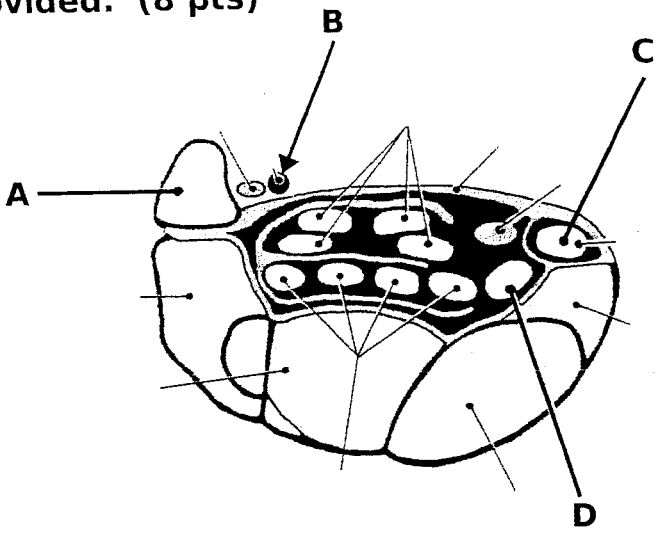


STRUCTURAL BASIS OF MEDICAL PRACTICE
EXAMINATION 5
October 6, 2006

PART I. Answer in the space provided. (8 pts)

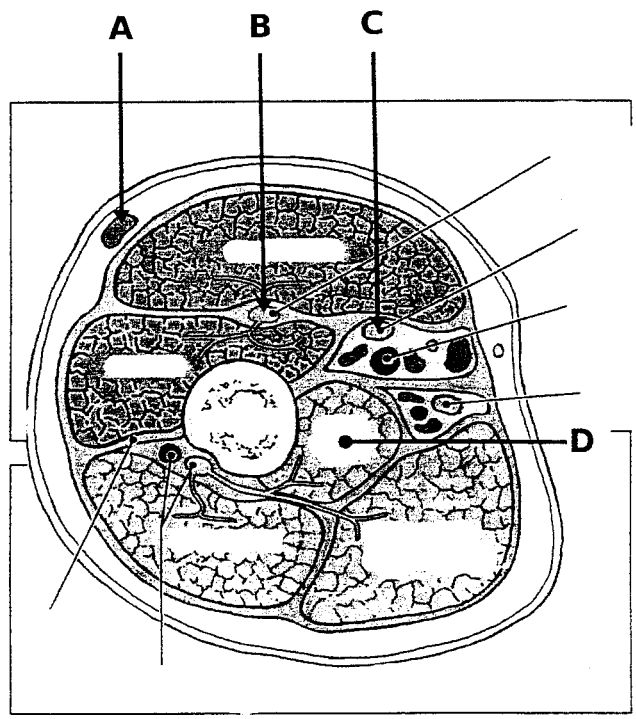
1. Identify the structures. (2 pts)

- A. _____
- B. _____
- C. _____
- D. _____



2. Identify the structures. (2 pts)

- A. _____
- B. _____
- C. _____
- D. _____



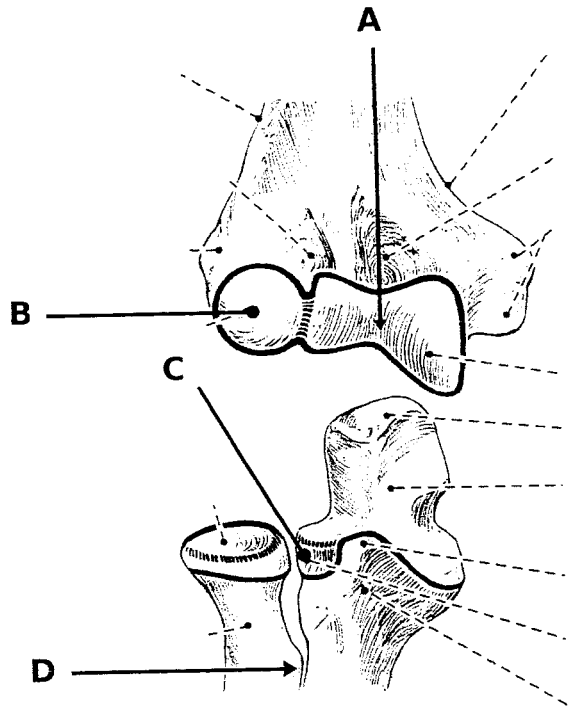
4. Identify the structure. (2 pts)

