

The fibrous digital sheaths

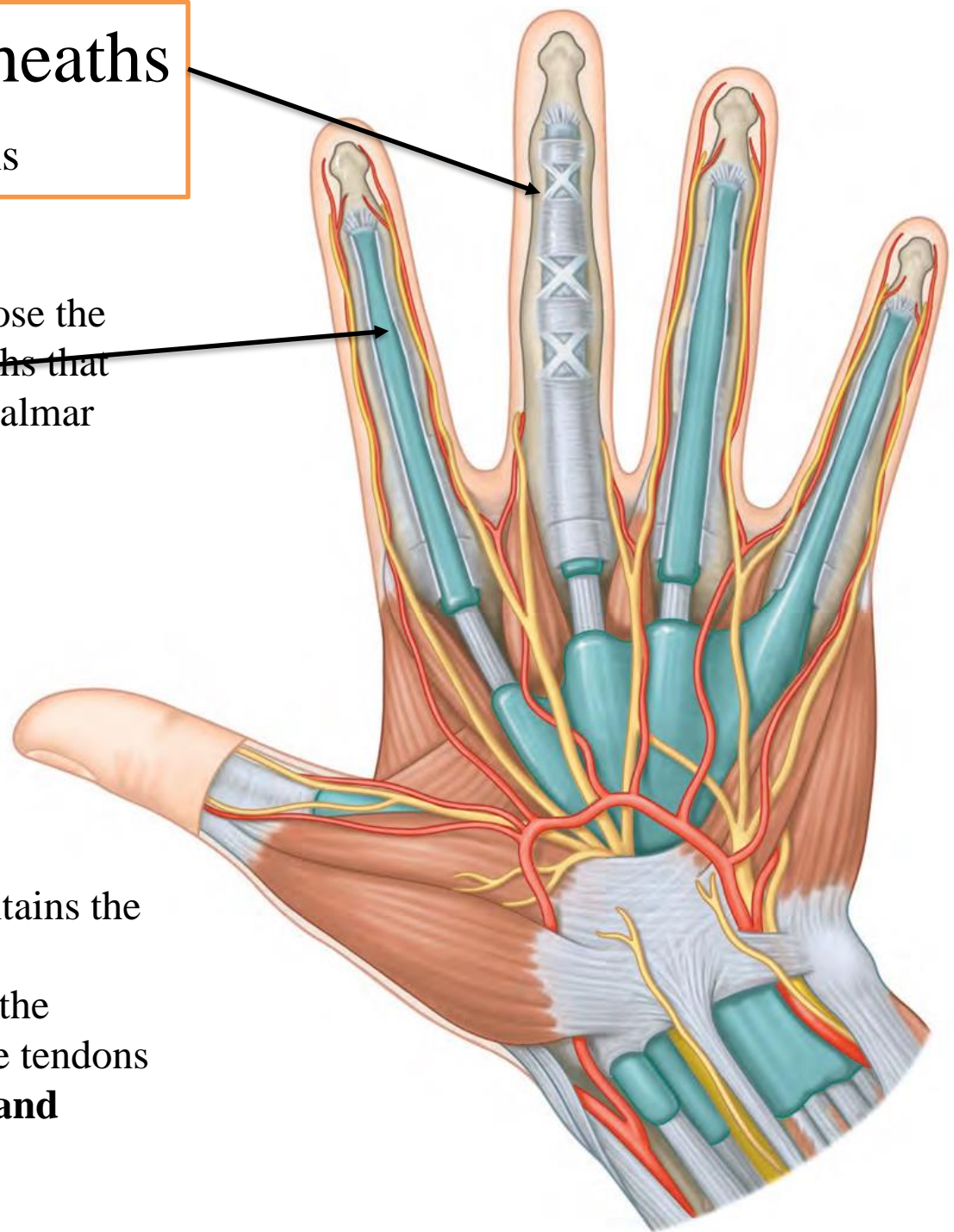
Or Fibrous Flexor Sheaths

They are ligamentous tubes that enclose the flexor tendon(s) and the synovial sheaths that surround them as they pass along the palmar aspect of their respective digit.

the distal end of the sheath is closed and is attached to the base of the distal phalanx.

