INFECTIONS OF THE HAND

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GENERAL CONSIDERATIONS

History

- Occupation, injury and if so what type, foreign body?
- General medical status -diabetes, rheumatoid arthritis, gout, medications
- Tetanus Immunization Status

Radiographs

- Foreign bodies, Gas in tissue, Calcification in joint/tissue
- Bony changes: Fracture, Osteomyelitis, Gout

WORK-UP

- Wound discharge
  - ***Viral***= "watery"
  - ***Bacterial***= "creamy"
  - ***Fungal***= "cheesy"
- Gram stain
- Cultures
  - Obtain **prior** to antibiotic treatment
- CBC, ESR, CRP

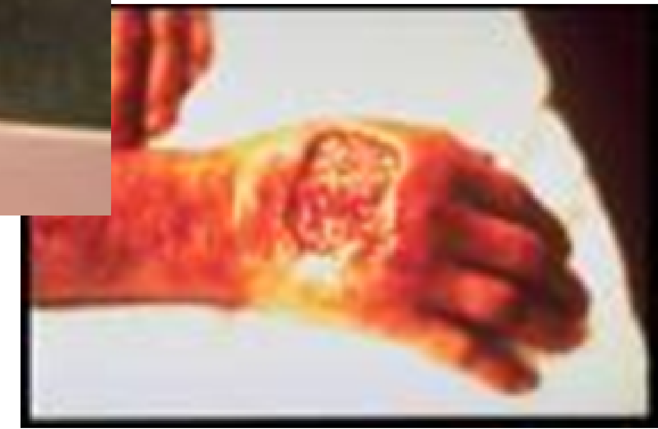
ORGANISMS

- Most common bugs
  - Staph a., Strep., gram negative species
  - Staph: ***50-80%*** infections
- *Bites/farm injuries/Diabetics*: ***polymicrobial***
  - 1/3 ***Human bites***: *Eikenella corrodens*
  - ***Animal bites/scratch***: *Pasteurella multocida*
- Immunocrompromised
  - *M. avium intracellare, TB, Crypto., Histo, Aspergillosis*
- *Indolent/chronic* infection
  - ***Fungi*** or ***atypical mycobacterium***

TREATMENT

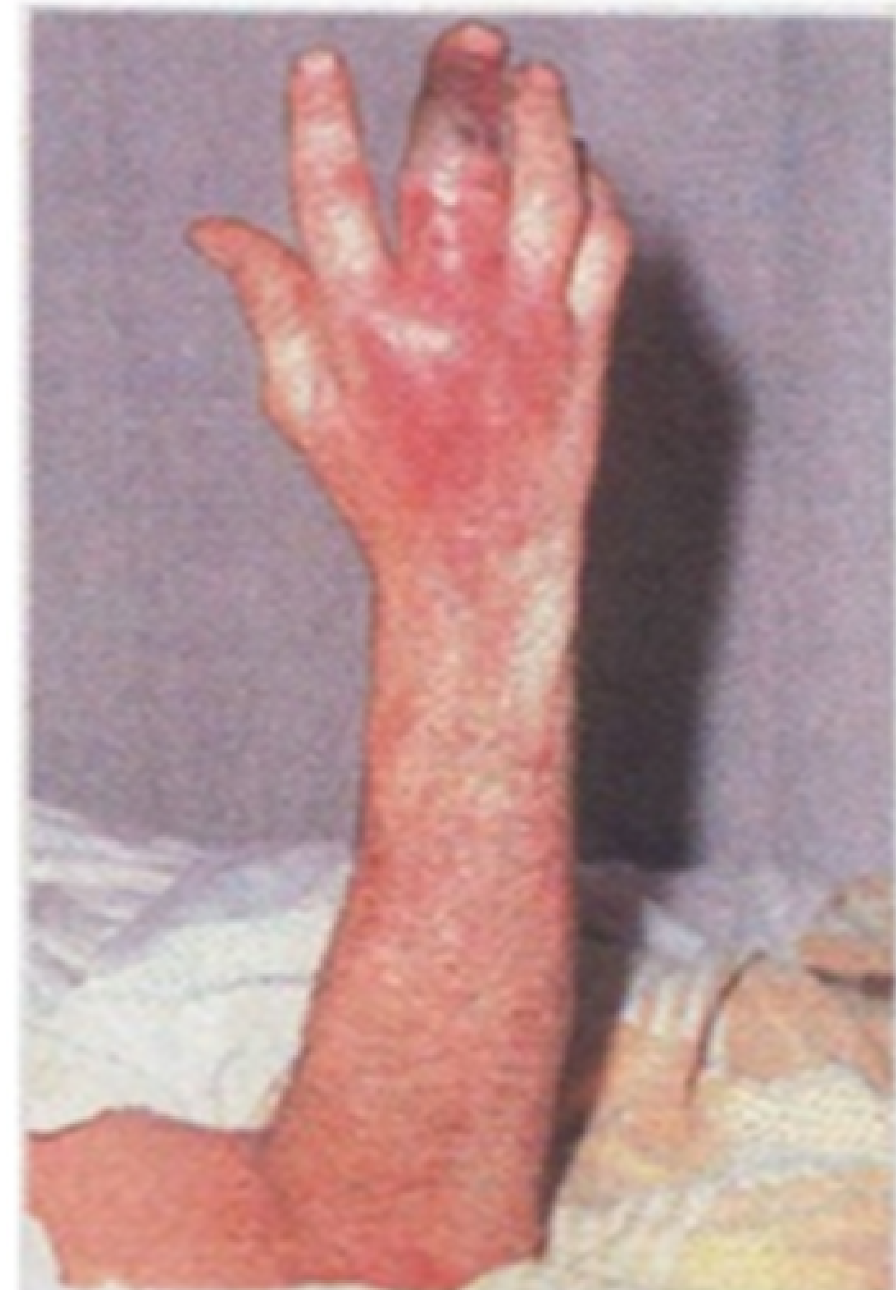
- Empiric treatment
- Most will need I&D, antibiotic, Splint
- 2-3d IV, 7-10d PO
- **Antibiotics**
  - Empiric coverage: aerobes/anaerobes
    - Cefazolin and Penicillin
  - Diabetics/ farm injuries: add aminoglycoside
    - Gentamycin
  - MRSA
    - Vancomycin: 3 case reports of VRSA in US
  - Herpes: consider Acyclovir

