EMERGENT HAND INFECTIONS

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Resurgens Orthopaedics

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INFECTIONS

- Considerable morbidity
- Expeditious treatment minimizes permanent dysfunction

RK.

Necrotizing Fasciitis

- Aggressive life- and limb-threatening infection with rapid soft-tissue necrosis
- Bullae and subcutaneous fat liquefaction within days of onset: "dishwater pus"
- Systemic findings present: hemodynamic instability, leukocytosis, fever, shock

SKL

Necrotizing Fasciitis

- 50% of cases due to Group A *Streptococcus*
- Other species:
  - α- and β-hemolytic *Streptococcus*
  - *Staphylococcus* sp.
  - Anaerobes (*Clostridium* sp.)
  - *Vibrio vulnificus*

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Necrotizing Fasciitis

- Prompt recognition is essential to spare life and limb
- Aggressive debridement of skin and subcutaneous tissues
- Antibiotics
- Resuscitation
- Muscle typically spared

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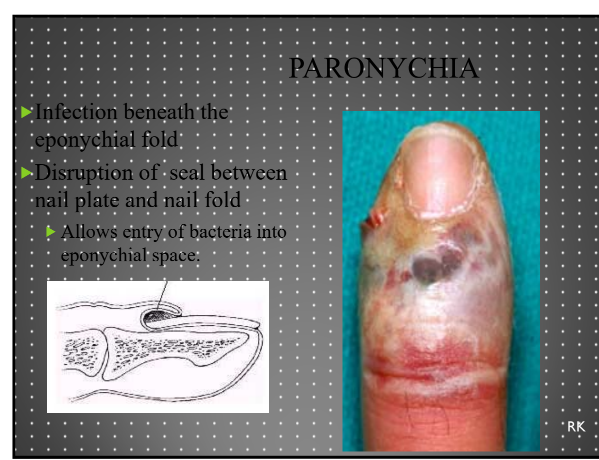
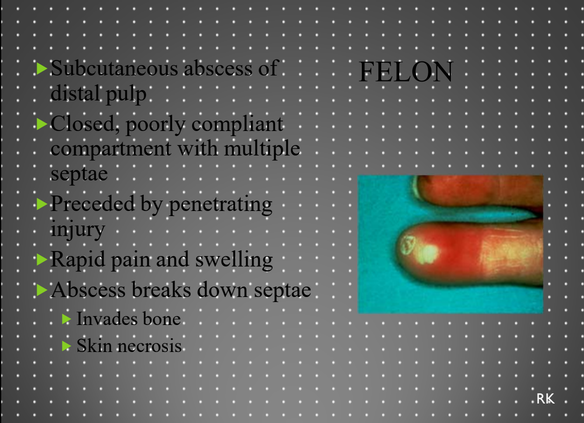
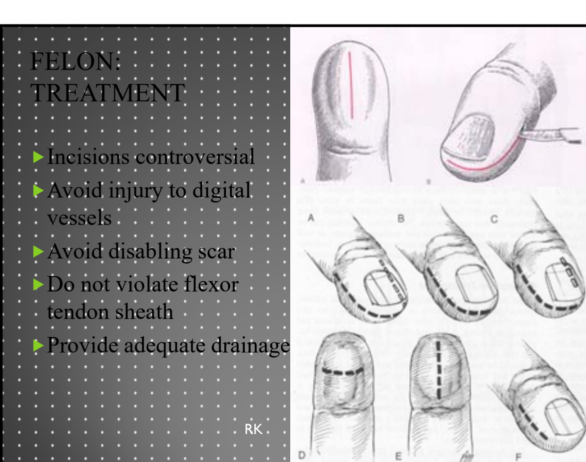

PARONYCHIA
Infection beneath the eponychial fold
Disruption of seal between nail plate and nail fold
Allows entry of bacteria into eponychial space.
RK

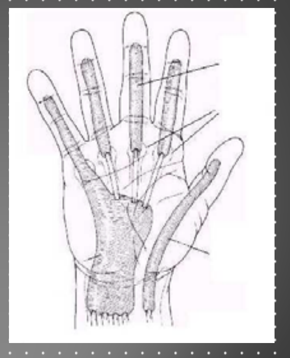
PANONYCHIA: TREATMENT
Provide drainage
Fold lifted to allow drainage
Partial nail elevation and excision if subungal extension
Gauze maintains drainage
Appropriate Abx
RK


