space of the carpal tunnel in front of the ulnar bursa enclosing the flexor tendons.

Immediately below the retinaculum the nerve divides into lateral and medial divisions (Fig. 9.20).

2 The lateral division gives off a muscular branch to the thenar muscles, and three digital branches for the lateral one and half digits including the thumb.

The muscular branch curves upwards round the distal border of the retinaculum and supplies the thenar muscles.

Out of the three digital branches, two supply the thumb and one the lateral side of the index finger.

The digital branch to the index finger also supplies the first lumbrical (Fig. 9.41).

3 The medial division divides into two common digital branches for the second and third interdigital clefts,
supplying the adjoining sides of the index, middle and ring fingers.

The lateral common digital branch also supplies the second lumbrical muscles.

Branches
In the hand, the median nerve supplies:

a. Five muscles, namely the abductor pollicis brevis, the flexor pollicis brevis, the opponens pollicis and the first and second lumbrical muscles.

b. Palmar skin over the lateral three and a half digits with their nail beds.

CLINICAL ANATOMY

The median nerve controls coarse movements of the hand, as it supplies most of the long muscles of the forearm. It is, therefore, called the 'motor's nerve'. It is also called the 'eye of the hand', as it is sensory to most of the hand.

When the median nerve is injured above the level of the elbow, as might happen in suprcondylar fracture of the humerus, the following features are seen:

a. The flexor pollicis longus and lateral half of flexor digitorum profundus are paralysed. The patient is unable to bend the terminal phalanx of the thumb and index finger when the proximal phalanx is held firmly by the clinician (to eliminate the action of the short flexors) (Fig. 9.42). Similarly, the terminal phalanx of the middle finger can be tested.

b. The forearm is kept in a supine position due to paralysis of the pronators.

c. The hand is adducted due to paralysis of the flexor carpi radialis, and flexion at the wrist is weak.

d. Flexion at the interphalangeal joints of the index and middle fingers is lost so that the index (and to a lesser extent) the middle fingers tend to remain straight while making a fist. This is called pointing index finger occurs due to paralysis of long flexors of the digit (Fig. 9.43).

e. Peculiar monkey thumb deformity is present due to paralysis of the thenar muscles (Fig. 9.44).

f. The area of sensory loss corresponds to its distribution (Fig. 9.45) in the hand.

g. Vagus motor and trophic changes: The skin on lateral three and a half-digit is warm, dry and shiny. The nails get cracked easily (Fig. 9.46).

Carpal-tunnel syndrome (CTS): Involvement of the median nerve in carpal tunnel at wrist has become a very common entity (Fig. 9.15).

a. This syndrome consists of motor, sensory, vasomotor and trophic symptoms in the hand caused by compression of the median nerve in the carpal tunnel. Palpation reveals wasting of thenar eminence (fleshy-like hand), hypoesthesia to touch and the palmar aspects of lateral 3½ digits. However, the skin over thenar eminence is not involved as the only median nerve supplying it is sensory to the other fingers.

b. Tinel's sign: When the median nerve is unable to hold the metacarpophalangeal joint, the other fingers.

c. Paper holding test: The patient is unable to hold paper between thumb fingers.
Both these tests are positive because of paralysis of thenar muscles.

- **Motor changes:** Ape/monkey like thumb deformity (Fig. 9.44) loss of opposition of thumb, index and middle fingers lag behind while making the fist due to paralysis of 1st and 2nd lumbrical muscles and their partial clawing (Fig. 9.47).

- **Sensory changes:** Loss of sensations on lateral 3½ digits including the nail beds and distal phalanges on dorsum of hand (Fig. 9.45).

- **Vasomotor changes:** The skin areas with sensory loss is warmer due to arteriolar dilatation; it is also drier due to absence of sweating due to loss of sympathetic supply.

- **Trophic changes:** Long-standing cases of paralysis lead to dry and scaly skin. The nails crack easily with atrophy of the pulp of fingers (Fig. 9.46).

