

Common hand and elbow conditions

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Common hand conditions

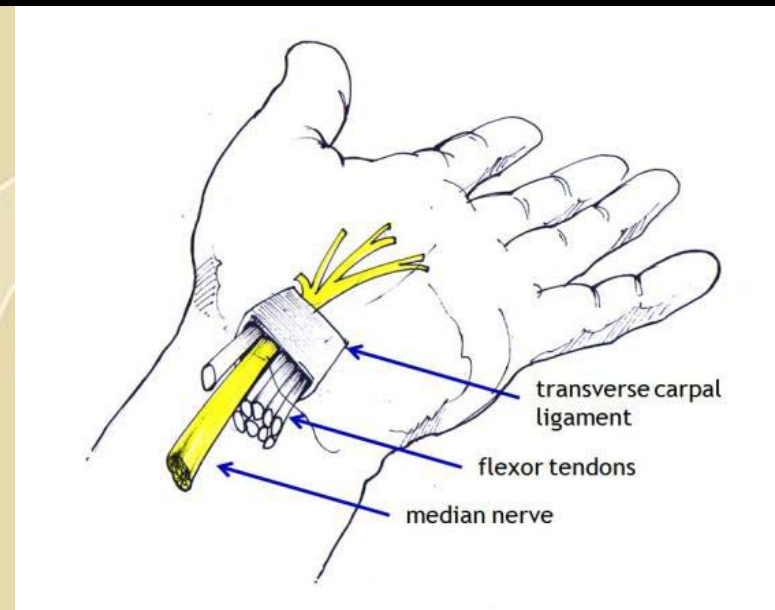
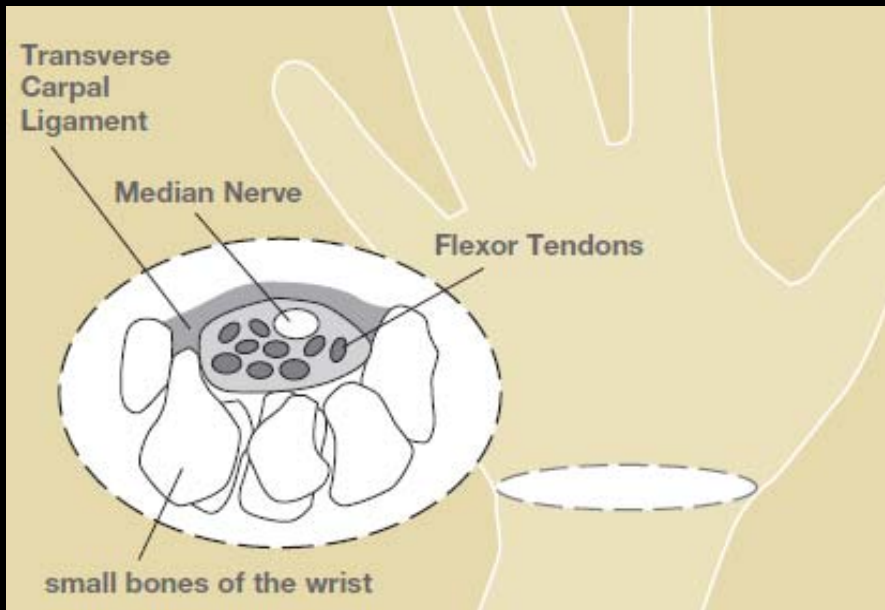
- Carpal Tunnel Syndrome
- Ganglion and other lumps
- Trigger finger and thumb
- Painful thumb/ OA CMC joint
- Skier's/Gamekeeper's thumb
- Dupuytren's disease
- De Quervain disease
- Mallet finger
- Infections

Common elbow conditions

- Lateral Epicondylitis
- Medial Epicondylitis
- Ulnar nerve dysfunctions.
- Olecranon bursa
- OA elbow joint.

Carpal tunnel syndrome

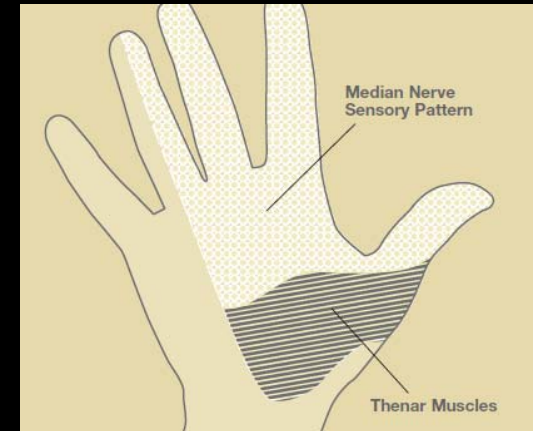
Condition where the median nerve is compressed where it passes through a short tunnel at the wrist