FELON
Subcutaneous abscess of distal pulp
Closed, poorly compliant compartment with multiple septae
Preceded by penetrating injury
Rapid pain and swelling
Abscess breaks down septae
Invades bone
Skin necrosis
RK


FELON: TREATMENT
Incisions controversial
Avoid injury to digital vessels
Avoid disabling scar
Do not violate flexor tendon sheath
Provide adequate drainage
RK

FLEXOR TENOSYNOVITIS

- Flexor sheath - closed space extending from A1 pulley to DIP
- Thumb sheath contiguous with radial bursa
- Small finger sheath contiguous w/ ulnar bursa
- 50-80% of people have communicating radial/ulnar bursa



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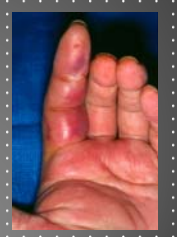
FLEXOR TENOSYNOVITIS

- Bacterial infection
- Penetrating trauma
- Hematogenous spread for gonococcus
- *S aureus* most common
- Rarely mycobacteria



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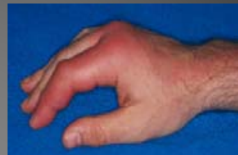
KANAVEL'S CARDINAL SIGNS

- Flexed resting position
- Tenderness over flexor sheath
- Severe pain on passive extension
- Fusiform swelling ("sausage digit")



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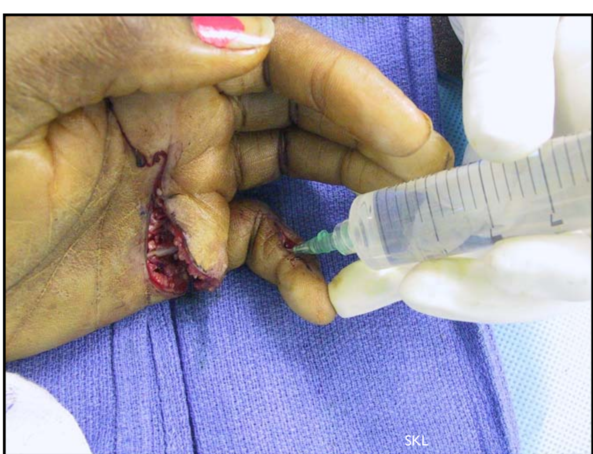
FLEXOR TENOSYNOVITIS TREATMENT

- Emergent treatment
- Delay leads to vascular compromise of tendon, necrosis, adhesions, and poor gliding -- Stiffness
- Early infections (first 24-48 hrs) may be treated with IV abx, elevation, splinting
- If no improvement noted in 24 hrs, surgical treatment is necessary



PYOGENIC FLEXOR TENOSYNOVITIS

- No need for post op irrigation – results same whether you do or not

Lille et al J Hand Surg B 2000

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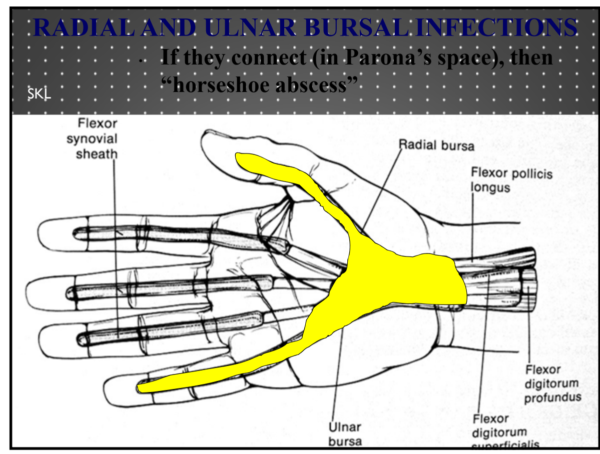
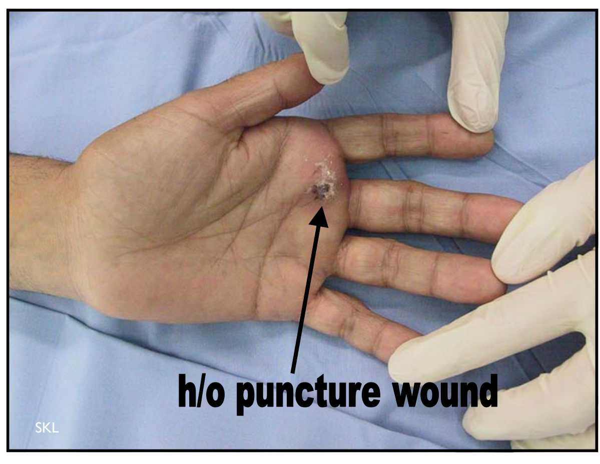
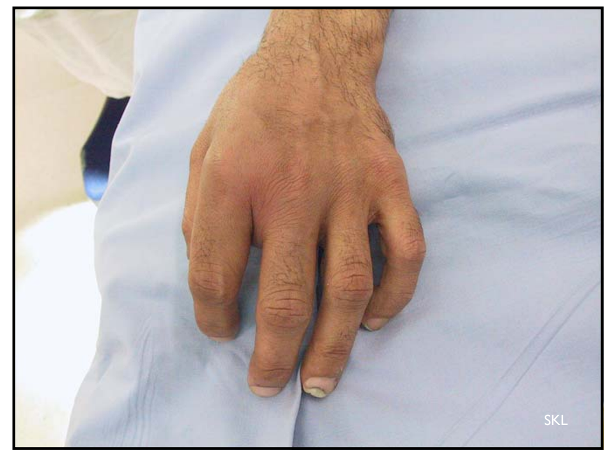