It occurs both in males and females between the age of 25 and 70. They complain of intermittent attacks of pain in the distribution of the median nerve on one or both sides. The attacks frequently occur at night. Pain may be referred proximally to the forearm and arm. It is more common because of excessive working on the computer. Phalen's test (Fig. 9.48) is attempted for CTS.

- **Complete claw hand:** If both median and ulnar nerves are paralysed, the result is complete claw hand (Fig. 9.49).

**RADIAL NERVE**

The part of the radial nerve seen in the hand is a continuation of the superficial terminal branch. It reaches the dorsum of the hand (after winding round the lateral side of the radius) and divides into 4 dorsal
digital branches which supply the skin of the digits as follows (see Fig. 7.1).
1st : Lateral side of thumb
2nd : Medial side of thumb
3rd : Lateral side of index finger
4th : Contiguous sides of index and middle finger
Note that skin over the dorsum of the distal phalanges is supplied by the median nerve (not radial) (Fig. 9.50).
Sensory loss is less because of overlapping of nerves.

SPACES OF THE HAND
Having learnt the anatomy of the whole hand, the clinically significant spaces of the hand need to be understood and their boundaries to be identified from the following text.
The arrangement of fasciae and the fascial septa in the hand is such that many spaces are formed. These spaces are of surgical importance because they may become infected and distended with pus. The important spaces are as follows.

Fig. 9.50: Sensory loss in injury to superficial branch of radial nerve
distribution of the nerve; however, sometimes it may not occur due to overlap by adjacent nerves. Autonomous zone will always have sensory loss after injury to the nerve.

- By following example you will easily understand what I mean to say:
  - In median nerve injury, the sensory loss will be in:
    i) Lateral 2/3rd of the palm
    ii) Lateral 3½ fingers.
  - However, for clinical testing autonomous zone (tip of index & middle finger) is tested as some of the other area may not have sensory loss due to overlap supply by other nerves.
  - Thus, two question can be framed based on following facts:
    i) Sensory loss in median nerve injury occurs in lateral 2/3rd of palm and lateral 3 ½ fingers.
    ii) Sensory examination in median nerve is done by testing sensation over the tip of index and middle finger.

**Clinical features of median nerve palsy**

- Clinical features depend on the site of lesion:
  1. High median nerve palsy
     - Injury in arm or at elbow causes high median nerve palsy.
     - All muscles supplied by median nerve are paralysed.
     - In addition there is sensory loss in the thumb (PGI 69), index (PGI 69), middle and radial half of the ring fingers and lateral 2/3 of the palm.
     - Following features are seen:
       i) Flexion of distal IP joint of thumb is not possible (due to paralysis of EPL).
       ii) Pointing index (AIMS 85, EPLC 86, Krusen 87) or oschner’s clasp test:
         - Patient is unable to flex index finger fails to flex.
       iii) Benediction test:
         - Patient is unable to flex the index and middle finger on lifting the hand due to paralysis of long flexors of these two fingers.
       iv) Pen test:
         - Patient is unable to touch the pen, held above the thumb (due to APB paralysis).
       v) Aple thumb deformity (Simian thumb deformity):
         - The thumb is adducted and laterally rotated so that the thumb lies in the same plane as other fingers. It is due to over action of adductor pollicis (supplied by ulnar nerve).
       vi) Loss of opposition due to paralysis of opponens pollicis (PGI 98, AIMS 85, 97).
       vii) Atrophy of thenar eminence (AIMS 85.97).
  2. Low median nerve palsy
     - Injury at wrist or in carpal tunnel produces low median nerve palsy.
     - Long flexors of fingers are spared and there is paralysis of thenar muscles only.
     - Following features are seen:
       i) Pen test for abductor pollicis brevis paralysis.
       ii) Loss of opposition (PGI 98, AIMS 85, 97) and abduction of thumb.
       iii) Aple thumb deformity
       iv) Loss of sensation of lateral 3½ fingers and lateral 2/3 of palm.
     - In contrast to high median nerve palsy, pointing index and Benediction test are not seen as long flexors are spared in low median nerve palsy.