Aetiology

- Pregnancy, diabetes, thyroid problems, rheumatoid arthritis
- Swelling in the tunnel which may be caused by inflammation of the tendons
- A fracture of the wrist, wrist arthritis
- **In most cases, the cause is not identifiable**

Symptoms



- Altered feeling in the hand, affecting the thumb, index, middle and ring fingers
- Tingling is often worse at night or first thing in the morning
- Symptoms provoked by activities that involve gripping an object, for example a telephone or newspaper
- Feeling of clumsiness, drop objects easily, difficulty in buttoning up and picking up smaller objects.
- Pain in the wrist and forearm

Examination

- Wasting of the muscles at the base of the thumb.
- Tinel sign
- Phalen's test
- Exclude Cx radiculopathy, peripheral neuropathy and thoracic outlet syndrome

Investigations

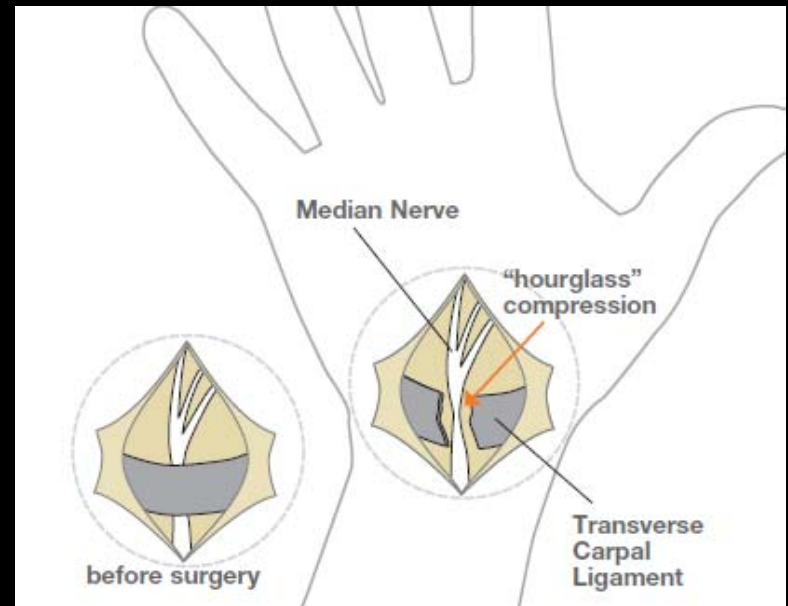
- NCS

Non-surgical Treatment

- Splints, especially at night
- Physiotherapy
- Steroid injection into the carpal tunnel
- CTS occurring in pregnancy often resolves after the baby is born

Surgery

- The operation involves opening the roof of the tunnel to reduce the pressure on the nerve .



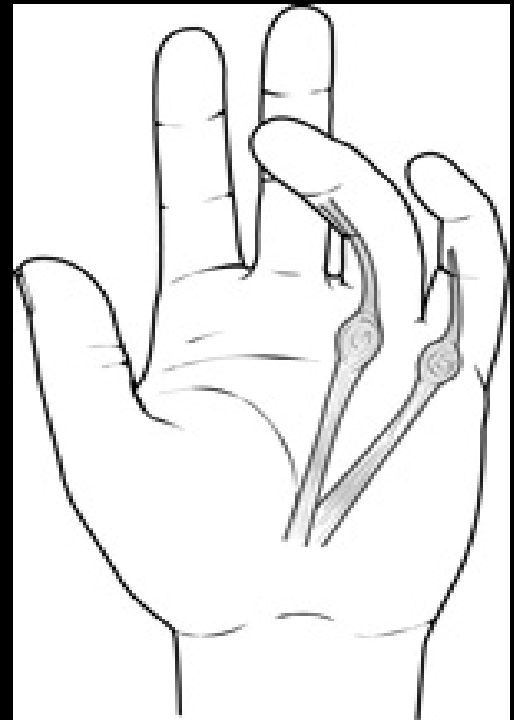
Outcome

- Night pain and tingling usually disappear within a few days.
- In severe cases, recovery may be slow or incomplete.
- Grip strength and pillar tenderness may take three months to recover.

Dupuytren's Contracture

INCIDENCE

25% of males over 65yrs.



Associated with

- Anglo-Saxons
- Family history
- Epileptics
- Alcohol-induced liver disease
- Diabetes mellitus

Similar fibromatosis lesions found with Dupuytren's contracture

- Garrod's knuckle pads
- Ledderhose disease (plantar fibromatosis), - 5%
- Peyronie's disease

Dupuytren's diathesis

Patients who are more prone to recurrence & aggressive disease.

