

A 42 year old male goes running for one hour and subsequently complains of lower back pain and disoriented equilibrium. After a superficial examination of the back, you conclude that the runner is suffering from one of the following:

- A. Lordosis
- B. Scoliosis*
- C. Right side winged scapula
- D. Kyphosis
- E. Herniated intervertebral disc (L1)



A 23 year old woman is punctured in the back by a sharp, thin object. The puncture occurs on the right side of the back, just lateral to the thoracic vertebra and medial to the right scapula. The object penetrates the 2nd intercostal space, muscles of the back and ultimately hits a vital organ. You determine that the organ most likely hit in this case is the following:

- A. Liver
- B. Heart
- C. Right lung*
- D. Spleen
- E. Right Kidney



A 33 year old woman undergoes a lymph node biopsy of her deep cervical lymph nodes on the left side of her neck. Immediately following surgery she complains of weakness in her left shoulder. On exam, the left shoulder droops and she is unable to raise the point of her shoulder. She denies numbness in her left shoulder, back and neck. What nerve appears to have inadvertently been cut during the biopsy?

- A. Greater occipital n.
- B. Spinal n. C3
- C. Dorsal scapular n.
- D. Spinal accessory n. (Cranial Nerve XI)*
- E. Cutaneous nn. of the back (dorsal primary rami)

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- A. The motor part of CN XI must have been damaged, while the sensory part remained intact
- B. The spinal accessory n. is unique among peripheral nerves in that it does not carry any sensory fibers*
- C. Sensory nerve fibers are absent in the trapezius
- D. The spinal accessory n. is associated with C3 and C4 dorsal primary rami before it passes through the foramen magnum
- E. The greater occipital n., which sends proprioceptive fibers to the trapezius m. and allows for coordinated movement, was damaged during the procedure

A 53 year old bodybuilder who takes anabolic steroids suddenly notices that he is unable to pull his body up while doing a pull up. The attending physician determines that the bodybuilder's _____ n. is degenerating due to steroid use that has resulted in a nerve palsy.

- A. Spinal accessory n.
- B. Long thoracic n.
- C. Dorsal scapular n.
- D. Thoracodorsal n.*
- E. Posterior intercostal n.

A 29 year old man suffers from a stroke. A dissecting vertebral artery contributed to his stroke. This may in part be due to the course of the vertebral artery as it approaches the suboccipital triangle, which is bordered by the following muscles:

- A. Obliquus capitis superior,
Obliquus capitis inferior, rectus
capitis minor
- B. Obliquus capitis superior, rectus
capitis minor, rectus capitis
major
- C. Obliquus capitis superior,
Obliquus capitis inferior, rectus
capitis major*
- D. Obliquus capitis superior,
semispinalis cervicus, rectus
capitis major
- E. Obliquus capitis inferior, rectus
capitis minor, rectus capitis
major

A patient suffers a puncture wound in the back just lateral to the 2nd thoracic vertebra. The puncture wound courses until it hits the erector spinae muscle group. From superficial to deep, identify the correct order of muscles hit by the protruding object.

- A. Trapezius, latissimus dorsi, rhomboids, erector spinae m.
- B. Trapezius, rhomboids, serratus posterior superior, splenius ., erector spinae m.*
- C. Trapezius, rhomboids, splenius m, erector spinae m.
- D. Trapezius, rhomboids, serratus posterior superior, erector spinae m.
- E. Trapezius, rhomboids, splenius m., serratus posterior superior, erector spinae m.



Cancer develops in the right breast of a 34 year old woman. The woman experiences a loss of sensation in her nipple. Which nerve is likely affected by the tumor?

- A. T1
- B. T2
- C. T3
- D. T4*
- E. T5



Lymphatic drainage to the right upper quadrant of the breast is also compromised. Which of the following lymph nodes are more greatly affected?