**Ulnar Nerve**

- Ulnar nerve is also called “musician’s nerve” as it controls fine movements of the fingers. The ulnar nerve arises from the medial cord of the brachial plexus (C-7, 8, T-1) (ulnar nerve receives its C5 fibres as a branch of lateral cord (PGI 10) of these have not already passed to medial cord from ventral ramus of C5). Various muscles supplied by ulnar nerve are:
  - In the arm: Nil (PGI 89)
  - In the forearm:
    - Proximal 1/3: Flexor carpi ulnaris (PGI 111), medial half of flexor digitorum profundus
    - Distal 1/3: Nil
  - In hand:
    - Superficial branch: Hypothenar muscles
    - Deep branch: Adductor pollicis (PGI 12), all interossei (NEE. PGI 12), and medial two lumbricals (PGI 13)

Note: Hypothenar muscles are: Palmaris brevis, abductor digit minimi, flexor digiti minimi, opponens digitii minimi.
NERVES OF UPPER LIMB [20]

- Sensory supply of ulnar nerve is:
  - Medial 1/3rd of the Palm (hypotenar area)
  - Medial one & half fingers (whole little finger and medial half of ring finger).
  - Autonomic zone of sensory supply for ulnar nerve is tip of little finger.

Ulnar nerve injury
- Ulnar nerve injury may be high or low.

1) High ulnar nerve palsy
- High ulnar nerve palsy is caused by injury proximal to the elbow.
- All the muscles supplied by ulnar nerve are paralysed and there is atrophy of hypotenar eminence.
- Sensory loss in the medial 1/3rd of the palm and medial one & half of fingers.

2) Low ulnar nerve palsy
- Injury in distal-third of forearm or at wrist.
- Flexor digitorum profundus and flexor carpi ulnaris are spared.
- Muscles of Hand are paralyzed:
  - Hypotenar muscles: Palmaris brevis, Abductor digiti minimi, flexor digiti minimi, opponens digitii minimi.
  - Adductor pollicis, All interossei (Palmar & Dorsal) and median 2 lumbricals (3rd & 4th).
- Sensory loss is same as in high ulnar nerve palsy.

Muscles examination in ulnar nerve injury
- Individual muscles which can be examined in ulnar nerve palsy are:

  1) Flexor carpi ulnaris: The patient is asked to palmar flex the wrist against gravity. In doing so, the hand deviates towards the radial side. The tendon of flexor carpi ulnaris just above the pisiform, does not stand out. On performing the same test against resistance, the tendon cannot be felt.

  2) Abductor digitii minimi: The patient is asked to abduct the little finger against resistance while keeping the hand flat on the table (in order to avoid action of flexors of the finger).

  3) Interossei: Palmar interossei do adduction (PAD), the dorsal interossei do abduction (DAB) of the fingers at metacarpal-phalangeal joints. These can be tested as follows:
    - Figura's Test: This is for dorsal interossei (abductors) of the middle finger. With the hand kept flat on a table palm surface down, the patient is asked to move his middle finger sideways.
    - Cord Test: This is for palmar interossei (adductors) of the fingers. In this test, the examiner inserts a card between two extended fingers, and the patient is asked to hold it as tightly as possible while the examiner tries to pull the card out. The power of adductors can thus be judged. In case of weak palmar interossei, it is easy to pull out the card. First dorsal interosseous muscle can be separately examined by asking the patient to abduct the index finger against resistance.

  4) Lumbricals: These are mainly responsible for flexion at the metacarpo-phalangeal joints but their isolated action cannot be tested.

  5) Adductor pollicis: The patient is asked to grasp a book between the thumb and index finger. Normally, a person will grasp the book firmly with thumb extended, taking full advantage of the adductor pollicis and the first dorsal interosseous muscles. If the ulnar nerve is injured the adductor pollicis will be paralysed and the patient will hold the book by using the flexor pollicis longus (supplied by median nerve) in place of the inter-phalangeal joint of the thumb. This becomes more pronounced if the examiner tries to pull the book out while the patient tries to hold it. This sign is known as 'Fregant's sign' or 'book test'.

  6) Hartenberg's sign is inability to adduct the small finger in against the ring finger due to weakness of palmar interosseous muscles.

