

## 22. Carpal tunnel

<b>Medial</b>	Pisiform and hook of hamate
<b>Lateral</b>	Scaphoid and trapezium
<b>Floor</b>	Carpal bones
<b>Roof</b>	Thickened Flexor retinaculum with Palmaris longus

### Structures superficial to Flexor retinaculum

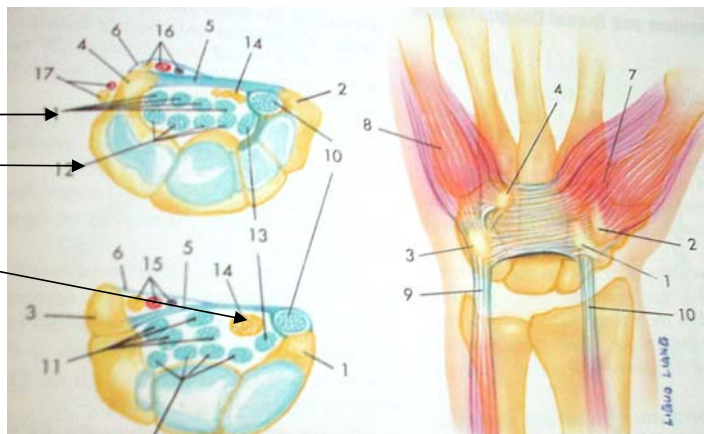
1. Palmar branch of Radial Artery
2. Palmar branches of median nerve
3. Palmar branches of ulnar nerve

### Contents

4 FDS (ring and middle anterior)

4 FDP (index separate)

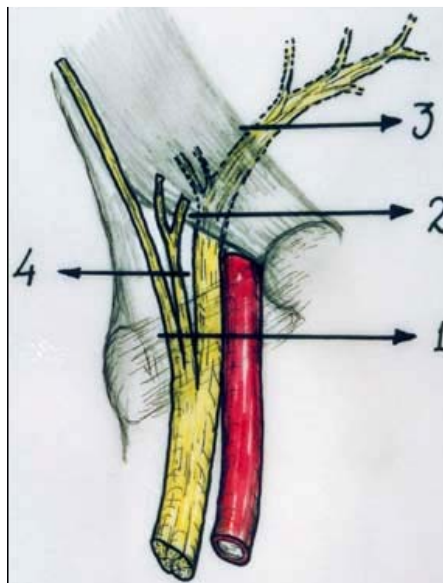
Median Nerve



## 23. Guyon's canal

Medial	Pisiform
Lateral	Hook of the hamate
Floor	Flexor retinaculum
Roof	Volar carpal ligament

Ulnar nerve and ulnar artery run in the canal  
[Nerve is medial to artery]

