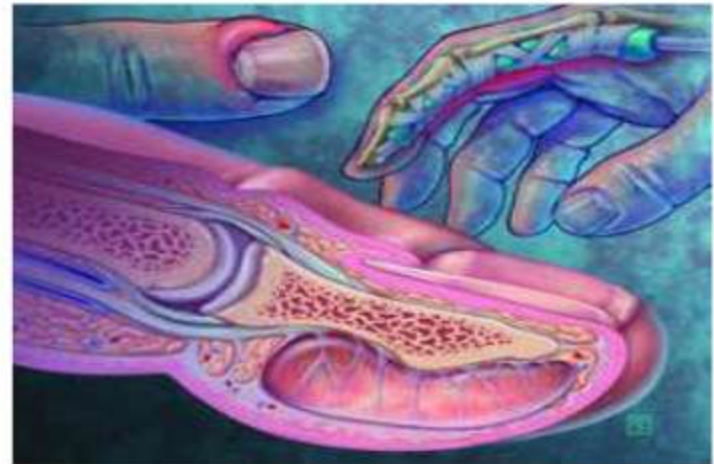


HAND INFECTIONS



- Hand infections can result significant morbidity if not appropriately diagnosed and treated.
- The hand can easily injured during day to day activities which may introduce damaging pathogens in to tissues.
- Hand's compartmentalized anatomy may contribute to result severe complications of infections.

Felon

The superficial

- cutaneous
- paronychial
- hyponychial
- subcutaneous
- furuncle of the finger

The deep

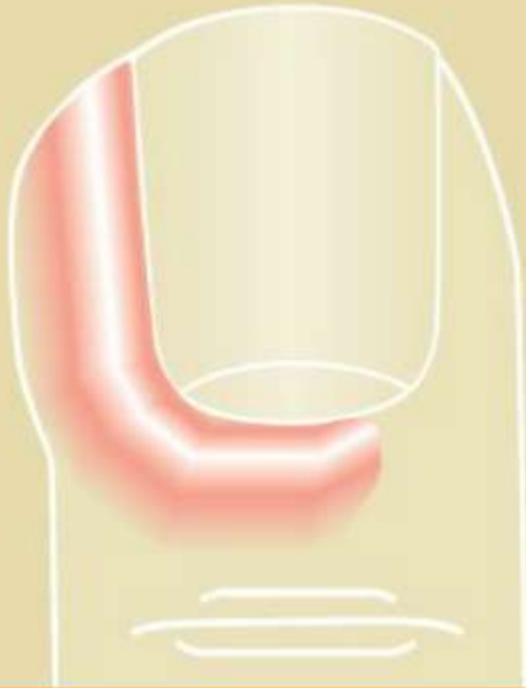
- osteal
- tendinous
- articular
- pandactilitis