- Young
- Male
- Family history
- Bilateral
- Fibromatosis elsewhere
- Garrod's knuckle pads

AETIOLOGY

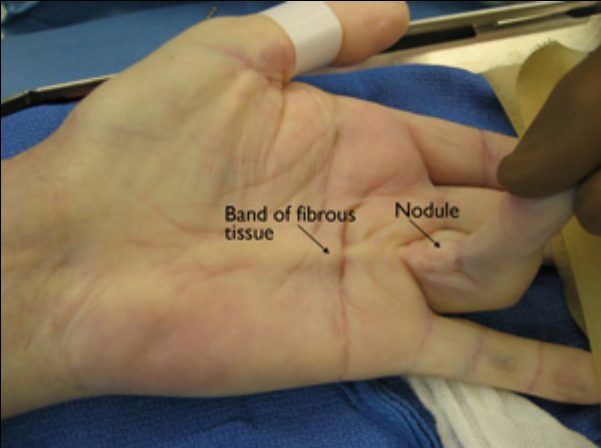
- Oxygen free radicals stimulate myofibroblast proliferation & increases in type III collagen and platelet derived growth factor B.

SYMPTOMS

- Fingers get in the way with:
- washing face
- combing hair
- putting hand in pocket
- putting hand in glove
- racquet sports & golf

EXAMINATION

- Which finger is affected
- **Knuckle pad (Garrod)** on the extensor aspect of the PIP or MCP joints
- Previous surgical scars
- Sensation
- **Table top test of Hueston** - place the hand & fingers prone on a table. Positive = hand won't go flat. If negative surgery is not indicated.



Treatment

- **Early stage may be painful. May respond to injection of steroids**
- **No treatment if patient can put his hand flat on the table.**

Treatment

Surgery

Percutaneous aponeurectomy

Open procedures using different techniques.

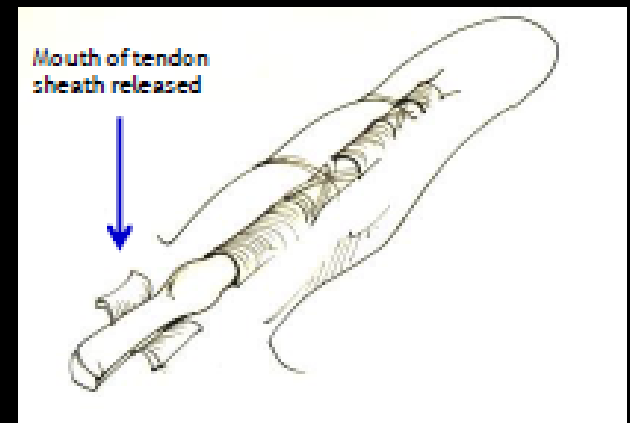
Trigger finger and trigger thumb

Trigger finger is a painful condition in which a finger or thumb clicks or locks as it is bent towards the palm.



What is the cause?

- Tendon then catches in the tunnel mouth.
- People with IDDM prone to triggering
- Triggering occasionally start after an injury
- Triggering in Rh Arthritis



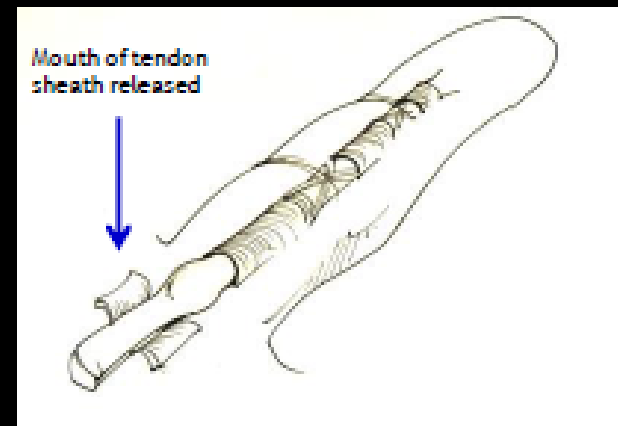
Symptoms

- Pain at the site of triggering in the palm
- Tenderness in the palm just proximal to the MCP jt.
- Clicking of the digit during movement or locking in a flexed position.
- Locked finger may need to be extended passively.

Treatment

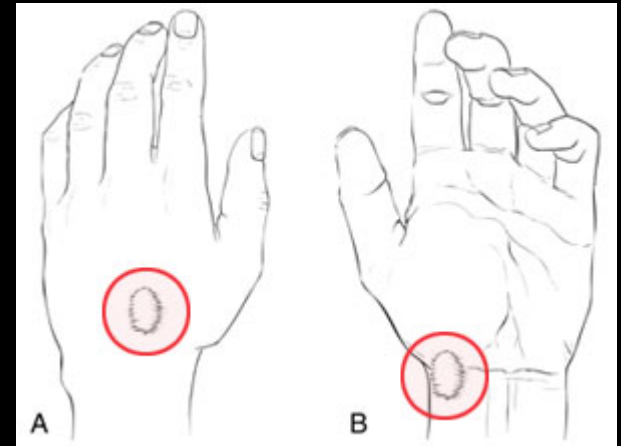
- Avoid activities which cause symptoms
- Splinting
- Injection of steroids. Works in about 70% of pts. Less successful in diabetic pts.

