

Dissections of the upper limb

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This handout should be used with Grants Dissector
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Superficial veins and cutaneous nerves

1. Read the dissection overview
2. In the living observe the skin covering the
 - a. Shoulder and arm. Move it on the underlying structures.
 - b. Axilla there are numerous hairs and many sudoriferous and sebaceous glands.
 - c. medial side and front of the forearm and compare with that on the lateral side and back of the arm and forearm
 - d. medial side and front of the forearm for the distribution of hair and compare with that on lateral side and back of the arm and forearm
 - e. region of the olecranon when extended and flexed . Move the skin over the underlying structures in both instances
2. What is the
 - a. superficial fascia
 - b. deep fascia
3. Draw a labelled diagram to illustrate the arrangement of superficial veins of the upper limb
4. Using a tourniquet occlude the superficial veins
 - a. just above the cubital fossa
 - b. about two finger breadths above the wrist observe the venous pattern
5. Draw the dermatomes of the upper limb
6. Follow the dissection guide skin incisions given in fig.2.2A(if you have already done it skip the skin incisions)
7. **Do not** follow the skin incisions given in fig.2.2B
8. Identify the superficial veins in the dissected specimen and a prosected specimen
9. Spot the cephalic vein in the deltopectoral groove

10. Identify the cutaneous nerves in a prosected specimen

11. dissection review

Scapular region

1. read the dissection overview
2. Review the skeleton of the scapular region:page 22
3. In an articulated skeleton observe that the medial angle of the scapula is applied to the second rib, while the inferior angle lies against the seventh
4. In the dry bones Spot the skeletal elements named to identify in the scapular region. Page 22, fig.2.4
3. Using the bones/skeleton study and spot the attachments of deltoid muscle
4. In the living
 - a. Observe the upper end of the humerus that produces the rounded contour of the shoulder; it is rounded and fuller in front than behind, where it presents a somewhat flattened form. Above,
 - b. Feel its anterior border which forms the lateral boundary of the infraclavicular fossa.
 - c. Feel along the lateral boundary upto the insertion.
 - d. Feel along its posterior border
 - e. Observe the depression on the lateral side of the middle of the arm that marks its insertion.
5. Demonstrate the deltoid action in the living
6. Draw a diagram to illustrate the arrangement of fibres of deltoid muscle
7. Proceed with the dissection instructions in page 22
8. Draw the
 - a. quadrangular space and its contents
 - b. boundaries of the triangular space
9. Review dissections
10. Spot the
 - a. the boundaries of the triangular space
 - b. Axillary nerve, posterior circumflex humeral artery/vein
 - c. Teres minor

- d. Surgical neck of the humerus
 - e. Quadrangular space, long head of triceps brachii muscle
 - f. Teres major
11. Spot the attachment sites in bones of following (refer the roster for relevant group task)
 - a. Teres minor
 - b. Teres major
 - c. Supraspinatus
 - d. Infraspinatus
 - e. Subscapularis
 12. Demonstrate the action of each muscle mentioned above. Tabulate their nerve supply and spinal segments.
 13. Spot suprascapular artery and nerve in the infraspinatus fossa just beneath the great scapular notch /transverse scapular ligament
 14. Draw a diagram to illustrate the scapular anastomoses
 15. What are the parent arteries connected by the anastomoses??
 16. Study the radiograph provided (chest PA – scapula/clavicle/upper end of humerus)

Axilla

1. Read the overview
2. In the living hold the anterior and posterior axillary folds and Identify the muscles that form it
3. Feel the apex of the axilla using the finger tips
4. Feel the medial and lateral walls
5. Identify the digitations of serratus anterior
6. Draw a labelled diagram/s to illustrate the
 - a. boundaries of the axilla and contents
 - b. extent and the branches of the axillary artery
 - c. contents of the axillary sheath
 - d. formation of brachial plexus and its terminal branches (prerequisite: recall limb innervations)
7. Describe the formation of axillary sheath