Claw hand
- In claw hand, there is hyperextension at metacarpophalangeal joint and flexion at interphalangeal joint.
- To understand the claw hand deformity, one should know the function of following muscles:
  - Lumbricals: Their major function is to flex the metacarpophalangeal joint and extension of interphalangeal joint.
  - Interossei: Palmar interossei adduct the fingers while dorsal interossei abduct the fingers. In addition to these both palmar and dorsal interossei assist lumbricals to flex the metacarpal-phalangeal joint and to extend IP joint.
- Loss of these intrinsic muscles function results in loss of flexion at MP joint and extension at IP joint.
- Long flexors of fingers cause flexion of IP joints and long extensors cause extension of MP joints.
- Therefore, there is hyperextension at MP joint and flexion at IP joint.
NERVES OF UPPER LIMB [21]

- As you all know all interossei and 3rd & 4th lumbricals are supplied by ulnar nerve, while 1st and 2nd lumbricals are supplied by median nerve.
- So, claw hand of 3rd & 4th finger will be seen in isolated ulnar palsy as 1st & 2nd finger’s lumbricals (1st & 2nd lumbricals) are spared (supplied by median nerve) → Ulnar claw hand.
- Claw hand of all fingers is seen in combined ulnar and median nerve palsy as all lumbricals and interossei are paralysed → True claw hand.
- Now the question crops into the mind, why isolated median nerve palsy does not cause claw hand of 1st & 2nd finger, when there is paralysis of 1st & 2nd lumbricals. The answer is very simple that interossei (supplied by ulnar nerve) are intact and they maintain flexion of MP joint and extension of IP joint.

Ulnar paradox

- Ulnar claw hand is seen in lower ulnar nerve palsy not in high ulnar nerve palsy. It is called ulnar paradox.
- This is because in higher lesions long finger flexors (FDP of 3rd & 4th finger) are also paralysed → IP joint flexion does not occur and therefore claw hand deformity is not seen.
- So, Paralysis of intrinsic muscles (lumbricals & interossei)
- Ulnar paradox is due to Paralysis of medial half of FDP and ulnar claw hand does not occur in high ulnar nerve palsy.

- Among the all nerves, maximum disability of hand occurs in ulnar nerve injury as ulnar nerve supplies most of the intrinsic muscles of hand.
- Disability is more in low ulnar nerve palsy because claw hand occurs in low ulnar nerve palsy.

RADIAL NERVE

- Radial nerve is the largest branch of brachial plexus and is the continuation of posterior cord (PGI 10). (root value C₅₋₇ T₁₋₂).
- The various branches of radial nerve are:
  i) Before spiral groove: - Medial muscular branches to the long and medial head of triceps (M 3). Here triceps also gives posterior cutaneous nerve of arm.
  ii) In the spiral groove: - Posterior muscular branch to lateral & medial head of triceps and direct branch to anconeus. Sensory branches in this area are posterior cutaneous nerve of forearm and lateral cutaneous nerve of arm.
  iii) At lower end of spiral groove (before elbow): - Muscular branches to Branchioradialis, Extensor carpi radialis longus.
  iv) After crossing the elbow, before piercing the supinator: - Extensor carpi radialis brevis and the supinator.
  v) After piercing the supinator: - Extensor digitorum, extensor digiti minimi, Extensor Carpi ulnaris, Abductor pollicis longus, extensor pollicis brevis, Extensor pollicis longus, extensor indicis.
- Among these muscles, radial nerve directly supplies triceps, anconeus, brachioradialis, and extensor carpi radialis longus. All the other muscles are supplied by deep branch of radial nerve, i.e., posterior interosseous nerve.

Radial nerve injury

- Radial nerve injury may be high or low.

  1) High radial nerve palsy
     a) Injury is before the spiral groove.
     b) All muscles supplied by radial nerve are paralysed.