- A. axillary lymph nodes - Right lymphatic duct*
- B. Parasternal lymph nodes - Right lymphatic duct
- C. Intercostal lymph nodes – Right lymphatic duct
- D. Axillary lymph nodes – Thoracic duct
- E. Intercostal lymph nodes – Thoracic duct



A mastectomy is used to remove a cancerous tumor from a 46 year old woman. The procedure involves excision of the breast tissue to the pectoralis major muscle, associated fascia, and into the medial axillary wall. After the procedure the woman has a noticeable winged scapula. The following nerve is most likely damaged:

- A. Spinal accessory n.
- B. Lateral pectoral n.
- C. Long thoracic n.*
- D. Dorsal scapular n.
- E. Medial pectoral n.



A 34 year old pregnant female develops lower back pain during the late stages of her pregnancy. The pain is due to an accentuated secondary curvature of her vertebrae in the lumbar region. This condition is referred to as:

- A. Lordosis*
- B. Scoliosis
- C. Right side winged scapula
- D. Kyphosis
- E. Herniated intervertebral disc (L1)

A 55 year old man was involved in a motorcycle accident and fractured one of his vertebra. The fracture impinged on the spinal cord and the man's breathing became erratic and stopped. Identify the approximate vertebral level of injury.

- A. C3*
- B. C6
- C. T2
- D. T4
- E. T7

A 45 year old woman complains of lower back pain. She is diagnosed with a herniated disc (L4). A tear has most likely occurred in the _____.

- A. Anulus fibrosus*
- B. Anterior longitudinal ligament
- C. Ligamenta Flava
- D. Nucleus pulposus
- E. Interspinous ligament

A young man presented with black areas of skin at the tips of his left fingers. He was clinically diagnosed with platelet emboli that were due cervical ribs, an anatomical condition that occurs in ~1% of the population. The cervical ribs likely compressed the _____ inducing platelet emboli.

- A. T1 n.
- B. Left subclavian artery*
- C. Left thyrocervical artery
- D. Left subclavian vein*
- E. Aortic arch



Blood is supplied and drained from the lateral thoracic wall by intercostal arteries and veins. In the mid-axillary line, the intercostal arteries and veins course between the _____ and _____ muscles.

- A. External intercostal and internal intercostal
- B. Innermost intercostal and transversus thoracis
- C. Serratus anterior and external intercostal
- D. Internal intercostal and innermost intercostal*
- E. Innermost intercostal and subcostals



A 43 year old man presents with high fever, severe cough, and has difficulty breathing with exertion. You order a chest x-ray. Your diagnosis is _____.

- A. pneumonia localized to the middle lobe of the right lung
- B. pericarditis
- C. pneumonia localized to the inferior lobe of the right lung*
- D. scoliosis
- E. fractured ribs



A young girl accidentally inhales a piece of popcorn. Inhaled objects tend to settle in the right lung because

- A. the lumen of the right main bronchus is smaller than the left main bronchus
- B. the the right main bronchus runs more horizontal to the root of the lungs compared to the left main bronchus
- C. The right main bronchus has more sensitive parasympathetic innervation than the left main bronchus
- D. The right main bronchus is wider and takes a more vertical course than the left main bronchus*
- E. The child is right handed



When listening to lung sounds from each of the lobes, it is important to consider structures that lie adjacent to specific surfaces of the lung. The _____ lies adjacent to the medial surface of the superior lobe of the right lung.

- A. inferior vena cava
- B. aorta
- C. right subclavian vein*
- D. Heart*
- E. Esophagus*



A patient is diagnosed with ischemia (i.e., lack of blood flow) in a left lobar pulmonary vein. The attending physician determines that the ischemia is due to a vasospastic episode. Constriction of this left lobar pulmonary vein is controlled by _____.

- A. efferent fibers from the phrenic nerve.
- B. sympathetic fibers from the sympathetic trunks*
- C. parasympathetic fibers from the vagus n.
- D. afferent fibers from the phrenic nerve
- E. sympathetic fibers from the vagus n.

A patient is diagnosed with cardiac tamponade. Pericardiocentesis is needed to drain fluid from the pericardial cavity to relieve pressure on the heart. To remove fluid a wide bore needle is inserted through the _____ intercostal space near the _____ or the _____ and passed superoposteriorly.

