

For each of the following questions, select the one best answer

- 1) Which of the below structures in the supine patient will substantially increase its cross-sectional diameter in response to a Valsalva maneuver?
 - A. Common carotid artery
 - B. Internal jugular vein
 - C. Popliteal vein
 - D. Left ventricle

- 2) Which of the below structures is the most lateral in position at a location deep to the inguinal groove?
 - A. Femoral artery
 - B. Femoral vein
 - C. Femoral nerve
 - D. Femoral lymphatics

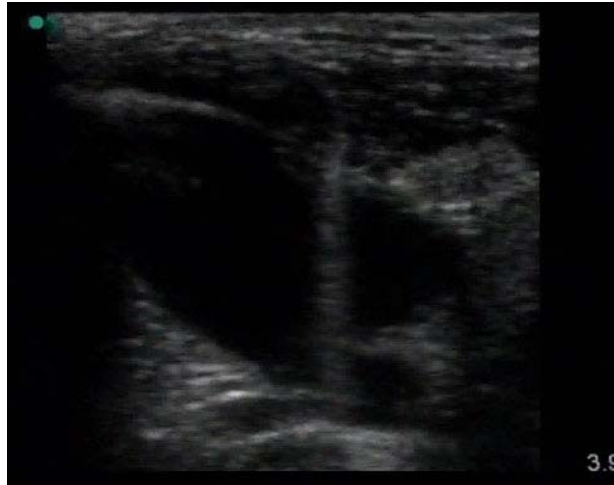
- 3) Which of the below describes a correct sequence of operator steps in performing ultrasound-guided CVC?
 - A. scout image survey → operator gowns → patient is prepped → transducer is sheathed
 - B. scout image survey → patient is prepped → operator gowns → transducer is sheathed
 - C. transducer is sheathed → scout image survey → operator gowns → patient is prepped/draped
 - D. transducer is sheathed → operator gowns → scout image survey → patient is prepped/draped

- 4) Characteristics of a high frequency linear transducer include which of the below?
 - A. Finer resolution and rectangular shaped image
 - B. Deeper penetration and trapezoidal shaped image
 - C. Finer resolution and trapezoidal shaped image
 - D. Deeper penetration and no need for doppler capability

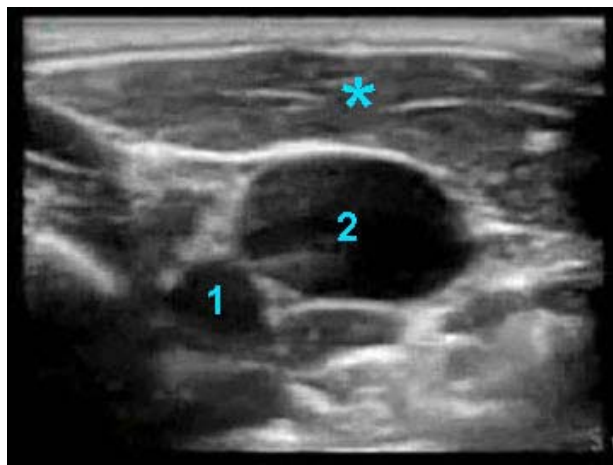
- 5) Which of the below is **NOT** a sonographic trait of normal veins?
 - A. Easily compressible by transducer pressure
 - B. Anechoic luminal contents
 - C. Highly echogenic walls
 - D. Phasic flow on doppler

- 6) From the perspective of the IJ proceduralist at the head of the bed, which of the below correctly describes the most common anatomy at the level of the sternocleidomastoid triangle on the patient's right side?
 - A. CCA is anterior the IJ
 - B. CCA is to the right of the IJ
 - C. CCA is posteriomedial to the IJ
 - D. CCA is to the left of the thyroid

- 7) From the perspective of the IJ proceduralist at the head of the bed, what best describes proper ultrasound view screen orientation?
- Same convention as with CT imaging
 - Screen's left = operator's left
 - Depends on whether the right or left IJ is being accessed
 - Green dot is to the screen's right

