Pectoral region, scapular region Brachial plexus

Prof. Aranjan Karunanayake

MBBS, DM, DOH&S, Dip.Tox, Dipin. Coun, D.Sp.Med,
FSS, MBASEM (UK), MSc.SEM (UK)

Objectives

Student should be able to

orientate and describe the muscles attached, structures related and clinical importance of clavicle, humerus and scapula.

briefly describe the nerve supply, blood supply and lymphatic drainage of upper limb.

briefly describe the origin, insertion, nerve supply and action of muscles of the arm, pectoral region and scapula region.

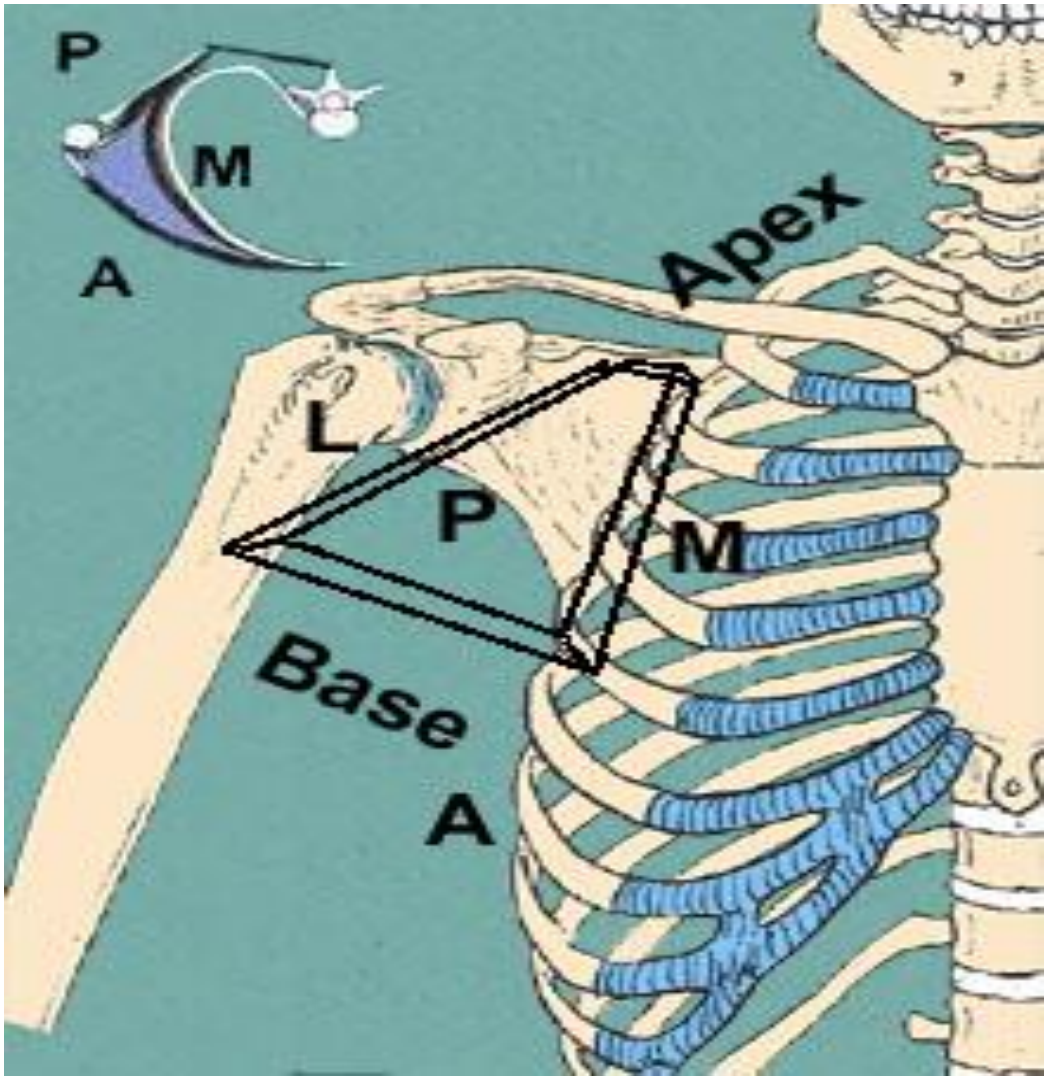
Briefly describe the effects of fracture of humerus at various sites.

Briefly describe the effects of nerve injuries of upper limb.

Pectoral girdle

Clavicle and scapula contributes to the pectoral girdle.

They helps to keep the upper limb away from the trunk to help in the function of having a wider range of movement.

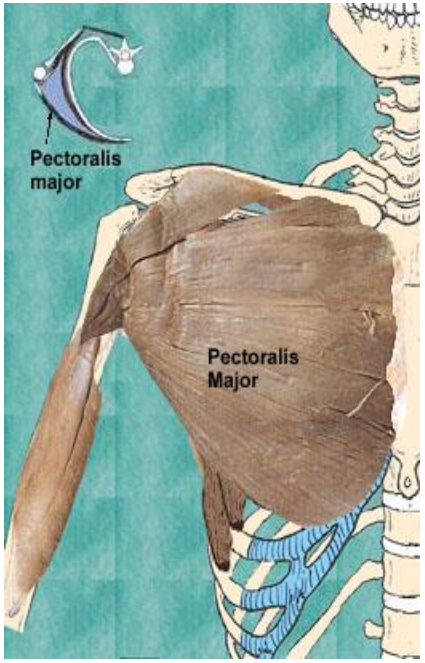


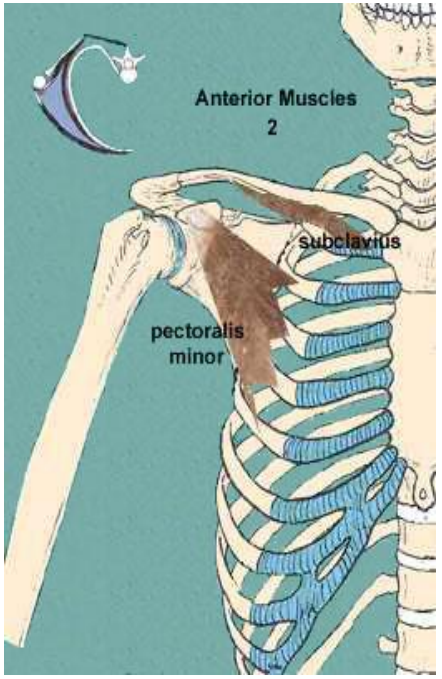
Pectoral region muscles

Anterior wall is made up of pectoralis major and minor muscles.

Pectoralis major helps in adduction, flexion, medial rotation of shoulder and help to elevate the ribs.

