had a right indirect inguinal hernia.
(c) The processus vaginalis in its upper part had failed to become obliterated before birth.
(d) The hernial sac in an indirect inguinal hernia emerges from the superficial inguinal ring.
(e) The superficial inguinal ring lies above and medial to the pubic tubercle.
(f) The contents of the hernial sac consisted only of the greater omentum.
Hide Answer
5. F. The contents of this hernial sac included coils of small intestine, which were responsible for the gurgling noises that occurred as the hernia was reduced.

A 75-year-old man with chronic bronchitis noticed that a bulge was developing in his left groin. On examination, an elongated swelling was seen above the medial end of the left inguinal ligament. When the patient coughed, the swelling enlarged but did not descend into the scrotum. The patient had weak abdominal muscles.
6. The symptoms and signs displayed by this patient can be explained by the following statements except which?
(a) The inguinal swelling was a direct inguinal hernia.
(b) The cause of the hernia was weak abdominal muscles.
(c) The hernial sac was wide and in direct communication with the peritoneal cavity.
(d) A rise in intra-abdominal pressure on coughing caused the hernial swelling to expand.
(e) The swelling occurred lateral to the inferior epigastric artery.
Hide Answer
6. E. The swelling occurs medial to the inferior epigastric artery.

A 40-year-old woman noticed a painful swelling in her right groin after helping her husband move some heavy furniture. On examination, a small tender swelling was noted in the right groin.

7. The symptoms and signs displayed by this patient can be explained by the following statements except which?

(a) The excessive exertion caused a rise in intra-abdominal pressure.
(b) A hernial sac formed of parietal peritoneum was forced downward.
(c) The peritoneum was forced through the right femoral canal.
(d) The patient had a right-sided femoral hernia.
(e) The neck of a femoral hernial sac is situated below and medial to the pubic tubercle.

Hide Answer

7. E. The neck of a femoral hernial sac is situated below and lateral to the pubic tubercle.

A 55-year-old man was admitted to the hospital with a large, hard, fixed, intra-abdominal mass. On examination of the abdomen the mass was situated on the transpyloric plane. The inguinal lymph nodes were normal.

8. The symptoms and signs displayed by this patient can be explained by the following statements except which?

(a) Radiologic examination of the stomach showed nothing abnormal.
(b) The right testicle was enlarged and was much harder than normal.
(c) A diagnosis of malignant disease of the right testis was made.
(d) The malignant tumor had metastasized to the lumbar lymph nodes lying on the transpyloric plane on the posterior abdominal wall, which is the normal lymphatic drainage of the testis.
(e) In malignant disease of the testis the superficial inguinal lymph nodes only become involved if the tumor spreads to involve the scrotal skin.
(f) The normal testis is tethered to the skin of the scrotum.

Hide Answer

8. F. The normal testis is freely mobile within the scrotum and is not tethered to the subcutaneous tissue or skin.

A 25-year-old man involved in purchasing drugs was knifed in the abdomen in the left upper quadrant. On examination in the emergency department, it was difficult to determine whether the knife had penetrated into the peritoneal cavity. It was decided to do a midline peritoneal lavage below the umbilicus to see if there was any free blood in the peritoneal cavity.

9. The following layers of tissue were penetrated by the trocar and cannula to enter the peritoneal cavity except which?

(a) Skin
(b) Fatty and membranous layers of superficial fascia
(c) Rectus sheath and rectus abdominis muscle
(d) Deep fascia
(e) Fascia transversalis
(f) Extraperitoneal tissue and parietal peritoneum

Hide Answer

9. C. The linea alba lies in the midline; the rectus sheath lies lateral to the linea alba.

A 20-year-old soccer player was accidentally kicked on the left side of her chest. On returning to the locker room she said she felt faint and collapsed to the floor. On examination in the emergency department, she was found to be in hypovolemic shock. She had tenderness and muscle rigidity in the left upper quadrant of her abdomen. She also had extreme local tenderness over her left 10th rib in the midaxillary line.