- Surgery of non op treatment fails.



Ganglion

- Ganglion cysts are the commonest type of swelling the hand.



Sites

- Ganglion cysts can arise from any joint or tendon tunnel
- Four common locations in the hand and wrist
 - dorsal and volar aspect of the wrist
 - base of the thumb and finger(pearl gangliom)
 - back of an DIP joint of a finger.

Pathogenesis

- Trauma, mucoid degeneration, synovial herniation
- Ganglion cyst arises when the synovial fluid leaks out of a joint or tendon tunnel and forms a swelling beneath the skin.
- The cause of the leak is generally unknown.

Symptoms

- A swelling becomes noticeable. It may or may not be painful.

Diagnosis

- The diagnosis is usually straightforward. Commonest translucent lump in hand and wrist.
- If the diagnosis is uncertain, x-rays or US scan may be helpful.

Treatment

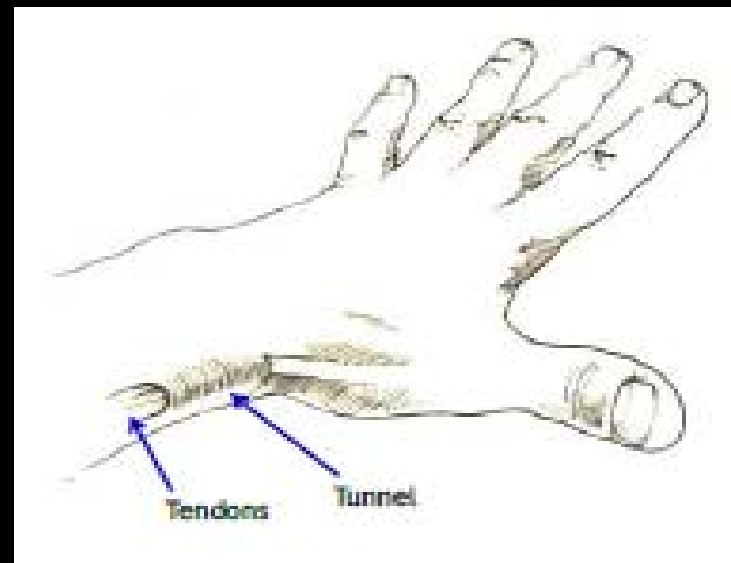
- Explanation, reassurance, wait to see if the cyst disappears spontaneously
- Removal of the liquid contents of the cyst with a needle (aspiration) under local anaesthetic
- Surgical removal of the cyst
- Recurrence 5-20%

Tumours

- Lipoma
- Inclusion dermoid cyst
- Benign Giant Cell Tumour of tendon sheath
- Glomus tumour
- Bony lumps
- Enchondroma
- Osteochondroma
- Oostoid osteoma
- Malignant hand tumours

De Quervain's disease

De Quervain's disease is a painful condition that affects tendons where they run through a first radial extensor tunnel for ABL and EPB.



Causes

- No obvious cause in many cases.
- Mothers of small babies seem particularly prone
- Little evidence that it is caused by work activities, but the pain can certainly be aggravated by movements of hand

Clinical features

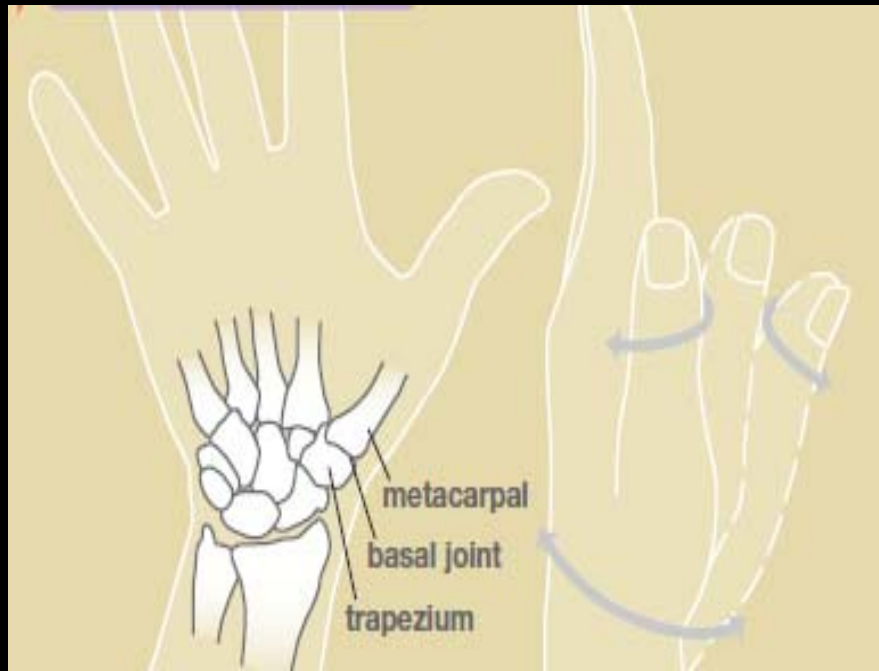
- Pain on the radial side of the wrist, Pain is aggravated especially during extension and abduction of the thumb
- Tenderness
- Swelling at the site of pain.
- Crepitations on the radial side of the wrist during movement of the thumb.
- Ulnar deviation of the wrist with thumb in the palm

