

Median nerve compression syndromes summary

Median nerve anatomy

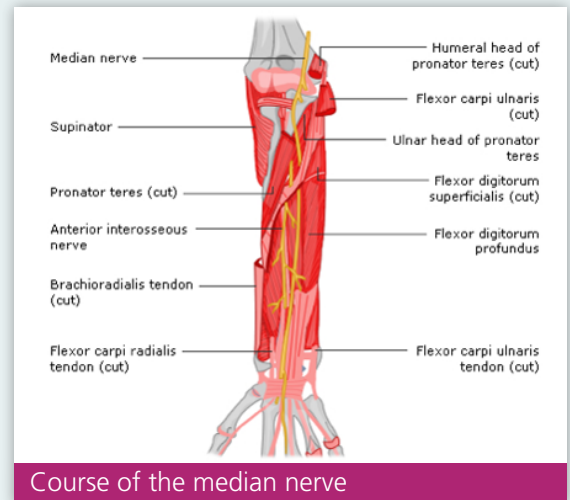
- Originates C5-T1

Motor:

- Forearm: all flexors except FCU + FDP LF and RF (ulnar nerve)
 - Anterior interosseous branch (AIN) supplies motor to FPL, PQ, and 2 bellies of FDP to IF / MF
- Hand: 'LOAF' muscles via recurrent branch

Sensory:

Palmar cutaneous branch and digital cutaneous branches



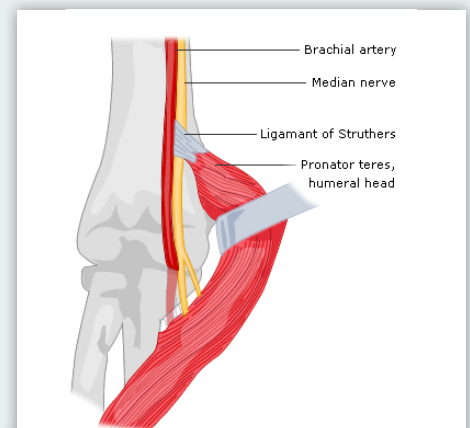
Course of the median nerve

Pronator syndrome

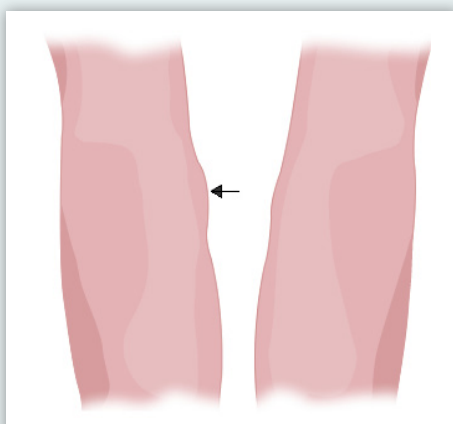
- Compressive neuropathy of the median nerve at the level of the elbow
- More common in females, patients >50y and weightlifters

Potential sites of compression:

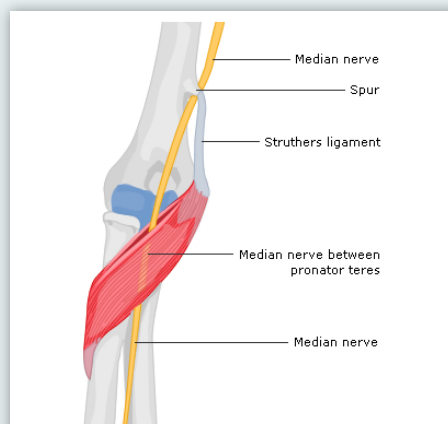
- Supracondylar process (anatomical variant)
- Ligament of Struthers (anatomical variant)
- Bicipital aponeurosis (repetitive movements)
- Pronator teres muscles
- FDS aponeurotic arch



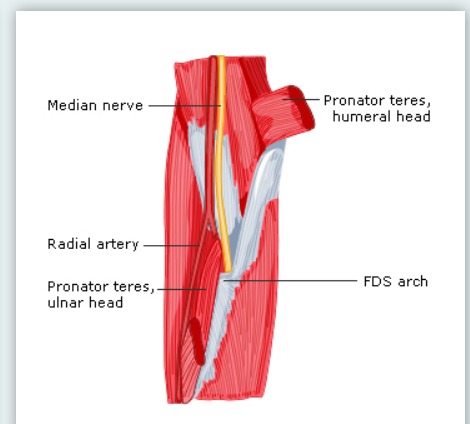
The ligament of Struthers may compress the median nerve



A thickened bicipital aponeurosis may compress median nerve



The median nerve may become compressed between two heads of the pronator teres



The median nerve may become compressed as it passes under the aponeurotic arch of FDS

Pronator syndrome continued

Symptoms

Sensory: Paraesthesia, particularly of the thumb, index finger, middle finger and radial half of the ring finger, and including the radial half of the palm.