  2) Low radial nerve palsy
     a) Injury is after the spiral groove.
     b) Low radial nerve palsy may be of two types.
        i) Type I: - Injury occurs between the spiral groove and elbow joint. Muscles involvement is:
           a) Elbow extensors (Triceps, anconeus) are spared.
           b) Wrist, elbow and finger extensors are paralysed.
           c) Sensory loss in first web space (on dorsal side).
        ii) Type II: - Injury occurs below the elbow joint.
           a) Elbow extensors (triceps, anconeus), brachioradialis and wrist extensors (ECRL) are spared.
           b) Finger extensors (extensor digitorum, extensor digiti minimi, extensor indicis), ECRB and thumb extensors (extensor pollicis longus & brevis) are paralysed.
           c) Sensory loss in first web space (on dorsal side).
Clinical features of radial nerve palsy
- Clinical features depend upon the site of lesion.
  1. If lesion is high
     - Wrist drop, thumb drop and finger drop.
     - Inability to extend elbow, wrist, thumb and fingers (MP joint)
     - Patient can extend interphalangeal joints due to action of lumbricals and interossei.
     - Sensory loss over posterior surface of arm & forearm and lower lateral half of forearm
  2. If lesion is low
     a. Type I
        - Wrist drop, thumb drop and finger drop.
        - Elbow extension is preserved.
        - Sensory loss over the dorsum of first web space.
     b. Type II
        - Thumb drop and finger drop
        - Elbow and wrist extension is preserved
        - Sensory loss over the dorsum of first web space.

Clinical features of posterior interosseus nerve
- It is prone to be injured in injury & operations of radial head-neck.
- There is no sensory deficit as it is a pure motor nerve
- Wrist extension is preserved (i.e., no wrist drop) due to spared extensor carpi radialis longus
- Presents with loss of extension of metacarpophalangeal (MP) joints

Saturday night palsy (weekend palsy)
- In this condition, there is compression of the radial nerve between spiral groove and the lateral intermuscular septum.
- It is known after an event which typically happens on a Saturday night weekend when in an inebriated condition, a person slumps with his mid-arm compressed between the arm of the chair and his body.

OTHER IMPORTANT NERVES

Axillary nerve (circumflex nerve)
- Axillary nerve is a branch of the posterior cord of brachial plexus with root value C₅ and C₆. It leaves the posterior wall of axilla along with the posterior circumflex humeral vessels through the quadrangular space. While passing through the quadrangular space it gives its first branch, an articular twig to the shoulder joint. Then it divides into:
  1. Anterior division: It winds around the surgical neck of humerus to supply deltoïd
  2. Posterior division: It gives of:
     a. Branches to posterior part of deltoïd
     b. Nerve to teres minor which shows a pseudoganglion
     c. Upper lateral cutaneous nerve of arm supplying the skin covering lower part of deltoïd (regional badge region).
- Damage to axillary nerve causes deltoïd paralysis, teres minor paralysis, loss of rounded contour of shoulder, sensory loss in small patch of skin and on the outer surface of arm immediately above the deltoïd tuberosity (regional badge patch). There is loss of abduction from 15°-90° due to paralysis of deltoïd (first 15° of flexion is not lost as it is caused by supraspinatus and overhead abduction is preserved as it is caused by trapezius and serratus anterior).

Musculocutaneous nerve
- It is a branch of lateral cord of brachial plexus with root value C₅,₆,₇. It supplies Biceps brachii, coracobrachialis, and brachialis. After supplying these muscles, musculocutaneous nerve continues as lateral cutaneous nerve of forearm supplying the skin of lateral border of forearm. Damage to musculocutaneous nerve results in:
  i) Weakness of flexion of elbow due to paralysis of biceps and brachialis.
  ii) Loss of supination of semiflexed forearm due to paralysis of biceps.
  iii) Sensory loss along the lateral (radial) border of forearm.
  iv) Loss of biceps jerk.
Table A1.5: Arteries of upper limb (Contd...)