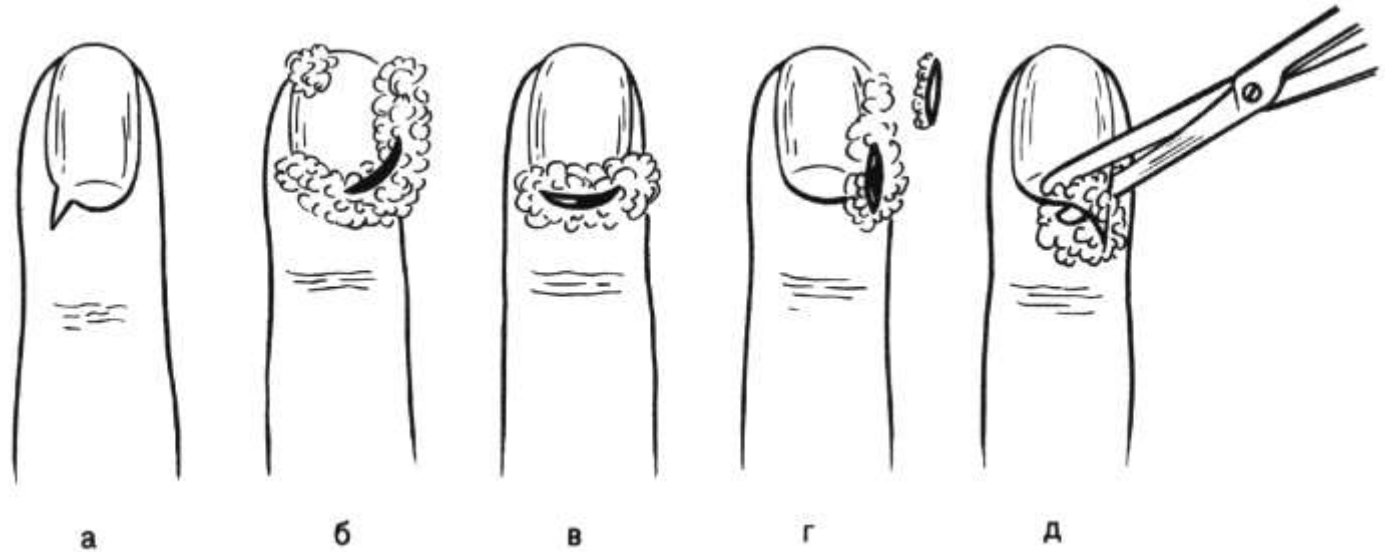


ACUTE PARONYCHIA

- Commonest hand infection
- Commonly due to inappropriate nail trimming or skin picking around nail folds
- Redness, swelling, pain and later pus besides the nail
- Commonly caused by staphylococcus and streptococcus
- If pus present need drainage with or without excision of outer quarter of the nail

▶ **Figure 1: Acute paronychia**

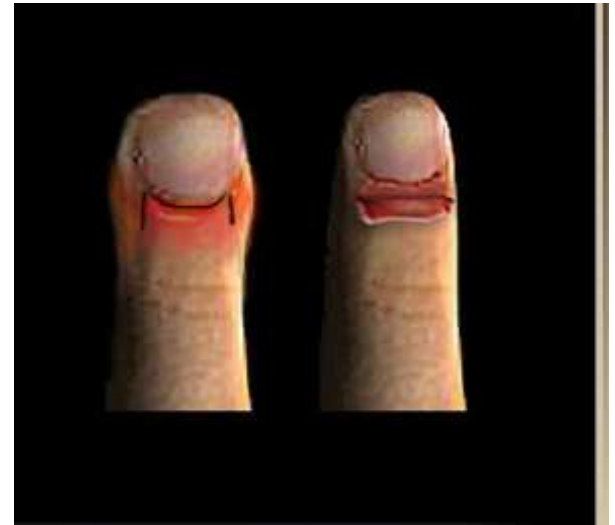




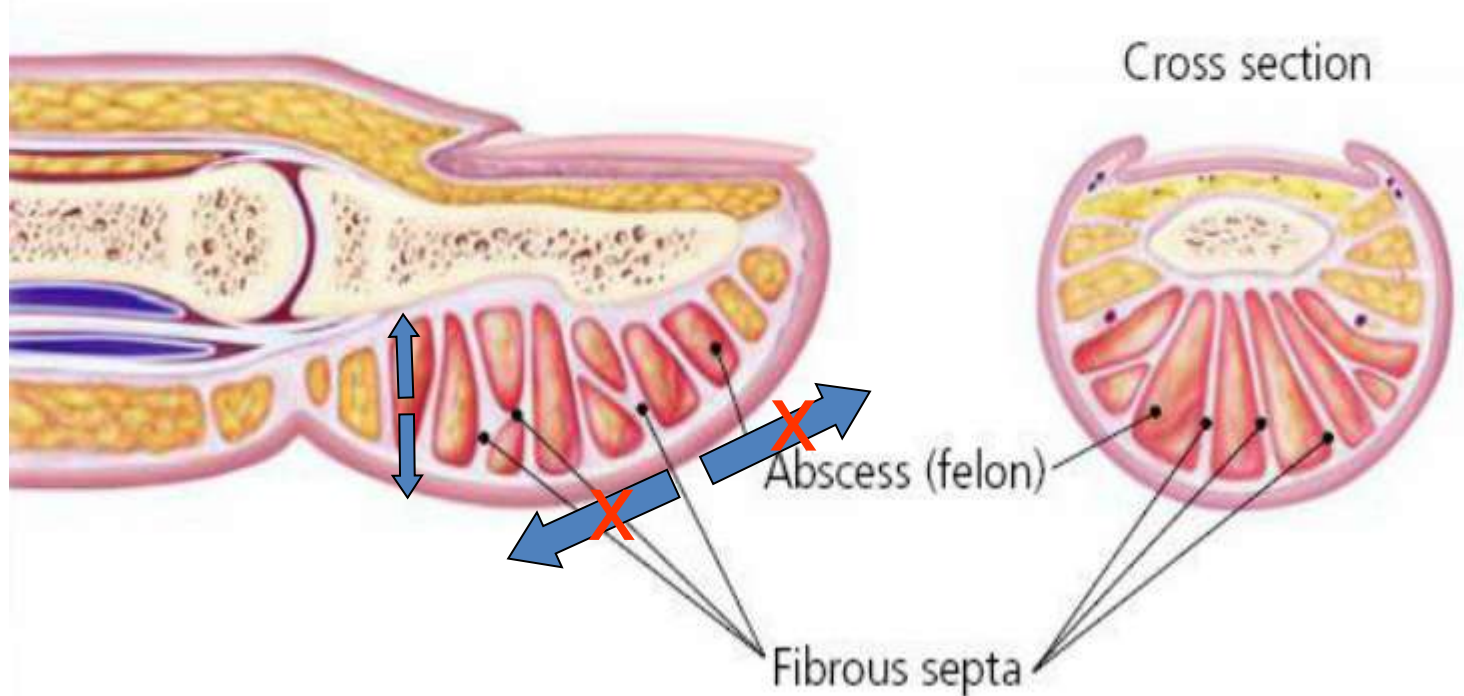
At a paronychia it is necessary cut epidermis and pathological granulations; to raise the nail fold and to wash the inflammation place. Usually the regional resection of a nail plate is required