- **Surgical management**
  - Adequate initial I & D
  - Leave wound *open*
    - Severe contamination
    - Close by *secondary* intention
    - Eventual graft or flap



Cellulitis

- Hyperemia, edema, lymphangitis
  - What lies beneath?
- Skin and subcutaneous tissue involvement
- Offending Agent
  - *Group A-β-hemolytic Streptococccus*
- Early cellulitis: PO antibiotics for 24/48h
  - Penicillin-V or cephalexin is best to cover both *staph/strep*
- Otherwise IV



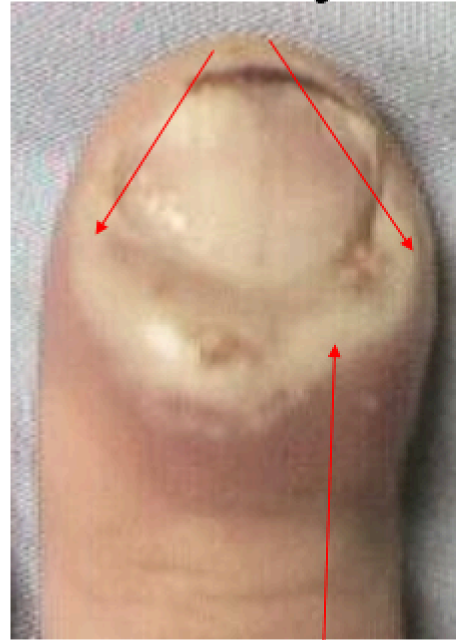
PARONYCHIA

- Infection of the *lateral nail fold*
- Most common *acute infection* of the hand
- Etiology
  - ***Fingernail biting, minor trauma, manicures***
- #1 cause
  - *Staphylococcus aureus*