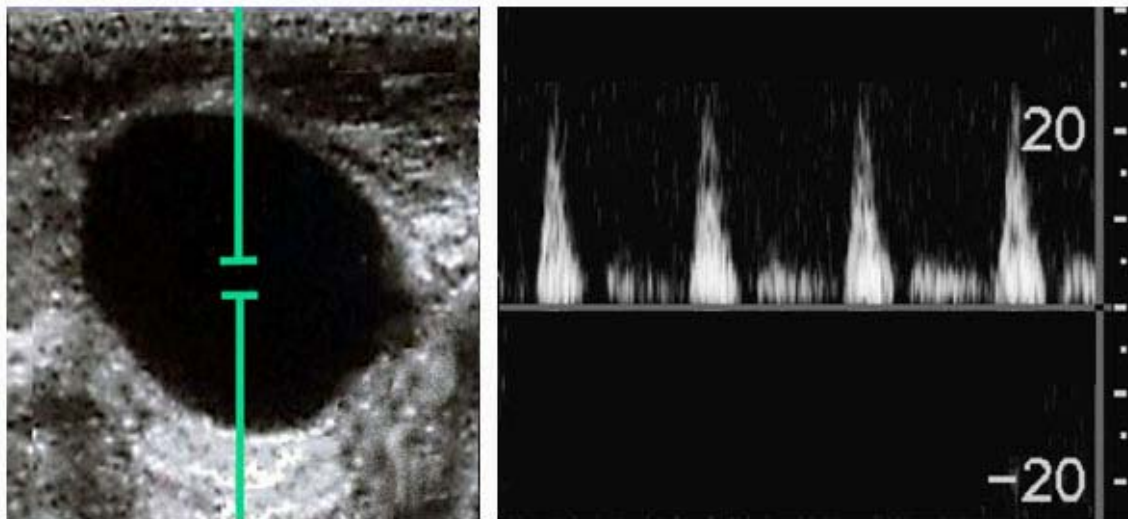


- 8) Which phenomenon demonstrated above allows the proceduralist to locate the venipuncture needle?
- Posterior acoustic enhancement
 - Through-transmission
 - Grating lobe artifact
 - Comet Tailing

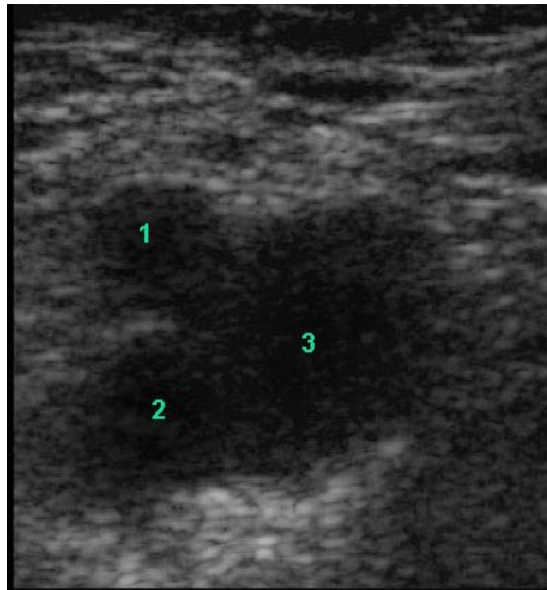


The above figure pertaining to questions 9-12 is a correctly proceduralist-oriented transverse image from a patient with non-variant anatomy and a location just superior to the anterior cervical triangle.

