

Acute Abscess

* **Definition:** A localized suppurative inflammation.

* **Aetiology:**

A) **Predisposing factors:** Senility, debility, malignancy, poor general resistance, DM, lack of cleanliness, anaemia, immune deficiency, AIDS & corticosteroid, chemotherapy or immune suppressive drug.

B) Route of infection:

1. **Direct** spread through a wound, ulcer or natural passage as lactiferous ducts.
2. **Local** spread from an adjacent septic focus.
3. **Blood** spread from a septic focus → bacteraemia or pyaemia → e.g. pyaemic liver or lung abscesses
4. **Lymphatic** Spread to the regional L.Ns.

C) Organism:

- Usually staphylococci that secrete coagulase enzyme.
- Less commonly streptococci, gonococci, pneumococci, meningococci, E. coli and B. proteus.

* **Pathology:** The abscess formed of 3 zones,

A) Central zone: There is coagulative necrosis → liquefaction by the enzymes released from dead leucocytes → pus which is formed of necrotic tissue, inflammatory exudate, dead & living organism and dead leucocytes.

B) Intermediate zone: Formed of granulation tissue forms a protective layer against spread of bacteria and their toxins.

C) Peripheral zone of acute inflammation.

Surgical Infections

* **Fate and Complications:**

I) Resolution: If the general resistance is good and treatment is early and efficient.

II) Pointing and rupture is the **commonest** sequel. The pus tracks along the plane of least resistance until it points on the skin, m.m. or serous surface where it ruptures .

III) Spread of infection :

1- **Generally** → bacteraemia, septicaemia or pyaemia.

2- **Locally** → cellulitis, lymphangitis and lymphadenitis

3- **Cavernous sinus thrombosis** if infection affect dangerous area of the face .

IV) Chronicity due to inadequate drainage and treatment.

V) Antiboma: If pus is formed and not drained but proper antibiotics are given → subside of inflammation and pus become sterile but never absorbed → lump called antibioma.

* **Clinical Picture:**

I) Before suppuration:

a) General: **F**ever, **a**norexia , **h**eadache, **m**alaise (**FAHM**) and tachycardia .

b) Local:

1- Abscess start as a painful ill-defined indurated **swelling**.

2- Pain which is dull aching (due to compression of nerves), tenderness , increases on pressure , dependency & movement and relieved by elevation of the part.

3- Hotness and redness due to hyperaemia.

4- Oedema.

5- Loss of function.

6- Enlarged, tender, indurated mobile draining LNs.

II) After suppuration: (evidences of pus formation)

a) **General:** Fever becomes **hectic**.

b) **Local:**

1- Inflammatory reaction becomes localized .

2-Pain become **throbbing**.

3- **Pitting** oedema.

4- In late neglected cases : **pointing** of pus and **Fluctuation** (if the abscess is superficial).



Acute parotid abscess



Acute breast abscess



Pointing of abscess

* **Investigations:**

1. **Blood picture:** Show leucocytosis with shift to the left .
2. **Culture & sensitivity** for pus.
3. **Plain X ray , u/s and CT scan:** for F.B or affection of bones.

Surgical Infections

4. Urine & blood testing for **D.M.**, if there is recurrent infections.

* **Treatment:**

I) Before suppuration: Rest, analgesics, elevation , antibiotic & local heat.

II) After suppuration:

a) Incision and drainage for superficial abscess :

- **Anesthesia:**

- **Field block** by infiltrating local anaesthetic around and under the tissue surrounding abscess. The environment of an abscess is acidic, which may cause local anesthetics to lose effectiveness.

- **General anaesthesia** may be needed in sensitive patient, women and children.

- The **incision** should be:

- 1- Over the **pointing part**.

- 2- **Long** as possible.

- 3- **Dependent** i.e. at the abscess bottom , otherwise a counter incision in a dependent area is necessary .

- 4 – Never cross **skin crease** .

- 5– Parallel to **nerves and vessels**.

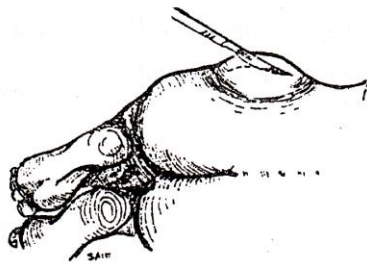
- 6- Use **Hilton's methods** in areas with important structures (e.g. axilla, neck, parotid): The skin is only incised, the abscess cavity is entered by closed blades of artery forceps then the blades are opened widely.

- After incision, **a finger or curved forceps is introduced** to break all septa and drain all **loculi** inside the abscess.

Surgical Infections

- **Packing** by gauze or rubber **drain** protruding from the abscess cavity for haemostasis and drainage. Remove packing material and repack the abscess every 1 to 2 days until the abscess cavity has resolved and packing materials can no longer be inserted into the abscess.
- **Later on dressing without packing** until complete healing.
- **Post-operative antibiotics** for immunocompromised patient or severe infection .

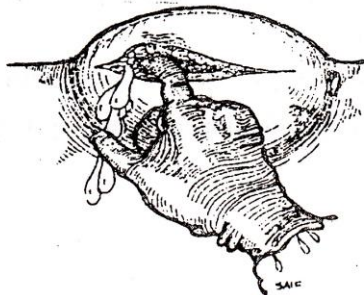
* Acute Abscess *



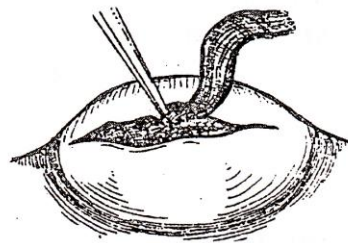
1- Free incision



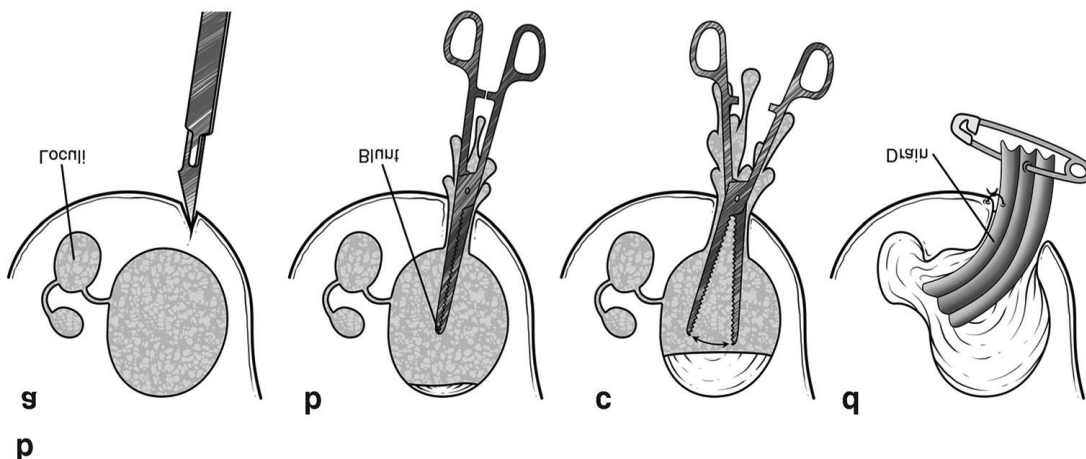
**Hilton's
Method**



3- Finger exploration



4- Gauze packing



Hilton's methods

- b) Ultrasound or CT scan guided **aspiration** for **deep abscess** as intra-peritoneal abscess .



III) If **chronicity** occur:

1. **Thin walled abscess** → incision and drainage.
2. **Thick walled abscess** → excision.

* **N.B.:**

- **No incision and drainage** in amoebic liver, brain , lung and cold abscesses.
- **Fluctuation** is very late and **never waited** in the breast, prostate, parotid, perineum, perianal, hand and Ludwigs angina.

Carbuncle

* **Definition:** A localized infective gangrene of subcutaneous tissues.

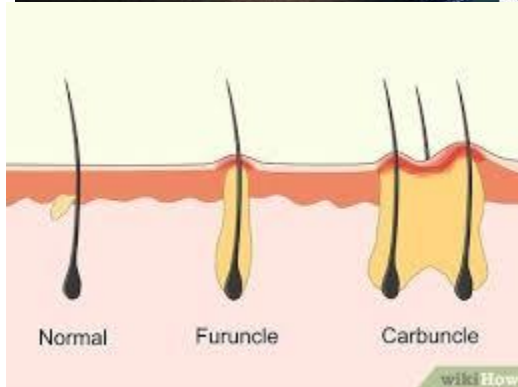
* **Aetiology:**

1. **Predisposing factors:** (As acute abscess) **D.M is the most important.**
2. **Organism:** Staphylococcus aureus which has potent necrotoxins.