Treatment

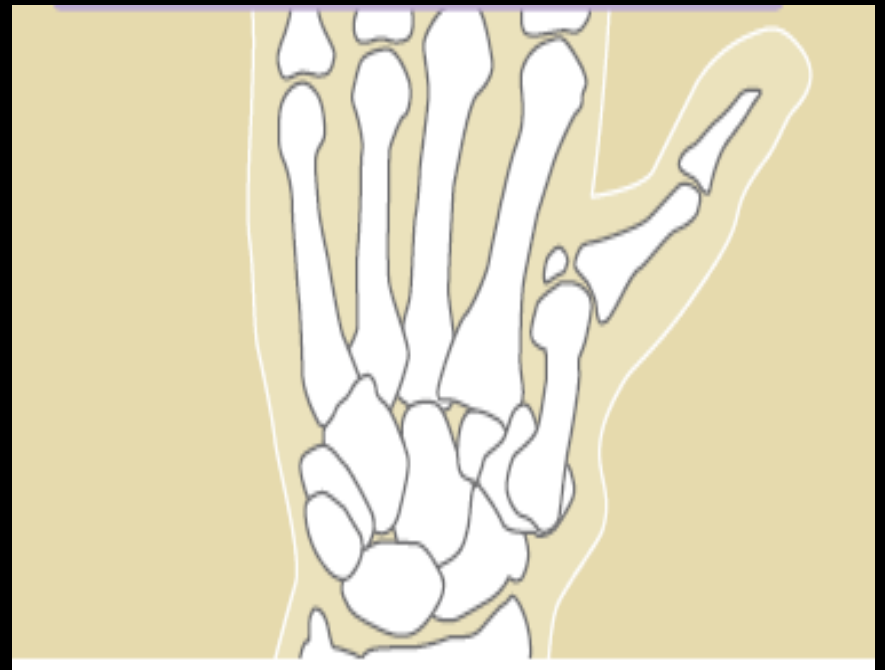
- Avoiding activities that cause pain, if possible
 - wrist/thumb splint
 - Steroid injection relieves the pain in about 70% of cases.
 - Risks
-
- Surgical decompression of the tendon tunnel

OA CMC joint thumb

- Key joint of the thumb
- Saddle-shaped joint
- Joint compression force = 12kg (120kg for strong grip)



Normal joint



OA CMC joint

PATHOPHYSIOLOGY

- Attritional changes in the beak lig. leads to destabilisation of the 1st CMCJ causing degenerative changes.

History

- Female:male = 10:1
- Enquire about history of injury.
- Pain - aggravated by- forceful pinch grip such as turning door key, holding tea cup or sewing.

Examination

- Adduction-flexion deformity of the thumb reducing the thumb index web angle.
- 'Shoulder sign' = radial prominence at base of thumb, from dorsal sublux. of MC on trapezium
- Crank Test = axial loading + passive flexion & extension of 1st MC
- Grind Test = axial loading + rotation of 1st MC on trapezium
- Torque Test = *Distract* MC & rotate. - differentiates CMCJ OA from de Quervain's disease.

RADIOGRAPHS

- AP, oblique & lateral views are usually adequate.
- AP views of both 1st CMCJs whilst pressing the radial aspects of thumb tips together.