Pectoralis minor helps in protraction of scapula and elevation of ribs.





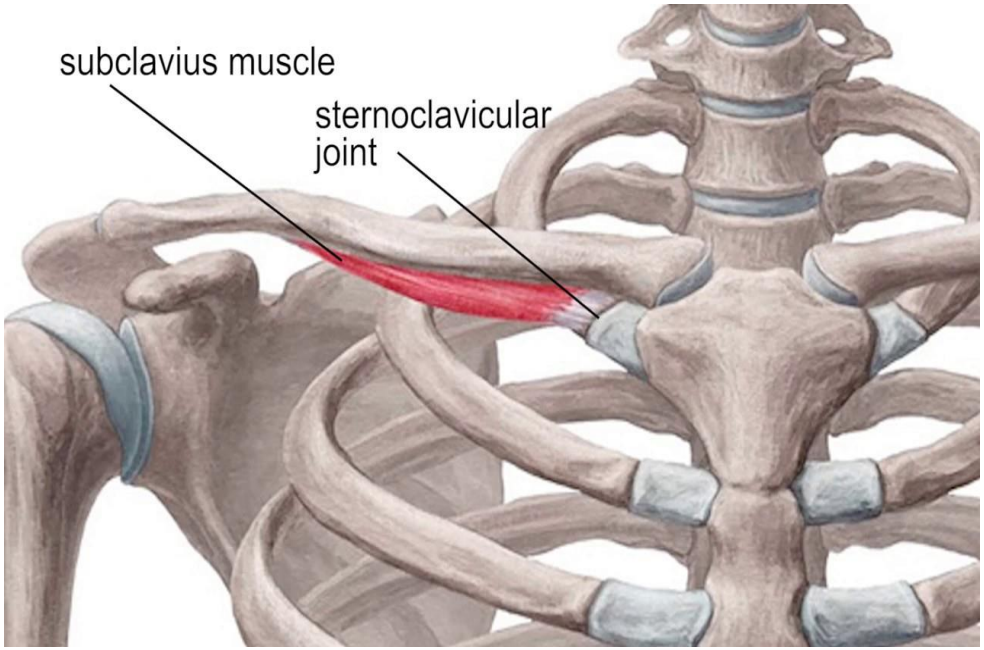
Subclavius –

Help to depress the clavicle

Protect the subclavian vessels

Nerve supply –

nerve to subclavius



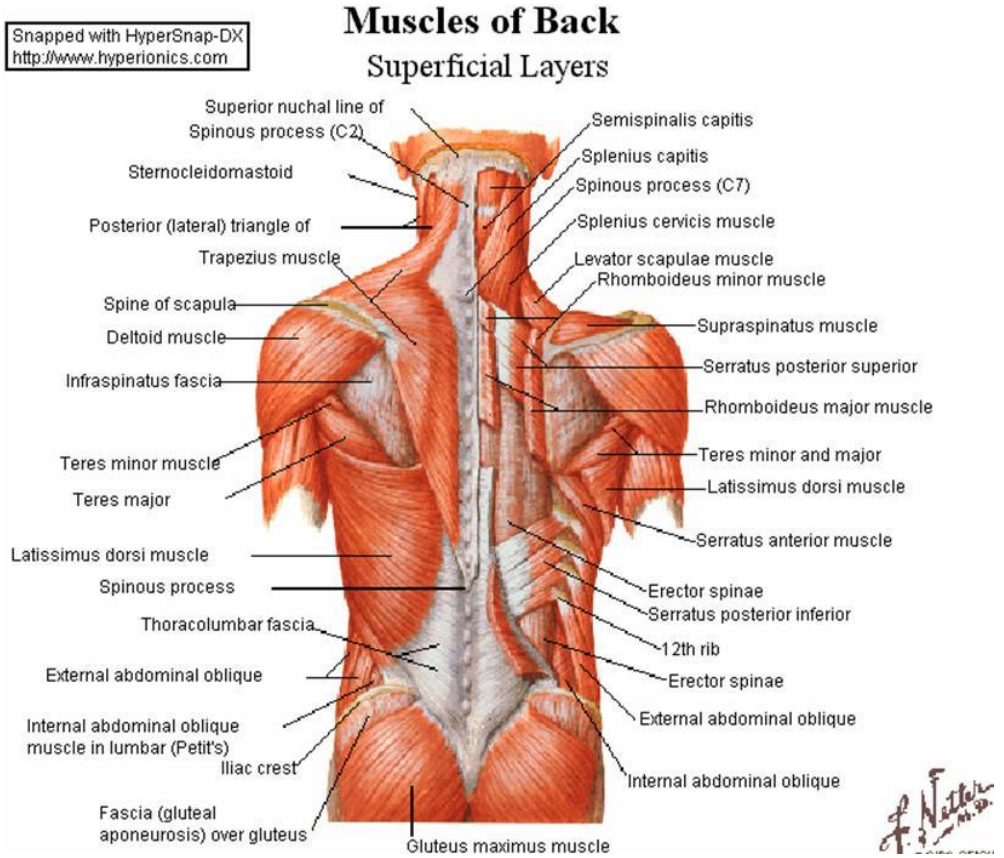
Posterior muscles

Deltoid – abduction from 15 – 90 degrees, flexion and extension.

Trapezius – Scapula rotation and shoulder abduction from 90 -180 degrees, shoulder shrugging.

Rhombids major and minor – retraction of scapula

Serratus anterior – helps in rotating the scapula during shoulder abduction and holding the medial border of the scapula attached to the thoracic wall.