Surgical Infections

* Pathology:

- **Sites:** Hairy area e.g. nape of neck (commonest site), back & face.
- Infection **starting** in a hair follicles then it spreads to the underlying fatty subcutaneous tissue with necrosis and thrombosis of blood vessels → infective gangrene of subcutaneous tissue.
- The sloughs are adherent and separates slowly.

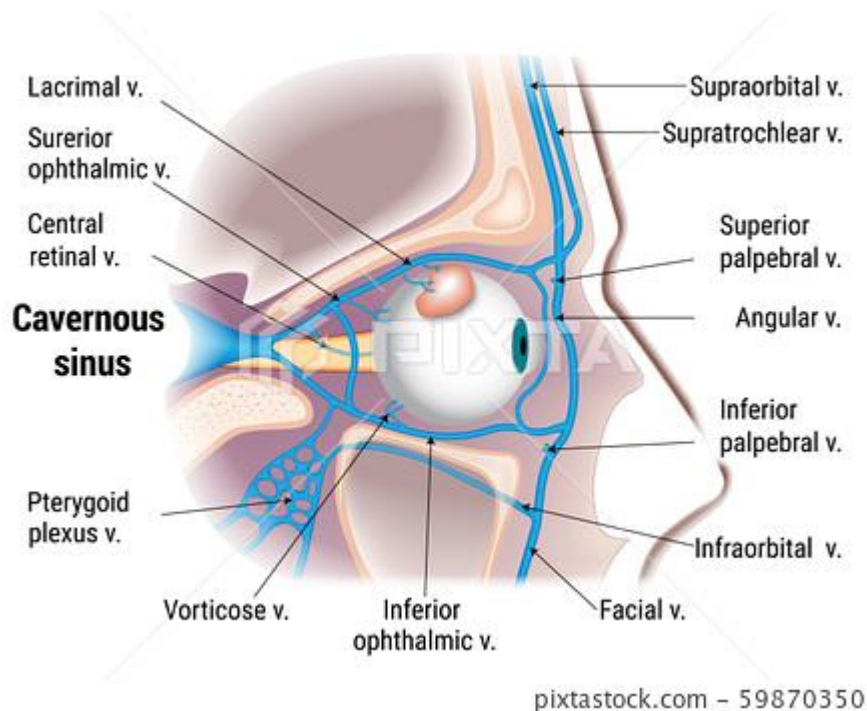


* Fate and complications:

- 1- Spread of infection : (as acute abscess)
- 2- Sloughs separate leaving an **infected ulcer** .

Surgical Infections

2- **Cavernous sinus thrombosis**: if carbuncle is squeezed in the dangerous area of the face (the upper lip, septum of nose, orbit and adjacent area). Spread of infection from facial vein → the pterygoid plexus or the ophthalmic veins → cavernous sinus.



* **Clinical picture:**

A) General: Very severe toxaemia.

B) Local:

1. It starts first as painful, tender, indurated, dusky red subcutaneous **swelling** then softens at the centre (but not fluctuant). The swelling is surrounded by extensive severe oedema.
2. **Multiple pustules** appear on the surface, bursting leaving multiple sinuses discharging sloughs & pus.

* **D.D :**

- **Boil (furuncle)** is staph. infection of a hair follicle usually affecting face and axilla .

Surgical Infections

- **It starts** as small red, painful cutaneous swelling followed by necrosis of the centre & discharge pus.



* **Investigations:** (as acute abscess)

* **Treatment:**

1. Control **D.M.** and **antibiotics** according to culture and sensitivity.
2. Glycerine **warm local foment**s helps separation of sloughs.
3. **Excision** of the sloughs if no response to conservative measure.

- * **Cellulitis** : It is spreading diffuse non suppurative inflammation of skin and subcutaneous tissues , usually caused by streptococci .
- * **Erysipelas** : It is spreading diffuse non suppurative inflammation of **cutaneous lymphatics**, usually caused by haemolytic streptococci .The affected skin is pink , has well defined edge , show vesicles and there may be islets of inflammation separated by apparently normal skin .
- * **Bacteraemia** : It is **asymptomatic non-multiplying bacteria** in the blood .It usually follows dental work or instrumentation of infected urinary tract .
- * **Septicaemia** :It is the presence of **multiplying bacteria** in the blood .It denote sever infection with passage of bacteria , bacterial toxins and mediators to the blood . It may lead to septic shock and multiple organ failure .
- * **Suppurative hidradenitis** : It is **mixed** staph. and strept. infection of **sweat glands** .Usually affect axilla and perineum (D.D from multiple anal fistulae by absence of internal openings in the anal canal) .
- * **Necrotizing fasciitis** :It is a spreading infection caused by mixed microbial flora. Infection spread along fascial planes → thrombosis of blood vessels necrosis of skin , and subcutaneous tissues and fascia .**Haemorrhagic bullae** appear as the first sign of skin necrosis .Necrotizing fasciitis of the perineum or scrotum is known as **Fournier's gangrene** .

Surgical Infections



Cellulitis



Erysipelas

Suppurative hidradenitis



Necrotizing fasciitis & Fournier's gangrene



Surgical Site Infections (Postoperative Wound infection)

* **Definition :** Infections of tissues , organs or spaces **during or after surgical procedure .**

* **Aetiology:**

I) Predisposing factors:

a) General factors: (As acute abscess)

b) Local Factors:

- 1- Poor blood supply e.g. suture under tension.
- 2- Poor surgical technique: rough manipulation of tissues, excessive use of diathermy, improper haemostasis & wound haematoma.
- 3- Presence of foreign body.
- 4- Operations for peritonitis, operations on unprepared colon or urinary tract.
- 5- Poor sterilization in the operating theatre.

II) Organisms:

1- Endogenous organisms: The organisms are derived from the microflora of the patient eg. from skin (Staph. & Strept), G.I.T. (E. coli, Pseudomonas pyocyanea & Clostridium Welchii), urinary tract (B. proteus) & respiratory tract (Klebsiella group).

2- Exogenous organisms: The organisms are derived from the external environment (surgical team, instruments, dressings or other patients).

III) Route of infection: usually direct introduction of infection.

* **Pathology:**

- Surgical site infections are **classified** into :