CHRONIC PARONYCHIA

- Usually caused by fungi
- Commonly seen in patients whose hands are frequently immersed
- Management range from use of antifungal creams to nail fold surgery



PULP SPACE INFECTION(FELON)



Fibrous septa prevent pus from spreading under skin to periphery. It lead to pus spreading to the deeplying tissues (bone, tendon), intensive pain in the finger

PULP SPACE INFECTION(FELON)

- Felon is an abscess of the distal pulp of the finger tip
- Common cause is minor puncture wounds
- Complications → severe pain, tissue necrosis, osteomyelitis, anasthetic finger tips

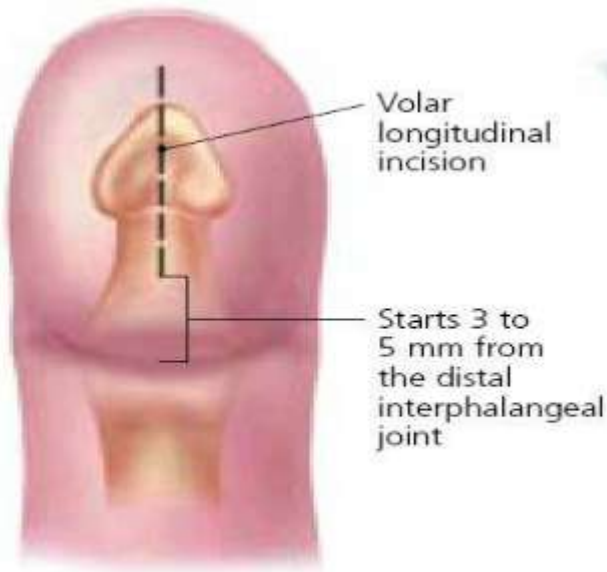


Ethiology

- Common organisms are staphylococcus and streptococcus
- Incision and drainage is commonly done using volar longitudinal incision or high lateral incision



Operation is carried out under
Conductive anaesthesia
according to Lukashevich-
Oberst