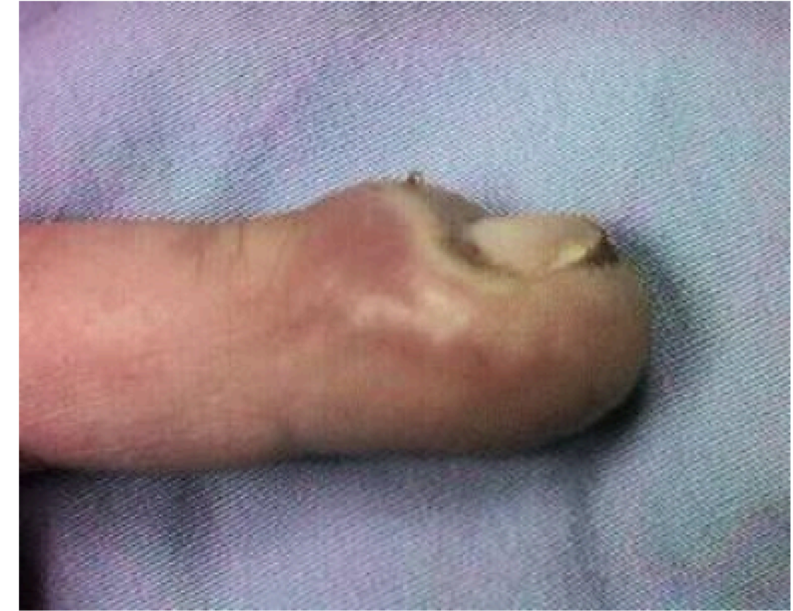
Management

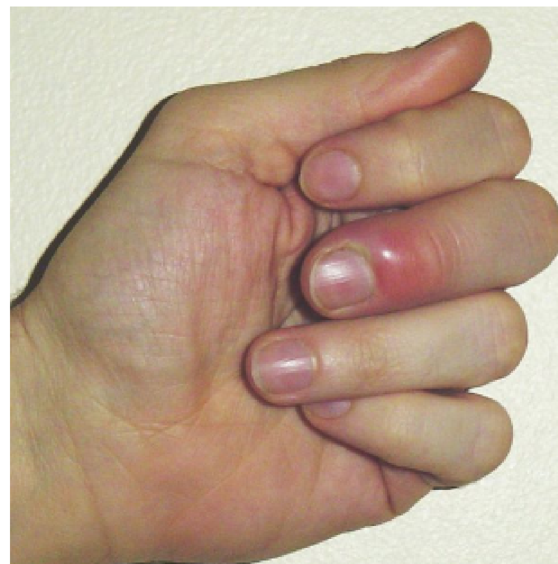
- Warm soaks
- Oral antibiotics (cover Staph)
- Surgical
  - I&D
  - Partial nail excision