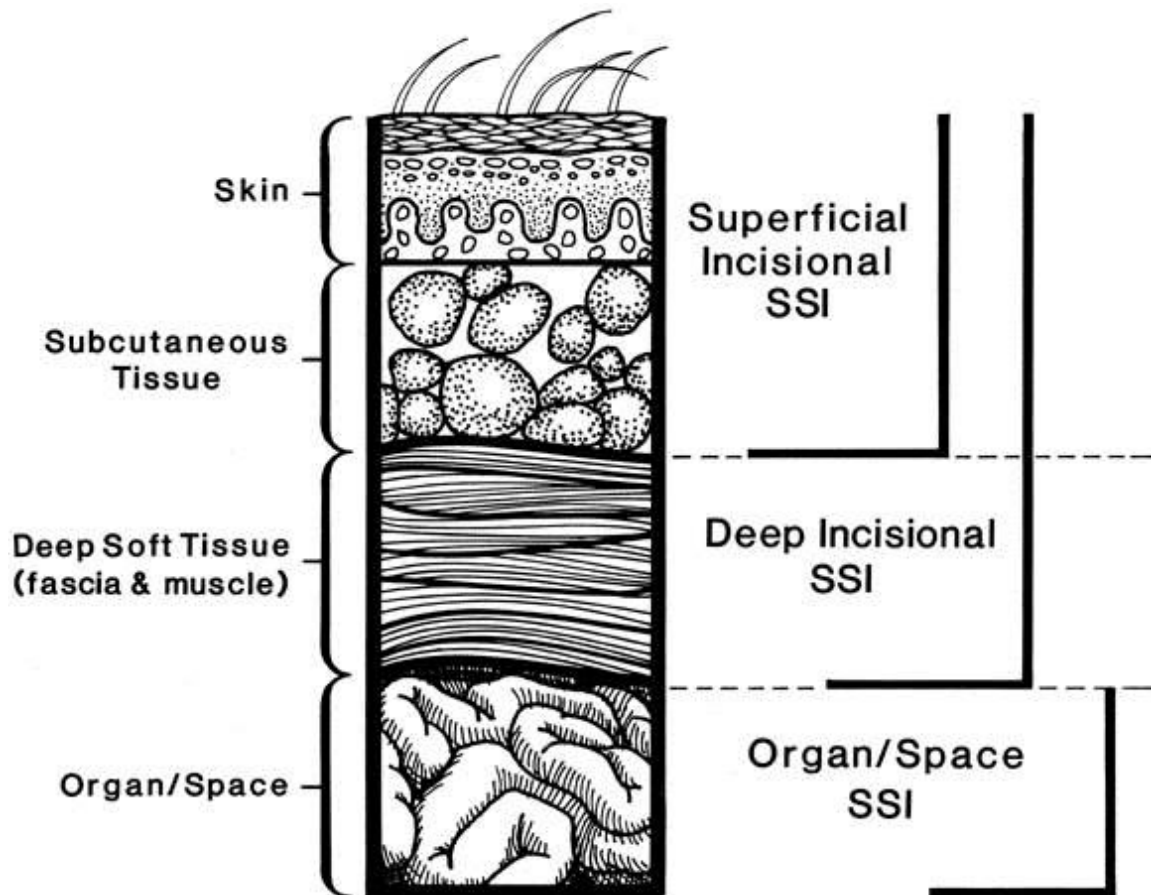
Surgical Infections

1) **Incisional** which may be :

- **Superficial** : limited to skin and subcutaneous tissues .
- **Deep** : Involving musculoaponeurotic layers .

2) **Organs** .

3) **Spaces** as subphrenic , iliac or pelvic abscess .



- There are 4 types of surgical wounds :

1) **Clean: (class I)**

- **Elective** surgery and GIT, urinary & respiratory tracts are **not entered** .
- No contamination with organisms e.g. thyroidectomy.



2) Clean contaminated: (class II)

- **Elective** surgery on GIT , urinary or respiratory tracts with **no significant leakage** e.g. operations on prepared colon.

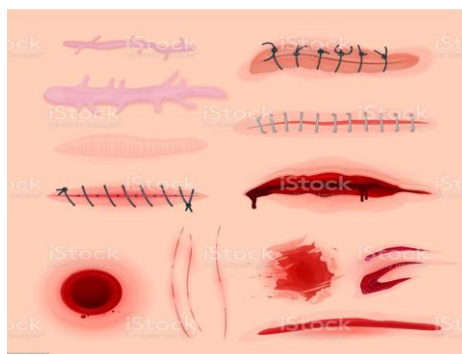
3) Contaminated : (class III)

- Wound in regions with large number of microflora or infected area e.g. accident wound **within 4 hours** , **unprepared colon** or surgery for **peritonitis**.



4) Dirty wounds : (class IV)

- Accident wound **more than 4 hours** , **purulent or necrotizing** infections and perforated viscera with gross contamination .



Surgical Infections

- Surgical site infections pass into **3 stages**: (as any acute abscess).
 - 1) Acute inflammatory stage** with vasodilatation & infiltration by leucocytes.
 - 2) Suppuration** with pus formation.
 - 3) Stage of healing**: occurs once infection is controlled & pus is drained.

* **Complications:**

1) Spread of infections:

- **Direct** (to surrounding tissues → fistulas & sinuses).
- **Lymphatic** (lymphangitis & lymphadenitis) .
- **Blood** spread (pyaemia & pyaemic abscesses, bacteraemia, septicaemia, toxemia, septic shock & multiple organs failure).

2) Suppression of wound healing by collagenase production by bacteria.

3) Immunosuppression & superinfection by more serious organisms.

* **Clinical Picture:**

1. Surgical site infections usually appears **5 - 10 days** postoperatively.
2. Postoperative **fever** with **pain ,tenderness , redness & swelling** in the wound are the earliest manifestations.
3. Other manifestations as acute abscess (before suppuration & after suppuration).



Surgical Infections

* **D.D:** Other causes of postoperative fever (e.g. D.V.T & chest infections) & other causes of wound swelling (eg. haematoma & incisional hernia).

* **Investigations:**

1. **Blood picture:** usually show leucocytosis but in severe infections (eg. gas gangrene) there is leucopenia.
2. Bacteriological examination with **culture & sensitivity** of the discharge (no antibiotics 3 days before the sample is taken).
3. **Blood culture** is essential in serious infections. Usually 3 blood samples are taken over 24 hours.
4. For **deep** infections: plain X-ray, ultrasonography, C.T scan & radionuclide scan may be needed.

* **Treatment:**

I) Prophylaxis:

1. **Avoid** any predisposing factors (mention them).
2. Prophylactic **antibiotics** are indicated for clean contaminated or contaminated wounds. They are given preoperative, operative & postoperative.
3. Heavily **contaminated** wounds should be left opened with **delayed primary suture on the 5th** postoperative day when there is no infection.
4. Correct any source of hospital infection.

II) Curative:

1. **Drainage** of pus by removing stitches & open the wound.
2. **Antibiotics** guided by culture & sensitivity.

Hand Infections (General Principles)

* **Incidence:** More in manual workers & house wives.

* **Aetiology:**

1. **Predisposing factors:** Trauma, wounds or punctures

2. **Route of infection:** usually direct spread of infection or less commonly spread from the surrounding.

3. **Organism:** Usually staph. aureus (90%).

* **Pathology:**

- The condition starts by cellulitis which is followed by resolution or suppuration.
- Sloughing and necrosis may result from bacterial toxins or pressure necrosis from tense oedema in closed space with increase pressure .

* **Classification:**

1. Cutaneous & S.C infections:

- Paronychia
- Pulp space infection
- Web space infection

2- Fascial spaces infections:

- Thenar space
- Hypothenar space
- Midpalmar space
- Parona space.

3- Synovial sheath:

- Digital tenosynovitis
- Ulnar and radial bursitis

Surgical Infections

4. Bone & joint infections.

* **Complications:** (As acute abscess)

* **Clinical picture:**

A) Before suppuration: (as acute abscess).

B) After suppuration: (as acute abscess):

1- **History** of the cause e.g. puncture wound .

2- **Pain, tenderness & swelling** (pain increases by dependency or during sleep). The site of **maximum** pain & tenderness is usually **diagnostic**.

2. There is diffuse **oedema**, maximum on the dorsum of hand (loose dorsal skin).

3. The characteristic features for the commonest hand infection (mention in short)



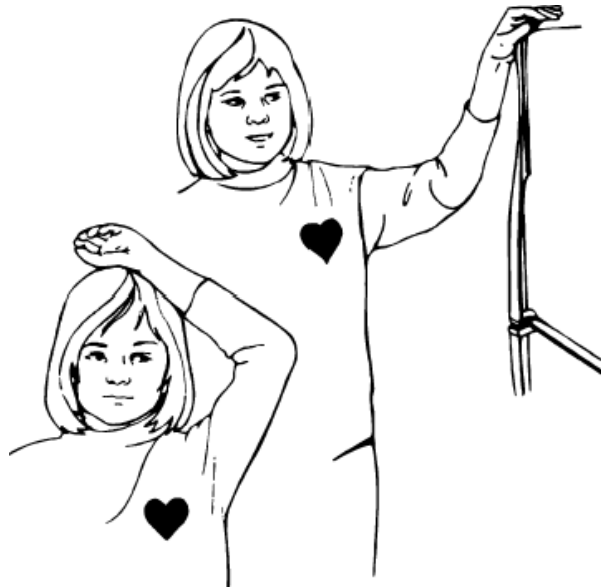
* **Investigations:** (as acute abscess)

* **Treatment:**

A) Before suppuration:

1- General: Antibiotics against sraph. aureus (flucloxacillin, amoxycillin, erythromycin & cephalosporins) & analgesics.

Elevation of the hand



2. Local:

- a - **Elevation** of the hand (to diminish pain and oedema) by arm to neck sling or the hand is elevated above the level of the body.
- b - **Position of hand**: Put the hand in the position of **rest** (max flexion of little finger, least flexion of index with the thumb in opposition).
- C - **Hot applications** and frequent **examination** to detect suppuration early.

