Q. - Write down the origin, insertion, nerve supply and action of the muscles of front of the arm in a tabulated form.

Ans. - Read the table of BD that is in front of the arm chapter. You can take help from the figure of attachment of bones either from BD or Atlas.

(All muscles of front of the arm are supplied by musculocutaneous nerve)

Muscle	Origin	Insertion
1. **Coracobrachialis** (*see* Fig. 2.8)	• The tip of the coracoid process with the short head of the biceps brachii	The tendon of long head of biceps brachii undergoes twisting, in a way that anterior surface becomes lateral and posterior surface becomes medial. The middle 5 cm of the medial border of the humerus
2. **Biceps brachii** (Fig. 8.3)	It has two heads of origin • The short head arises with coracobrachialis from the tip of the coracoid process • The long head arises from the supraglenoid tubercle of the scapula and from the glenoidal labrum. The tendon is intracapsular	• Posterior rough part of the radial tuberosity. The tendon is twisted; the anterior fibres become lateral and posterior fibres become medial. The tendon is separated from the anterior part of the tuberosity by a bursa (Fig. 8.4) • The tendon gives off an extension called the bicipital aponeurosis which extends to ulna and it separates median cubital vein from brachial artery
3. **Brachialis** (Fig. 8.5)	• Lower half of the front of the humerus, including both the anteromedial and anterolateral surfaces and the anterior border Superiorly the origin embraces the insertion of the deltoid • Medial and lateral intermuscular septa	• Coronoid process and ulnar tuberosity • Rough anterior surface of the coronoid process of the ulna

Table 8.2: Nerve supply and actions of muscles

Muscle	Nerve supply	Actions
1. **Coracobrachialis** (Fig. 8.6)	Musculocutaneous nerve (C5–C7)	Flexes the arm at the shoulder joint
2. **Biceps brachii**	Musculocutaneous nerve (C5, C6)	• It is strong supinator when the forearm is flexed All screwing movements are done with it • It is a flexor of the elbow • The short head is a flexor of the arm • The long head prevents upwards displacement of the head of the humerus • It can be tested against resistance as shown in Fig. 8.6
3. **Brachialis**	• Musculocutaneous nerve is motor • Radial nerve is proprioceptive	Flexes forearm at the elbow joint

FRONT OF THE ARM

This part also includes the dissection of the medial aspect of the arm.

SKIN INCISIONS

1. A transverse incision across the front and medial aspect of the arm about $2\frac{1}{2}$" below the tip of the acromion.
2. Another transverse incision in front of the elbow joint joining the two epicondyles.
3. A longitudinal incision joining the mid points of the two transverse incisions.

Skin and Superficial Fascia

Reflect the flaps of the *skin* on either side, then the superficial fascia is similarly reflected preserving the following *cutaneous structures* in it—

1. **Cephalic vein** (in the arm)—It ascends along the lateral border of the biceps and piercing the deep fascia at the lower border of the pectoralis major, it runs upwards in the groove between the pectoralis major and the deltoid, accompanied with the deltoid branch of the thoracoacromial artery to the region of the clavipectoral fascia.
2. **Basilic vein (in the arm)**—It ascends along the medial border of the biceps and reaching a little below the middle of the arm, it pierces the deep fascia with the medial cutaneous nerve of the forearm, then runs upwards along the medial side of the brachial artery to the lower border of the teres major, where from it is continued as the axillary vein.
3. **Medial cutaneous nerve of the arm** (medial brachial cutaneous nerve)—This is the smallest branch of the medial cord of the brachial plexus. It descends in contact with the medial side of the axillary vein and communicates with the intercostobrachial nerve under the deep fascia.

   In the arm, it runs along the medial side of the brachial artery and basilic vein to the middle of the arm, where it pierces the deep fascia and supplies the skin on the medial aspect of the lower half of the arm and the adjoining part of its back.
4. **Medial cutaneous nerve of the forearm (medial antebrachial cutaneous nerve)**—It is a branch of the medial cord of the brachial plexus. *In the axilla*, it descends between the axillary artery and vein.