In the thumb, fibrous flexor sheath contains the tendon of **the flexor pollicis longus**.

In the case of the four medial fingers, the fibrous flexor sheath is occupied by the tendons of **the flexor digitorum superficialis and profundus**



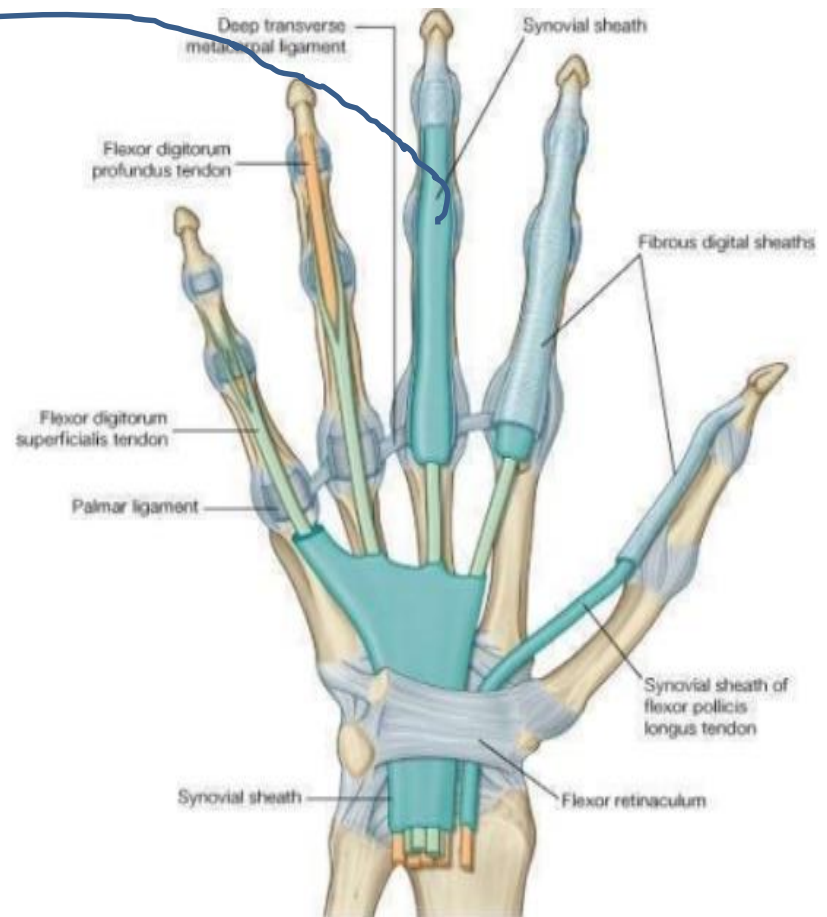
Synovial Flexor Sheaths

In the hand, the tendons of the flexor digitorum superficialis and profundus muscles invaginate a synovial sheath