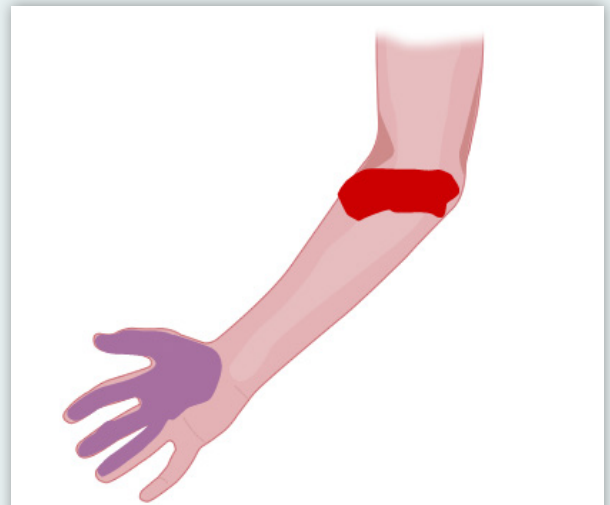
Motor: Minimal. Possibly some weakness of thumb abduction, index finger and wrist flexion.

Pain: Dull, aching pain particularly over the proximal forearm.

Signs

Motor:

- Weakness of FPL, FDP (index and middle fingers) and FCR
- Tinel's sign (at forearm not wrist)
- Phalen's test (does not produce paraesthesia)
- Scratch - collapse test



Pronator syndrome causes paraesthesia in sensory distribution of the median nerve (purple) and pain in the proximal forearm (red)

Anterior interosseous nerve syndrome

Nerve arises 4cm distal to the medial epicondyle and innervates the FDP (IF, MF), FPL and PQ.

Potential sites of compression:

- Tendinous edges of pronator teres (commonest)
- FDS aponeurotic arch
- Edge of lacertus fibrosus
- Accessory head of FPL (Gantzer's muscle)
- Thrombosed ulnar or radial artery

Symptoms

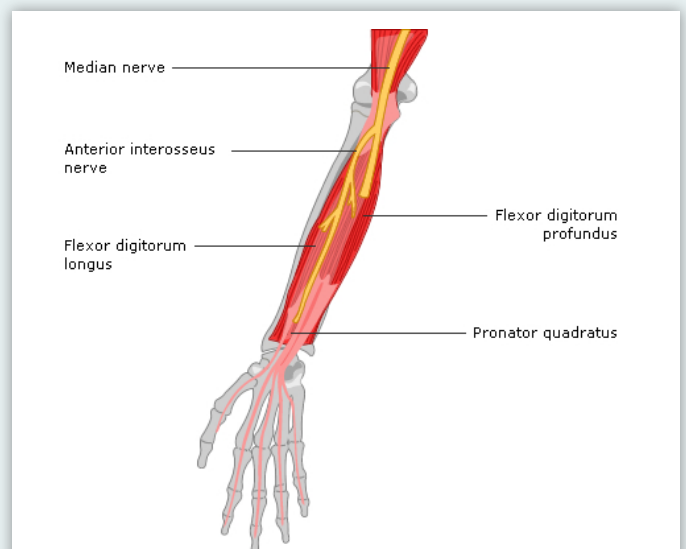
Sensory: No sensory loss and usually no pain

Motor: May be complete loss of pincer movement in the thumb and index finger

Signs

Sensory: None

Motor: Loss of pinch grip: Unable to make an 'OK' sign due to weakness of FPL and FDP to index finger



Illustrating the course of the anterior interosseous nerve

Carpal tunnel syndrome

- Commonest site of a compressive neuropathy of the median nerve.
- The palmar cutaneous branch of the median nerve is usually spared because it passes superficial to the flexor retinaculum.

Risk factors include:

- Rheumatoid arthritis
- Hypothyroidism
- Pregnancy
- Injury / fracture
- Diabetes mellitus, Acromegaly, Cushings
- Repetitive wrist movements
- Tumour in carpal tunnel
- Obesity (BMI >29)

Symptoms

Sensory: Numbness and tingling in the radial three and a half digits. Typically, pain and paraesthesia wake the patient at night

Motor: Weak grip and thumb weakness if the condition is longstanding

Signs

Motor:

- Weakness of the thenar (LOAF) muscles leading to thenar muscle wasting
- Durkan's test, Phalen's test and Tinel's test have low diagnostic correlation