8. Proceed with the dissection instructions page 28. **Do not cut the axillary vein** at the lateral border of the teres major
9. Review dissections
10. Spot the
 - a. Boundaries of the apex axilla
 - b. Pectoralis major
 - c. Pectoralis minor
 - d. Clavipectoral fascia
 - e. Latissimus dorsi
 - f. Subscapularis
 - g. Serratus anterior
 - h. Intertubercular sulcus of humerus
11. Abduct the arm and observe the lower five or six serrations form a zigzag line with a general convexity forward
12. Spot the
 - a. Axillary vein
 - b. Cephalic vein opening in the axillary vein
 - c. Axillary artery
 - d. Subclavian artery
 - e. Superior thoracic artery
 - f. Thoracoacromial artery
 - g. Lateral thoracic artery
 - h. Acromial branch
 - i. Deltoid branch
 - j. Pectoral branch
 - k. Clavicular branch
 - l. Subscapular artery
 - m. Anterior circumflex humeral artery
 - n. Circumflex scapular artery
 - thoracodorsal artery
13. Record variations of the branching pattern of arteries in your cadaver observe variations in other cadavers
14. Identify the roots of brachial plexus (spot) in the neck and follow them to trunks (spot) divisions (spot) and cords. Record variations.
15. Spot the terminal branches /medial and lateral pectoral nerves/medial cutaneous nerve of arm and forearm/long thoracic nerve
16. Draw a labelled diagram to illustrate the
 - a. branches of the posterior cord
 - b. arrangement of lymph nodes in the axilla

Arm and cubital fossa

1. Read the dissection overview
2. Study the skeleton of arm and cubital region(recall)
3. In the living feel the acromioclavicular joint while the arm is hanging by the side with the palm of the hand forward. Bring uoyr finger straight down in front to feel the intertubercular groove (use deep palpation)
4. Spot
 - a. Supraglenoid tubercle
 - b. Infraglenoid tubercle
 - c. Intertubercular groove
 - d. Head ,neck and tuberocity of the radius
 - e. Olecranon and the coronoid process of the ulna
5. Study the radiograph to identify the skeletal framework of this area
6. Reflect the remaining skin using the dissection instructions given in page 20 from 7-16:figure 22B
7. Study the superficial veins in this region
8. Draw a labelled diagram to illustrate the superficial veins in the cubital region
9. Continue with the dissection instructions in page 32-34 up to cubital fossa
10. Spot
 - a. Lateral and medial intermuscular septum
 - b. Muscles in the anterior compartment
 - c. the attachment site of each muscle in the bony skeleton
 - d. bicipital apponeurosis
 - e. musculocutaneous nerve
 - f. lateral cutaneous nerve of the forearm
11. Tabulate the action nerve supply and the spinal segments that innervate the muscles mentioned above
12. Using bones or an articulated specimen spot the attachment sites of muscles of the arm
13. In the living demonstrate the bicep brachii muscle and feel the distal attachment/s

14. In the living identify the coracobrachialis and brachialis muscle.

15. Spot

- a. Median nerve
 - b. Ulnar nerve
 - c. Brachial artery
 - d. Ulnar artery
 - e. Radial artery
16. Study the surface projections of the brachial artery. Mark it on the skin using a non toxic water soluble pen.
 17. In the living feel behind and lateral to the medial epicondyle. For a cord like structure. Identify it
 18. Draw a diagram to illustrate the branches of brachial artery in the arm
 - 19.

Cubital fossa

1. Spot

- a. Medial epicondyle
 - b. Lateral epicondyle
 - c. Olecronon fossa
 - d. Medial and lateral supracondylar ridges
2. In the living identify and observe the cubital fossa
 3. On the front of the elbow identify the two muscular elevations, one on either side, separate above but converging below.
 4. In the living On the front of the elbow identify the two muscular elevations and the triangular depression between them when the hand is extended.
 5. In the medial elevation identify the most lateral muscle of the medial group. keep your fingers over this muscle, flex the elbow to 90 degrees , pronate it and try to push against the resistance of the fingers on it . Feel the depression; cubital fossa lateral to it. Trace the muscle up to the up to medial epicondyle. Identify this muscle. Mark its attachments in the dry bones.
 6. Draw a labled digram to illustrate the boundaries of the cubital fossa
 7. In the living Flex the elbow to 90 digress. Pronate the hand. Now feel the cubital fossa and supinate the forearm while keeping the

fingers in the cubital fossa. Feel the cord like tendon. Identify it.