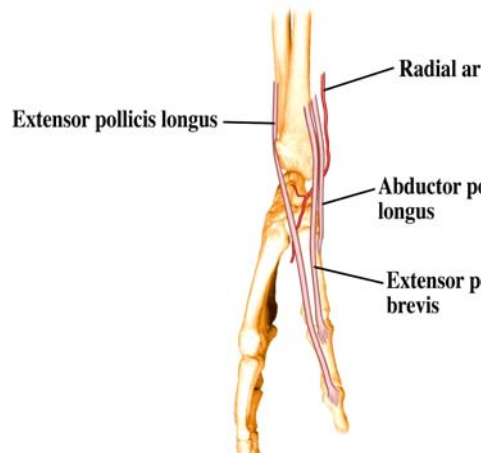


1. Palmar carpal ligament
2. Transverse carpal ligament
3. Deep motor ulnar branch
4. Superficial sensory ulnar branch

## 24. Snuff Box

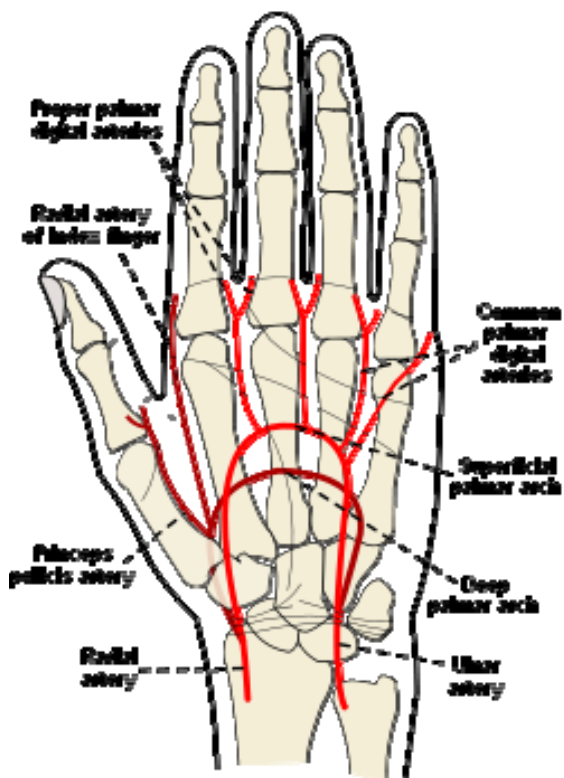
### Boundaries

Base	Radial styloid
Radial	APL and EPB
Ulnar	EPL
Roof	Deep fascia with superficial Radial N
Floor	Scaphoid and trapezium



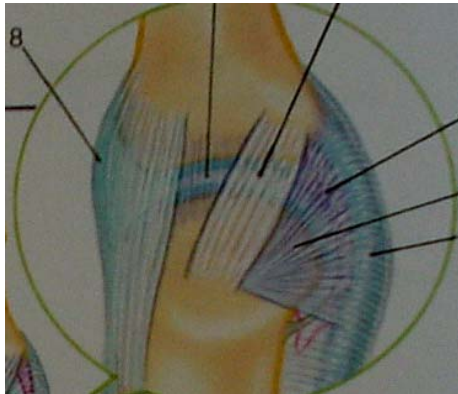
## 25. Branches of radial artery at the wrist

Superficial palmar artery, Volar carpal artery, Dorsal carpal artery, First dorsal metacarpal artery, Arteria pollicis (divides into 2 to the thumb), Arteria indices (radial side of the index)



## 26. DIP and PIP joints

Lateral collateral ligament



Volar plate

Acc collateral ligament

Comment [VP1]:

Comment [VP2]:

Comment [VP3R2]:

## 27. Wrist Ligaments

**Intrinsic** Scapho-lunate ligament [dorsally strong]  
Luno-triquetrum ligament [Volarly strong]  
Other: Scaphocapitate and Scaphotrapezoid

**Extrinsic:** A. Palmar

Radioscaphocapitate ligament [RSC],  
Long Radio-lunate [LRL], Short Radio-lunate ligaments [SRL]  
Ulnolunate ligaments, palmar radio-ulnar ligament,  
Ulnotriquetral ligament, Ulnocapitate ligament  
Poirier Space: Between RSC and LRL

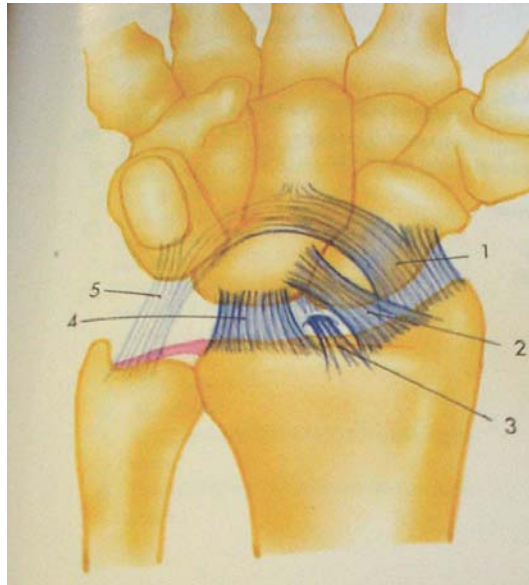
B. Dorsal

Dorsal radio carpal ligament  
Dorsal intercarpal [dorsal capsulotomy in between these two ligament]

**Radioscapholunate ligament:** between LRL and SRL; is not a ligament as previously thought; NV pedicles.

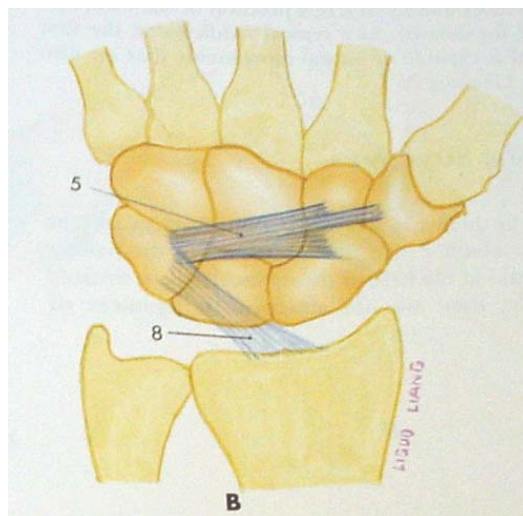
### Palmar ligament

1. Palmar carpal ligaments
2. Radioscaphocapitate ligament
3. Long radiolunate ligament
4. Radioscapholunate ligament
5. Short radiolunate ligament
6. Ulnocapitate ligament



### Dorsal ligaments

5. intercarpal ligament
8. Dorsal radiotriquetral ligament



### 28. Median Nerve variations

5 categories of variations the carpal tunnel:

1) Variations in the course of the thenar branch:

78% thenar branch arises from the radial side.