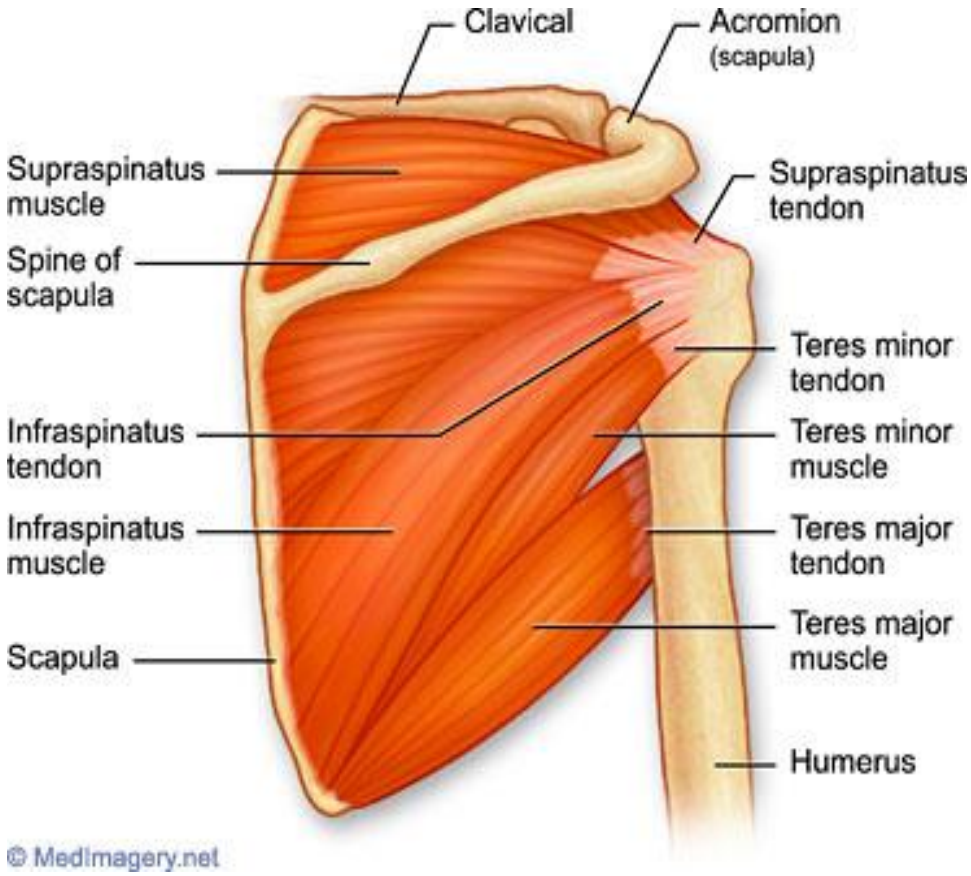
Posterior muscles

Supraspinatus – initiates abduction

Infraspinatus – lateral rotation

Teres minor - lateral rotation

Teres major - medial rotation, adduction, extension

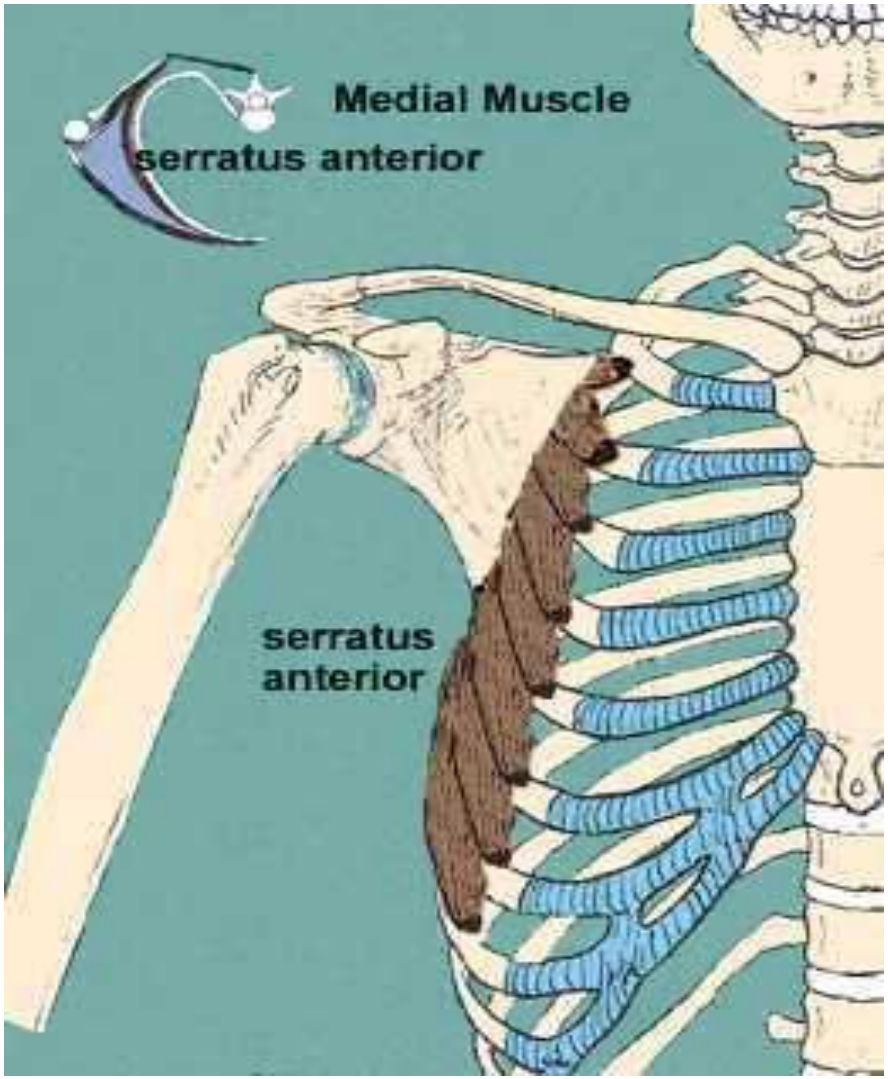


Serratus anterior muscle

Origin from upper 8 ribs. Inserts to the medial border of scapula.

Supplied by long thoracic nerve.

Helps in shoulder abduction beyond 90 degrees by rotating the scapula. Helps to pull the scapula medial border towards the chest wall.