A



B



C

On a nail phalanx of a finger the "hockey stick" cut is made ↓



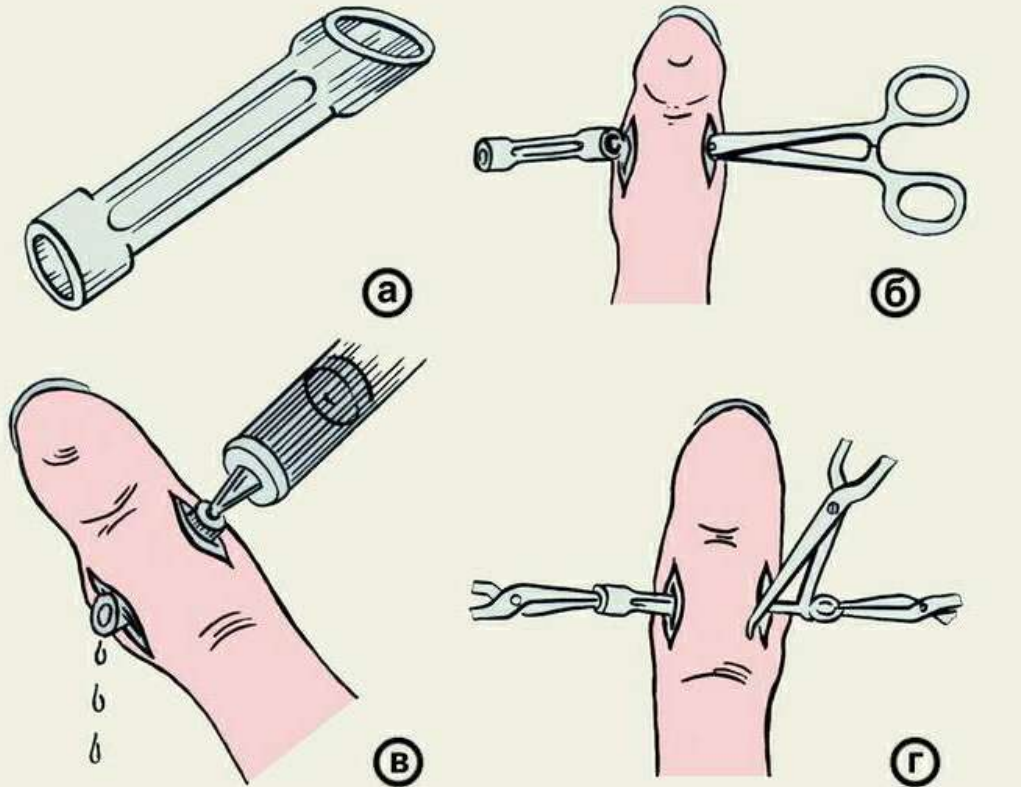
D



E



Opening Subcutaneous felon



on middle and main
phalanxes the cut on a
lateral surface is made

Opening felon



Bone felon

- Bone felon is osteomyelitis of a bone phalanx of a finger.
- Develops upon transition of pathological process from soft tissues of a finger to bone, i.e. process has secondary character.
- Generally bone panaritium is the result of not appropriate treatment of subcutaneous felon



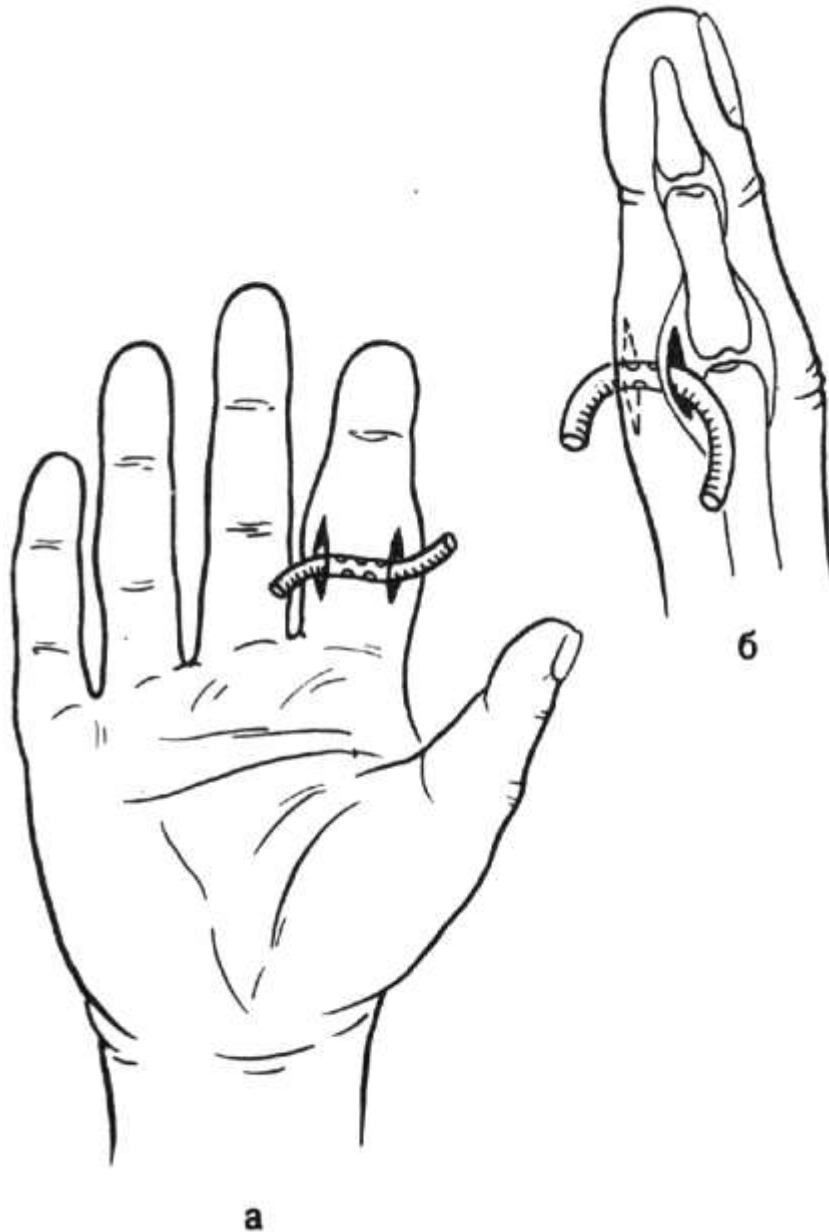


Operation should be carried out without waiting the obvious destructive changes defined radiologically.