B) **After suppuration**: Incision and drainage,

1. Anaesthesia:

- **Paronychia & pulp** space infection can be drained by **local ring anaesthesia** without adrenaline at the root of the finger (or median or ulnar **nerve block**).
 - **General** anaesthesia is preferred for **other hand infections**.
- 2- This should be done **once pus is formed** (throbbing pain & hectic fever without waiting for fluctuation) or **no response** to one day intensive antibiotic therapy.
 - 3- The field should be **bloodless** : by elevating the limb for few minutes & Sphygmomanometer cuff is inflated above systole.
 - 4- **Incision** is done at the site of selection over the **point of max. tenderness** & **away** from important structures (vessels ,nerves and tendons) and **never** cross a skin creases.
 - **Mention in short , the characteristic incisions for the commonest hand infections.**
 - 5- All pus is **drained** by a **sinus forceps** leaving a clean cavity,
 - 6- Search for **collar and stud** abscess.

Surgical Infections

7- Soft drains are preferred & dressing.

8- Put the hand in the **position of function** (the fingers are approximated from the thumb as if holding something).

9- Postoperative **physiotherapy** to avoid stiffness.

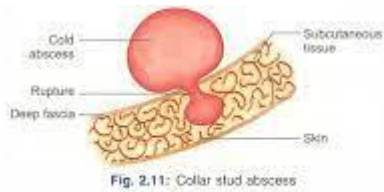
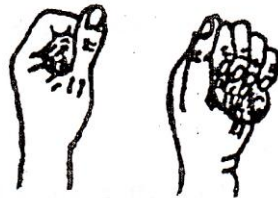


Fig. 2.11: Collar stud abscess



Fig. 2.12: Collar stud abscess



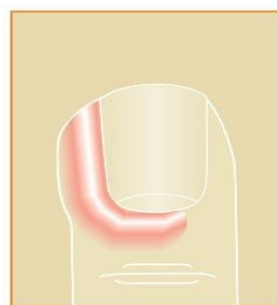
• Position of function



• Position of rest

Acute Paronychia

- * **Definition:** Acute Infection of the **nail fold**.
- * **Incidence:** The **commonest** hand infection.
- * **Aetiology:** Trimming skin tags or manicurist unsterile instruments.
- * **Clinical picture:** Pain, tenderness & swelling over the nail fold, max. at the angle.

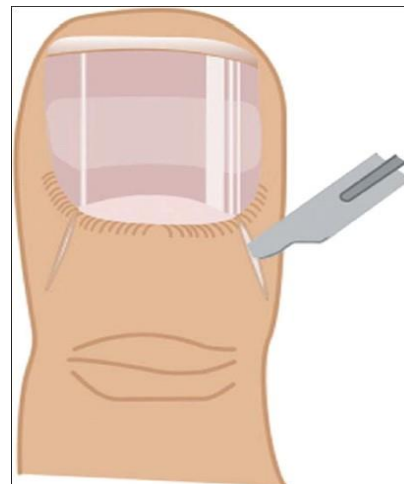
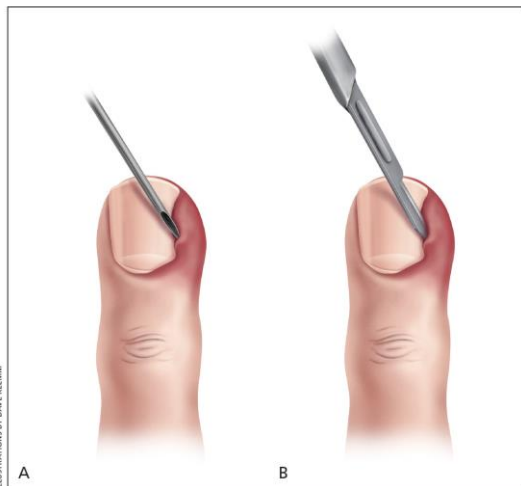


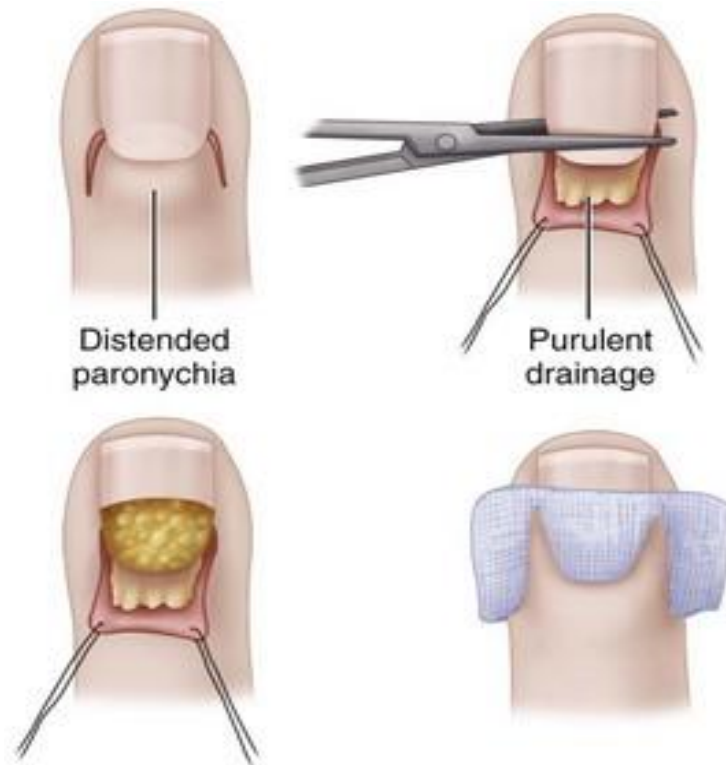
Surgical Infections

* **Treatment:** (as usual) +

- when pus is formed (throbbing pain), **local ring anaesthesia** without adrenaline at the root of the finger and drainage by one of the followings :
 - 1- A fine tipped **scalpel** to raise the nail fold & to incise the skin cap through which pus points
 - 2- **Oblique incision** or excision of a triangle of skin at the angle of the nail fold.
 - 3- If pus present **under the nail** → excise the related part of the nail.
 - 4- If **floating nail** → the nail is dead and it is removed to drain infection.

Acute Paronychia

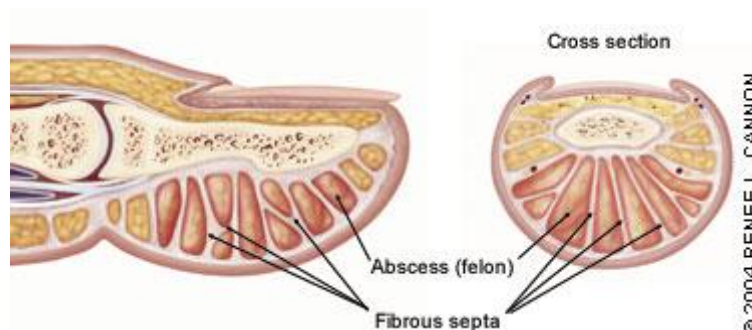




Treatment of Acute Paronychia

Pulp Space Infection

(Felon infection)