8. Drag your finger over the tendon to medial side to feel a crescentic edge. Identify the structure that forms this.
9. Just above the crescentic edge feel the arterial pulsations. Identify the artery.
10. In the living hang down the hand and apply a tourniquet just above the cubital fossa to compress the superficial veins. Observe the superficial veins and identify them.
11. Proceed with the dissection instructions in page 34-35 up to posterior compartment
12. Spot (at the cubital fossa)
 - a. Brachioradialis
 - b. Pronator teres
 - c. Brachialis in the floor of the cubital fossa
 - d. Tendon of the biceps brachii
 - e. Bicipital aponeurosis
 - f. Median nerve
 - g. Brachial artery

Posterior compartment of the arm

1. Spot the Radial groove of humerus
2. In the living on the back of the arm, observe the longitudinal muscular elevation emerging from under cover of Deltoid and gradually passing into the olecranon . Identify this structure.
3. Proceed with the dissection instructions in page 34-36
4. Spot the attachment sites of triceps muscle in the bony skeleton
5. Spot the
 - a. Radial nerve
 - b. Deep artery of the arm
 - c. Anconeus
6. Tabulate the action , nerve supply and segmental supply of triceps and anconeus
7. Draw a diagram to illustrate the course of radial nerve from the posterior cord through the arm to fore arm
8. Study the radiographs supplied
9. dissection review

Flexor region of the forearm

1. Read the dissection overview: page 36
2. Study the bony landmarks of the region :page 37
3. On the humerus Spot the
 - a. Medial epicondyle
 - b. Medial supracondylar ridge
 - c. Lateral epicondyle
 - d. Lateral supracondylar ridge
 - e. Capitulum
 - f. Trochlea
 - g. Olecranon fossa
4. On the radius Spot the
 - a. Head
 - b. Neck
 - c. Tuberosity
 - d. Anterior oblique line
 - e. Ulna notch
 - f. Styloid process
 - g. Interosseous border
5. On the ulna Spot the
 - a. Olecranon
 - b. Trochlear notch
 - c. Radial notch
 - d. Head
 - e. Interosseous border
6. Study the radiographs supplied
7. Continue with the dissection instructions in page 37-40 up to the deep group of flexor muscles
8. Spot the superficial group of flexor muscles proximally
9. Tabulate the attachments, action/s, nerve supply and the spinal segments of superficial group of flexor muscles
10. Spot the attachment sites of the superficial muscles in the bones/articulated specimen
11. Spot the
 - a. bifurcation of the brachial artery
 - b. radial artery
 - c. ulnar artery
 - d. median nerve at the cubital fossa and at the wrist
 - e. superficial branch of the radial nerve

- f. deep and superficial parts of the pronator teres
 - g. common interosseous artery and name its branches
- 12.
13. In the living identify the other muscles that contribute to the formation of the medial muscular elevation. Mark their attachments in the dry bones.
14. In the living extend the elbow and feel the mass lateral to the cubital fossa between the thumb and fingers. Trace it above to the lateral epicondyle and lateral supra condylar ridge. Understand that the lateral mass of muscles arises at a higher level than that of the medial. Identify the other muscles that contribute to the formation of the medial muscular elevation. Mark their attachments in the dry bones.
15. In the living
 - a. Observe the medial contour of the medial border of the forearm. Identify the muscle that forms it. trace it down to the pisiform bone
 - b. Feel the tendon of the above muscle while flexing the adducted hand. Mark its attachments in the dry bones.
 - c. To the ulna side of this tendon feel the ulnar styloid and trace the ulna along the subcutaneous dorsal border up to elbow
 - d. To the radial side of the tendon feel the arterial pulsations . Name the artery.
16. In the living flex the clenched fist and observe the front of the wrist. Identify the tendon that stands out as a sharp, tense cord in front of the middle of the wrist. Identify the cord like tendon that is lateral to above tendon. Feel lateral to this tendon for the arterial pulsations. Name the artery. Observe the elongated depression medial to the cord like tendon identified before. Identify the structures in it.
17. Flex the elbow against resistance with the forearm midway between pronation and supination. Feel the prominent elevation on the lateral wall of the cubital fossa. Trace it proximally to the supracondylar ridge and distally to the radial styloid. Identify it.
18. Draw a labelled diagram to illustrate the arterial anastomosis around the elbow
19. Continue with the dissection instructions in page 40 –deep group of flexor muscles
20. dissection review
21. Spot the deep group of muscles in the forearm
22. Tabulate the attachments, action/s, nerve supply and the spinal segments of deep group of muscles in the forearm
23. Spot the attachment sites of deep muscles in bones/articulated specimen
24. Study the cross sections of the forearm to understand the compartments
25. Draw labeled diagrams to illustrate the course of
 - a. Radial nerve
 - b. Median nerve
 - c. Ulna nerve
 - d. Radial artery
 - e. Ulnar artery
 In the forearm