articular panaritium

- **serous -purulent inflammation of interphalanx and metacarpal-phalanx joints of fingers is called articular panaritium**
- **Primary articular panaritium– wounds getting into a joint, pricks**
- **The secondary – progressing bone, tendon, subcutaneous panaritium**





- Treatment only surgical - arthrotomy is made , careful sanitation of a cavity of a joint by antiseptics
- then the cavity of a joint is drained by the punched polymeric tube.
- It is necessary to close a wound over a joint cavity.

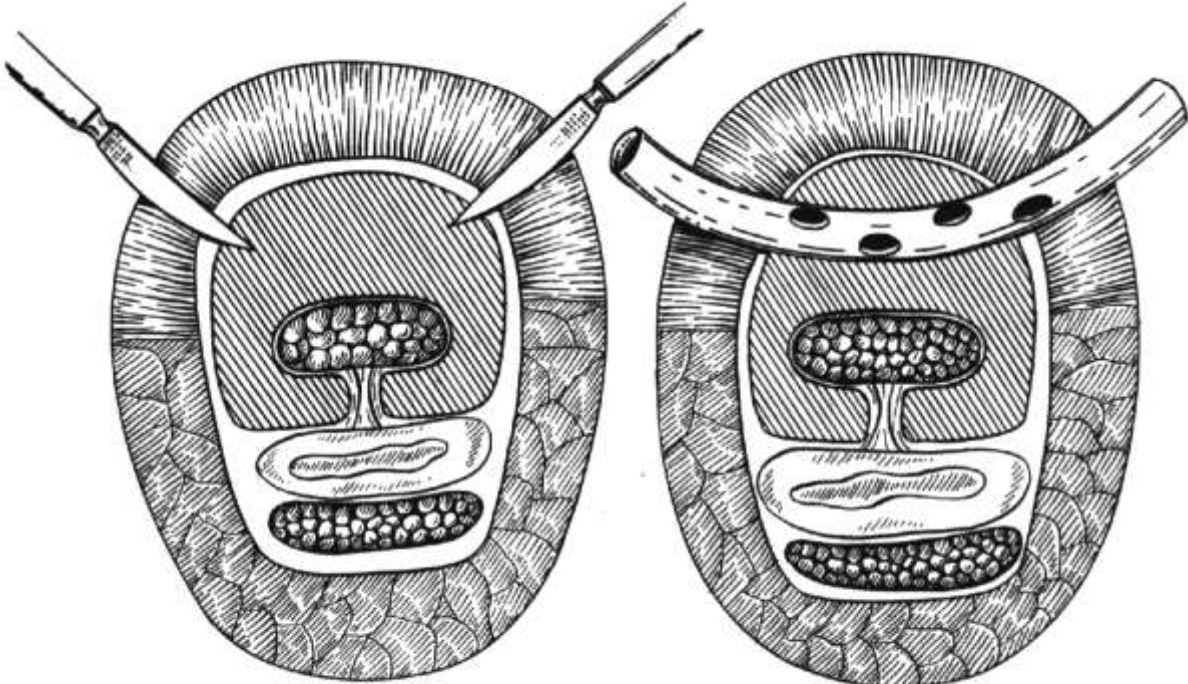
PYOGENIC FLEXOR TENOSYNOVITIS

- Infection of the flexor tendon sheaths
- Trauma or puncture wound
- Uniform symmetrical digit swelling and partial flexion
- Pain along the tendon sheath with passive digit extension is the most clinically reproducible sign

- Complications —————> necrosis, adhesion formation, spreading of infection to deep fascial spaces
- Commonly saline irrigation of the sheath, early mobilization once inflammation has settled