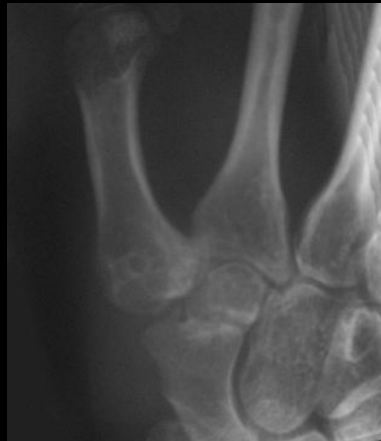
TREATMENT

Non-operative initially

- Splinting
- Strengthening thenar muscles
- Steroid injections

Surgery

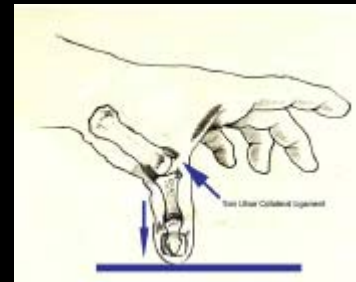
- Excision Arthroplasty (Trapeziectomy) alone
soft tissue reconstruction
- Arthrodesis for high demand young adults
with early disease
- Arthroplasty



Post excision arthroplasty x-rays

Skier's thumb/Game keeper's thumb

- Injury to ulnar collateral ligament of the MCP joint.



Mechanism

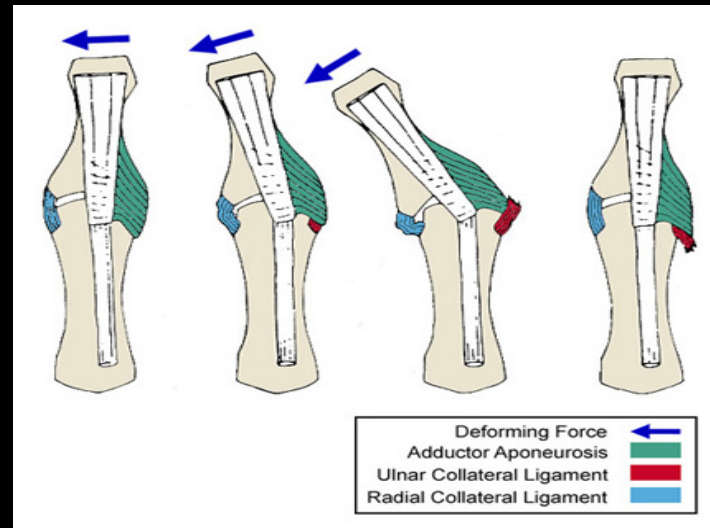
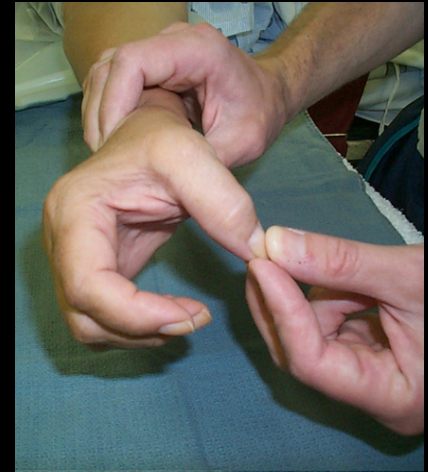
- Acute injury following falls leading to abduction at MCP jt.
- Chronic injury as seen in Gamekeepers.

Symptoms

- Loss of grip strength
- Affects pinching.
- Difficulty in holding a pint.

Signs

- Pain
- Swelling around MCP jt
- Tenderness esp on the ulnar side of MCP jt.
- Opening up of the jt when thumb is abducted. Compare with the normal thumb.
- Stener lesion.



Investigations

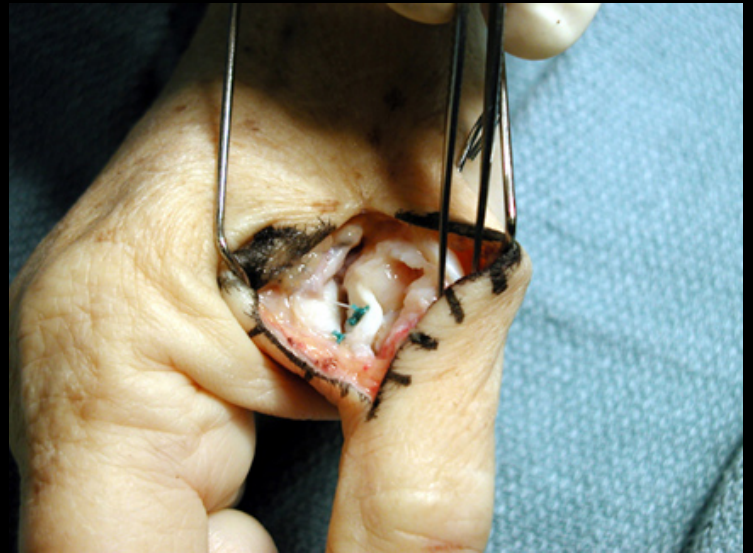
- X-rays
- Stress views after inj of LA
- US

Treatment

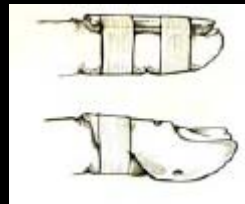
- Partial injury: Splint cast for 4-6 wks then physiotherapy.