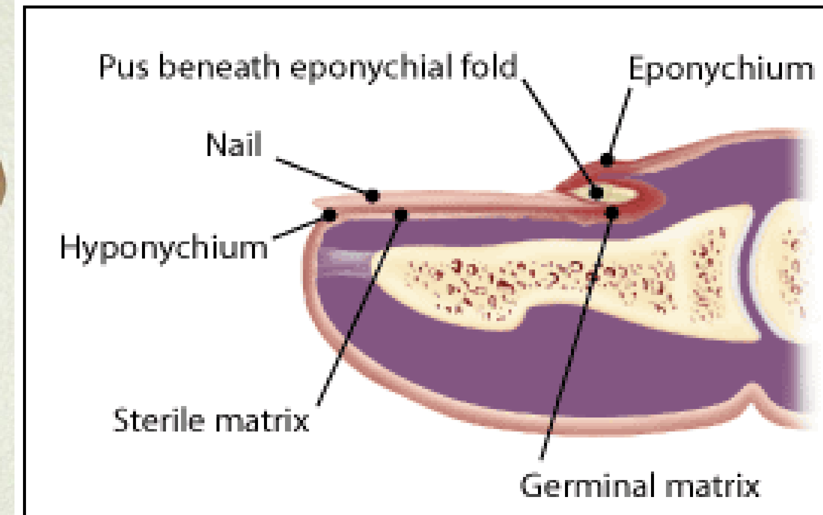
Paronychiae



Eponychium





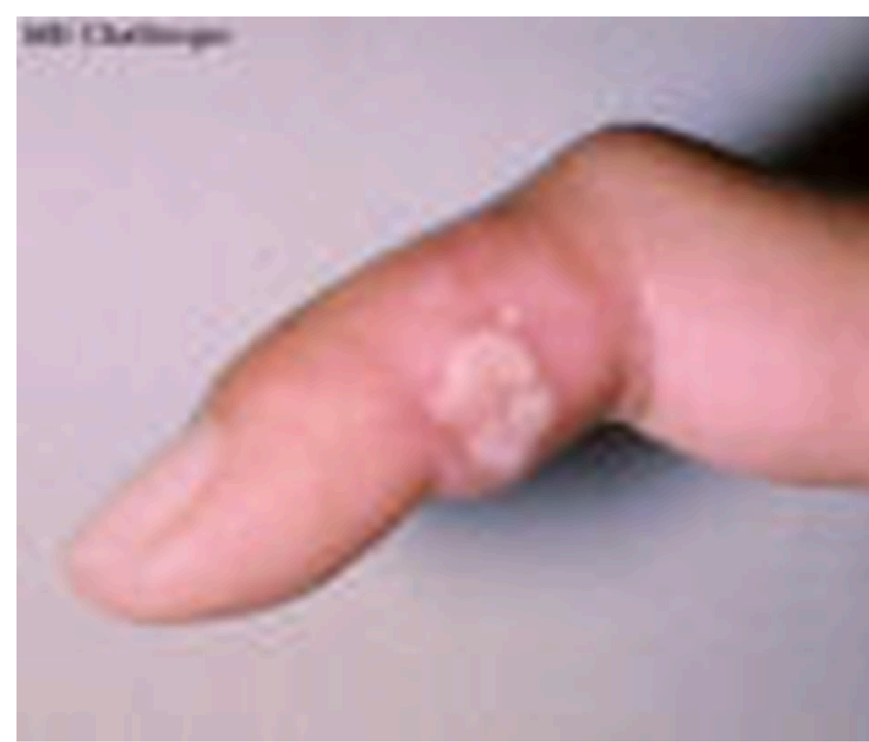


Paronychia Infection

- **Chronic**
  - *Intermittent inflammation* due to ***constant moisture***
  - Eventual ***nail fold separation from plate***
  - ***Cheesy drainage***
    - *Candida albicans*
  - Management
    - Antifungal (Clotrimazole) + surgery

- …
- ….
- ….

HERPETIC WHITLOW

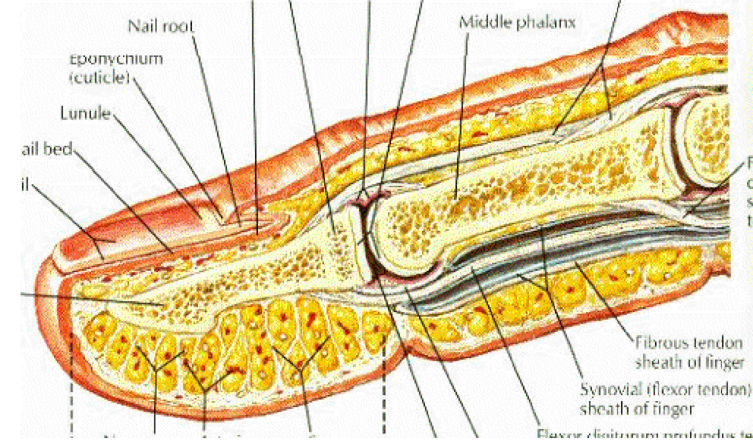


- *Superficial Herpes 1 & 2* viral infection
- Higher risk in medical & dental personnel
  - *Pre-school age children*
- Initial Symptoms = *pain 2-14 days* after exposure
- *Vesicular lesions*: ***clear*** fluid
  - Vesicles that ***coalesce, un-roof, ulcerate***
- Risk of infection ***until re-epitheliazation (2 weeks)***
- Recurrences associated with ***stress/sun***