DEEP SPACE INFECTIONS IN THE HAND

- Web space
- Midpalmar space
- Thenar space
- Hypothenar space

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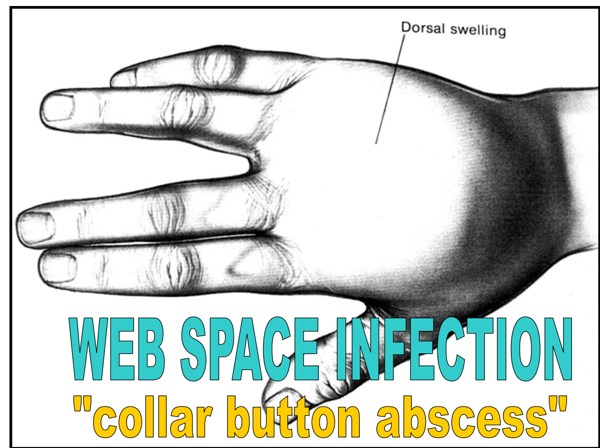
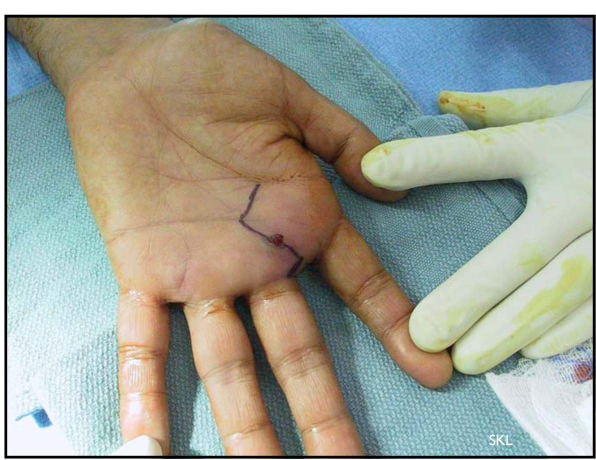