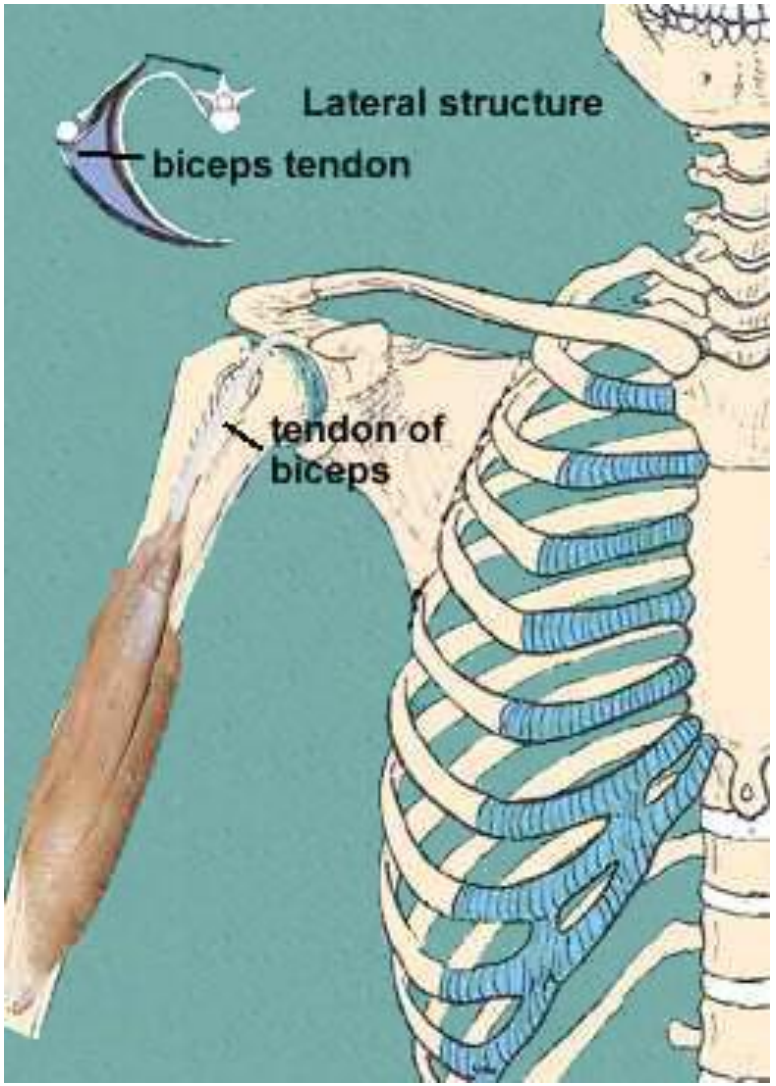


Biceps muscle

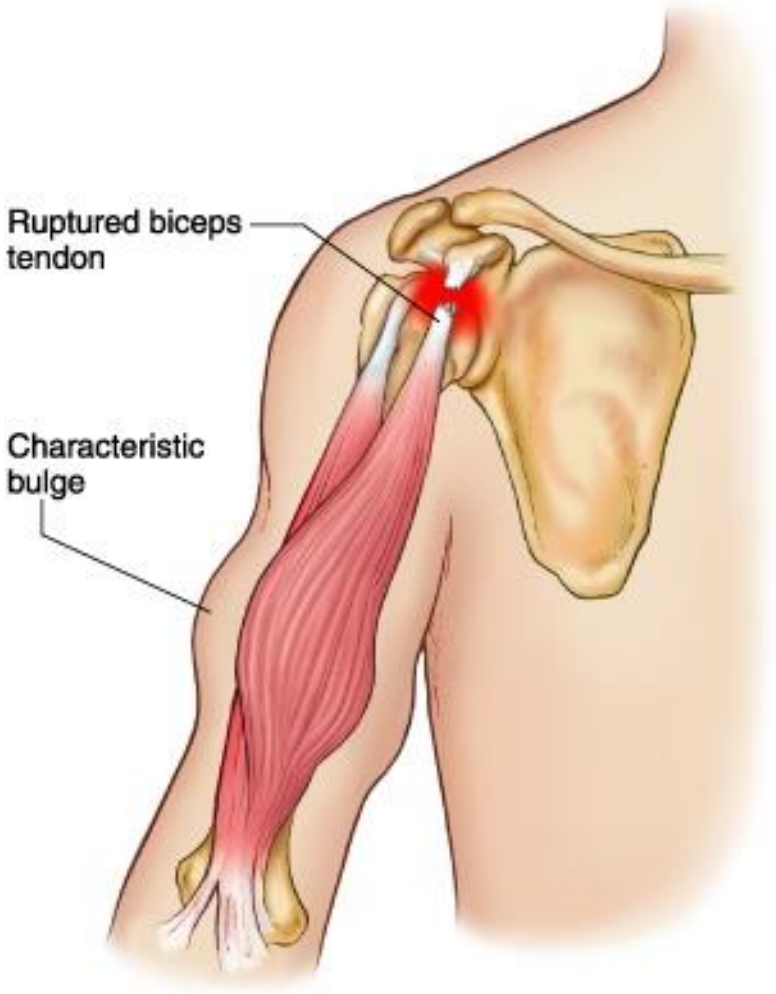
Has a long and a short head.

Causes flexion and supination at the elbow joint.

Supplied by musculocutaneous nerve.