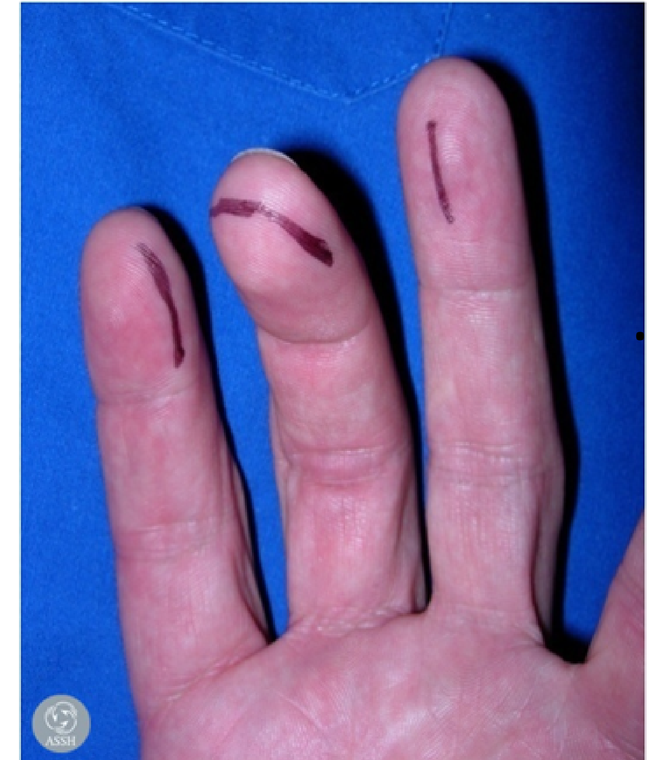
MANAGEMENT

- *DON'T I & D*: risk for ***superinfection***! – Just cover with sterile dressing
- Self-limiting, resolving over 2-3weeks
- Acyclovir may help – in immunocompromised

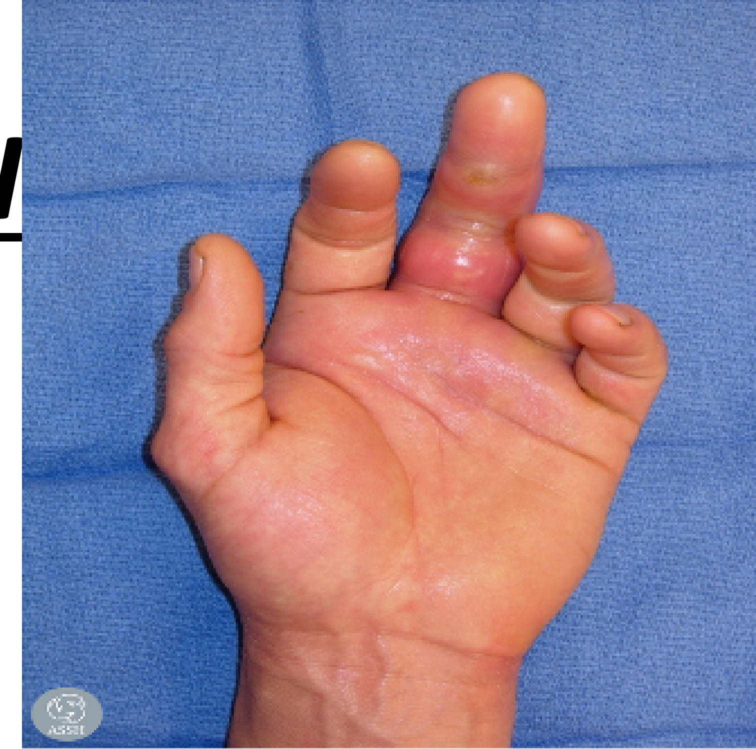
FELONS



- *Painful bacterial* infection of the ***digital pulp***
- X-ray to rule out tumor, osteomyelitis or foreign body
- ***Painful***, ***swollen*** *distal* ***phalanx***
- Pus trapped by ***fibrous septa***
- *True Abscess-DRAINAGE*!