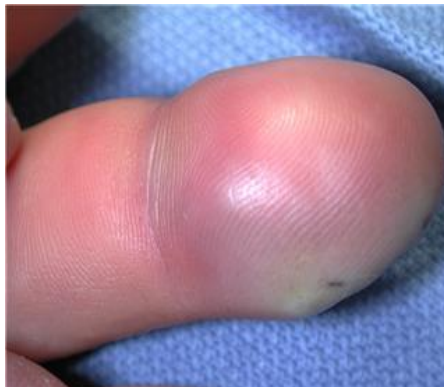


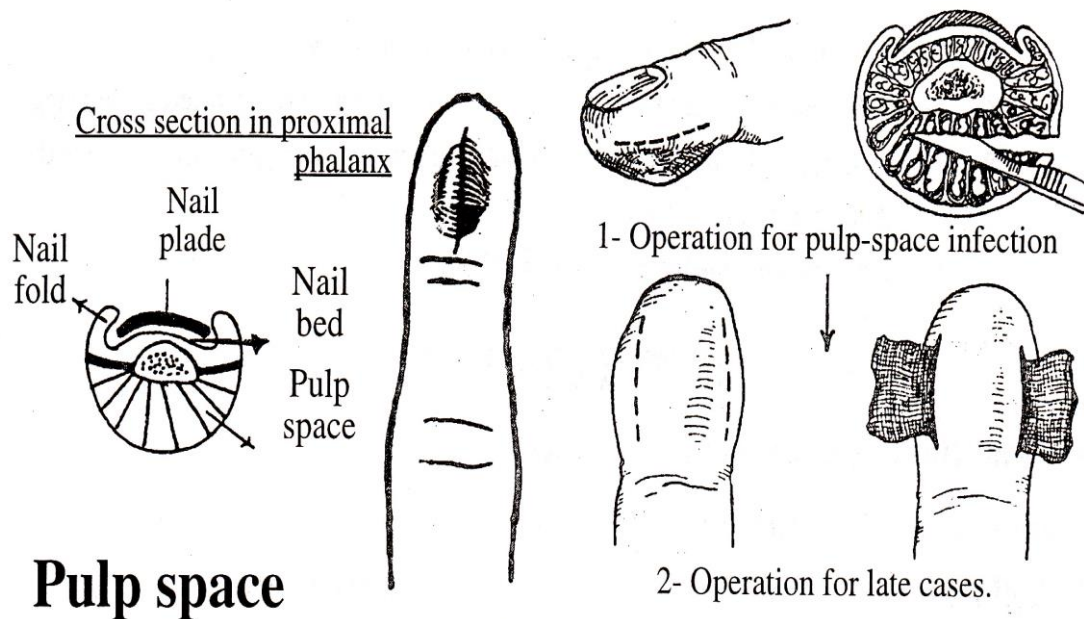
* **Anatomy :**

- It is the subcutaneous space in front of the terminal phalanx.
- It is a **closed** space separated from the middle phalanx by the inter-phalangeal crease & shut on both sides & distally by a septum extend from skin to periosteum.

Surgical Infections

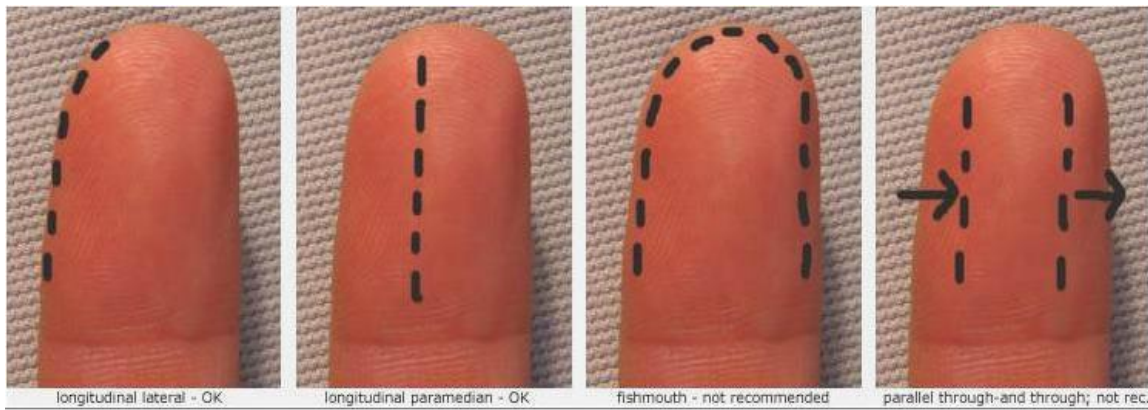
- It **contains** only fat & a digital a. (it gives branch to the proximal 1/2 of the distal phalanx before it enters the space).
 - It is divided into **loculi** by fibrous septa extending from the skin to the periosteum.
- * **Incidence:** The **2nd common** hand infection.
- * **Aetiology:** (as before in general).
- * **Pathology:**
- A) Infection **usually diffuse** affecting all the pulp space (rarely remain localized in one compartment of the pulp).
- B) Pus collects rapidly and **tension rises** as it is a closed space.
- * **Complications:**
- 1) Ischaemia** of distal part of distal phalanx due compression and thrombosis of digital arteries. (The proximal part of distal phalanx is supplied by a branch arise from the digital artery before it enter the pulp space).
 - 2) Parrot peak deformity** of the finger due to sequestration of the distal part of the distal phalanx.
 - 3) Osteomyelitis** of the distal phalanx.
 - 4) Teno-synovitis.**
 - 5) Septic arthritis.**
- * **Clinical Picture:** Pain, tenderness & swelling over the pulp.



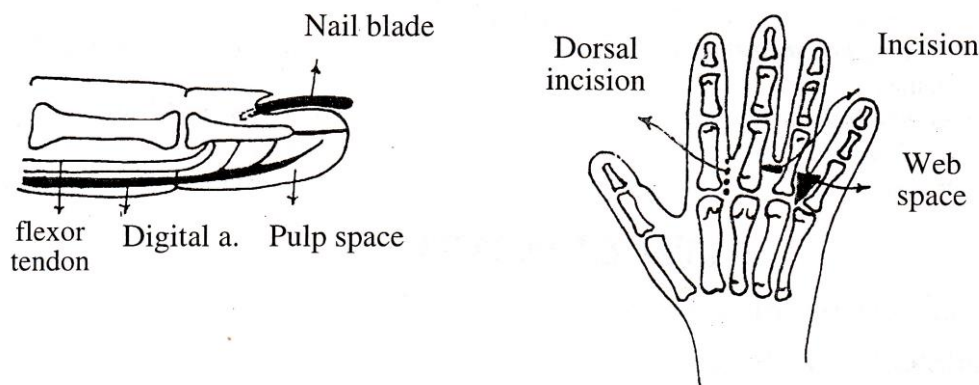


* Treatment:

- When pus is formed (throbbing pain), **local ring anaesthesia** without adrenaline at the root of the finger and drainage by one of the followings :
 1. **Localized** infection: Longitudinal incision directly over the abscess at the most tender point.
 2. **Diffuse** infection in the pulp:
 - a- **Anterolateral incision** on the side of the distal 2/3 of pulp to divide all septa in severe cases (not extend the incision more proximal to avoid injury of tendons).
 - b- In **severe** cases, a **counter** incision is made on the opposite side.



Treatment of pulp space infection



Web space Infection

* Anatomy :

- There are **3 web spaces**, each one of them is **wedge** in shape with a **base** at the free edge of the web and an **apex** between the 2 related metacarpo-phalangeal joints.
- It is bounded **on both sides** by the proximal phalanx and both anteriorly and posteriorly by the skin of the web.
- Each web space is **continuous** distally with related 2 proximal volar spaces (space in front of proximal phalanx).
- Each space **contain** fat and a lumbrical muscle.
- Along the lumbrical muscles infection may **spread** to the mid-palmar space or thenar space.

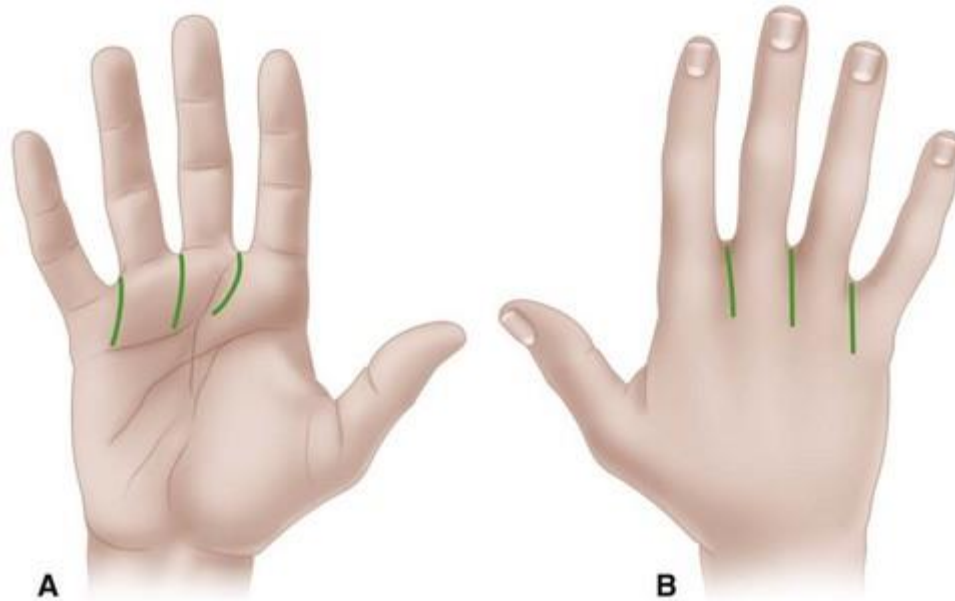
Surgical Infections

- * **Aetiology:** (as general)
- * **Complications:** **Spread** of infections along lumbricals to mid-palmar space & proximal volar spaces.
- * **Clinical Picture:** Pain, tenderness & **swelling** over the web and opposing sides of the related 2 fingers with **separation** of the 2 adjacent fingers.



