

## Hand and finger infections

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See also: **hand injuries guideline** on BSUH Microguide > Paediatrics & Neonatology > Paediatrics > A-Z > H

This guideline covers 3 main types of hand and finger infections

1. Paronychia
2. Flexor Tenosynovitis
3. Felon

### Assessment

- How did the infection start?
- When did this first occur or begin?
- Where did it occur? Home? Work? In water? In dirt? From an animal or human bite?
- Is it possible that a foreign body is in the wound?
- Treatment already given?
- Tetanus status?
- Any previous injuries to the area?
- Loss of function?
- Fever? Chills?

Specific information may help pinpoint the type of finger infection:

**Paronychia:** A history of nail biting / thumb sucking / ingrown nails

**Felon:** A history of a puncture wound or cut. This would include a plant thorn. Consider an X-ray to look for involvement of the bone or possible foreign body.

### Management of specific infections

#### 1. Paronychia

An infection of the finger that involves the tissue at the edges of the fingernail.

Usually caused by staphylococcus.

Usually superficial and localized to the soft tissue and skin around the fingernail.



<http://doctorv.ca/medical-conditions/nails/paronychia-acute/>

Paronychia is painful, red and swollen, with purulent drainage around the margin of the nail.

### Treatment:

May be treated with wound care alone, Magnesium sulphate or a warm / antiseptic (Chlorhexidine) soak.

- Without abscess: topical antibiotics after warm soak several times per day is usually effective. Oral antibiotics in more severe cases.
- If a collection of pus is present, it will need to be drained.
  - A scalpel can be used to make a simple incision over the collection of pus to allow drainage, or the scalpel may be inserted along the edge of the nail to allow drainage (consider taking pus culture if recurrent or not healing after appropriate treatment with antibiotics and drainage)
  - Use Ametop for 1 hour prior to procedure, and / or Entonox during procedure.
- If the infection is large, a part of the nail may need to be removed. If this is required, a ring block will be needed.

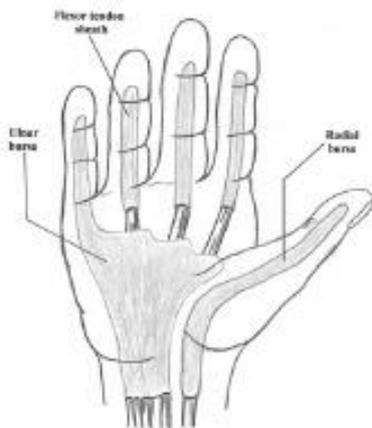
Prescribe oral antibiotics (if required – flucloxacillin) and follow-up with practice nurse or CED review clinic in 24 – 48 hours.

## 2. Flexor tenosynovitis

Inflammation of a digit's tendon and its sheath (see image below).

Most acute cases of flexor tenosynovitis (FT), which involves disruption of normal flexor tendon function in the hand, result from infection. Bacterial Infection develops via trauma with inoculation (laceration, puncture, bite), continuous spread from adjacent soft tissue or hematogenous spread.

FT also can develop secondary to acute or chronic inflammation from a noninfectious cause, such as diabetes, overuse, or arthritis.



- Patient presents with swelling, slightly flexed with tenderness over the flexor tendon sheath and increased pain on passive extension of the digit.
- If the tendon sheath of the small finger or thumb is involved primarily, the infection may spread to the wrist.
- The sheath if the index, middle and ring finger extends to the palm but not the wrist.

Streptococcus and Staphylococcus are the most common organisms. Often secondary to animal bites.

**Kanavel's Signs** is a clinical sign found in patients with infection of the flexor tendon sheath in the hand. The signs consist of four components:

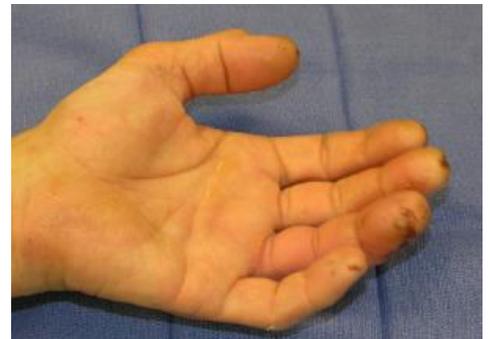
1. the affected finger is held in slight flexion.
2. there is fusiform swelling over the affected tendon.
3. there is tenderness over the affected tendon.
4. there is pain on passive extension of the affected finger.

Anatomic relationships of flexor sheaths to deep fascial spaces should be kept in mind. Contiguous spread can result in a "horseshoe abscess": from small finger flexor sheath to the thumb flexor sheath via connection between the radial and ulnar bursa.

### Treatment

Requires admission for I.V antibiotics, and often theatre for incision and drainage.

1. Analgesia
2. I.V access and prescribe antibiotics (co-amoxiclav).
3. Refer to Orthopaedic Registrar (bleep 8629).



If the diagnosis of flexor tenosynovitis is unclear, discuss with CED Consultant or Orthopaedic Registrar.

### 3. Felon

An infection inside the tip of the finger can form an enclosed pocket of pus (or abscess) that is very painful as it expands. Usually involves thumb or index finger. It usually is caused by *Staphylococcus aureus* bacterial infection, but a herpes virus called herpetic whitlow and, more rarely, fungi can also cause felons.

Like other types of infections, felons sometimes begin after the finger is punctured by a foreign body.

If the bacteria pocket continues to expand, it can compress blood vessels in the finger. Left untreated felon can cause osteomyelitis.



Erythema, fusiform swelling, and mild flexion

A felon causes extreme pain at the fingertip, especially when pressure is applied to the "fingerprint" surface.

The end of the finger swells, is warm, and turns red. There may be an accumulation of pus. As the felon increases, the fingertip may feel numb, and flexion may be painful.

### **Treatment**

1. Analgesia
2. I.V access
3. Refer to Orthopaedic Registrar (bleep 8629) for incision and drainage as often requires theatre.