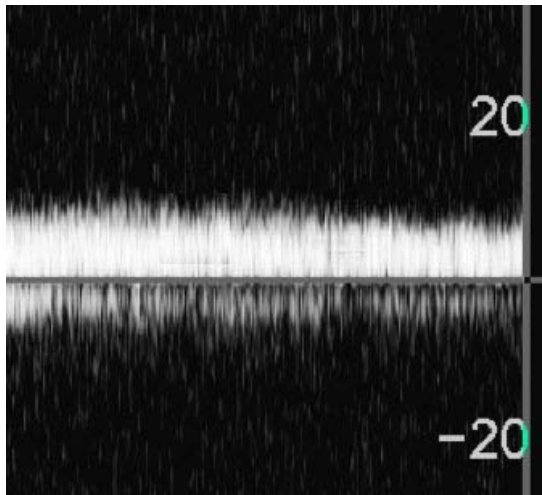
- 9) What structure is identified by the asterisk (*)?
- A. Sternomastoid muscle
 - B. Thyroid gland
 - C. Clavicle
 - D. Pleural cupola
- 10) What structure is identified by the number 1?
- A. Stylohyoid muscle
 - B. Internal jugular vein
 - C. Trachea
 - D. Carotid Artery
- 11) What structure is identified by the number 2?
- A. Sternomastoid muscle
 - B. Internal jugular vein
 - C. Subclavian vein
 - D. Carotid Artery
- 12) What side of the patient is the image from?
- A. Left
 - B. Right
 - C. Insufficient information to determine
 - D. The image is midline



- 13) A prospective candidate structure for venous cannulation is sonographically identified and interrogated with spectral doppler, producing the above findings. Which of the following is the most appropriate action to be performed next?
- A. Measure depth from surface with electronic calipers
 - B. Look elsewhere for another candidate
 - C. Rotate transducer to obtain a long axis image
 - D. Begin prep of overlying skin
- 14) Which of the below is **NOT** a trait distinguishing the left IJ from the right IJ:
- A. The left has a more nearly perpendicular angle to its subclavian connection
 - B. The left pleural dome rises higher than the right, increasing TPX risk
 - C. There exists a lymphatic duct adjacent to the proximal left IJ
 - D. The left IJ has a generally larger diameter



- 15) The above transverse scan is obtained near the inguinal groove with correct image orientation. From which leg of the patient was it obtained?
- A. Right
 - B. Left



- 16) The above spectral doppler tracing was obtained from which of the structures depicted in question 15?
- A. 1
 - B. 2
 - C. 3
 - D. Either 1 or 2
- 17) Most facile confirmation of structural identities in the above example is obtained by which maneuver?
- A. Obtaining sagittal long axis views
 - B. Maximizing the gain on the 2D image
 - C. Applying downward pressure to the transducer
 - D. Applying M-mode to the presumed lumens



- 18) Who is depicted above:
- A. Sven-Ivar Seldinger
 - B. Christian Doppler
 - C. Ted Knight
 - D. Thomas Bentley Throckmorton

19) The Components of the IHI Bundle Include:

- A. Handwashing
- B. Maximum Barrier Precautions
- C. Chlorahexadine Prep
- D. Right Site Selection
- E. Daily Review of Line Necessity

Please circle one:

- 1. All the above
- 2. A and E only
- 3. B and C only
- 4. None of the above

20) The following is required when placing a central line:

- A. Full Body Drape
- B. Maximum Barrier Procedure Cart
- C. Completion of a Central Line Insertion Checklist
- D. Completion of Vascular Access Procedure Note
- E. Daily Documentation of Line Necessity

Please circle one:

- 1. All the above
- 2. A and D only
- 3. B and C only
- 4. None of the above

21) The following statements are true:

- A. Chlorahexidine 2% in 70% isopropyl alcohol must be allowed to dry before puncturing the site
- B. Hat and mask must be worn by all entering the room
- C. Femoral vein is the preferred site
- D. "Procedure in Progress" sign should appear outside the door during the procedure.

Please circle one:

- 1. All the above
- 2. A, B and D only
- 3. C only
- 4. None of the above

22) The following statements are true:

- A. Nurse should remain in the room at all times
- B. Mayo stand cover should be used so you may move your field over the full body drape.
- C. Maximum Barrier Precautions are considered a “Standard of Care/Practice”
- D. “Procedure in Progress” sign should appear outside the door during the procedure.
- E. Maximum Barrier Carts are located in the ICUs and may be secured from Central Distribution if needed on the floors.

Please circle one:

- 1. All the above
- 2. A and C only
- 3. D only
- 4. None of the above

NAME: _____

DATE: _____

DEPARTMENT: _____

UNIVERSITY ID# (if applicable): _____