- A. 5th or 6th, sternum, infrasternal angle*
- B. 5th or 6th, mid-axillary line, suprasternal angle
- C. 2nd, sternal angle, jugular notch
- D. 2nd, sternal angle, infrasternal angle
- E. 5th or 6th, mid-vertebral line, infrasternal angle.

A thrombus develops in the left atrium of a patient and eventually lodges itself in the sinuatrial nodal branch artery. Identify the course of the thrombus from the right atrium to the sinuatrial nodal branch artery.

- A. Left atrium, mitral valve, left ventricle, aortic valve, right coronary artery, sinuatrial nodal branch artery*
- B. Left atrium, tricuspid valve, left ventricle, aortic valve, right coronary artery, sinuatrial nodal branch artery.
- C. Left atrium, mitral valve, left ventricle, aortic valve, left coronary artery, sinuatrial nodal branch artery.***
- D. Left atrium, mitral valve, left ventricle, aortic valve, left coronary artery, left circumflex artery, sinuatrial nodal branch artery
- E. Left atrium, tricuspid valve, left ventricle, aortic valve, right coronary artery, right marginal branch, sinuatrial nodal branch artery

***occasionally the sinuatrial nodal branch artery arises from the left main coronary artery

An aneurysm in the aortic arch compresses the left vagus nerve and alters its activity. Stimulation of parasympathetic vagus nerves _____.

- A. increases heart rate
- B. dilates coronary arteries
- C. constricts coronary arteries*
- D. increases the force of the heartbeat
- E. constricts pulmonary arteries

A patient has pneumonia in the inferior lobe of the left lung. In order to hear lung sounds in this region, you would place a stethoscope approximately at the _____.

- A. 7th intercostal space just to the left of the mid-sternal line.
- B. 2nd intercostal space just to the left of the mid-vertebral line
- C. 2nd intercostal space at the mid-axillary line
- D. 7th intercostal space just to the left of the mid-vertebral line*
- E. 2nd intercostal space just left to the mid-sternal line.

The transverse thoracic plane is one of the most critical surface landmarks used by clinicians. This plane is formed by a line that crosses the _____ anteriorly and the _____ posteriorly.

- A. Sternal angle, TIV/TV*.
- B. Xiphoid process, TVIII/TIX
- C. Jugular notch, TI/TII
- D. Sternal angle, TVIII/TIX
- E. Xiphoid process, TIV/TV.

You suspect that a patient has a problem with their aortic valve. In order to listen to the function of the aortic valve, you would place your stethoscope at the _____.

- A. 2nd intercostal space just left of the sternum.
- B. 1st intercostal space just left of the sternum
- C. 2nd intercostal space just right of the sternum*
- D. 5th intercostal space just left of the sternum
- E. 3rd intercostal space just left of the sternum.

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- E. constricts pulmonary arteries

A central venous line is required to administer large amounts of fluid to a patient. The line is introduced in the left internal jugular vein and the tip is subsequently passed to the right atrium. Identify the correct course of the venous line.

- A. Left internal jugular v., left subclavian v., left brachiocephalic v., superior vena cava, right atrium
- B. Left internal jugular v., left subclavian v., superior vena cava, right atrium
- C. Left internal jugular v., left brachiocephalic v., superior vena cava, right atrium*.
- D. Left internal jugular v., left axillary v., left subclavian v., left brachiocephalic v., superior vena cava, right atrium
- E. Left internal jugular v., superior vena cava, right atrium

A surgeon needs to close a patent ductus arteriosus. The surgeon needs to avoid the _____ nerves that course around the patent ductus arteriosus.

- A. right vagus and recurrent laryngeal
- B. right phrenic and recurrent laryngeal
- C. left vagus and phrenic
- D. left vagus and recurrent laryngeal*
- E. left phrenic and recurrent laryngeal

During surgery in the left abdomen the lymphatics that drain to the thoracic duct are accidentally damaged. The thoracic duct drains into the _____

- A. junction of the right internal jugular and subclavian vv.
- B. left brachiocephalic v.
- C. right brachiocephalic v.
- D. junction of the left internal jugular vein and subclavian vv.*
- E. junction of the aortic arch and left common carotid a.