Dorsal swelling
WEB SPACE INFECTION
"collar button abscess"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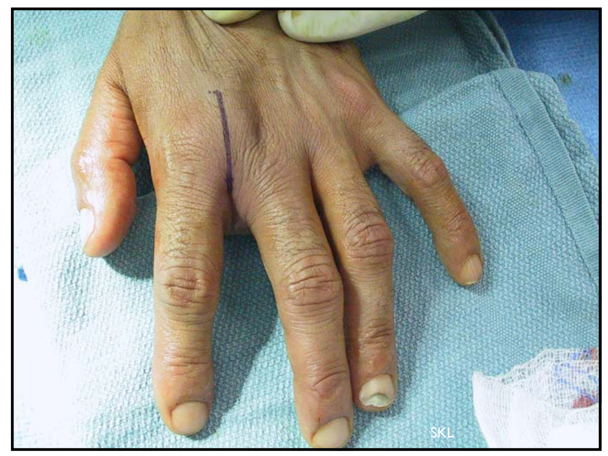
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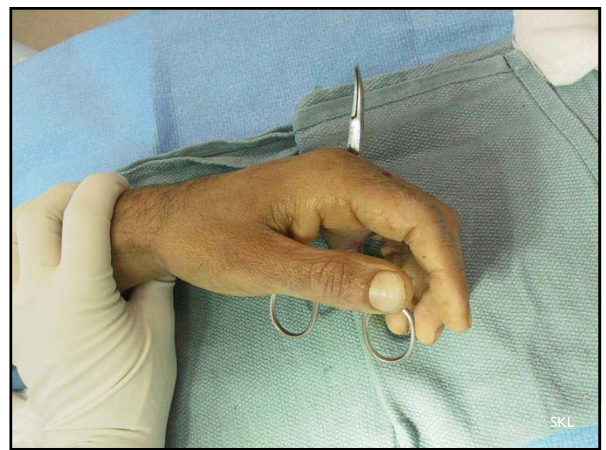
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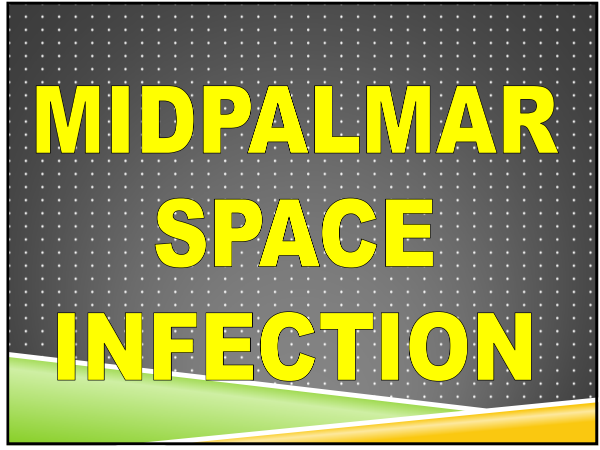
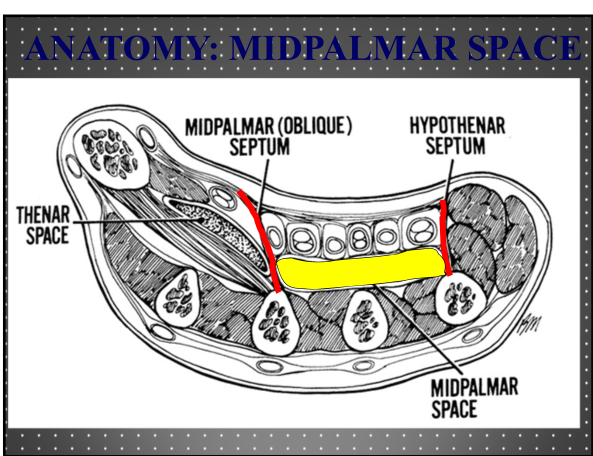
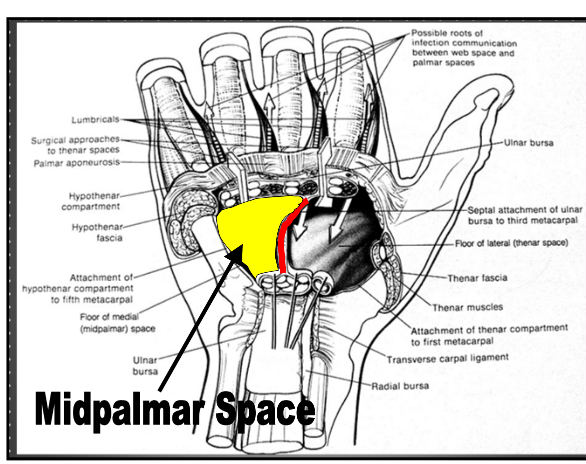