Opening of a sheath releases a finger tendon from pressure and prevent necrosis

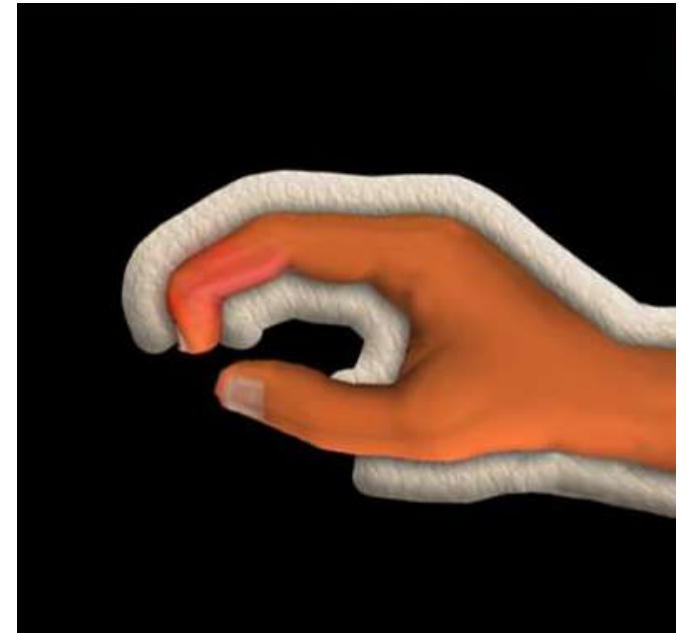


a

b



- Immobilization with plaster is very important after operation



pandactilitis

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SGMU
Lecturer – ass. Khilgiyaev R.H.

pandactilitis is nonspecific purulent - necrotic lesions of a finger extending not less than on two phalanxes and affecting skin, subcutaneous tissue, tendon, a bone or at least one of joints.



Suppurative hand infections

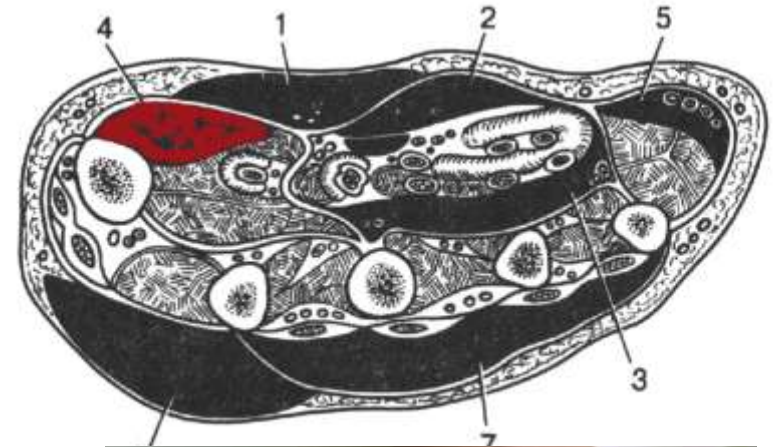
- Suppurative diseases of the *skin and subcutaneous tissues*:
 - cutaneous abscess;
 - commissural phlegmon;
 - supraaponeurotic phlegmon of the palm.
- Suppurative diseases of the *fascial and interstitial spaces*:
 - phlegmon of the mid palmar space;
 - thenar phlegmon;
 - hypothenar phlegmon.
- Suppurative diseases of the *dorsum of the hand*:
 - subcutaneous phlegmon.

local features

- infections of the subcutaneous fatty tissues of the palm are only associated with
 - tenderness on palpation and
 - some amount of smoothening of the palmar folds.
- Other signs of inflammation (hyperemia, pronounced oedema) are more prominent at the dorsum.

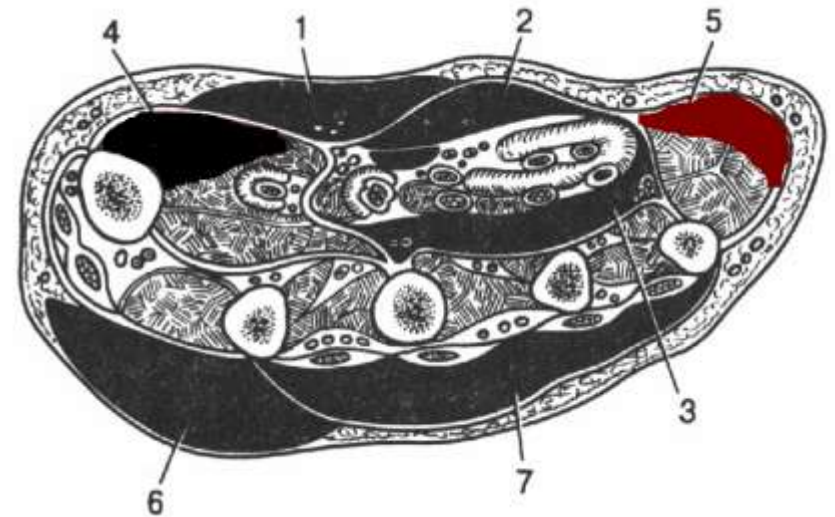
Phlegmon of the thenar

- This is accompanied by an extreme oedema of the thenar and the radial end of the dorsum of the hand.
- Severe pain on palpation, tense tissues, limitations in the mobility of the oedematous thenar tissues, smoothing of the palmar folds are all characteristic symptoms of thenar phlegmon.
- The purulent exudates can sometimes also spread along the first interosseal muscles on the dorsum.
- In other cases the connective tissue barriers that divide the thenar from the mid palmar space disintegrate as a result of the suppurative process causing phlegmon of the mid palmar cavity