Damage to biceps muscle



Muscles of the Arm

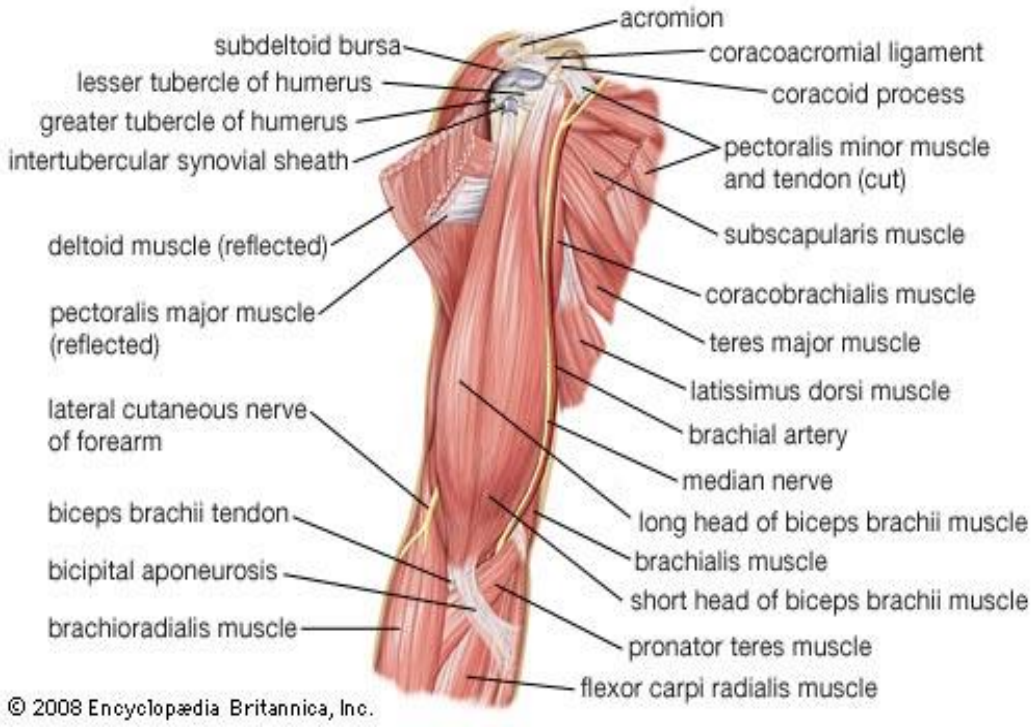
<u>Anterior Muscles of the Arm</u>

Coraco brachialis

Biceps

Brachialis

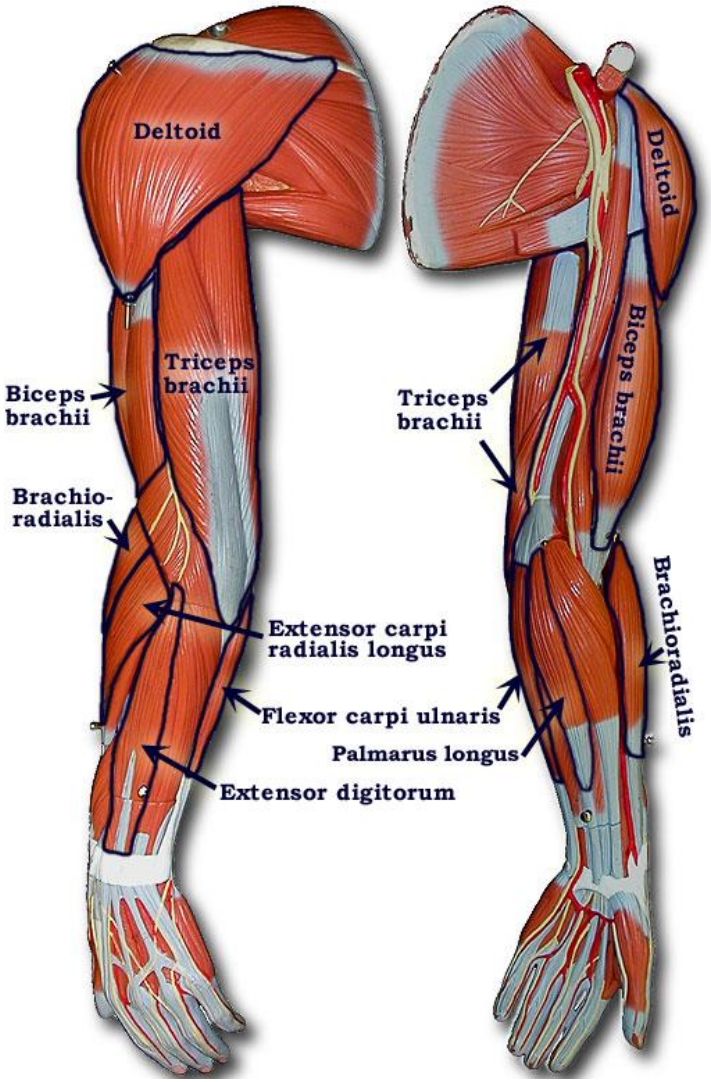
All three supplied by musculocutaneous nerve



Anterior and posterior muscles

<u>Susbscapularis –</u> adduction, extension and medial rotation. Supplied by upper and lower subscapular nerve.

<u>Triceps</u> – Has a long, medial and a lateral head. Provide support to the shoulder. Causes extension at the elbow. Supplied by radial nerve



