

# Subungual Hematoma

A subungual hematoma is a condition characterized by the accumulation of blood and fluids beneath the nail, typically following trauma to the finger or toe. The injury disrupts small blood vessels under the nail, leading to blood pooling beneath the nail plate. While subungual hematomas are often benign and self-limiting, they can cause significant discomfort and occasionally result in complications, such as damage to the nail matrix or infection. The clinical course of a subungual hematoma typically involves discoloration of the nail and resolution over time as the hematoma is reabsorbed by the body.

## Etiology and Pathophysiology

Subungual hematomas primarily occur as a result of trauma to the nail, often involving blunt force or compression. Common scenarios include hitting a finger with a hammer, stubbing a toe, or wearing ill-fitting shoes that cause pressure on the toes. The trauma leads to the rupture of small blood vessels beneath the nail, causing blood to pool and form a localized clot under the nail plate. In some cases, tight shoes can exacerbate the pressure in the toe, leading to similar vascular injury and hematoma formation.

As blood collects under the nail, it creates significant pressure within the confined space, which often leads to pain and discomfort. Over time, the color of the hematoma changes due to the breakdown of blood components, transitioning from red or purple to dark brown or black as the blood coagulates and clots. The intensity of pain typically peaks within the first few hours and gradually subsides as the pressure diminishes and the body begins to reabsorb the hematoma.

## Clinical Features and Diagnosis

The clinical presentation of a subungual hematoma typically includes the following features:

- **Pain:** Initially, the injury may cause mild to moderate soreness or tenderness. As blood accumulates beneath the nail, the pain often intensifies due to the increasing pressure. The nail may become highly sensitive to touch or movement.
- **Discoloration:** The affected nail exhibits a characteristic color change, starting with a red or purple hue due to fresh blood accumulation, progressing to darker shades (brown or black) as blood clots and breaks down.
- **Nail Deformation:** In severe cases, the pressure from the hematoma can cause the nail to lift from the nail bed, potentially leading to nail separation.

The diagnosis of a subungual hematoma is typically clinical and based on the history of trauma and physical examination findings. Additionally, a thorough examination is necessary to assess for damage to the nail matrix, the tissue responsible for nail growth.

## Management and Treatment

### ➤ **Conservative Management:**

- **Rest and Elevation:** The affected digit should be rested and elevated to reduce swelling and minimize further injury. Elevating the finger or toe helps decrease blood flow to the area, alleviating some of the pain and pressure.
  - **Ice Application:** Ice is typically recommended within the first 48 hours following injury to reduce swelling and pain. It should be applied wrapped in a cloth to avoid direct contact with the skin and nail, which could cause further damage or frostbite.
  - **Compression:** Gentle compression of the affected area can help limit bleeding and reduce swelling. This is usually accomplished using a soft bandage, though it should not be too tight to avoid obstructing circulation.
- **Pain Management:** Over-the-counter analgesics such as ibuprofen or acetaminophen can be used to manage pain and inflammation associated with the hematoma.
- **Drainage (Trephination):** If the hematoma is large and painful, medical intervention may be necessary to relieve pressure. The procedure known as trephination involves using a small, sterile instrument (such as a heated needle or surgical drill) to create a hole in the nail plate. This allows the blood to drain from beneath the nail, providing immediate relief of pressure and pain. Trephination is typically performed by a healthcare professional to minimize the risk of infection or further injury.
- **Nail Removal:** In rare cases where the nail is severely damaged or there is significant concern for infection or prolonged pain, nail removal may be required. However, this is generally not the first line of treatment and should only be considered in specific situations, such as extensive nail damage or when trephination does not adequately relieve symptoms.

## Complications and Considerations

Although subungual hematomas typically resolve without further complications, there are potential risks that should be considered:

- **Infection:** If the hematoma is not drained appropriately or if the nail is removed improperly, there is a risk of bacterial infection. Signs of infection include increased redness, warmth, swelling, and pus drainage from the injury site.
- **Nail Matrix Damage:** The most significant complication of a subungual hematoma is the potential damage to the nail matrix, which can disrupt nail growth. In severe cases, the damage may result in nail deformities or failure of the nail to regrow correctly. If the nail matrix is damaged, surgical intervention may be required to prevent permanent deformity.

- **Fracture:** If the trauma is significant enough to cause a subungual hematoma, it may also involve a fracture of the phalanges (finger or toe bones). This should be assessed using X-rays to rule out bone fractures, which may require further treatment.

## Prognosis

The prognosis for a subungual hematoma is generally favorable, with most cases resolving on their own within a few weeks to months. As the hematoma is reabsorbed, the nail will gradually return to normal, though the process can take 6-9 months for a new nail to fully grow out. In cases where the nail matrix has been damaged, there may be permanent changes to the nail's appearance or structure, although the nail typically regrows over time.

## Conclusion

Subungual hematomas are common, self-limiting injuries that result from trauma to the nails. While most cases can be managed conservatively with rest, ice, elevation, and pain control, some may require medical intervention, particularly if the hematoma is large or painful. Trephination offers a safe and effective means of relieving pressure, while nail matrix injury remains the most serious complication. Proper management and timely treatment are crucial to ensuring the optimal recovery of the affected nail and minimizing the risk of complications.

## References

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