A. _____

B. _____

C. _____

D. _____



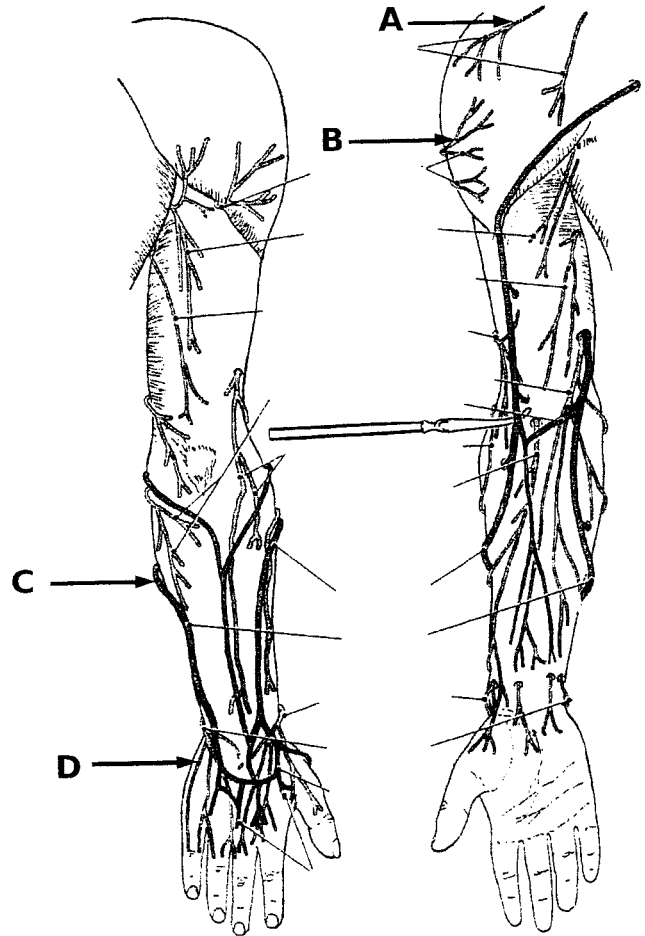
5. Identify the structure. (2pts)

A. _____

B. _____

C. _____

D. _____



Part II. Circle the correct answer. All, none, or some may apply. (26 pts)

1. With regard to the back and the vertebral column:

- a. The anterior longitudinal ligament limits flexion of the back.
- b. Serratus posterior inferior is innervated by intercostal nerves.
- c. The transversospinal group of muscles are innervated by ventral rami.
- d. The longissimus muscle extends as far superiorly as the mastoid process.
- e. The thoracolumbar fascia provides a site of origin for the rhomboideus major muscle.
- f. The semispinalis capitis muscle contributes to the posterior boundary of the suboccipital triangle.
- g. The iliocostalis thoracis muscle attaches to the ribs along the costotransverse joints
- h. The posterior external vertebral venous plexus is observed during dissection of the suboccipital triangle.
- i. The ligamentum flavum extends between adjacent pedicles.
- j. The nuchal ligment can be considered an extension of the interspinous ligament into the neck region.

2. With regard to the axilla and brachial plexus:

- a. The dorsal scapular nerve arises from the posterior cord of the brachial plexus.
- b. A lesion of the medial and lateral pectoral nerves would weaken medial rotation and adduction of the arm.
- c. A lesion of the median nerve within the axilla would cause supination of the the thumb and the appearance of an "ape hand."
- d. A lesion of the musculocutaneous nerve within the axilla would cause uncompensated loss of flexion at the elbow.
- e. A lesion of the ulnar nerve within the axilla would cause the resting hand to be extended and abducted.
- f. A lesion of the radial nerve within the axilla would cause anesthesia of the dorsum of the hand at the base of the 5th metacarpal.

- g. The ascending branch of the profunda brachii communicates with the thoracoacromial trunk.
- h. Complete lesions of the ulnar, median, radial, and musculocutaneous nerves within the axilla will cause total loss of flexion at the elbow.