Figure 1: Cystic swelling over the right palm

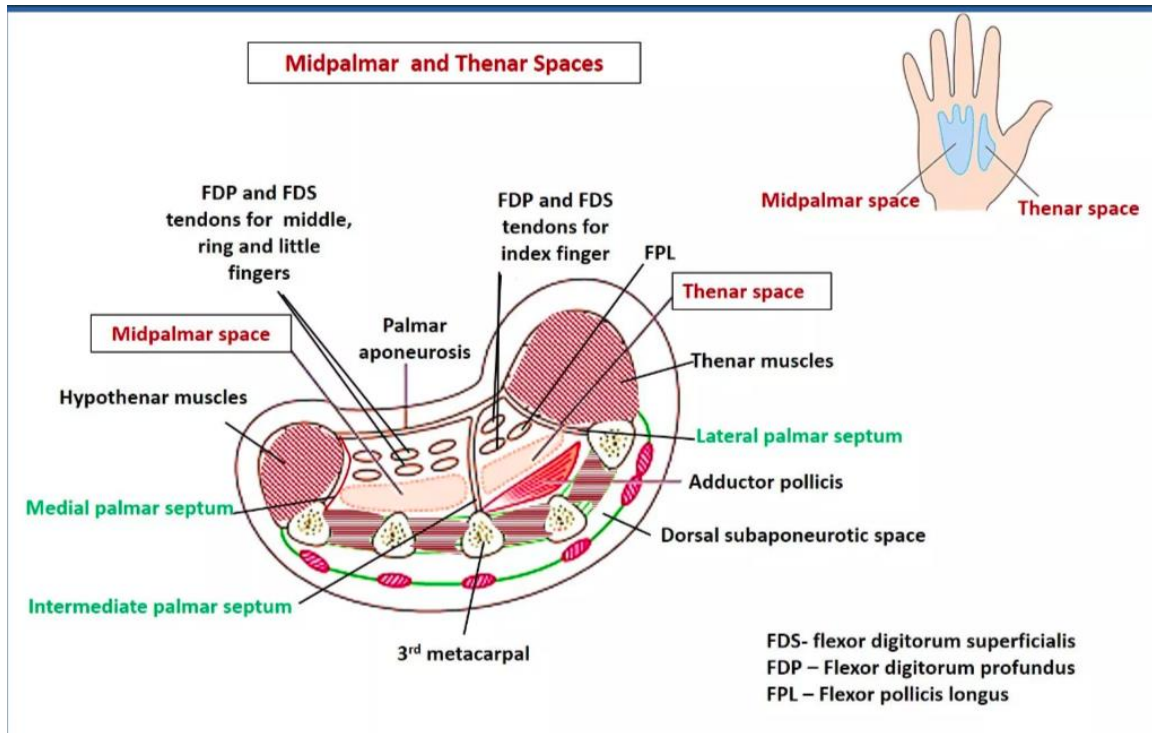
- * **Treatment:** (as usual)
 - A **dorsal longitudinal** incision over the most tender point in the web then Hilton's method.



Midpalmar Space Infection

* **Anatomy of fascial spaces of the hand :**

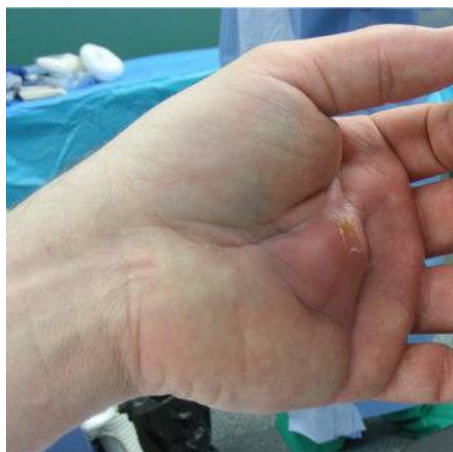
- The palm of the hand is divided into **3 fascial spaces** by:
 1. **Medial fibrous septum** extending from the medial border of palmar aponeurosis to the 5th metacarpal bone.
 2. **Lateral fibrous septum** extending from the lateral border of palmar aponeurosis to the 3rd metacarpal bone.
- These **3 fascial spaces** are:
 1. **Hypothenar** space medially which contains hypothenar muscles.
 2. **Thenar** space laterally which contains thenar muscles.
 3. **Mid-palmar** space in between the previous 2 spaces.

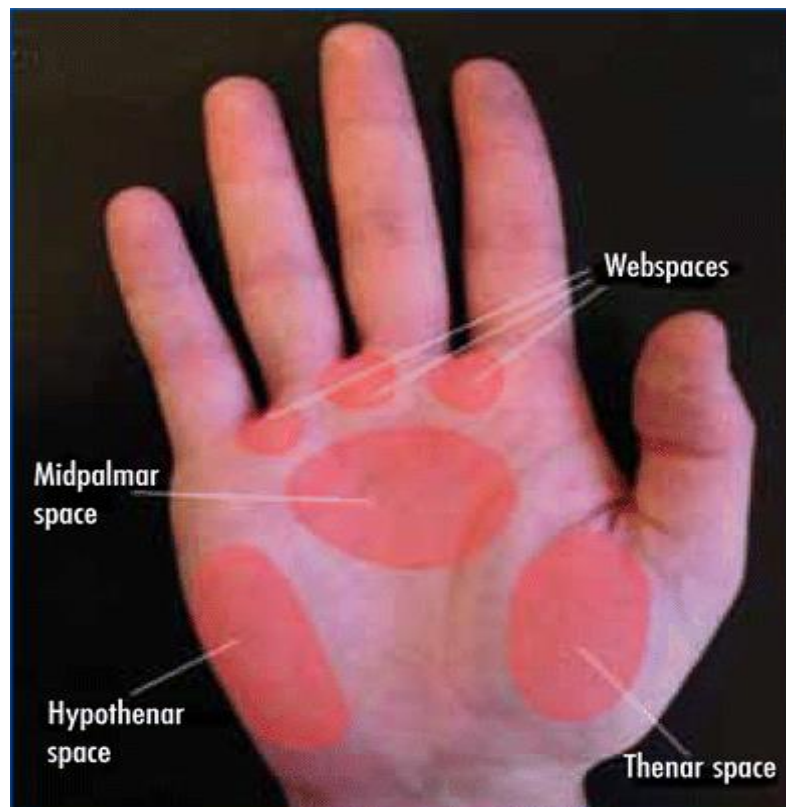


* **Aetiology:** Spread of infection from tenosynovitis or web space.

* **Clinical Picture:**

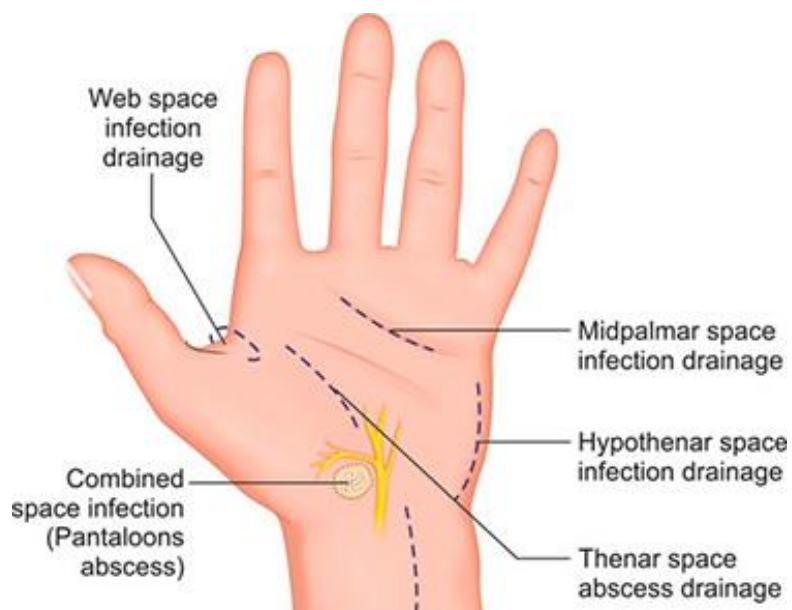
1. Severe pain, tenderness swelling hotness, redness in the middle of the palm **obliterating its concavity**.
2. Marked dorsal oedema (**frog's hand**).