10. The symptoms and signs displayed by this patient can be explained by the following statements except which?

(a) Radiology revealed a fractured left 10th rib.
(b) The spleen was severely bruised and the bloolass="A">
(c) Later in the locker room the capsule of the spleen gave way and the blood escaped into the peritoneal cavity.
(d) Blood does not irritate the parietal peritoneum.
(e) Stimulation of the sensory nerves supplying the parietal peritoneum was responsible for the extreme tenderness of the left upper quadrant of the abdomen.

(f) The muscles forming the anterior abdominal wall in that region were reflexly stimulated, producing muscle rigidity.
Hide Answer
10. D. Blood is very irritating to the parietal peritoneum.

A 45-year-old man was admitted to the emergency department complaining of severe pain in the right lower quadrant of the anterior abdominal wall. He had repeatedly vomited, and his temperature and pulse rate were elevated. His history indicated that he had acute appendicitis and that the pain had suddenly increased. On examination, the muscles of the lower part of the anterior abdominal wall in the right lower quadrant showed rigidity. The diagnosis of peritonitis after perforation of the appendix was made.
1. The symptoms and signs displayed by this patient can be explained by the following statements except which?
(a) The perforation of the appendix had resulted in the spread of the infection from the appendix to involve the parietal peritoneum.
(b) The parietal peritoneum in the right iliac region, the muscles of the anterior abdominal wall, and the overlying skin are all supplied by the segmental nerves T12 and L1.
(c) Irritation of the parietal peritoneum reflexly increases the tone of the abdominal muscles, causing rigidity.
(d) The greater omentum tends to become stuck down to the appendix and restricts the spread of infection.
(e) The pain was intensified after perforation of the appendix because of stimulation of the autonomic pain endings in the parietal peritoneum.
Hide Answer
1. E. In the parietal peritoneum lining the anterior abdominal wall in the right iliac fossa, the sensation of pain originates in the nerve endings of somatic spinal nerves (T12 and L1).

A 63-year-old man with a long history of a duodenal ulcer was seen in the emergency department after vomiting blood-stained fluid and exhibiting all the signs and symptoms of severe hypovolemic shock.
2. The following statements concerning duodenal ulcers could apply to the patient's condition except which?
(a) Hemorrhage from a duodenal ulcer often reveals itself by the passage of black stools on defecation.
(b) The pyloric sphincter prevents most of the blood from the duodenal lumen from passing up into the stomach.
(c) The gastroduodenal artery lies behind the first part of the duodenum and was probably eroded by the ulcer.
(d) The gastroduodenal artery is a small branch of the hepatic artery.
(e) The duodenal ulcer was most likely to be situated on the posterior wall of the first part of the duodenum.
Hide Answer
2. D. The gastroduodenal artery is a large branch of the hepatic artery.
A 47-year-old woman was operated on for the treatment of a chronic gastric ulcer that had not responded to medical treatment. At operation for partial gastrectomy, it was found that the posterior wall of the stomach was stuck down to the posterior abdominal wall. The surgeon had to proceed with great care to avoid damaging important structures lying on the posterior abdominal wall.
3. The following structures located on the posterior abdominal wall were possibly involved in the disease process except which?
(a) The right kidney
(b) The pancreas
(c) The left suprarenal gland
(d) The left kidney
(e) The lesser sac of peritoneum
(f) The splenic artery
Hide Answer
3. A

A 58-year-old man was in a restaurant when he suddenly started to vomit blood. He was taken unconscious to the emergency department of a local hospital. On examination, he had all the signs of severe hypovolemic

shock. On palpation of the anterior abdominal wall, the right lobe of the liver was felt three fingerbreadths below the costal margin. Several enlarged superficial veins could be seen around the umbilicus. His wife said that he had vomited blood 3 months previously and had nearly died. She admitted that he was a chronic alcoholic. The diagnosis was cirrhosis of the liver secondary to chronic alcoholism.

4. The symptoms and signs displayed by this patient can be explained by the following statements except which?

(a) The normal flow of portal blood through the liver is impaired by cirrhosis of the liver.

(b) The portalâ€“systemic anastomoses become enlarged in this condition.