Phlegmon of the hypothenar

- Is often accompanied by mild intoxication.
- Minimal oedema, hyperemia and tension in the tissues, tenderness on palpation over the hypothenar and an increase in pain upon moving the little finger are the characteristic features.



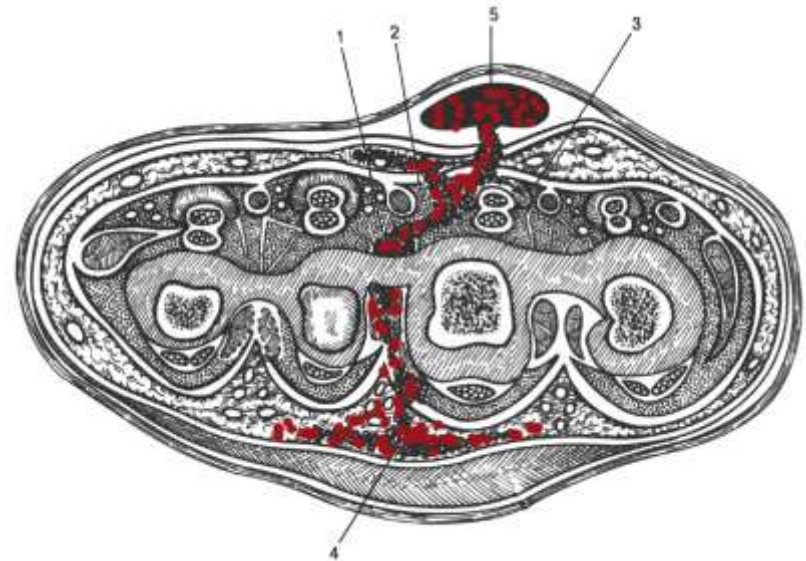
Commissural phlegmon

- phlegmon is localized at the distal part of the palm. The entry points of infection are usually deep skin fissures and skin callosity over the area of the 2-4th carpophalangeal joints of the palm. This phlegmon is also known as corn abscess.
- Phlegmons are associated with extreme pain, oedema on both sides of the hand. Fingers adjacent to the area of infection are somewhat spread apart and bent in their interphalangeal joints; extension is painful as a result of the tension on the inflamed palmar aponeurosis.



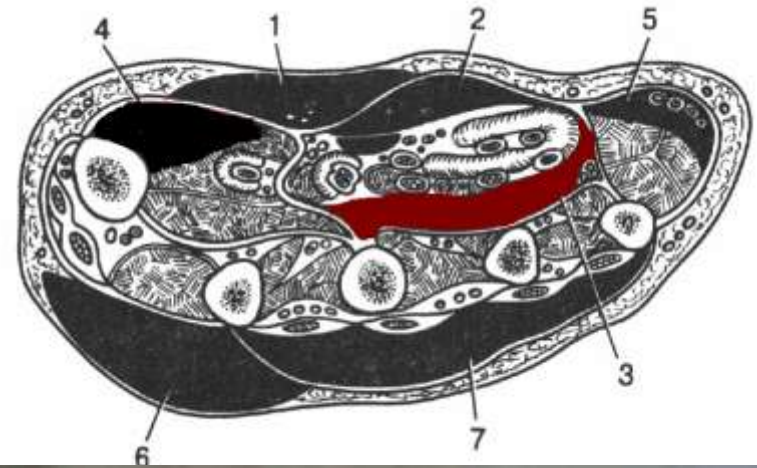
Complication of Commissural phlegmon

- It is possible for the pus to spread directly through the oval fissure of the aponeurosis to the dorsal surface of the hand, involving in the process the tendons of the deep flexors, which are situated very closely.
- The spread of infection can also occur in the proximal direction along the canals of the vermiform muscles, involving in the inflammation process the mid palmar space.