Surgery

- Complete lig injury/Stener lesion needs surgery.
- Chronic injuries need lig reconstruction/ fusion



Mallet finger injury



Clinical features

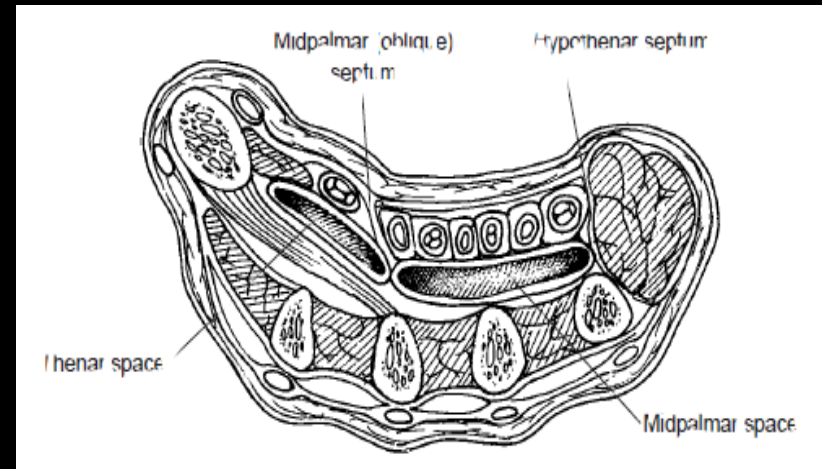
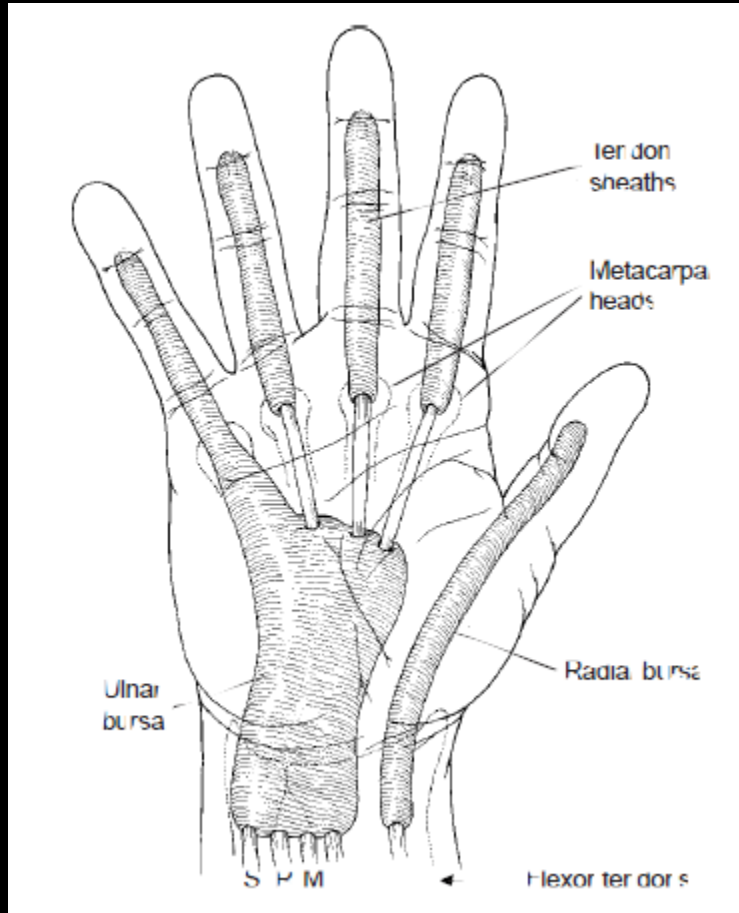
- Forced flexion of extended DIP jt.
- Catching finger end on.
- Tucking in bed sheets
- Pain
- Swelling
- Inability to actively extend terminal phalanx.

- X-rays to exclude fracture.

Treatment

- 6 wks continuous use of mallet finger splint
- Another six wks splintage at night.
- Bony mallet same treatment if jt is normal.
Surgery if Jt is subluxated or dislocated.
- Outcome is generally good.
- May be left with slight extensor lag.

Hand Infections



- Paronychia
- Pulp infection/felon
- Animal bites
- Human bites
- Cellulitis
- Flexor sheath infections/Deep infection
- Osteomyelitis
- Fungal infection
- **Necrotising fasciitis**
- Mycobacterium infection.

Management of hand infections

- Early aggressive intervention.
- Followed by appropriate aftercare.