(c) At the lower end of the esophagus, a branch from the right gastric vein anastomoses with an esophageal tributary of the azygos vein.

(d) Rupture of a varicosed esophageal vein could produce a severe hemorrhage so that the patient would vomit up blood.

(e) With portal hypertension the paraumbilical veins linking the superficial veins of the skin (systemic veins) to the portal vein become congested and visible.

Hide Answer

4. C. At the lower end of the esophagus, a branch from the left gastric vein anastomoses with an esophageal tributary of the azygos vein.

A 55-year-old woman with a history of flatulent dyspepsia suddenly experienced an excruciating colicky pain across the upper part of the abdomen. On examination in the emergency department, she was found to have some rigidity and tenderness in the right upper quadrant. A diagnosis of biliary colic was made.

5. The following statements would explain this patient's symptoms except which?

(a) The pain of gallstone colic is caused by spasm of the smooth muscle in the wall of the gallbladder and distention of the bile ducts by the stones.

(b) The pain fibers from the gallbladder and bile ducts ascend through the superior mesenteric plexus and the greater splanchnic nerves to enter the thoracic segments of the spinal cord.

(c) Referred pain is felt in the right upper quadrant or the epigastrium.

(d) T7 through T9 dermatomes are involved.

(e) The violent contractions of the gallbladder wall are attempts to expel the gallstones.
Hide Answer
5. B. The pain fibers from the gallbladder and bile ducts ascend through the celiac plexus.

On examination of the abdomen of a 31-year-old woman, a large swelling was found to extend downward and medially below the left costal margin. On percussion, a continuous band of dullness was noted to extend upward from the left of the umbilicus to the left axillary region. On palpation, a notch was felt along the anterior border of the swelling. A diagnosis of splenic enlargement was made.
6. The signs displayed by this patient can be explained by the following statements except which?
(a) The spleen has a notched anterior border caused by incomplete fusion of its parts during development.
(b) Because of the presence of the left colic flexure and the phrenicocolic ligament, the spleen is unable to expand vertically downward.
(c) A pathologically enlarged spleen extends downward and forward, toward the umbilicus.
(d) The spleen is situated in the upper left quadrant of the abdomen beneath the diaphragm.
(e) The long axis of the spleen lies along the 12th rib.
Hide Answer
6. E. The long axis of the spleen lies along the 10th rib.

A 48-year-old woman with a history of repeated vomiting was admitted to the hospital with a diagnosis of large bowel obstruction. To decompress the stomach a nasogastric tube was passed.
7. When passing a nasogastric tube some important anatomic statements should be considered except which?
(a) The well-lubricated tube is inserted through the wider nostril.
(b) The tube is directed backward along the nasal floor and not upward because it may become caught on the nasal choanae.

(c) The distance between the nostril and the cardiac orifice of the stomach is about 23 in. (57.5 cm).
(d) The distance between the cardiac orifice and the pylorus is 4.8 to 5.6 in. (12 to 14 cm).
(e) Esophageal narrowing may offer resistance to the tube behind the cricoid cartilage, 7.21 in. (18 cm) from the nostril.
(f) The left bronchus and the arch of the aorta cross in front of the esophagus and may impede the descent of the tube, 11.2 in. (28 cm) from the nostril.
(g) Where the esophagus enters the stomach is a slight resistance to the descent of the tube.
Hide Answer
7. C. The distance between the nostril and the cardiac orifice of the stomach is about 17.2 in. (44 cm).

A 16-year-old boy received a severe kick in the right flank while playing football at school. On examination in the emergency department, his right flank was severely bruised, and his right costovertebral angle was extremely tender on palpation. A specimen of urine showed microscopic hematuria. A diagnosis of damage to the right kidney was made.
8. The following statements concerning blunt trauma to the kidney are correct except which?
(a) The kidney tends to be crushed between the 12th rib and the vertebral column.
(b) The kidney can be injured by fractures of the 12th rib (right kidney) or 11th and 12th ribs (left kidney).
(c) In most patients the kidney damage is mild and results in nothing more than microscopic hematuria, as in this patient.
(d) In severe kidney lacerations, extensive hemorrhage and extravasation of blood and urine into the pararenal fat occurs.
(e) In severe kidney lacerations, a mass caused by extravasated blood and urine behind the peritoneum may be palpated, especially on the right side.
(f) Both kidneys lie on the posterior abdominal wall and are at the same vertebral level.
Hide Answer
8. F. Because of the large size of the right lobe of the liver, the right kidney lies at a lower level than the left kidney.

