Hand Infections
Introduction

• Common

• Minor
  – Complete resolution

• Severe
  – Significant long-term compromise of hand function
Causes

• Bacterial
• Neglected minor wounds
• Inadequate / delayed treatment of primary injury
• IVDA, DM, Immunocompromised
Bacteriology

• Staph aureus
• Strep viridans, beta-haemolytic strep, mycobacterium tuberculum
• IVDA / bites – anaerobes
• Human bites – Eikenella corrodens
• Cat / dog bites – Pasteurella multicoda
• Marine / fish tanks – mycobacterium marinum
Principles of Management

• Early Diagnosis
• Non-operative
  – Splintage
    • Wrist ext 15-30, MCP flex 70-90, IP ext
  – Elevation
  – Antibiotics
• Surgery
  – Incision & drainage
  – Anatomy
    • nail, digital NV bundles, deep palmar spaces
• Intensive hand therapy
Paronychia

- Penetrating, nail biting
- Nail / nail fold
- Pain, swelling, erythema
- Staph aureus (oral flora)
- I & D
  - +/- nail removal

- Chronic
  - Immersion
  - Fungal (candida)
  - Antifungal +/- nail excision
Carbuncle

- Dorsum of hand
- Infected hair follicle
- I & D

Felon

- Pulp space infection / abscess
- Penetrating injury
- S. aureus, strep, anaerobes
- Compartments & septa
- Infection $\rightarrow$ ↑ pressure $\rightarrow$ pain & tenderness $\rightarrow$ fat & skin necrosis
- I & D (border, rupture septa)
Flexor tendon sheath infection

- Pyogenic Flexor Tenosynovitis
- Serious
- Disability – stiffness
- Penetrating injury, “minor” volar laceration
- Staph aureus
Kanavel Signs

- 1912
- Fusiform swelling entire digit
- Finger held semi-flexed
- Tenderness along tendon sheath
- Severe pain on passive extension
Flexor tendon sheath infection

- Scarring, adhesions & stiffness
- Pressure →
  ↓ tendon blood supply → tendon necrosis

- Surgical decompression
  - DIPJ & A1 pulley
  - Irrigate through sheath
- ABx, Splintage, physio
Interdigital Infection

• Web space skin – can spread:
  – Web space
  – Via lumbrical canal → deep palmar area

• I & D web space
Palmar space infection

- Direct penetration
- Spread from more distal sites
- S. aureus, strep

- Deep palmar space
- Swelling may be dorsal
- Unwell, pain (palmar pressure)
- Uncommon
- May point as abscess
  - Thorough exploration - look for deeper extension
  - Digital nerves, vessels
Septic arthritis

- Penetrating injury
- Swelling, effusion, erythema
- Reduced movement – painful
- Arthrotomy, washout, debridement

Osteomyelitis

- Pain, erythema, swelling
- Staph, strep
- Children – haemophilus influenzae
- Debridement – Remove sequestrum & devitalised bone
Bites

- Human “Bite” – MCPJ
  - Fist vs teeth
- Polymicrobial, anaerobic
- Gram -ve anaerobes
- Eikenella Corrodens
- Rapid swelling & erythema

- Joint irrigation
- Splintage
- ABx
  - penicillin, metronidazole
Animal bites

- Wound debridement
- Penicillin V

Cats / dogs
- *pasteurella multocida*
- *Gm –ve bacillus*
- *penicilllin sensitive*
Strep Cellulitis

- Strep Pyogenes
- Infection not localised
- Unwell
- Pain, marked swelling whole hand
- Ascending lymphangitis

- Splintage, elevation, iv penicillin
- 24-48 hrs – look for pus collection
Summary

• Well treated
  – rapid & complete resolution & restoration of function

• Poorly managed
  – Delayed / prolonged / incomplete recovery
  – Permanent incapacity
Discussion