

Nail Bed and Fingertip Injuries

The nail protects the fingertip and helps with sensing pressure. The nail can help in picking up small objects. The nail, nail bed, tendon, bone, and fingertip skin act as a unit.

Injuries to the nail are often coupled with damage to surrounding tissues (**Figure 1**). These other injuries include fractures of the bone (distal phalanx) and/or cuts of the nail bed (the tissue under the hard nail plate). Fingertip skin, tendons that straighten or bend the fingertip, and nerves can also be damaged.

Causes

Many nail bed injuries result from getting the finger caught in a door. Any type of pinching, crushing, or sharp cut to the fingertip may result in injury to the nail bed.

Signs and Symptoms

Trauma to the fingertip may result in a painful collection of blood under the nail. More severe trauma can result in cracking of the nail into pieces or the nail can be torn off (**Figures 2a and 2b**). The tendons and bone can also be injured. Of all nail bed injuries, 50% are associated with fractures.

Evaluation

A thorough history of the cause of the injury is important. X-rays are needed to look for fractures. The full extent of the injury may not be clear until the nail is examined under local anesthesia.

Treatment

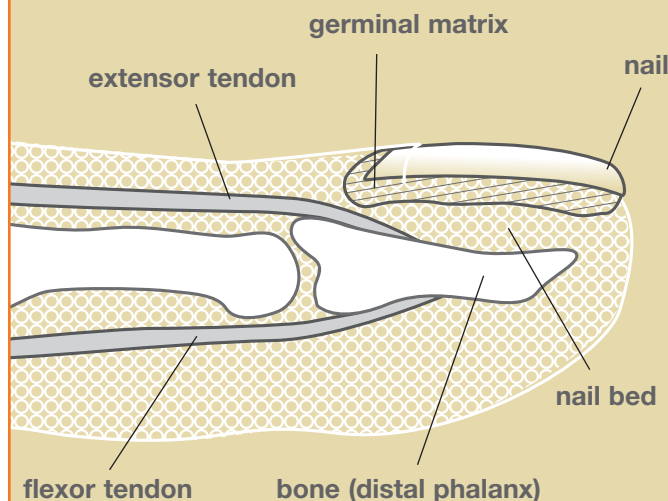
The goal of treatment is to restore the normal anatomy of the nail and nearby structures.

- A small hole in the nail can be made to drain blood collections. This can decrease the pressure and provide pain relief.
- Shallow cuts can be repaired with stitches.
- Fixing the nail bed can restore alignment of simple fractures.
- Larger fragments of bone may need surgery to fix the bone with a metal pin or the finger may require a splint.
- Missing areas of nail bed can be replaced with parts of nail beds from other fingers or toes. Tendon injuries may require splinting or more complex surgery.
- Open areas of skin may be allowed to heal on their own. Alternatively, a skin graft or local flaps (**Figure 1**) may be needed.
- Medical problems, such as diabetes or skin diseases, may affect healing. These should be discussed with your doctor.

Prognosis

The final appearance and function of the nail depends on being able to restore the normal anatomy. If the injury is sharp and can be repaired, a normal nail is likely to result. If there is more severe crushing of the nail bed, then nail bed scarring may occur. This may lead to a deformity of the nail. The germinal matrix is a crescent-shaped zone at the base of the nail bed from which the nail grows. If it is injured, there will likely be a deformity of the nail as it grows. The function of the nail also depends on the extent of trauma to surrounding structures. It takes 3-6 months or longer for a new nail to grow.

Figure 1: The anatomy of the nail bed and surrounding structures from a lateral view.



Figures 2a and 2b: An example of a nail bed injury.