   In the arm, it passes along the medial side of the brachial artery, pierces the deep fascia with the basilic vein at about the middle of the arm and a little above the elbow it divides into two branches—

   Anterior branch (described in the cubital fossa)
   Posterior branch (described in the cubital fossa)

Q. Steps of dissection of cubital fossa.

Ans. –

1st step – Skin incision

2nd step – Skin with superficial fascia

3rd step – Deep fascia (only first two lines)

– From Mannan's dissection manual

4th step – Boundary with figure

5th step – Contents with figure

– From BD

Q. Short note – Bicipital aponeurosis

Ans. – From Mannan

Boundaries

Laterally – Medial border of the brachioradialis (Fig. 8.14).

Medially – Lateral border of the pronator teres.

Base – It is directed upwards, and is represented by an imaginary line joining the *front of* two epicondyles of the humerus.

Apex – It is directed downwards, and is formed by the area where brachioradialis crosses the pronator teres muscle.

Roof

The roof of the cubital fossa (Fig. 8.15) is formed by:

a. Skin.

b. Superficial fascia containing the median cubital vein joining the cephalic and basilic veins. The lateral cutaneous nerve of the forearm lies along with cephalic vein and the medial cutaneous nerve of the forearm along with basilic vein.

c. Deep fascia.

d. Bicipital aponeurosis.

Contents

The fossa is actually very narrow. The contents described are seen after retracting the boundaries. From medial to the lateral side, the contents are as follows:

1 *The median nerve:* It gives branches to flexor carpi radialis, palmaris longus, flexor digitorum superficialis and leaves the fossa by passing between the two heads of pronator teres (Figs 8.17 and 8.18).

2 The termination of the *brachial artery*, and the beginning of the radial and ulnar arteries lie in the fossa.
The radial artery is smaller and more superficial than the ulnar artery. It gives off the radial recurrent branch.
The ulnar artery goes deep to both heads of pronator teres and runs downwards and medially, being separated from the median nerve by the deep head of the pronator teres (Fig. 8.19).
Ulnar artery gives off the anterior ulnar recurrent, the posterior ulnar recurrent, and the common interosseous branches (Fig. 8.10).
The common interosseous branch divides into the anterior and posterior interosseous arteries, and latter gives off the interosseous recurrent branch.