While

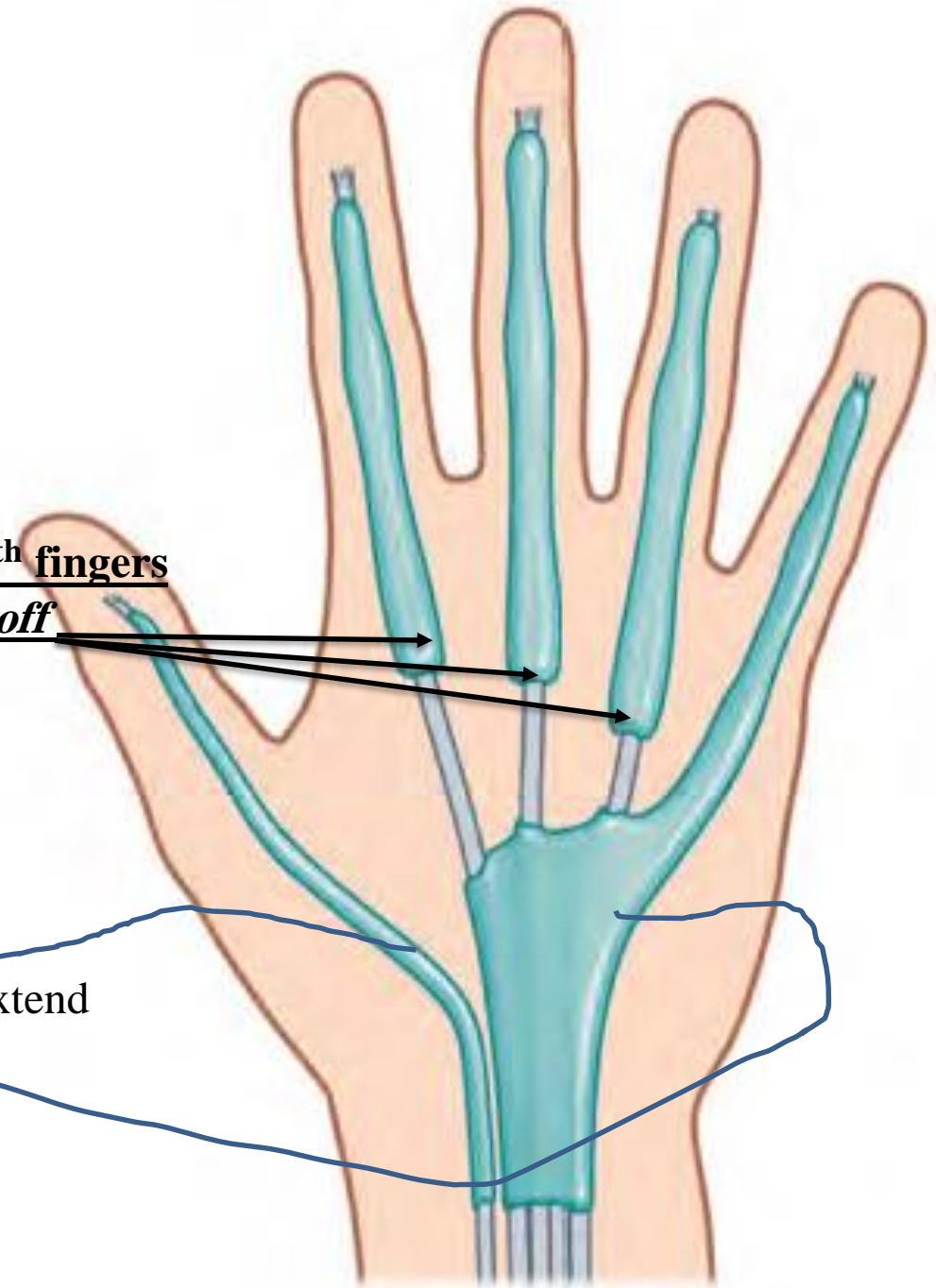
The flexor pollicis longus tendon has its own synovial sheath that passes into the thumb

These sheaths allow the long tendons to move smoothly, with a minimum of friction, beneath the flexor retinaculum and the fibrous flexor sheaths.



The tendons of the 2nd, 3rd and 4th fingers
have synovial sheaths which are **closed off**
proximally at the metacarpal
head,