Cubital Fossa

Triangular shape area

Laterally – Brachioradialis

Medially – pronator teres

Floor – Brachialis

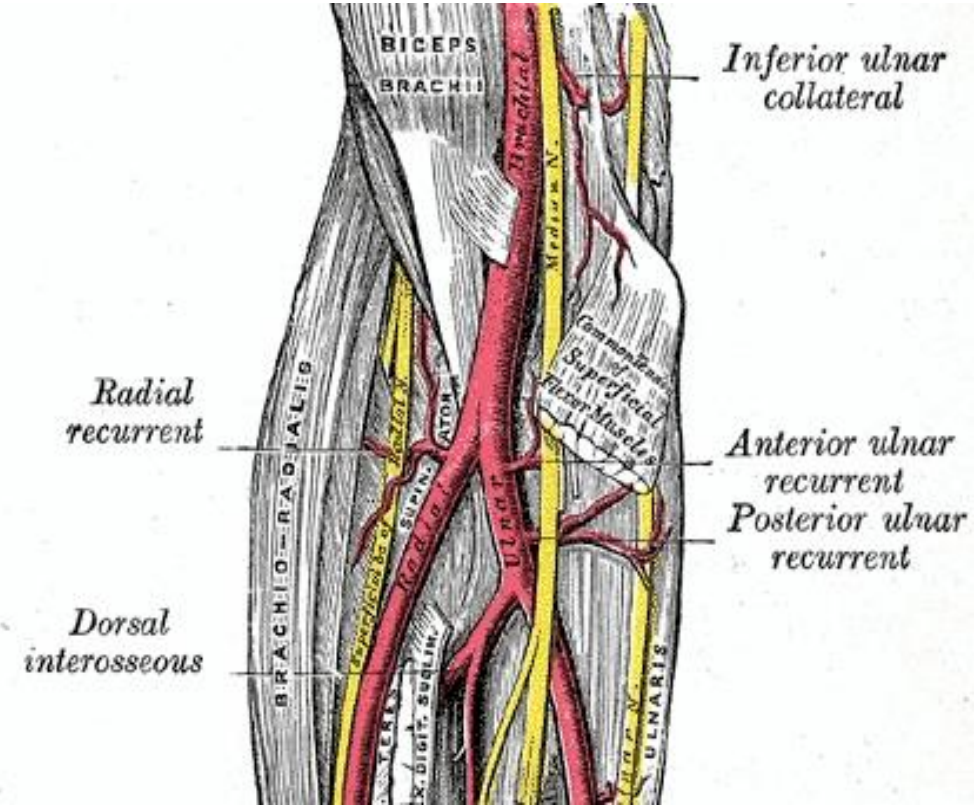
Roof – skin and fascia

Contents –

Median nerve

Brachial artery and its branches

Radial nerve



Cubital fossa

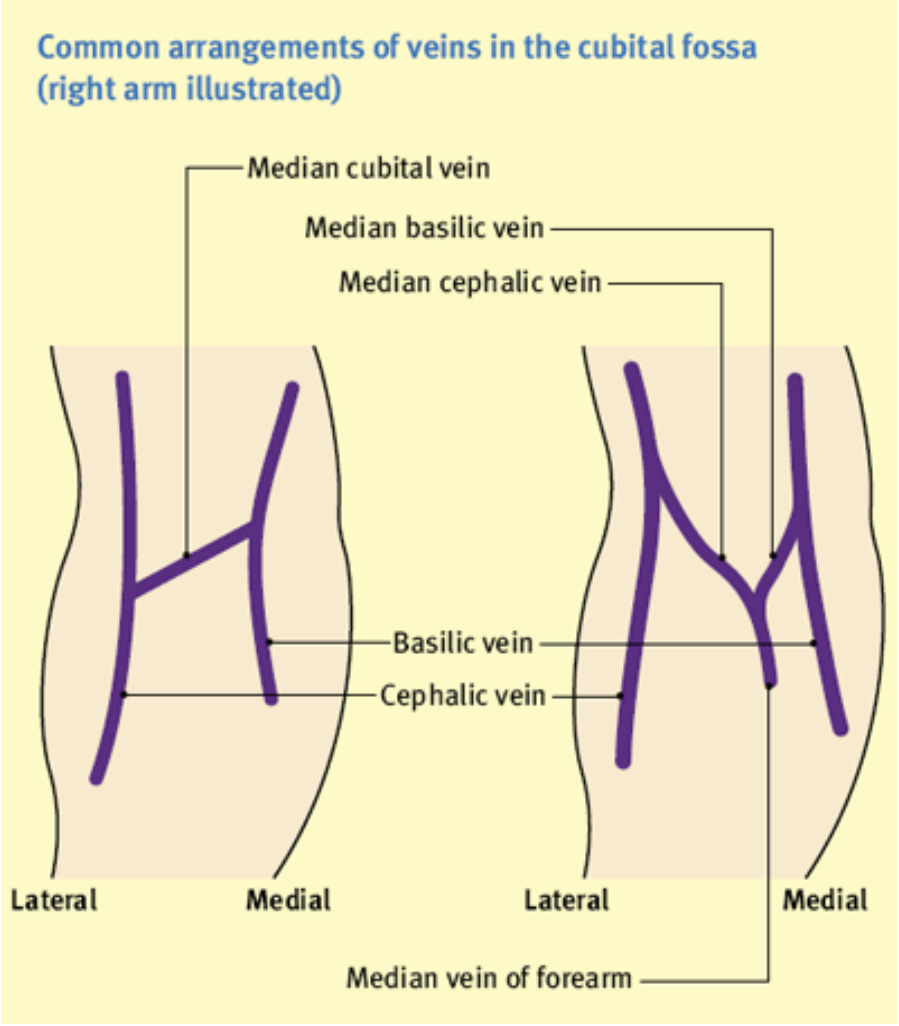
Roof of the cubital fossa has cephalic, basilic and medial cubital and median vein of forearm.

<u>Clinical uses</u>

Measurement of blood pressure

Venapuncture

Cut injury can damage important structures



Arteries of upper limb

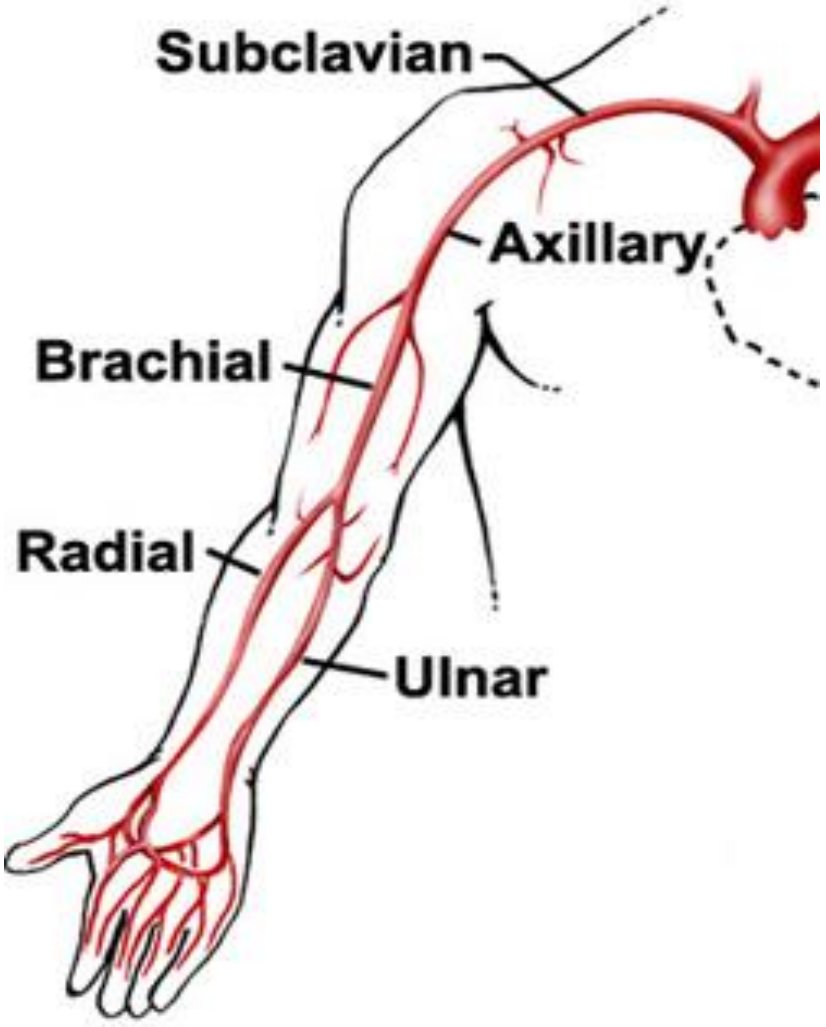
Subclavian

Axillary

Brachial

Ulnar

radial

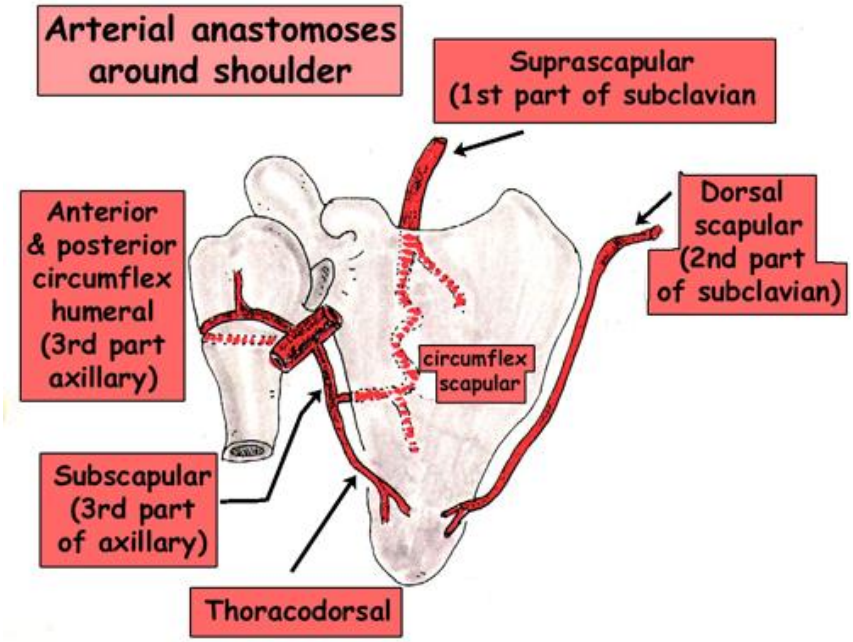


Scapula anatomosis

It is an anastomosis between arterial branches of first part of subclavian artery and third part of axillary artery.