3 The tendon of the *biceps brachii*, with the bicipital aponeurosis (*see* Fig. 9.3b).

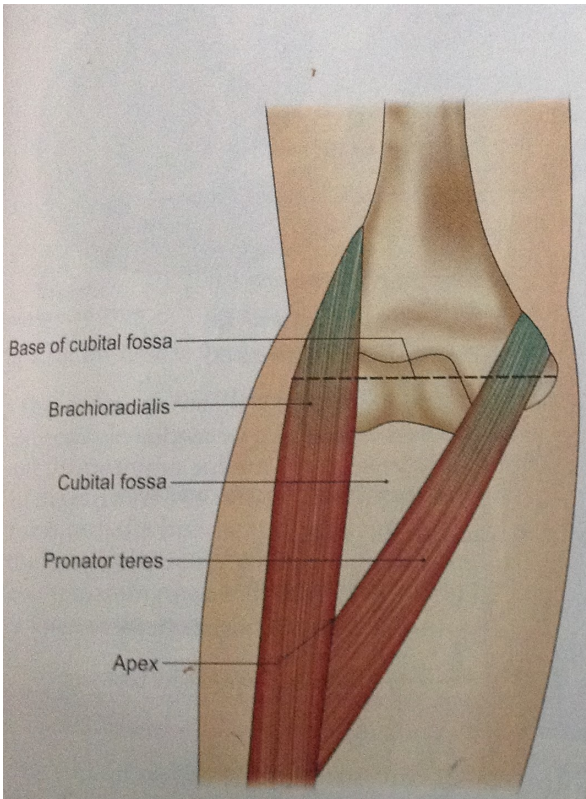

Fig. 8.14: Boundaries of the right cubital fossa

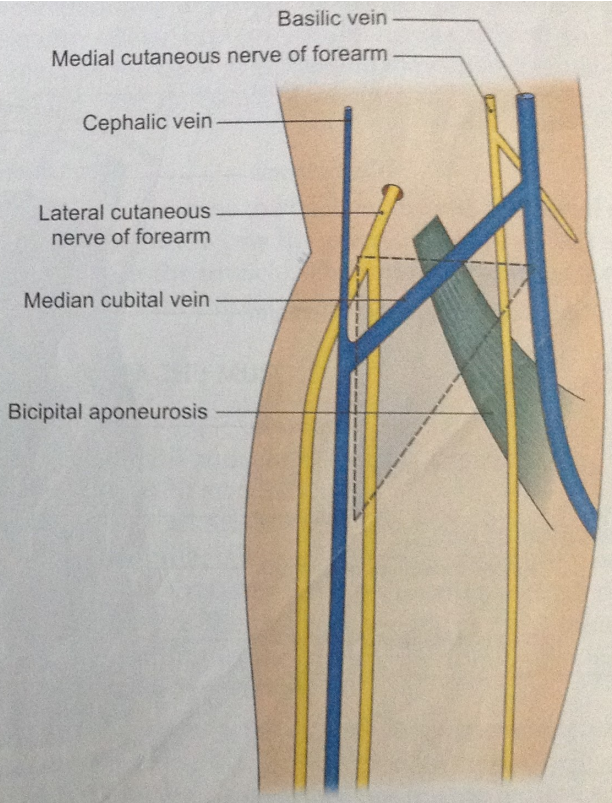

Fig. 8.15: Structures in the roof of the right cubital fossa

CUBITAL FOSSA

It is a triangular depression in front of the elbow joint.

SKIN INCISIONS

1. A transverse incision in front of the elbow joint connecting the two humeral epicondyles.
2. Another transverse incision at the juncion of the upper ⅓ rd with the lower ⅔ rd of the front of the forearm.
3. A longitudinal incision joining the midpoints of the transverse incisions.

Skin and Superficial Fascia

Reflect the flaps of the skin on either side. Then in the superficial fascia find out the follwing cutaneous structures—

1. **Cephalic vein**—It placed laterally (described).
2. **Basilic vein**—It placed medially and it is joined by the median cubital vein about an inch above the medial epicondyle.
3. **Median cubital vein**—It connects the cephalic vein with the basilic vein obliquely from below upwards and medially in front of the bicipital aponeurosis and receives a *communicating vein* from one of the deep veins of the forearm (venae comitantes of the radial and ulnar arteries). (It is the vein of choice for intravenous injection, as both the ends of the vein are fixed; moreover it is very superficial and wider in caliber).
4. **Upper part of the median antebrachial vein (median vein of the forearm)**—It ends either in the basilic or median cubital vein. It drains the palmar venous network.
5. **Lateral cutaneous nerve of the forearm**—It lies deep to the cephalic vein (described in the dissection of the front of the forearm).
6. Anterior and posterior branches of the medial cutaneous nerve of the forearm (medial antebrachial cutaneous nerve)—
   a. *The anterior branch*—It passes usually behind or some times in front of the median cubital vein, then descends along the medial side on the front of the forearm supplying skin as far as the wrist.
   b. *The posterior branch*—It passes obliquely backwards in front of the medial epicondyle and supplies the skin along the medial side on the back of the forearm up to the wrist.

Dissection note: Separately reflect the remains of the superficial fascia without disturbing the cutaneous structures. Then separate the lower end of the ***bicipital aponeurosis*** from the deep fascia over the pronator teres and reflect it upwards (Remember that the deep fascia of the cubital fossa is a part of the antebrachial fascia).

Contd...