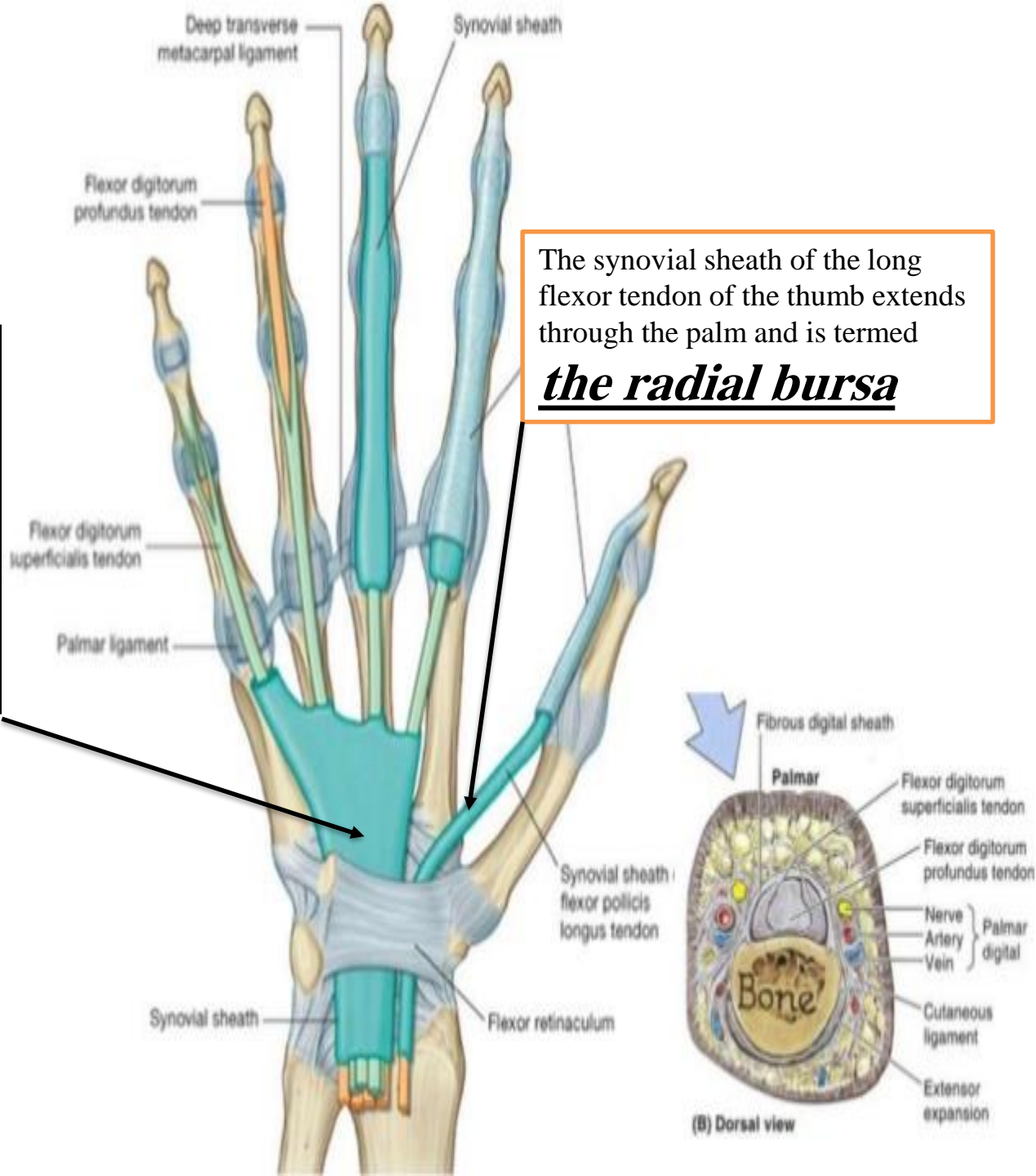
However, the synovial sheaths of **the**
thumb and little finger extend
proximally **into the palm.**



The synovial sheath of the 5th finger continues
as the ulnar bursa

The synovial sheath of the long flexor tendon of the thumb extends through the palm and is termed
the radial bursa