MIDPALMAR
SPACE
INFECTION

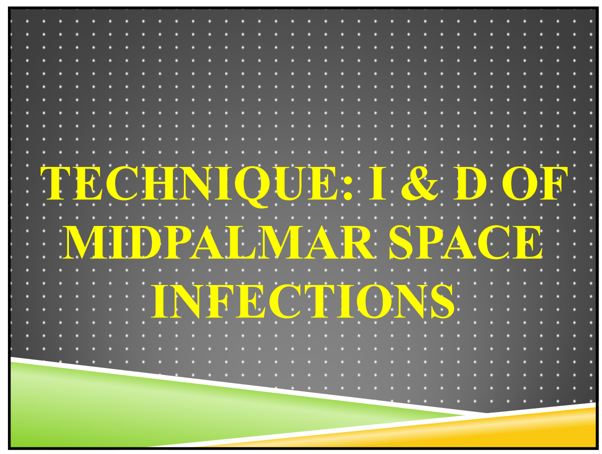
MIDPALMAR SPACE INFECTIONS

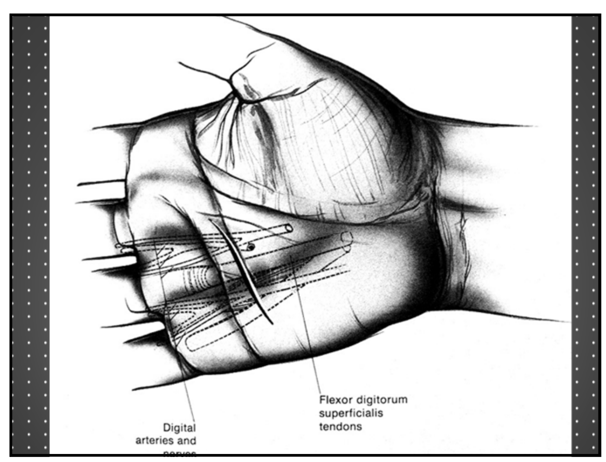
- Can result from penetrating wound, rupture of septic tenosynovitis, or distal palmar abscess