Necrotising fasciitis

- It is a life threatening or limb threatening infection.
- Common in IV drug abuser and alcoholics.
- Also seen after minor and major trauma.
- Group A streptococcus (*Streptococcus pyogenes*), *Staphylococcus aureus*, *Vibrio vulnificus*, *Clostridium perfringens*, *Bacteroides fragilis*
- Aggressive surgical removal of infected tissue is essential to keep it from spreading and is the only treatment available. Diagnosis is confirmed by visual examination of the tissues and by tissue samples sent for microscopic evaluation.

Common Elbow problems

Lateral epicondylitis (Tennis elbow)

- Thought to be caused by inflammation or degenerative changes that occur after either microscopic or macroscopic tears of the origin of the forearm extensors at the lateral epicondyle.
- Any activity that involves repeated forearm movements
- 95% of patients don't play tennis

Clinical features

- Pain around lateral side of elbow.
- Associated with activities like lifting objects, shaking hands, backstroke while playing racquet sports.
- Distal radiation of pain.
- Point tenderness over lateral condyle or distal to epicondyle.
- Resisted extension of the wrist or supination of the forearm causes pain around lateral epicondyle

Other conditions causing pain on the lateral side of elbow

- Common radial tunnel syndrome, which is due to an entrapment of the radial
- Radial-capitellar arthritis, avascular necrosis of the capitellum, and
- Lateral epicondylar bursitis.

Investigations

- AP, lateral, and oblique X-rays of elbow
- EMG and nerve conduction studies if radial nerve entrapment is suspected
- Local Xylocaine injection
- Bone scan, tomography, arthroscopy, and/or cervical spine X-rays may be helpful if other conditions are suspected.

Non-operative treatment

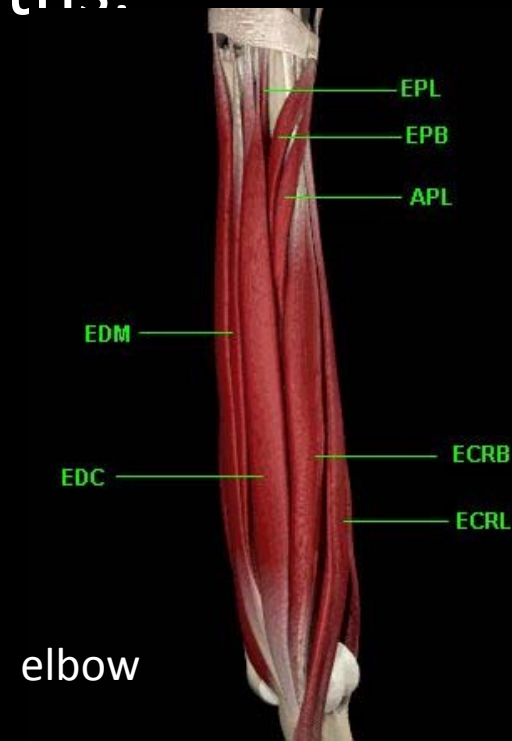
- Rest
- Modify activity
- Counter-force (tennis elbow) strap
- Physical therapy modalities
- Anti-inflammatory medication
- Corticosteroid injections
- Extra Corporeal Shock Wave therapy

Outcome of non-operative Rx

- May take 6-12 months to improve.

Surgery

- Involve release of ECRB, common ext origin, debridement of lat epicondyle and reattachment of common extensors.
- Recovery frequently takes 4-6 months.



Medial Epicondylitis(Golfers elbow)

- Pain on the medial of the elbow.
- Related to activity.
- Resisted flexion of wrist aggravates pain
- Non-operative treatment
- Surgery if non-op treatment fail.

Ulnar nerve dysfunctions

- Compression neuropathy of ulnar nerve
- Subluxating/dislocating ulnar nerve
- Tardy ulnar nerve palsy

Clinical features

- Pins and needles in the distribution of ulnar nerve.
- Loss of intrinsic functions of the hand
- Wasting of hypothenar muscles and flexors of the forearm supplied by ulnar nerve
- Decreased/loss of sensations in the distribution nerve.
- Tinel sign
- Froment's sign
- Dislocatable nerve

Investigations

- X-rays elbow
- NCS

Treatment

- Decompression of ulnar nerve.
- Anterior transposition of the nerve if it is dislocating out of the groove.

Olecranon bursitis

- Enlargement of the bursa over tip of olecranon.
- Persistent friction.
- Treatment essentially non-operative in majority of cases.
- Surgery only in infected cases or large bursae which are symptomatic

Osteoarthritis elbow joint

- Non-operative treatment initially
 - NSAID
 - Physiotherapy

Operative Rx

Arthroscopic/open debridement

Arthroplasty

Thanks!