3. With regard to the arm:

- a. The brachialis muscle assists the biceps brachii in flexing the arm.
- b. The pectoralis major crosses the transverse humeral ligament prior to inserting on the medial lip of the intertubercular sulcus (bicipital groove).
- c. The radial collateral artery, within the cubital fossa, is between the ulnar head of pronator teres and the medial border of the brachialis.
- d. Within the cubital fossa the median nerve lies medial to the brachial artery.
- e. The median cubital vein crosses the posterior (deep) surface of the bicipital aponeurosis.
- f. The radial recurrent artery is, in part, within the cubital fossa.
- g. The humeral head of the pronator teres takes origin from the coronoid process.
- h. The lateral head of the triceps brachii originates superior and lateral to the spiral groove whereas the medial head of the triceps brachii originates medial and inferior to the spiral groove.
- i. The profunda brachii artery gives rise to the middle collateral artery and the radial collateral artery.
- j. The ulnar head of the pronator teres takes origin from the tuberosity of the ulna.
- k. A complete lesion of the radial nerve at the spiral (radial) groove causes loss of supination of the forearm.
- l. The radial nerve passes posterior to the superior free edge of the teres major to enter into the triangular interval.
- m. Both the coracobrachialis and the short head of the biceps cross two joints and both have a common site of origin.

4. With regard to the flexor region of the forearm:

- a. The ulnar nerve passes between the two heads of origin of the pronator teres muscle.

- c. A complete lesion of the ulnar nerve at the ulnar groove would cause loss of flexion at the distal interphalangeal joints for the medial two digits.
- d. A complete lesion of the ulnar nerve at the ulnar groove would cause the wrist joint to be partially extended and partially abducted (radially deviated).
- e. A complete lesion of the median nerve superior to the cubital fossa will weaken flexion at the elbow joint.
- f. A complete lesion of the median nerve superior to the cubital fossa will cause the wrist to be partially extended and partially abducted (radial deviated).
- g. The median nerve leaves the cubital fossa by passing between the humeral and ulnar heads of origin of the pronator teres whereas the ulnar artery proceeds into the forearm deep to the ulnar head of the pronator teres.
- h. The median nerve passes posterior to the superior free edge of the flexor digitorum profundus.
- i. Within the distal forearm the median nerve is along the medial border of flexor carpi radialis.

5. With regard to the hand:

- a. The ulnar nerve enters the palm lateral to the pisiform bone and then passes the medial aspect of the hook of the hamate.
- b. In part, the origin of the abductor digiti minimi muscle is from the pisiform bone.
- c. The intrinsic muscles of the hand, and the lumbricals in particular, play a key role in preventing hyperextension at the MP joint.
- d. The deep branch of the ulnar nerve passes deep into the palm of the hand by passing between the heads of origin of abductor digiti minimi and flexor digiti minimi brevis.
- e. The superficial radial nerve provides sensation to the nail beds of the radial 2 fingers.
- f. The radial artery passes deep into the palm by passing between the heads of origin of the second dorsal interosseous.

- g. The anterior interosseous nerve, after passing by pronator quadratus, continues onto the hand and supplies sensation to the joints of the wrist.
- h. The princeps pollicis artery passes along the posterior border of the first metacarpal bone between the radial head of the first dorsal interosseous and the oblique head of adductor pollicis.
- i. The extensor hood of the second digit receives contributions from the attachments of five tendons.
- j. The pisiform bone is a sesamoid bone within the tendon of extensor carpi ulnaris.
- k. The dorsal branch of the ulnar nerve provides cutaneous sensation to the nail beds of the 5th digit and the medial half of the nail bed to the 4th digit.
- l. The tendon synovial sheath for flexor pollicis longus sometimes communicates with the tendon flexor synovial sheath for the 5th digit.

Part III. Indicate your understanding (show function, relationships, boundaries and/or contents) of the following. Answer in the space provided. (30 pts)

1. Elbow anastomosis. (6 pts)

2. Suboccipital triangle. (6 pts)

3. Posterior cord of the brachial plexus (6 pts)

4. Nerves of the palm of the hand (6 pts)

Part IV. Answer in the space provided (including the back of the page and the additional pages for each question). (36 pts)

1. You are a second year resident in orthopedics. At weekly conference, you are asked to: **Review the anatomy of the scapular region. Include bones, muscles, movements, vascularization, innervation, relationships, and lymphatic drainage. (12 pts).**

2. A 16-yr old male come to the emergency room after a diving accident in the community pool. In your weekly conference in neurosurgery, your attending requests that you present a: **Review the anatomy of the spinal canal. Include boundaries, bones, articulations, ligaments, spaces, contents, vascularization, relationships, and lymphatic drainage. (12 pts)**

3. A 33-yr old female come to the emergency room with a knife wound in the forearm. In discussing the case at rounds later in the week, you are asked to:

Review the anatomy of the extensor region of the forearm and the dorsum of the hand. Include bones, articulations, ligaments, spaces, contents, muscles, movements, independence of movement, limitations of movement, vascularization, innervation, relationships, and lymphatic drainage. (12 pts)