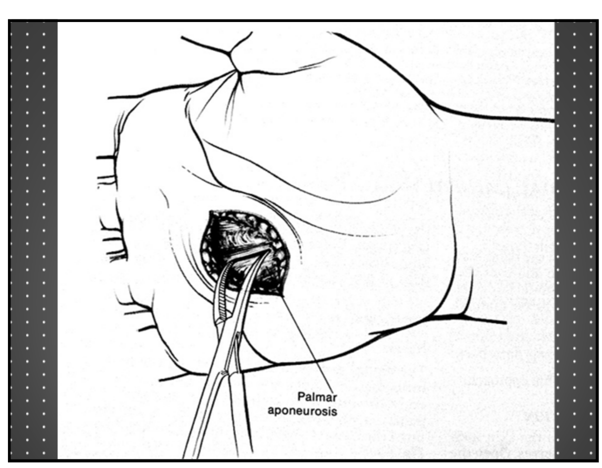
ANATOMY: MIDPALMAR SPACE

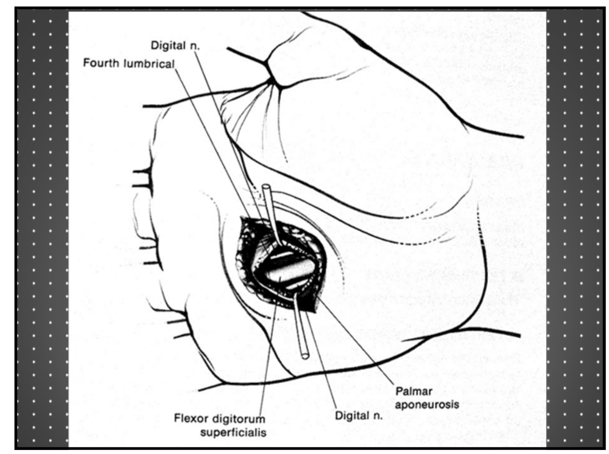


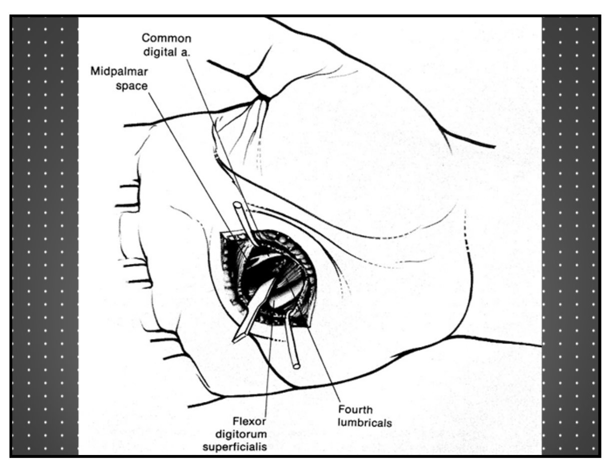



TECHNIQUE: I & D OF
MIDPALMAR SPACE
INFECTIONS

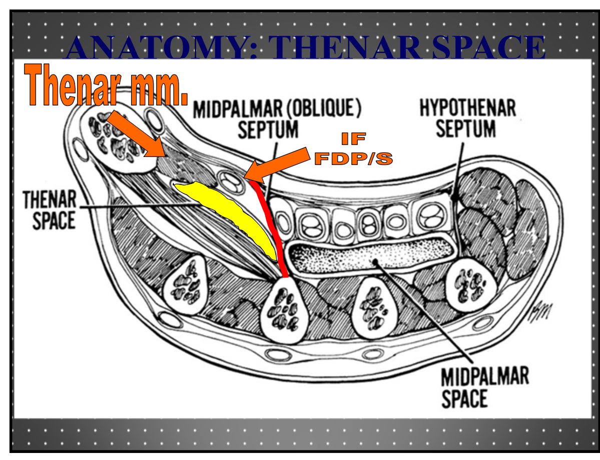

Flexor digitorum
superficialis
tendons
Digital
arteries and


Palmar
aponeurosis

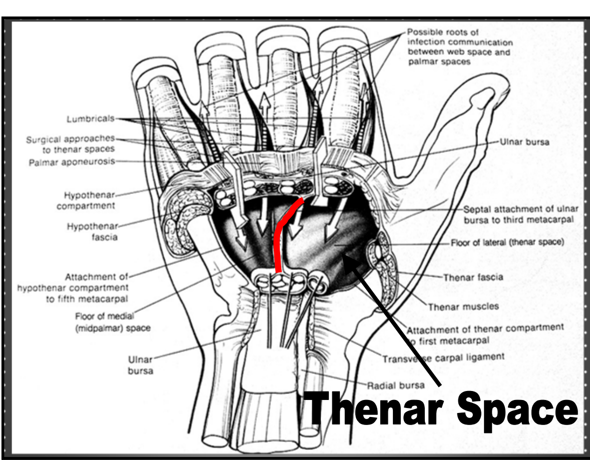

Digital n.
Fourth lumbrical
Palmar aponeurosis
Digital n.
Flexor digitorum superficialis


Common digital a.
Midpalmar space
Flexor digitorum superficialis
Fourth lumbricals

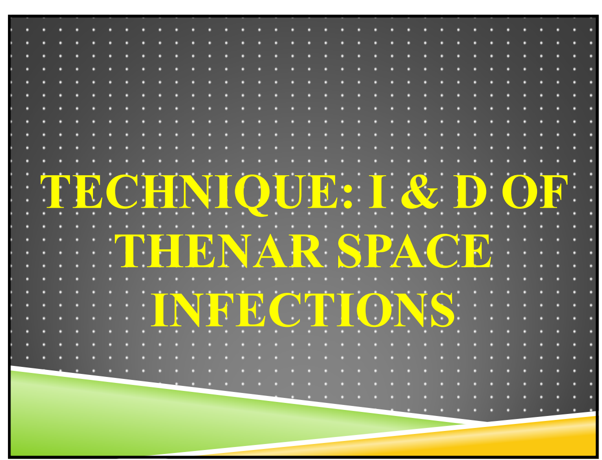
THENAR SPACE INFECTIONS



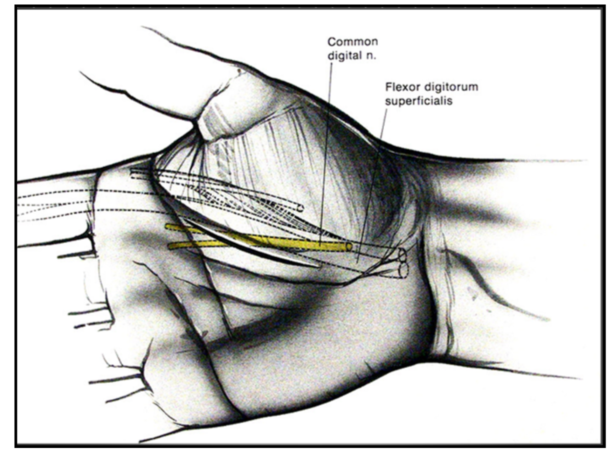
ANATOMY: THENAR SPACE
Thenar mm.
MIDPALMAR (OBLIQUE) SEPTUM
IF
FDP/S
HYPOTHENAR SEPTUM
THENAR SPACE
MIDPALMAR SPACE