It supplies shoulder joint, muscles of the arm and scapula region.

This can provide blood supply to the arm when there is an obstruction in the axillary artery before its third part.



Veins of upper limb

<u>Deep veins –</u>

Subclavian

Axillary

Brachial

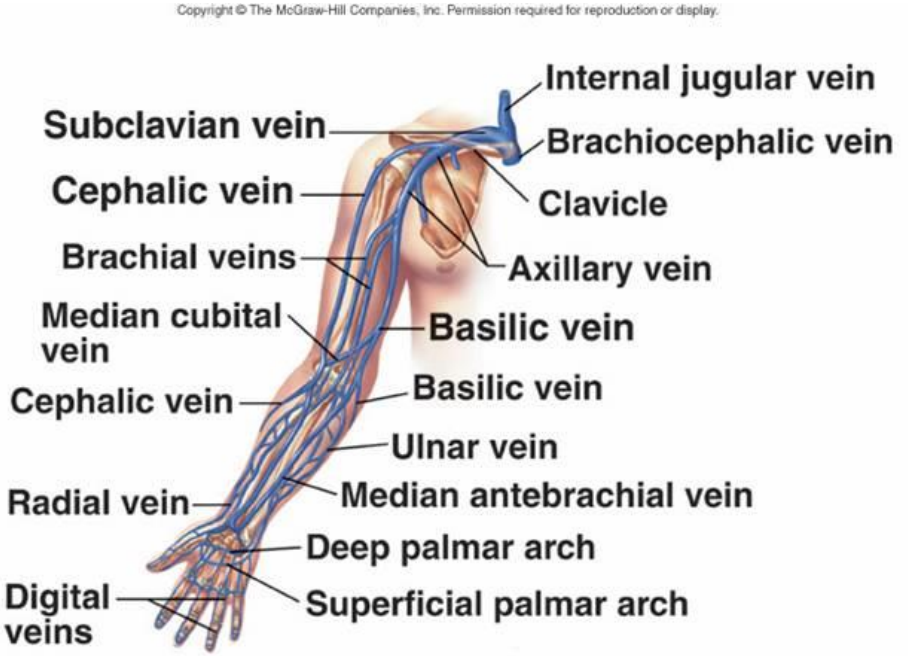
Radial and ulnar

<u>Superficial –</u>

Cephalic

Basilic

They both drain to axillary vein



Nerves of brachial plexus

Axillary – shoulder joint and deltoid and teres minor muscles. Sensory supply to skin over lower part of deltoid

Median – supplies most of forearm muscles, thenar muscles and radial two lumbricals and radial 3 &1/2 fingers and palm anterior aspect

Ulnar – most of intrinsic hand muscles and flexor carpi ulnaris and medial ½ of flexor digitorum profundus. Cutaneous supply to medial1&1/2 fingers and hand.

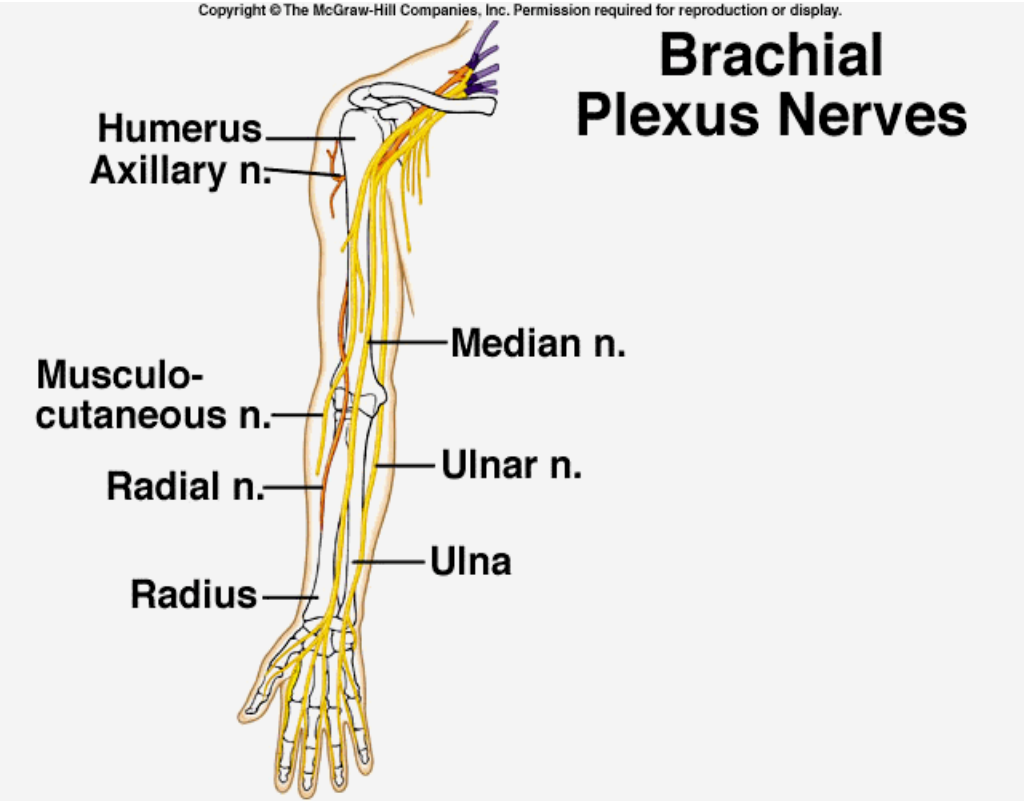
Radial

Supplies triceps, extensor muscles of forearm, and skin of most of dorsal aspect of hand.

Musculocutaneous – supplies biceps, brachialis and coracobrachialis.