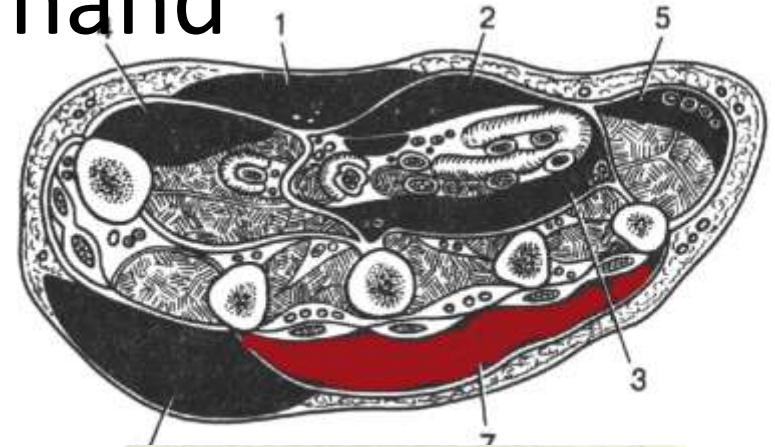
Phlegmon of the mid palmar space

- are associated with the accumulation or pus in between the palmar aponeurosis and the thin fascial sheath covering tendon of the flexor digitorum or between the fascia covering the palmar sides of the interosseal muscles and the posterior surface of the tendons of the long flexor digitorum.
- The disease is accompanied by pronounced intoxication, high body temperature, headache, as well as changes in the peripheral blood picture.



Subaponeurotic phlegmon of the dorsum the hand

- Occurs as a result of infection penetrating deep under the aponeurosis in the cases of stab wounds.
- In this kind of phlegmon a firm induration is observed which is associated with oedema and hyperemia of the dorsum.
- Subcutaneous phlegmon also occurs, as a rule, secondary to damage to the skin covering of the dorsum of the hand.
- In suppurative affection of the palm there can be transmission of the infection to the dorsum through the lymphatic vessels or through the canals of the vermiform muscles. In such situations oedema of the dorsum that is normally present in palmar lesions is accompanied by skin hyperemia, and the appearance of a diffusely tender area on palpation.

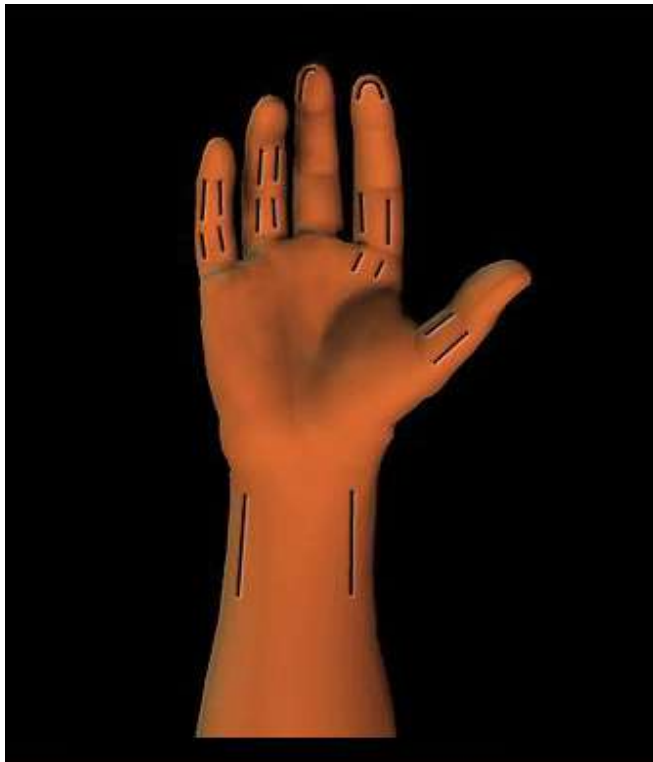


TREATMENT OF INFECTIONS IN THE HAND

- Elevation, splinting and antibiotics give good results if no pus
- Pus needs drainage
- Pus in tendon sheath needs irrigation to avoid stiffness
- Bites should be explored cleaned and managed with broad spectrum antibiotics
- All infections need early mobilization to avoid stiffness



- Lines of incisions for opening of fingers and hand abscesses



oedema of the dorsum the hand

- In performing operations in the case of palmar phlegmon one has to consider the fact that there is always oedema at the dorsum.
- Even in the presence of pronounced oedema at the dorsum one should never make an incision over this area before the presence of suppuration in the fingers and palm has been confirmed.
- However, if after an incision and drainage of a palmar or finger abscess the dorsum continues to swell, becomes more hyperemic and firmer, then there is good reason to think that the contralateral oedema has become suppurative