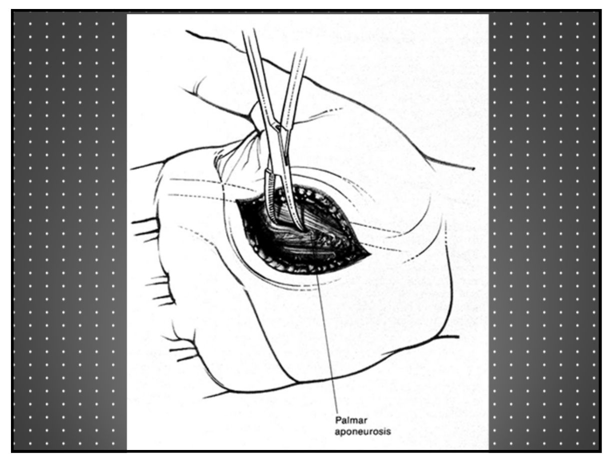


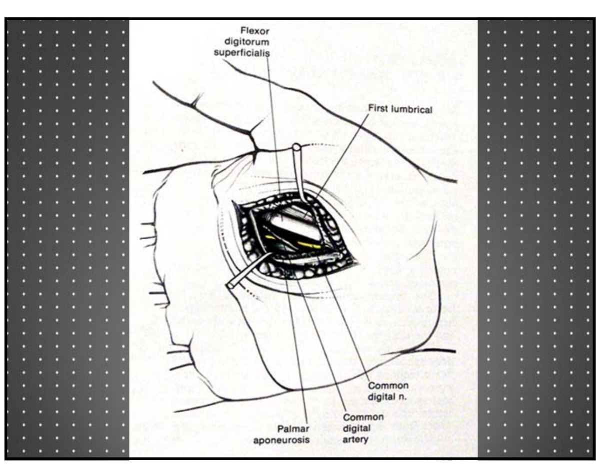
Possible roots of infection communication between web space and palmar spaces
Lumbricals
Surgical approaches to thenar spaces
Palmar aponeurosis
Hypothenar compartment
Hypothenar fascia
Attachment of hypothenar compartment to fifth metacarpal
Floor of medial (midpalmar) space
Ulnar bursa
Ulnar bursa
Septal attachment of ulnar bursa to third metacarpal
Floor of lateral (thenar space)
Thenar fascia
Thenar muscles
Attachment of thenar compartment
first metacarpal
carpal ligament
Radial bursa
Thenar Space

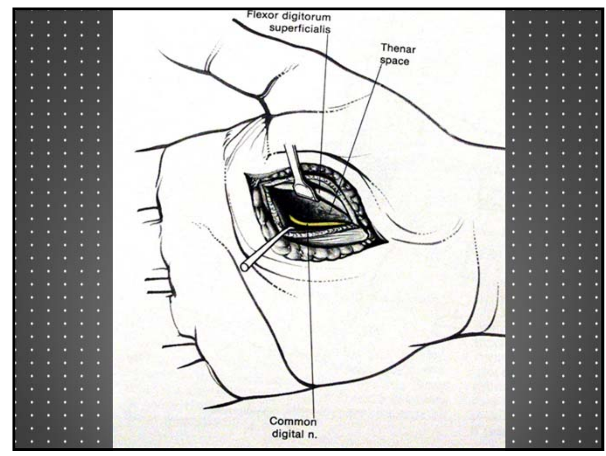


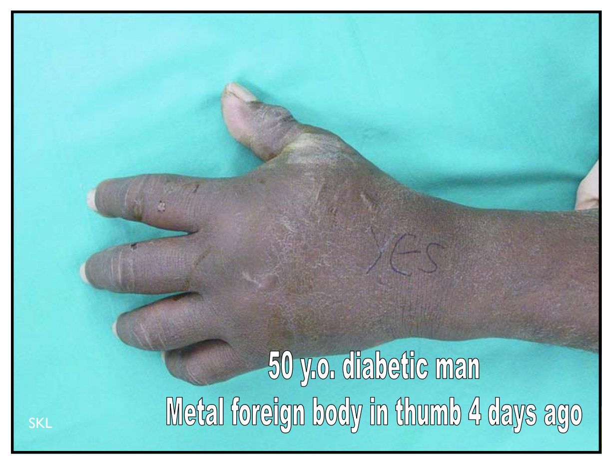
TECHNIQUE: I & D OF THENAR SPACE INFECTIONS