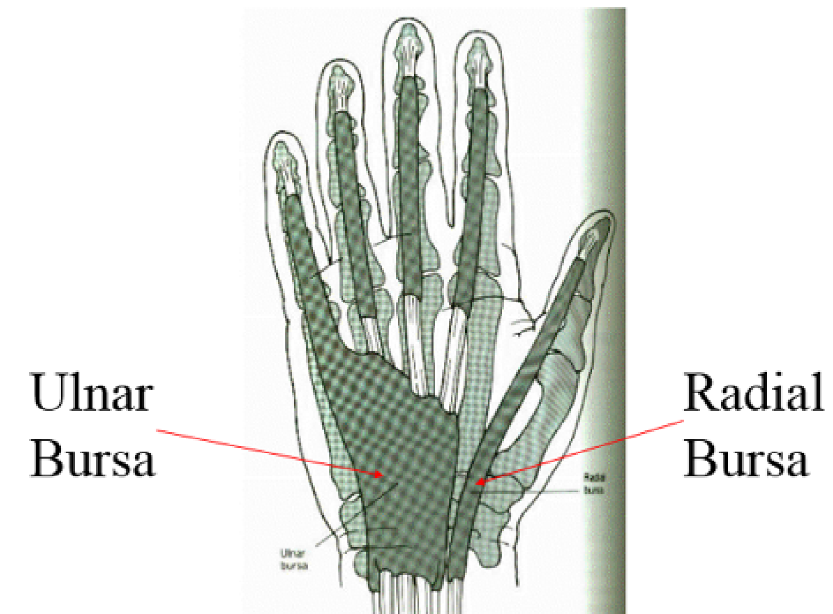
PYOGENIC FLEXOR TENOSYNOVITI



- ***Bacterial*** infection of *tendon sheath*

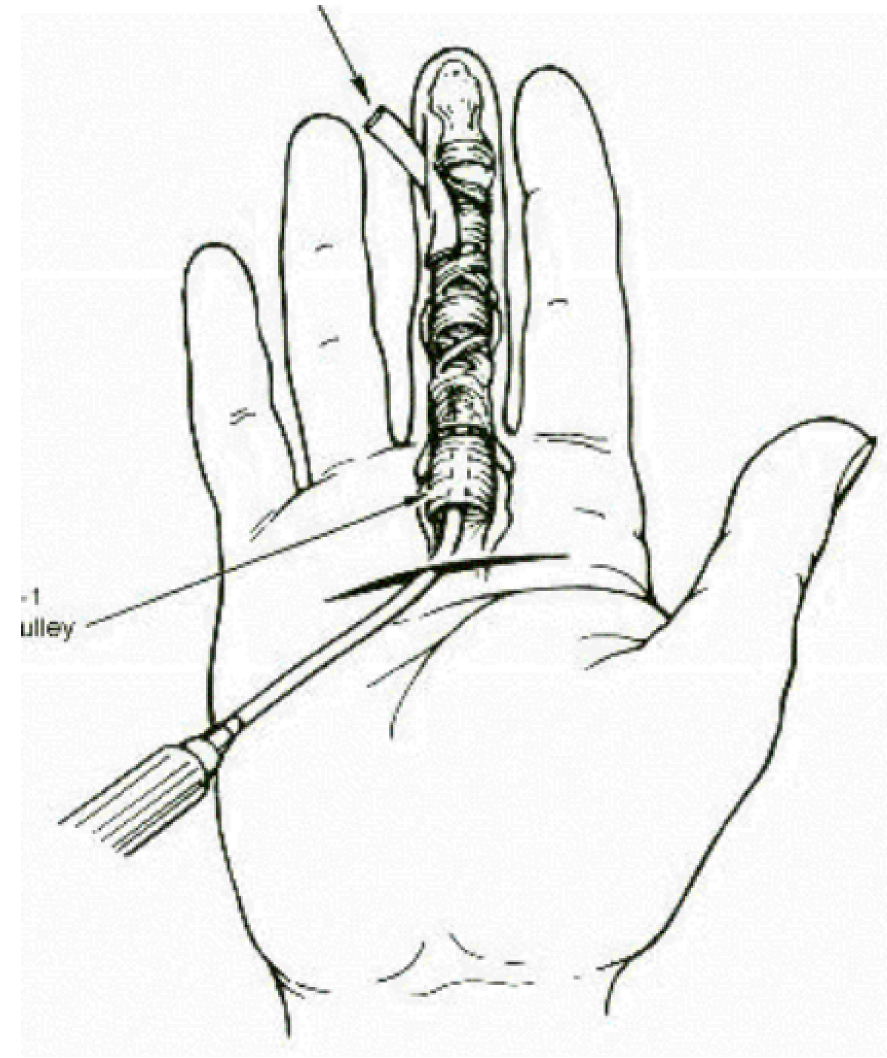
Kanavel's Cardinal Signs

1. ***Flexed*** resting position of the digit
2. ***Fusiform*** swelling
3. ***Tenderness*** to palpation of the flexor tendon sheath
4. ***Pain*** on passive digital extension