* **Treatment:** (as usual)

- Incision and drainage once pus is formed by a **transverse** incision in the skin only in one of the **transverse creases** of the palm followed by **Hilton's** method.



Surgical Infections

Hypotenar Space Infection

- * **Aetiology** : puncture wound in the hypothenar eminence .
- * **Clinical Picture:** Localized pain, tenderness, hotness, redness and swelling in the hypothenar eminence causing **accentuation** of the **concavity** of the hand.
- * **Treatment:** A longitudinal incision in the skin only along the **medial border of 5th metacarpal** bone followed by **Hilton's** method.

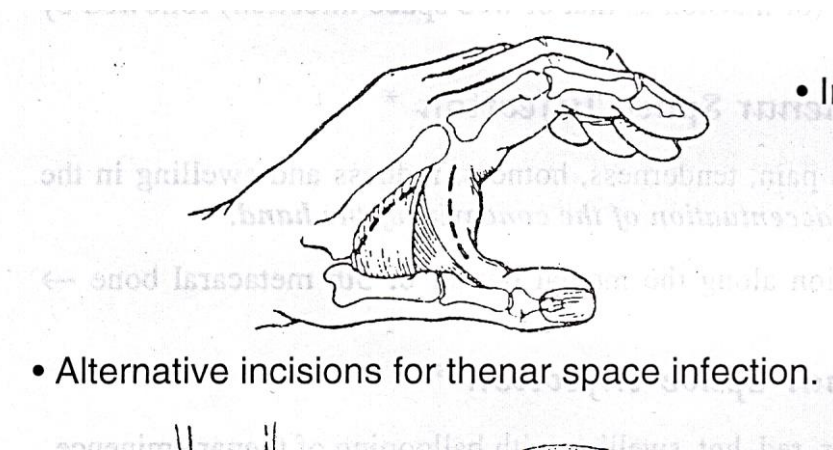


Thenar Space Infection

- * **Aetiology** : puncture wound in the thenar eminence .
- * **Clinical Picture:** Pain, tender, red, hot, swelling with ballooning of **thenar eminence and accentuation** of the **concavity** of the hand.
- * **Treatment:**
 - Curved incision along **lat. border of 1st dorsal interosseous** muscle then introduce a closed sinus forceps along the **anterior surface** of **adductor pollicis** muscle followed by **Hilton's** method.

Surgical Infections

- Incision along the **lateral border of the dorsum of the 2nd metacarpal** bone followed by **Hilton's** method.

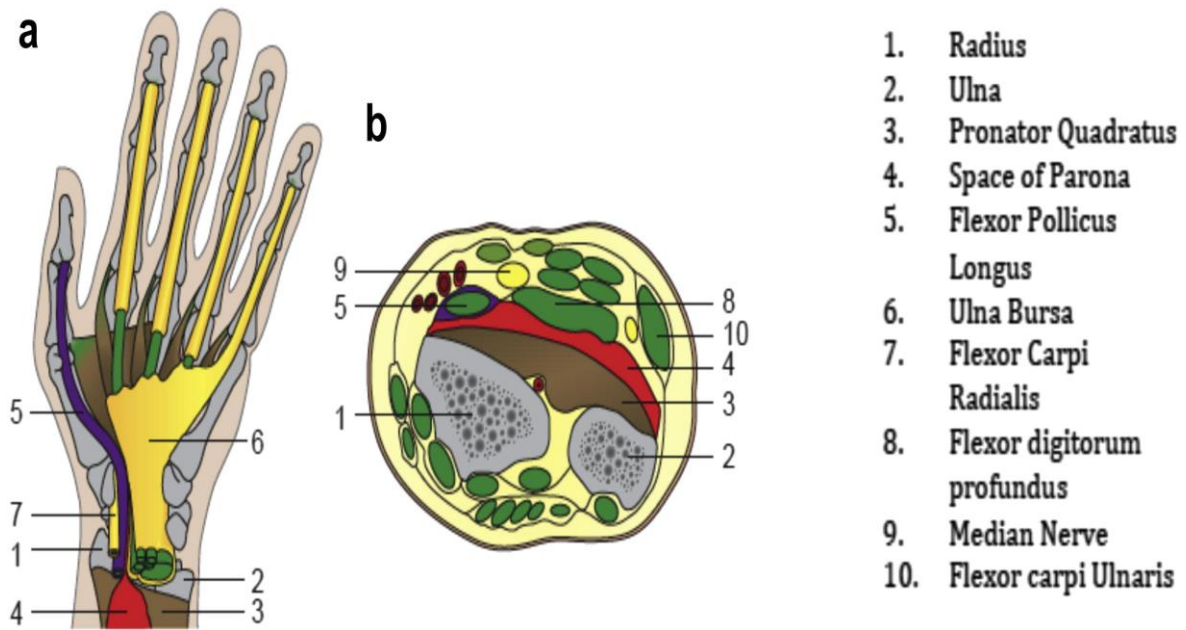


- Alternative incisions for thenar space infection.

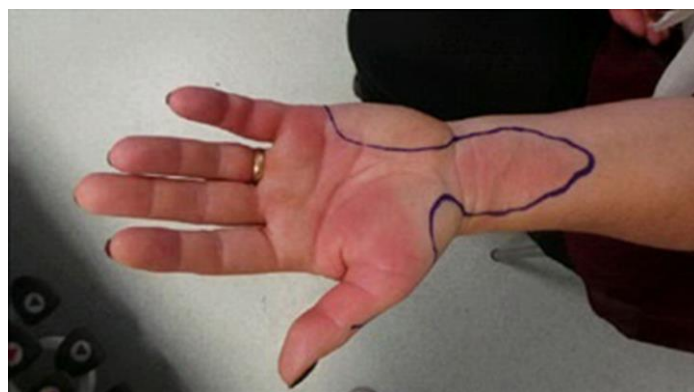
Parona Space Infection

- * **Anatomy:** It is bounded posteriorly by pronator quadratus & anteriorly by ulnar and radial bursae. It communicates with mid-palmar space.

Surgical Infections



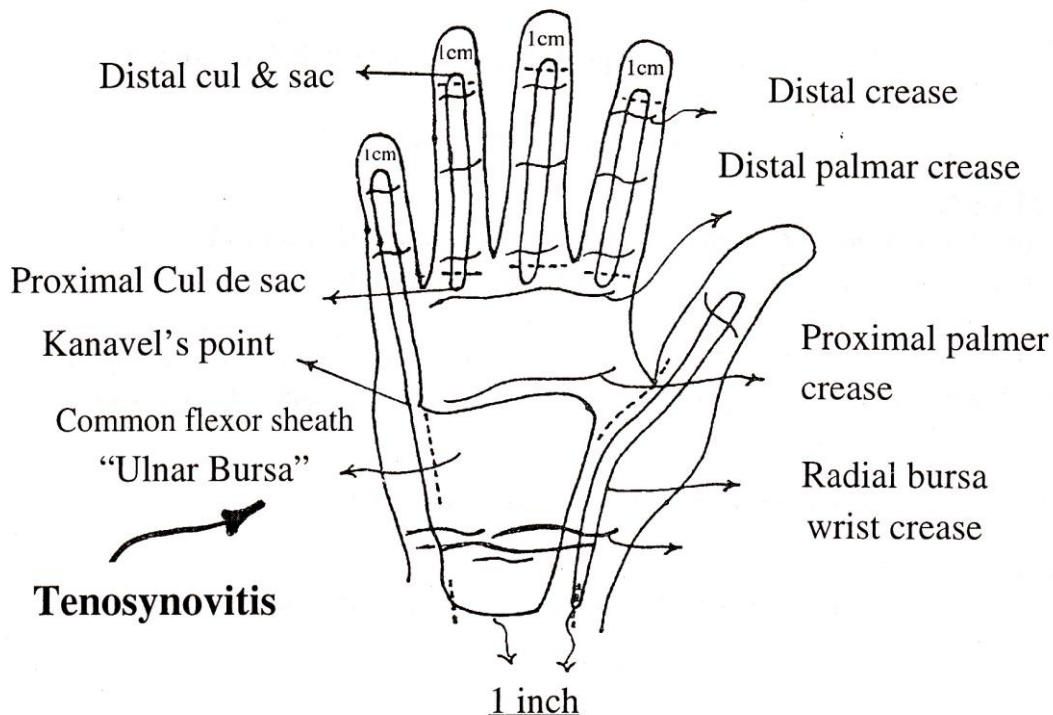
- * **Aetiology** : Usually spread of infection from midpalmar space , ulnar or radial bursitis .
- * **Clinical Picture**: Pain, tender, red, hot swelling in the **distal part of front of forearm**.
- * **Treatment**: Drainage along the **ulnar side of forearm deep** to the flexor tendons & ulnar nerve & artery.