Sometimes thenar branch arises from the volar side

[20% are transligamentous ] and 1% from ulnar side

2) Accessory branches of thenar nerve at the distal carpal tunnel . 5%

[One transligamentous to OP and FPB and another to Abd PB ]

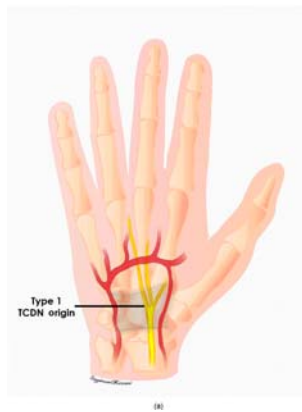
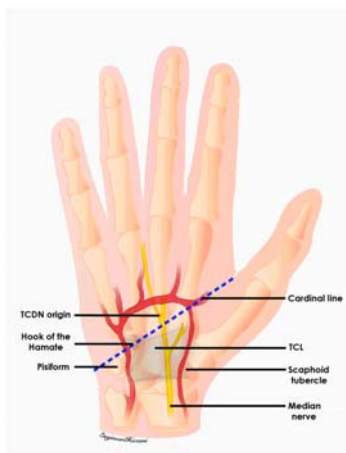
3) High division of the distal median nerve [in the forearm]

4) 2 recurrent branches Accessory thenar branch : First branch is proximal to the carpal tunnel and second is distal to the Carpal tunnel.

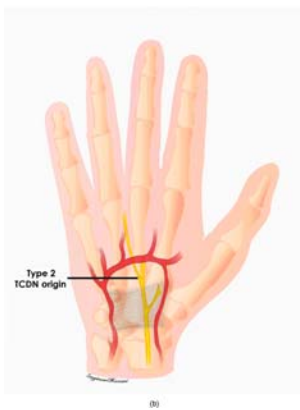
5) Variations of third common digital nerve (TCDN, origin).

**Normal**

**Type I Division of Median N in the tunnel**



**II** Median Nerve division found distal to the TCL **III** Distal to the superficial palmar arch but proximal to the superficial palmar arch.



## 29. Martin Gruber [M-G] anastomosis

Communication between median and ulnar nerves is very common, occurring in approximately 17% of the population.

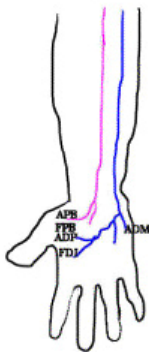
Here the motor nerve may cross over from the median to ulnar nerve in the forearm;

There are two patterns:

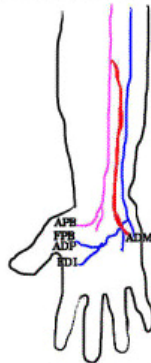
1. From median nerve in proximal forearm to ulnar nerve in middle to distal third of forearm
2. From anterior interosseous nerve to ulnar nerve

These are significant sources of misdiagnosis; for instance, a proximal injury may cause weakness of a muscle that it does not usually innervate. Fortunately, as electrophysiologic skills and techniques improve, we are increasingly able to diagnose M-G communications by nerve conduction studies (NCS).

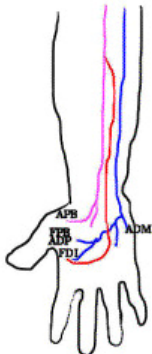
Normal (Not Martin-Gruber)



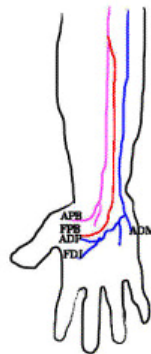
Martin-Gruber Type I



Martin-Gruber Type II



Martin-Gruber Type III



Median nerve  
Ulnar nerve  
Martin-Gruber Anastomosis

APB: abductor pollicis brevis  
FFB: flexor pollicis brevis  
FDI: first dorsal interosseus  
ADM: adductor digiti minimi