PYOGENIC FLEXOR TENOSYNOVITIS: ***TREATMENT***

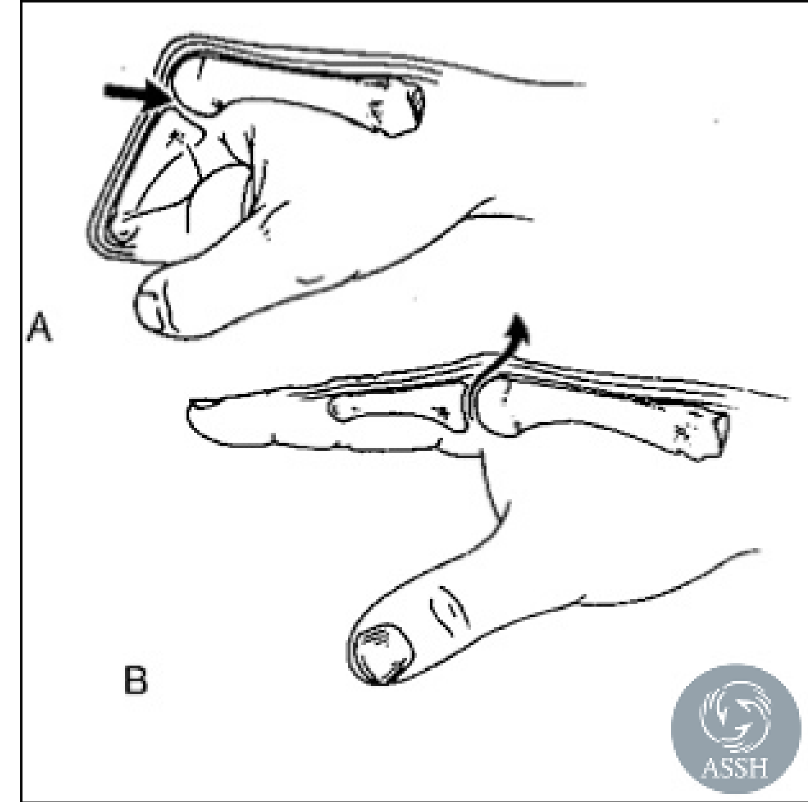
- Elevation, splint, IV antibiotics for 24 hours
- I & D and irrigation catheter
- Followed by - Splint, irrigate 50cc NS q2hr
- Catheter and wet dressing pulled at 48 hrs.

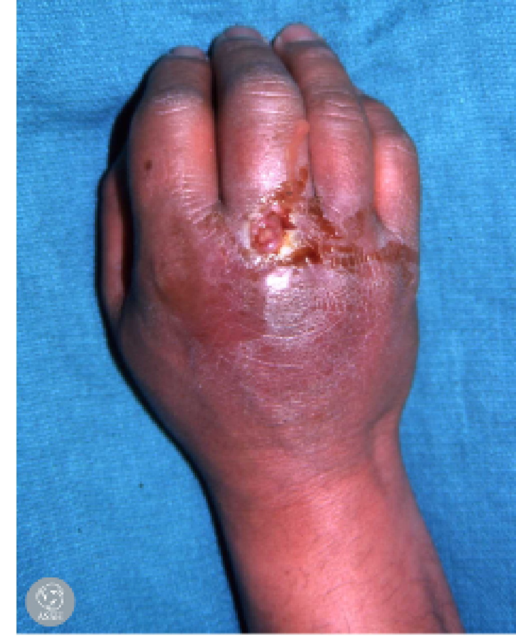


HUMAN BITES

- **Clenched fist: "fight bite"**
  - Wound over *MC head*, but *proximal* when hand extended
  - Occur when clenched fist encounters opponents incisors
  - Often *innocuous appearing injury* to the dorsum of the MP joint of the *dominant long finger*
  - Swelling, redness and pain 24 hours later

- Offending agents: ***aerobes*** and ***anaerobes***
  - Strep, Staph, E. corrodens





Human Bites: MANAGEMENT

- Treat for bone and joint involvement
  - Admit, elevate, IV antibiotics
    - Penicillin-G, 2nd generation cephalosporin
    - Combination of Amoxicillin and Clavulanic acid
  - I & D, surgical exploration
  - Heal by *secondary* intention
  - Delayed tendon repair

ANIMAL BITES

- **Dogs>cats>rodents**
  - 15-20% dog bites infected
  - ***50%*** of cat bites infected
- Usually combo of aerobe & anaerobe
- Cats AND dogs
  - *Pasturella multocida*
  - Penicillin or cephalosporin sensitive
- **Don’t close any bites!!!**
- Rabies
  - If healthy animal; *observe 10 days*

SIMULATORS

- *Gout*
- *Rheumatoid arthritis* of the hand