Acute Tenosynovitis

Of Middle 3 Fingers

- * **Definition** : Acute inflammation of one of the flexor tendons and their synovial sheath .
- * Tenosynovitis is the **most serious** hand infections.



* **Anatomy of flexor synovial sheath :**

- The synovial flexor sheath in the **middle 3 fingers** extend from the level of the **distal palmar crease** (opposite the head of corresponding metacarpal bones) to the **1cm distal** to the distal interphalangeal crease.
- The synovial flexor sheath of the **little finger** extends proximally to be **continuous** with common flexor sheath which called the **ulnar bursa**.
- The synovial flexor sheath of the **thumb** extends proximally to be continuous with the **radial bursa**.

Surgical Infections

- The **ulnar bursa** extends distally to the **proximal palmar crease** .
- The **ulnar & radial** bursa extends proximally to about one **inch above the wrist crease**.

* **Aetiology:** Usually due deep puncture wound.

* **Clinical Picture:**

1- Swelling of the finger all around → **cylindrical finger**.

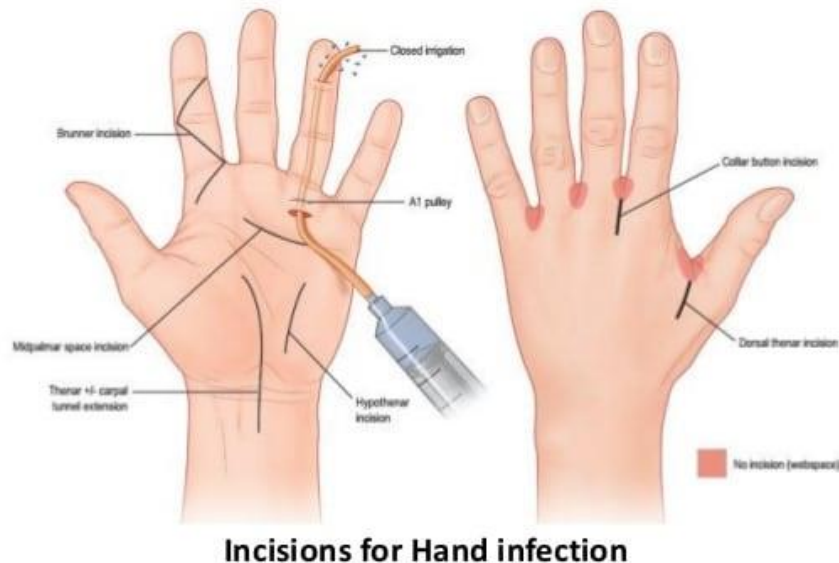
2- The affected finger is **semiflexed** with **limitation of movements**.

3- Pain & Tenderness: Max. over the **proximal cul-de-sac** (proximal end of the sheath).



* **Treatment:**

- Through a **transverse incision** in the distal palmar crease over the **proximal cul-de-sac**, then introduce a fine **catheter and irrigate** with antibiotic. In **severe** cases a counter incision can be done on the **distal cul de sac**.



Acute Tenosynovitis Of Little Finger and Ulnar Bursitis

- * **Definition:** It is a tenosynovitis of the common flexor synovial sheath with involvement of the synovial sheath of the little finger.
- * **Aetiology:** Usually due deep puncture wound.
- * **Clinical Picture:**
 - 1- Swelling & oedma of the **whole hand**, especially the dorsum.
 - 2- Pain & Tenderness: Over the ulnar bursa and the little finger. Maximum pain is present over the **kanavel's point** (point of meeting

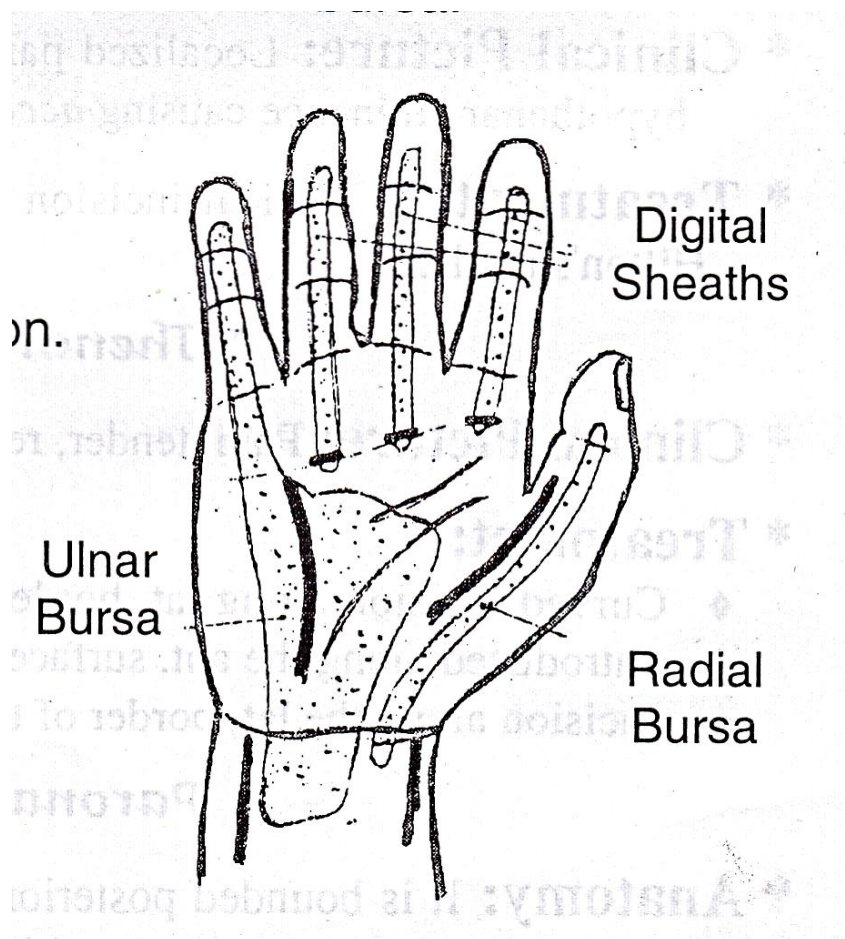
Surgical Infections

between the proximal palmar crease with the lateral border of hypothenar eminence).

4- There is limitation of movements of the **medial 4 fingers** with slight semiflexion.

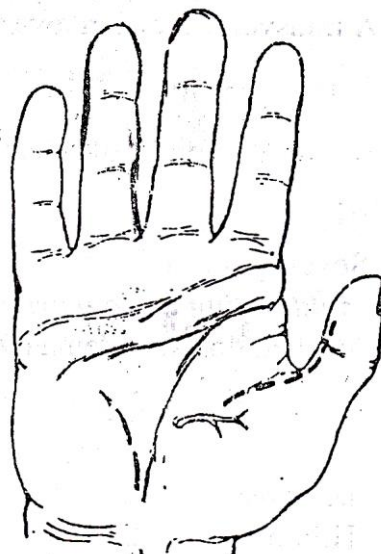
* Treatment:

- Longitudinal incision along the **lateral border of hypothenar eminence**.
- If extension of infection occur to the forearm → another incision is added along the **anterior surface of ulna**.



Acute tenosynovitis Of thumb and radial bursitis

- * **Definition:** It is a tenosynovitis of the flexor synovial sheath of the thumb .
- * **Aetiology:** Usually due deep puncture wound in the thumb.
- * **Clinical Picture:**
 1. Pain, tenderness & swelling of the thumb, thenar eminence extending to the distal part of forearm.
 2. Limitation of movement & semiflexed thumb.
- * **Treatment:**
 - A longitudinal incision on the **medial border of the thenar** eminence **stopping** 2cm distal to the distal crease of the wrist to avoid injury of the motor branch of **median nerve**.
 - If extension of infection occur to the **forearm**: Longitudinal incision in front of radius along the **medial side of flexor carpi radialis**.



- Incision for drainage of radial bursa.