Continues as lateral cutaneous nerve of forearm

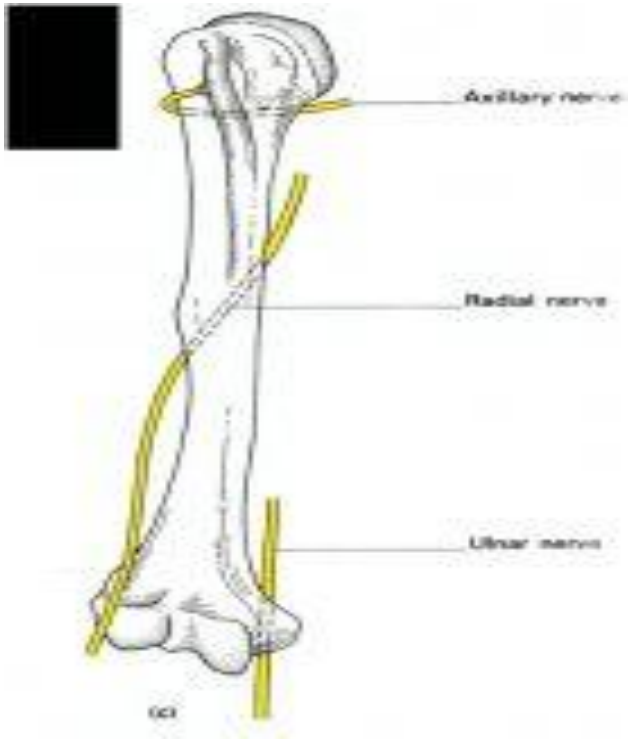
Long thoracic nerve- supplies the serratus anterior muscle. Arises from C5,6,7 nerve roots.



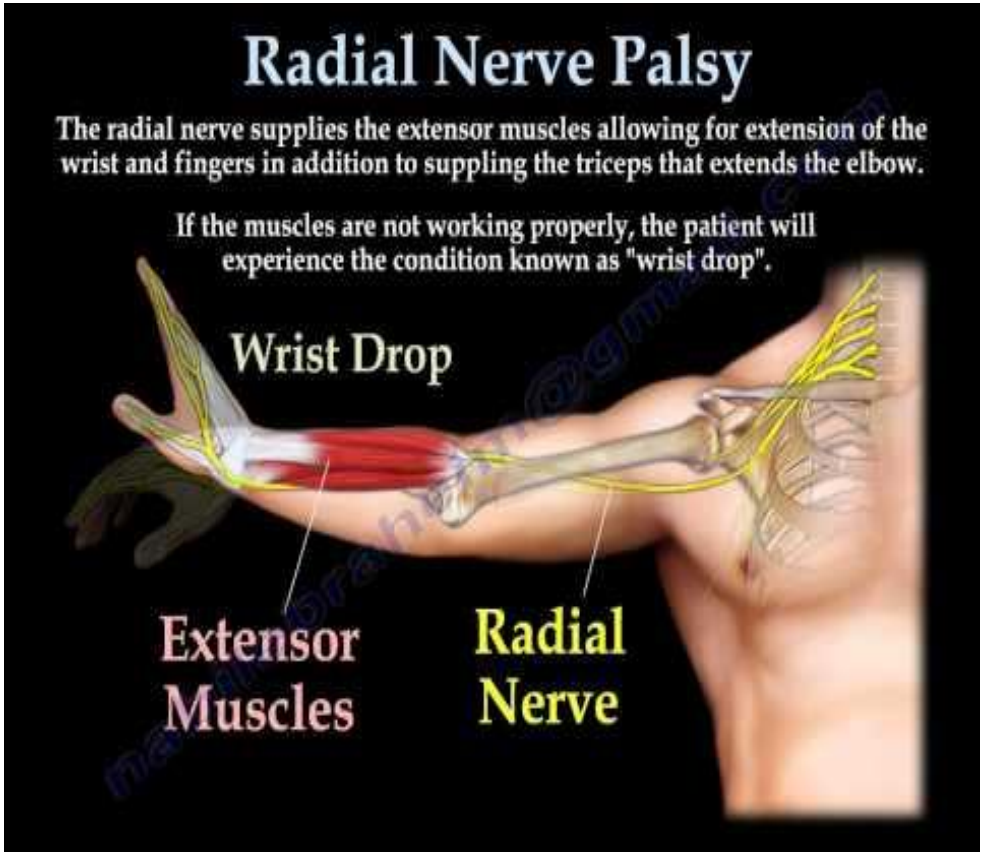
Fracture shaft of humerus

Pre- operative x-rays

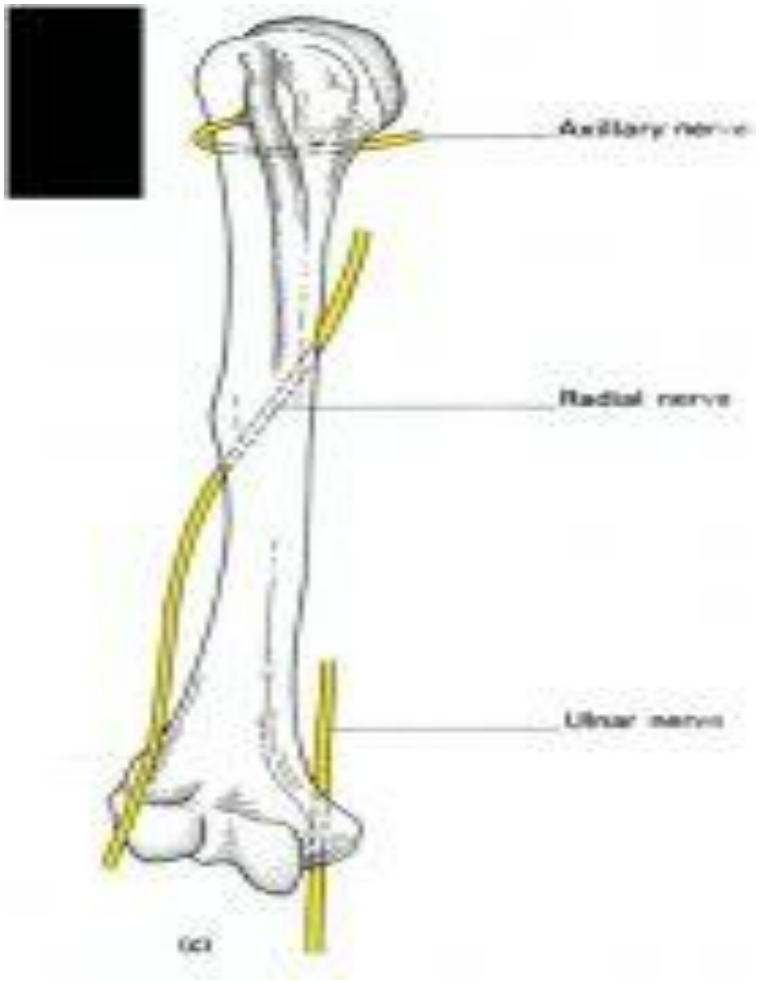
Immediate post- op



Radial nerve injury causing a wrist Drop



Fracture medial epicondyle of humerus



Ulnar nerve lesion causing an ulnar claw

Supracondylar fracture Humerus

Can damage several important structures such as

Brachial artery

Median nerve

Supracondylar fracture can damage the median nerve