In about 50% of cases
the radial and ulnar bursae
communicate

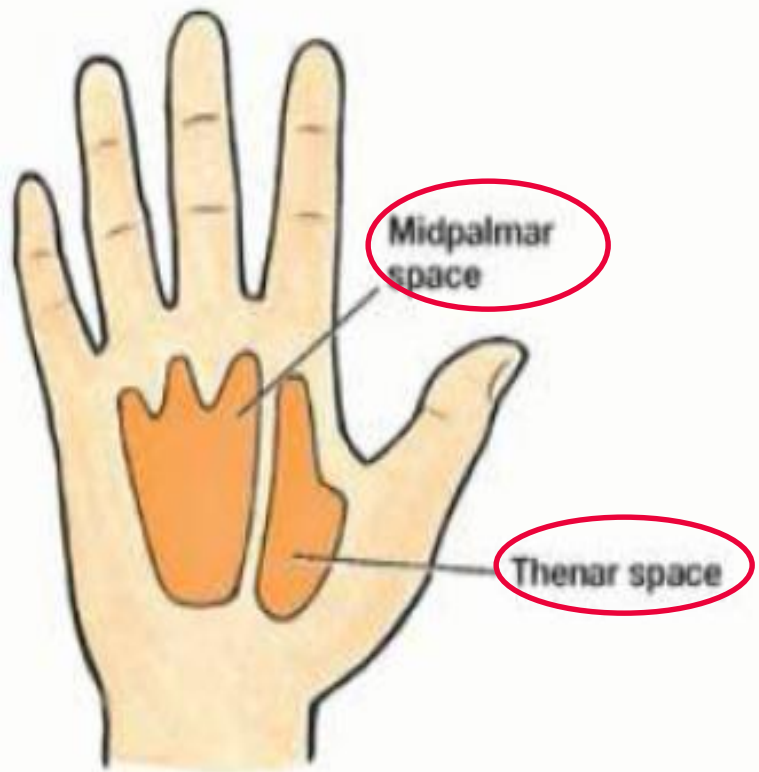


The spaces of the hand

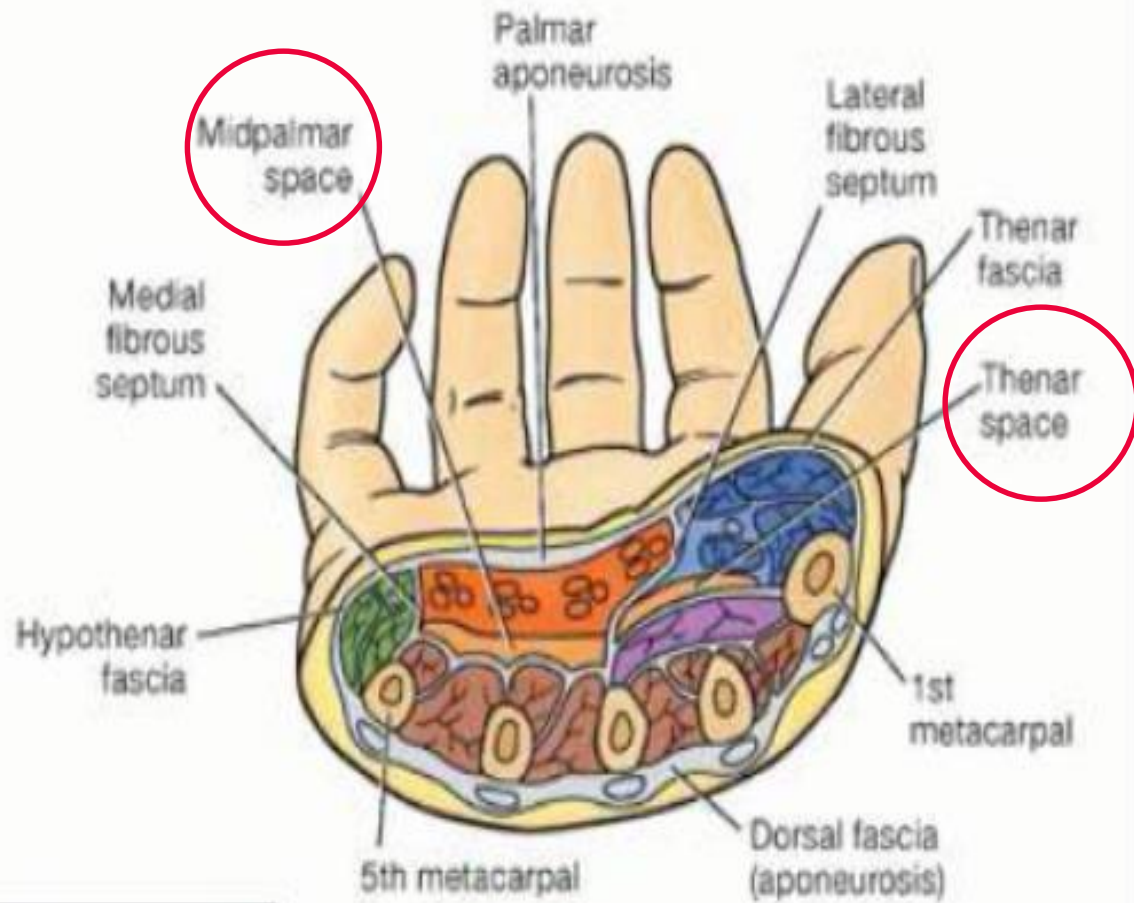
The spaces of the hand are of practical significance because they may **become infected and, in consequence, become distended with pus.**

The important spaces are:

- 1 the superficial pulp spaces of the fingers
- 2 the synovial tendon sheaths of the 2nd, 3rd and 4th fingers;
- 3 the ulnar bursa
- 4 the radial bursa
- 5 the midpalmar space
- 6 the thenar space.



