

Nerves of the Upper Limb & the Effects of their Injuries

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Questions

- What nerves are produced from the posterior cord of the brachial plexus?
 - Axillary nerve
 - Radial nerve
- Where is the axillary nerve susceptible to injury in the arm?
 - Surgical neck of humerus
- The median nerve consists of which nerve roots?
 - C5-C8, T1
- Which side should carpal tunnel decompression occur? Ulnar or radial and why?
 - Ulnar side to avoid the median nerve which runs on radial side of FDS, and usually gives a motor branch to thenar muscles on radial side



- Which nerve is affected if pt has sensory loss over deltoid area?
 - Axillary nerve
 - Deltoid will be weak

Brachial Plexus

- 5 Roots
 - 3 Trunks
 - 6 Divisions (anterior & posterior)
 - 3 Cords (respect to axillary artery)
 - 5 Branches
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- Ventral rami of spinal nerves
 - Real Teenagers Drink Cold Beer

Nerves

- Musculocutaneous nerve
- Median nerve
- Axillary nerve
- Radial nerve
- Ulnar nerve

Brachial Plexus Injuries

- Erb-Duchenne Palsy (1870s)
 - C5, C6 nerve roots
 - Waiter's tip position
 - Medial rotation, forearm pronation, wrist flexion
- Adult Traction Injury (Klumpke's Palsy, 1885)
 - C8, T1 nerve roots
 - Clawed hand
 - Ulnar flexors, intrinsic muscles
- Traumatic or obstetric

Long Thoracic Nerve

- Roots of C₅, C₆, C₇
- Serratus anterior
- Winged scapula

Median Nerve Injury

- Above Wrist
- Elbow dislocation, pronator teres nerve entrapment syndrome, forearm #'s
- At Wrist
- Carpal tunnel syndrome, lacerations
 - Thenar eminence
 - Sensory loss
 - Beware pre-carpal tunnel cutaneous branch

Median Nerve

- Course
 - Beneath Flexor retinaculum on radial side
 - Palmaris longus
 - Behind FDS
- Motor Function
- Sensory Function

- At risk – distal humerus

- Lateral & medial cords
- Flexor compartment of forearm
- Anterior interosseous n supplies deep muscles (FPL, PQ, ½ FDP)
- Thenar eminence, lateral 2 lumbricals

Radial Nerve

- Course
 - Spiral groove
 - Deep to brachioradialis
 - Anterior to lateral epicondyle
 - Superficial sensory and deep posterior interosseous motor branches
- Motor Function
- Sensory Function
- At risk – spiral groove of humerus

Radial nerve

- Posterior cord
- Enter anterior compartment of forearm
- Gives off posterior interosseous nerve which supplies extensor compartment of forearm
- Posterior cutaneous n of arm, lower lateral cutaneous n., posterior cutaneous n of forearm, superficial radial nerve

Radial Nerve Injuries

- Axilla Injury
 - “Saturday Night Palsy”, Ill-fitting crutches
- Mid-Humerus
 - #’s, tourniquet palsy
- At or Below Elbow
 - Elbow Dislocations, surgical trauma, in supinator tunnel

Ulnar Nerve

- Course
 - Posterior compartment of arm
 - Between FCU & FDP
 - In front of flexor retinaculum
 - Superficial and deep branch
- Motor Function
- Sensory Function

- At risk – medial epicondyle of humerus

- Medial cord
- Anterior compartment to mid humerus, then in posterior compartment
- Lies deep to FCU, and lateral to its tendon
- Palmar and dorsal cutaneous branch before entering hand to supply intrinsic muscles.

Ulnar Nerve Injuries

- At the Elbow
- At the Wrist

- Tardy Ulnar Nerve Palsy
- Ulnar Neuritis & Ulnar Tunnel Syndrome



Cutaneous Nerves

Axillary Nerve

- At risk - Surgical neck of humerus
- Beware during lateral approach to shoulder - winds around humerus ~5cm below lateral border of acromion
- Posterior cord of plexus
- Supplies deltoid, teres minor, shoulder joint
- Upper lateral cutaneous nerve of arm (regimental badge)

Musculocutaneous Nerve

- Protect nerve during coracoid osteotomy during anterior approach to shoulder
- Lateral & medial cords
- Flexes elbow
- Supplies coracobrachialis, biceps, brachialis
- Lateral cutaneous nerve of forearm