Common
digital n.
Flexor digitorum
superficialis

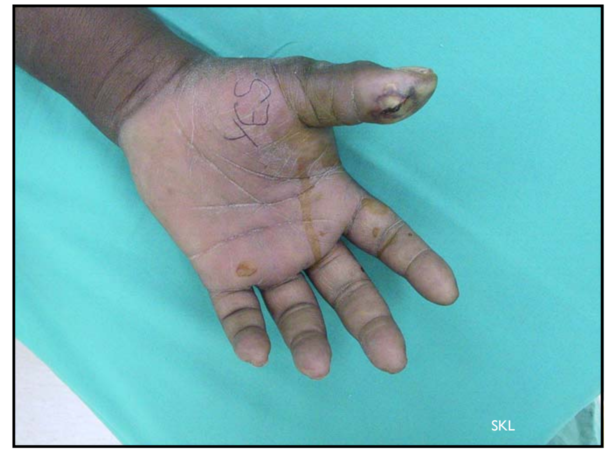

Palmar
aponeurosis

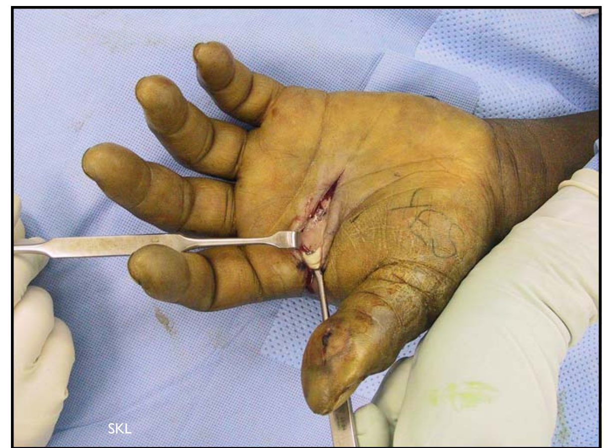

Flexor
digitorum
superficialis
First lumbrical
Common
digital n.
Palmar
aponeurosis
Common
digital
artery


Flexor digitorum superficialis
Thenar space
Common digital n.


50 y.o. diabetic man
Metal foreign body in thumb 4 days ago
SKL

Now painful & swollen
SKL


YES
SKL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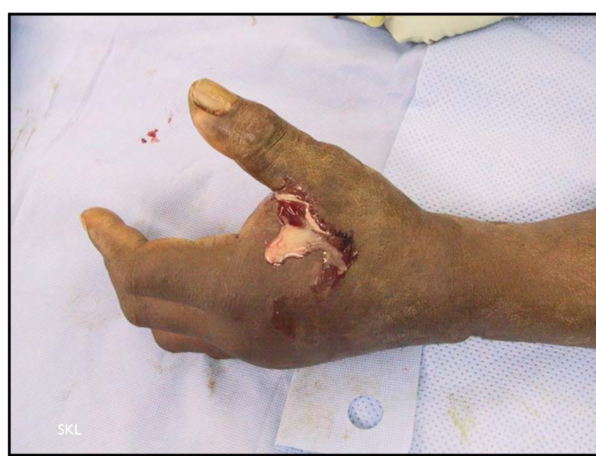
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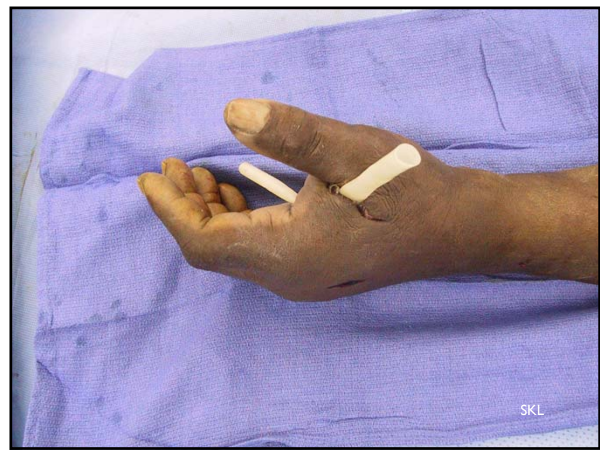

HYPOTHENAR SPACE INFECTIONS

- HYPOTHENAR SPACE: hypothenar muscles
- Extremely rare infection
- RX: palmar longitudinal incision, from wrist crease distally 3 cm in line with ulnar border of 4th ray. Spread through hypothenar fascia

HUMAN BITES

- Surgical I&D
  - IV Abx
    - Ampicillin/sulbactam
    - PCN allergy: Clindamycin and quinolone
  - repeat I&D at 48 hrs if necessary
  - wound left open to heal
  - Tendon repairs done in delayed fashion

•Must cover for *Eikanella corrodens* (7% - 29%)
•*Bacteroides* - most common anaerobes