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MEDIAN NERVE

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  - ORIGIN AND ROOT VALUE
    - formed by two heads in axilla
  - COURSE
    - AXILLA
      - lies anterior to 3rd part of axillary artery (काँख धमनी के सामने)
        - crosses artery from lateral to medial (
    - ARM
      - enters arm from axilla at inferior border of teres major muscle
      - passes vertically downwards and
        - courses lateral to brachial artery (पार्श्व स्थान पर जाता हैं_)
          - between
            - biceps brachii above
            - brachialis below
        - then it crosses
          - anteriorly to run medial to brachial artery (फिर भुज धमनी के मध्य स्थान पर जाता हैं
    - in cubital fossa
      - lies medial to brachial artery
        - passes under biceps
        - on to or medial to brachialis
      - gives articular branch to elbow
    - in Forearm
      - then between two heads of pronator teres
        - deep to bicipital aponeurosis
        - superficial to brachialis muscle
      - crosses ulnar artery
        - separated by the deep head of pronator teres
      - then travels between
        - flexor digitorum superficialis above
        - flexor digitorum profundus below
      - then above 5cm above flexor retinaculum
        - merges between
          - the flexor digitorum superficialis (medially)
          - the flexor carpi radialis (laterally)
      - branches in forearm
        - supplies anterior compartment of forearm except
          - flexor carpi ulnaris
        - muscular branches
        - anterior interosseus branches
    - in hand
      - Enters the hand through carpal tunnel
        - passes deep to flexor retinaculum to reach palm of hand
        - along with tendons
      - branches in hand
        - sensory
          - palmar cutaneous branch leave median nerve above wrist

        - runs superficial to flexor retinaculum
            - supply lateral palm skin
    - motor
        - lateral 2 lumbricals
        - abductor pollicis brevis
        - opponens pollicis
        - flexor pollicis brevis

- Injury
    - Injury of median nerve at different levels causes different syndromes with varying motor and sensory deficits.
- At the shoulder
    - Injury can occur at the brachial plexus[9]
- Above the elbow
- Common mechanism of injury: a supracondylar humerus fracture
- Motor deficit:
    - Loss of pronation of forearm, weakness in flexion of the hand at the wrist, loss of flexion of radial half of digits and thumb, loss of abduction and opposition of thumb.
    - Presence of an ape hand deformity when the hand is at rest, due to an hyperextension of index finger and thumb, and an adducted thumb
    - Presence of benediction sign when attempting to form a fist, due to loss of flexion of radial half of digits
- Sensory deficit: loss of sensation in lateral 3+1⁄2 digits including their nail beds, and the thenar area
- At the elbow
    - Entrapment at the level of the elbow or the proximal forearm could be due to the pronator teres syndrome.
- Within the proximal forearm: anterior interosseous syndrome
    - Injury to the anterior interosseous branch in the forearm causes the anterior interosseous syndrome
    - Common mechanisms: tight cast, forearm bone fracture
    - Motor deficit: loss of pronation of forearm, loss of flexion of radial half of digits and thumb
    - Sensory deficit: none
- At the wrist
    - Common mechanism: wrist laceration
    - Motor deficit:
        - Weakness in flexion of radial half of digits and thumb, loss of abduction and opposition of thumb
        - Presence of an ape hand deformity when the hand is at rest may be likely, due to an hyperextension of index finger and thumb, and an adducted thumb. Nevertheless, an ape hand deformity is not a requirement for a carpal tunnel syndrome diagnosis.
        - Presence of a benediction sign when attempting to form a fist, due to weakness in flexion of radial half of digits
    - Sensory deficit: loss of sensation in lateral 3+1⁄2 digits including their nail beds, and the thenar area
- Within the wrist: carpal tunnel syndrome
    - Common mechanism: carpal tunnel syndrome, an injury by compression in the carpal tunnel, without transection of the median nerve, due to overuse by activities such as keyboard typing and cooking
    - Motor deficit:

- Weakness in flexion of radial half of digits and thumb, weakness in abduction and opposition of thumb
- Presence of an ape hand deformity or when attempting to form a fist, the benediction sign, due to compression of the median nerve, as opposed to complete median nerve palsy

◦ Sensory deficit: numbness and tingling in lateral 3+1⁄2 digits including their nail beds, but excluding the thenar eminence which is supplied by the palmar cutaneous branch of the median nerve[10] Unlike in wrist laceration, sensation still occurs in the area of the central palm. Sensation is not lost because the palmar cutaneous branch runs above the flexor retinaculum, and is not affected in compression in carpal tunnel syndrome.

MEDIAN NERVE

FORMED: from two 'heads' in axilla, anterior to 3rd part of axillary artery. Crosses artery, usually anteriorly, from lateral to medial to lie medial to brachial artery in cubital fossa.

PASSES: under biceps & onto or medial to brachialis, then between two heads of pronator teres & under fibrous arch of flexor digitorum superficialis with ulnar artery. Under flexor digitorum superficialis, emerging from its lateral border to lie between tendons of flexor carpi radialis and palmaris longus. Passes deep to flexor retinaculum to reach palm of hand.

BRANCHES IN FOREARM: to flexor carpi radialis, palmaris longus & flexor digitorum superficialis. Via its anterior interosseous branch to flexor pollicis longus, half flexor digitorum profundus & pronator quadratus. Joint branches to elbow, wrist, superior & inferior radio-ulnar.

BRANCHES IN HAND: Sensory: Palmar cutaneous branch leaves the median nerve above the wrist & runs superficial to the flexor retinaculum to supply lateral palm skin. Main nerve in hand supplies palmar skin & dorsal nail beds of lateral 3 & half digits. **Motor:** lateral 2 lumbricals, abductor pollicis brevis, opponens pollicis & usually flexor pollicis brevis

For an illustration, see page 120 in the book - Instant Anatomy, by R H Whitaker & N R Borley. 4th edition. Wiley-Blackwell 2010