A Anterior view



B Transverse section

Key for A and B

5 Compartments:

- | | | | |
|---|-----------------|---|-----------------------------|
|  | 1. Hypothenar |  | Fibrous septa |
|  | 2. Thenar |  | Midpalmar and thenar spaces |
|  | 3. Central | | |
|  | 4. Adductor | | |
|  | 5. Interosseous | | |

Tenosynovitis

- It is an inflammation of the tendon and synovial sheath (tenosynovitis)

Injuries such as puncture of a finger by a rusty nail can cause ***infection of the digital synovial sheaths***



- Infection of the **2nd, 3rd and 4th** sheaths are ***confined to the finger concerned***, If the infection is untreated, however, the proximal ends of these sheaths may rupture, allowing the infection to spread ***to the midpalmar space***

▪ However!

- Infection in ***the 1st and 5th*** sheaths ***may spread proximally***
into

the palm through ***the radial and ulnar bursa*** respectively, and may pass from one bursa to the other via the frequent cross-communication between the two.

- Since these bursae both extend proximally beyond the wrist, infection may, on occasion, **spread into the forearm**

It should be noticed that Over the palm of the hand there is very **little subcutaneous tissue**, the skin adhering to the underlying palmar aponeurosis;

However, in contrast, the skin of the **dorsum of the fingers and hand** is loose and fluid can, therefore, readily collect beneath it.



Marked dorsal oedema of hand
may accompany sepsis of the palmar aspect of the fingers or hand

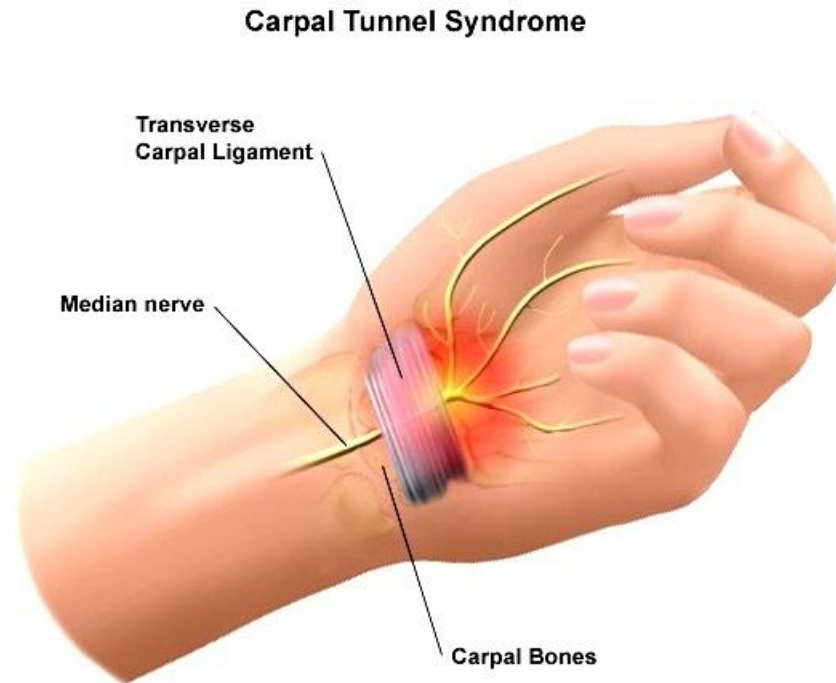
CARPAL TUNNEL SYNDROME

-burning pain or “pins and needles” along the distribution of the median nerve to the lateral three and a half fingers and **Weakness of the thenar muscles.**

- It is produced by **compression** of the **median n. in the carpal tunnel**

Causes may be :

- 1) thickening of the synovial sheaths of the flexor tendons
- 2) arthritic changes in the carpal bones are thought to be responsible in many cases.