<table>
<thead>
<tr>
<th>Artery</th>
<th>Origin, course and termination</th>
<th>Area of distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superficial branch (see Fig. 9.20)</td>
<td>Larger terminal branch of ulnar artery joins superficial palmar branch of radial artery to form superficial palmar arch</td>
<td>Gives branches to tendon in the palm, digital branches along fingers. Also supply joints and overlying skin</td>
</tr>
<tr>
<td>Deep branch (see Fig. 9.22)</td>
<td>Smaller terminal branch of ulnar artery that joins with the terminal part of radial artery to form the deep palmar arch which lies deep to the long flexor tendons of the palm. It is also proximal to the superficial palmar arch</td>
<td>Branches of deep palmar arch join the digital branches of superficial palmar arch, supplementing the blood supply to the digits or fingers</td>
</tr>
</tbody>
</table>

**CLINICAL TERMS**

**Shoulder joint is mostly dislocated inferiorly**: The shoulder joint is surrounded by short muscles on all aspects except inferiorly. Since the joint is quite mobile it dislocates at the unprotected site, i.e. inferiorly (see Fig. 2.20).

**Student’s elbow**: Inflammation of the bursa over the insertion of triceps brachii is called student’s elbow. It is common in students as they use the flexed elbow to support the head while attempting hard to listen to the lectures in between their ‘naps’ (see Fig. 10.16).

**Tennis elbow**: Lateral epicondylitis occurs in players of lawn tennis or table tennis. The extensor muscles of forearm are used to hit the ball sharply, causing repeated microtrauma to the lateral epicondyle and its subsequent inflammation (see Fig. 10.15). It may be a degenerative condition.

**Pulled elbow**: While pulling the children by their hands (getting them off the bus), the head of radius may slip out of the annular ligament. Anular ligament is not tight in children as in adults, so the head of radius slips out (see Fig. 2.29).

**Boxer’s palsy or swimmer’s palsy**: Serratus anterior causes the movement of protraction. If the long thoracic nerve is injured, the muscle gets paralysed, seen as “wringing of scapula” (see Fig. 2.12). Such a person cannot hit his opponent by that hand. Neither can he make strokes while swimming.

**Golfer’s elbow medial epicondylitis**: Occurs in golf players. Repeated microtrauma to medial epicondyles causes inflammation of common flexor origin and pain in flexing the wrist (see Fig. 10.17).

**Watter’s tip or policeman’s tip**: “Taking the tip quietly” Erb–Duchenne paralysis occurs due to involvement of Erb’s point. At Erb’s point C5, C6 roots join to form upper trunk, two divisions of the trunk arise and two branches, the suprascapular and nerve to subclavius also arise (see Fig. 4.16).

**Wrist drop**: Paralysis of radial nerve in axilla or radial sulcus or anterolateral side of lower part of arm or paralysis of its deep branch in cubital fossa leads to wrist drop (see Fig. 8.25).

**Carpal tunnel syndrome**: Median nerve gets compressed under the flexor retinaculum, leading to paralysis of muscles of thenar eminence. It is called ‘ape-like’ or monkey-like hand’. There is loss of sensation in lateral 3½ digits including nail beds. Median nerve is the ‘eye of the hand’. There is little clawing of index and middle fingers also (see Figs 9.44 to 9.47).

**Cubital tunnel syndrome**: Ulnar nerve gets entrapped between two heads of flexor carpi ulnaris muscle, leading to paralysis of medial half of flexor digitorum profundus and muscles of hypothenar eminence, all interossei and adductor pollicis and 3rd and 4th lumbricals. There is clawing of medial two digits, gutters in the hand and loss of hypothenar eminence (see Figs 9.36 to 9.40).

**Volkmann’s ischaemic contracture**: This condition occurs due to fibrosis of the muscles of the forearm, chiefly the flexors. It usually occurs with injury to the brachial artery in supracondylar fractures of humerus (see Fig. 2.18).

**Dupuytren’s contracture**: This clinical condition is due to fibrosis of medial part of palmar aponeurosis especially the part reaching the webs of little fingers. The fibrous bands are anterior to proximal and middle phalanges and “typical” to distal phalanges. So proximal and middle phalanges are flexed, while distal phalanges remain extended (see Fig. 9.16).

**Funny bone**: Ulnar nerve is palpable in flexed elbow behind the medial epicondyle. Palpating the nerve gives rise to funny sensations in the medial side of forearm. Since medial epicondyle is part of humerus, it is called humerus or funny bone (see Fig. 2.17).