Bicipital Aponeurosis (lacertus fibrosus)

It is an aponeurotic band given off from the medial side of the tendon of the biceps. It passes obliquely downwards and medially across the brachial artery and becomes continuous with the deep fascia of the forearm. It is *protective in function* for the brachial artery and separates it from the median cubital vein.

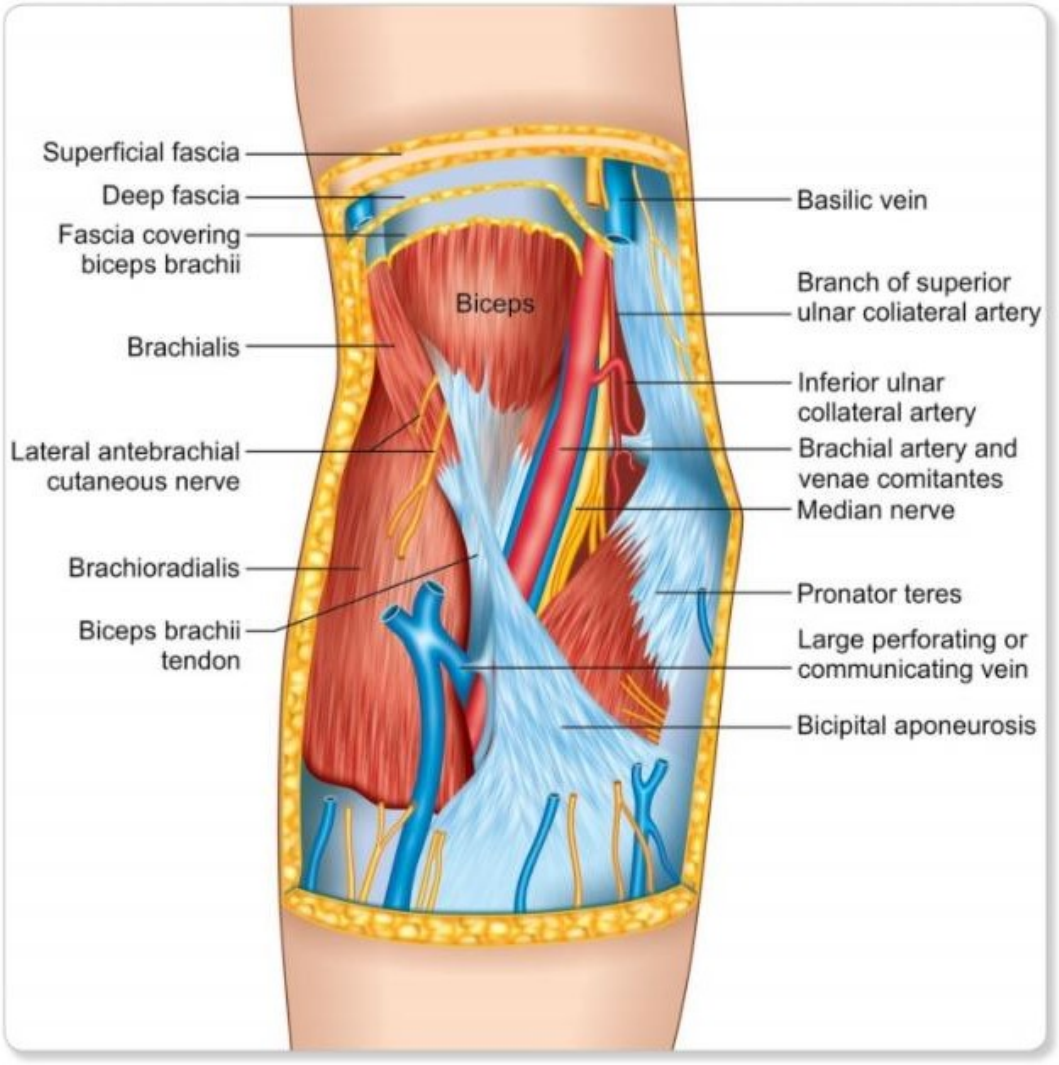

Fig. 3.11: Cubital fossa