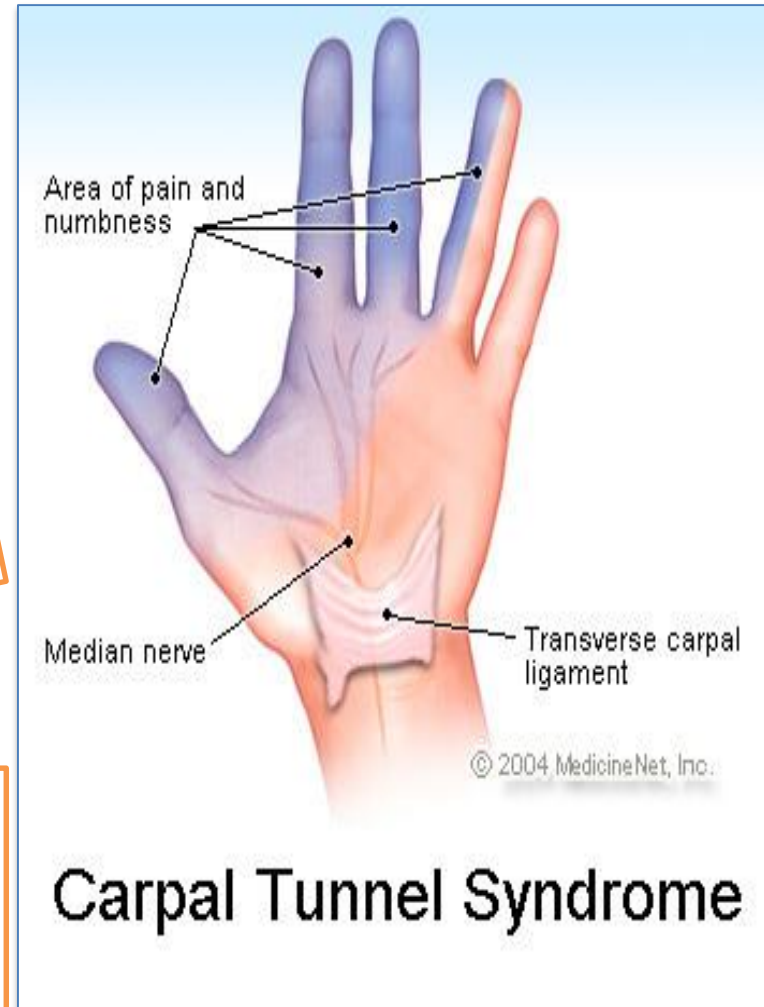


Carpal Tunnel Syndrome

- *no paresthesia occurs over the thenar eminence because this area of skin is supplied by the palmar cutaneous branch of the median nerve, which passes superficially to the flexor retinaculum.*
- The condition is dramatically relieved by decompressing the tunnel by making a longitudinal incision through the flexor retinaculum.

Do not forget that the above procedure may cause injury To the million dollar nerve!!!!

The incision for carpal tunnel release is made toward the medial side of the wrist and flexor retinaculum to avoid possible injury to the recurrent branch of the median nerve.



<https://youtu.be/JPC-1trHTKY>

Examination of the Hand,
Tests

Tinel's Test

- test used to evaluate the presence of carpal tunnel syndrome.



Examination of the Hand, Tests

Tinel's Test

(Test for Carpal Tunnel Syndrome)

- test is considered positive if symptoms of tingling worsen while tapping on the median nerve at the wrist.



Examination of the Hand, Tests

Phalen's Test

(Test for Carpal Tunnel Syndrome)

- the phalen's maneuver is a diagnostic test performed to determine if the patient has carpal tunnel syndrome.

Phalen's
Test



Examination of the Hand, Tests

Phalen's Test

(Test for Carpal Tunnel Syndrome)

- the back of the hands are pressed together, compressing the nerve, which may cause symptoms of carpal tunnel syndrome.

Phalen's
Test