**Pointing finger**: Branch of anterior interosseous nerve to lateral half of flexor digitorum profundus is injured in the middle of the forearm. The index finger is affected the most. It remains extended and keeps pointing forwards (despite the fact that remaining three fingers are pointing towards self) (see Fig. 9.43).

**Complete claw hand**: Complete claw hand is due to injury of lower trunk of brachial plexus especially...
### Table A1.5: Arteries of upper limb (Contd...)

<table>
<thead>
<tr>
<th>Artery</th>
<th>Origin, course and termination</th>
<th>Area of distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIAL ARTERY (Fig. 8.9)</td>
<td>Starts at the lower border of teres major as continuation of axillary artery. Runs on anterior aspect of arm and ends by dividing into radial and ulnar arteries at neck of radius in the cubital fossa. Largest branch of brachial artery. Runs with radial nerve in the radial sulcus of humerus. Reaching the lateral side of arm ends by dividing into anterior and posterior branches. Branch of brachial artery. Accompanies ulnar nerve. Takes part in anastomoses around elbow joint. Branches arise from brachial artery. Branch of brachial and enters the nutrient foramen of humerus. Branch of brachial.</td>
<td>Supplies muscles of the arm, humerus bone and skin of whole of arm. Takes part in anastomoses around elbow joint. Supplies muscles of back of arm and its branches anastomose with branches of radial artery and ulnar artery on lateral epicondyle of humerus. Supplies muscles of arm and elbow joint on its medial aspect. Supplies biceps and triceps brachii muscles. Supplies blood to red bone narrow. Takes part in the anastomoses around elbow joint from medial side. Muscles of lateral side of forearm, including the overlying skin. Gives a branch for completion of superficial palmar arch. Digital branches to thumb and lateral side of index finger. Supplies elbow joint. Takes part in anastomoses around elbow joint. Muscles attached to radius, e.g. biceps brachii, pronator teres, pronator quadratus, flexor pollicis longus, flexor digitorum supercilialis. Crosses front of thenar muscles and joins the superficial branch of ulnar artery to complete superficial palmar arch. Supplies wrist joint. Supplies muscles, tendons, skin and joints in relation to thumb. Supplies tendons, joints and skin of index finger. Gives branches to take part in the anastomoses around other part. Branches supply muscles in wrist of forearm, back of forearm and cutaneous arteries to forearm bones. Takes part in anastomoses around elbow joint. Supplies all the muscles of forearm. Supplies both the bones of forearm and muscles attached to these bones. Supplies muscles of back of forearm. Also take part in anastomoses around elbow joint.</td>
</tr>
<tr>
<td><strong>ADIAL ARTERY</strong> (see Figs. 8.17 and 9.20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radial recurrent artery (see Fig. 8.10)</td>
<td>Branch of radial artery. Branches of radial artery.</td>
<td></td>
</tr>
<tr>
<td>Muscular branches</td>
<td>Branch of radial artery in lower part of forearm, before radial artery winds posteriorly.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Branch of radial artery as it lies in the anatomical snuff box.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Branch of radial artery in palm, runs along thumb.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Branch of radial artery in palm runs along radial side of index finger.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Originates as the larger terminal branch of brachial artery at neck of radius. Courses first obliquely in upper one-third and then vertically in lower two-thirds of forearm. Lies superficial to flexor retinaculum and ends by dividing into superficial and deep branches. Branches of ulnar artery curve upwards and reach elbow joint. Large branch of ulnar artery. Branch of common interosseous artery runs on interosseous membrane. Branch of common interosseous artery reaches back of forearm.</td>
<td>Supplies all the muscles of forearm. Supplies both the bones of forearm and muscles attached to these bones. Supplies muscles of back of forearm. Also take part in anastomoses around elbow joint.</td>
</tr>
</tbody>
</table>

Princespollicis artery (see Fig. 9.20)
Radialis indicis artery (see Fig. 9.20)
ULNAR ARTERY (see Fig. 9.10)
Anterior and posterior ulnar recurrent arteries (see Fig. 8.10)
Common interosseous Branches
a. Anterior interosseous artery
b. Posterior interosseous artery