A 17-year-old boy was involved in a gang fight. It started as an argument but quickly worsened into a street brawl with the use of knives. He was examined in the emergency department and found to have a bleeding stab wound in his left flank. A urine specimen revealed frank blood.
9. Stab wounds of the kidneys involve other abdominal organs in a high percentage of cases. Of the organs listed, which one is least likely to be damaged in this patient?
(a) Stomach
(b) Spleen
(c) Inferior vena cava
(d) Left colic flexure
(e) Left suprarenal gland
(f) Coils of jejunum
(g) Body of the pancreas
Hide Answer
9. C

A 56-year-old man visited his physician complaining that he experiences severe pain in both legs when taking long walks. He noticed recently that the cramplike pain occurs after walking only a hundred yards. On questioning, he said that the pain quickly disappears on rest only to return after he walks the same distance. When the physician asked about his sex life the patient admitted that he was experiencing difficulty with erection.
10. The symptoms and signs displayed by this patient can be explained by the following statements except which?
(a) Arteriography of the abdominal aorta revealed blockage in the region of the bifurcation.
(b) Only the right common iliac artery was involved by disease.
(c) The gradual blockage of the aorta was caused by advanced arteriosclerosis.
(d) An insufficient amount of blood was reaching both legs, causing pain (claudication) on walking.
(e) The lack of blood entering both internal iliac arteries was responsible for the difficulty with erection.
Hide Answer
10. B. The blockage of the aorta in the region of the bifurcation had effectively blocked the entrances into both common iliac arteries.

A 23-year-old woman, who was 8 months pregnant, told her obstetrician that she had recently noticed that her feet and ankles were swollen at the end of the day. She said that the swelling was worse if she had been standing for long periods. She also noticed that the veins around her ankles were becoming prominent.

11. The symptoms and signs displayed by this patient can be explained by the following statements except which?

(a) The enlarged uterus is an abdominal organ and often compresses the inferior vena cava.

(b) Venous back pressure causes the tissue fluid to accumulate in the subcutaneous tissues of the feet and ankles.

(c) Venous back pressure impairs the venous return in the superficial veins in both the legs, leading to varicose veins.

(d) High levels of progesterone in the blood during pregnancy cause the smooth muscle in the wall of the veins to relax, thus permitting the veins to dilate.

(e) The pregnant uterus presses on the sympathetic trunks, causing vasodilatation of the blood vessels of the legs.

Hide Answer

11. E. The sympathetic trunks are not pressed on by the pregnant uterus.

A 27-year-old woman was involved in a head-on automobile accident. When examined in a neighboring hospital, she was in a state of severe shock, with a rapid pulse and low blood pressure. Extensive bruising was seen on the lower part of the anterior abdominal wall. Further examination showed that the abdomen was becoming rapidly distended. Exploratory surgery revealed a ruptured abdominal aorta.

12. The following statements concerning this case would explain her clinical condition except which?

(a) The patient was wearing a seat belt, which explained the bruising on the anterior abdominal wall.

(b) The aorta is located on the posterior abdominal wall lateral to the left side of the vertebral column.

(c) The aorta lies behind the peritoneum in the retroperitoneal space.

(d) The blood did not immediately escape into the peritoneal cavity because it is retroperitoneal in position and the tear was small in size.
(e) A seat belt may hold the patient securely in the seat, but in some individuals the kidneys continue forward after impact and the renal artery may be torn from the side of the aorta.
Hide Answer
12. B. The aorta descends through the abdomen behind the peritoneum on the anterior surface of the bodies of the lumbar vertebrae.