PAEDIATRIC ACUTE CARE GUIDELINE	
Hand Trauma	
Scope (Staff):	All Emergency Department Clinicians
Scope (Area):	Emergency Department

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Hand Trauma

This guideline is for the management of hand lacerations, nail bed injuries and soft tissue injuries. For the management of hand fractures refer to Fractures - Hand guideline

Background

- Hand trauma is a common presentation in children
- Injuries include lacerations, nail bed injuries, soft tissue injuries, dislocations and fractures
- At PMH, any injury which may affect normal hand function should be referred to the Plastic Surgical Team

General

- Hand injuries tend to have a bimodal distribution with toddlers typically presenting with lacerations and soft tissue injuries and adolescents with fractures.
- Crush injuries are common in younger children as they explore their environment with their hands. These can cause minor lacerations, nail bed injuries, subungual haematoma and fractures.
- Older children tend to have injuries from sport, sharp tools or equipment.

Assessment

- Thorough examination of normal hand function is important to detect underlying fracture, tendon or nerve injury

Examination

- Compare both hands and look for bruising, erythema, swelling and deformity.
- Passive and active range of movement of all joints in hand and wrist should be examined. Testing against resistance may identify ligamentous injury.
- Rotational deformities may be more obvious when the patient makes a fist.
- Palpate for obvious areas of tenderness.
- Assess for any neurovascular compromise.

Investigations

- X-Ray specific areas of focal bony tenderness or if risk of foreign body. Refer to Radiological Requests - Limb X-Rays

Initial management

- Analgesia (consider nerve block)
- Haemostasis
- Antibiotics if open fracture, bite or grossly contaminated wound
- Tetanus if not up to date
- Keep nil by mouth if referral to hand surgeon is required

Further management

- Simple soft tissue injuries are managed symptomatically
- See Fractures - Hand guideline if X-Ray shows a fracture

Finger Tip Injuries
Simple Skin Avulsion: • A simple skin avulsion of the nail or pulp, if smaller than the size of the nail will heal very well • Apply a simple dressing (non adherent) which can be trimmed at the edges as the wound heals
Burst Lacerations of the Pulp: • If the laceration is less than half the circumference of the digit, apply Steristrips • If the laceration involves more than half the circumference, sutures will be necessary • Majority of injuries do not require referral
Nail Bed Injuries: • Nail bed injuries should be referred to the Plastic Surgical Team if: ◦ There is a suspected laceration of the nail bed ■ Nail bed lacerations should be suspected where there are lacerations across the eponychial fold (where the proximal part of the nail disappears under the skin), or transverse lacerations of the nail which extend onto the skin on either side of the nail ◦ The nail is avulsed from the eponychial fold ◦ An underlying crush fracture is noted on X-Ray • These injuries require surgical intervention to prevent future nail deformity and infection

Subungual Haematoma:
• The severe pain of a subungual haematoma may be relieved by trephination (creation of a small hole) at the base of the nail, but only after an underlying fracture has been ruled out by X-Ray (if a fracture is present, seek advice from the Plastic Surgical Team)
• **Trephination**
  ◦ Prior to trephination, paint the nail with iodine solution, and then gently create a hole through the base of the nail through which the underlying haematoma can drain
  ◦ The hole can be bored by means of rapid twirling with a 23G needle or by the time-honoured method of heating the tip of a paperclip over a flame and then applying gentle pressure until the tip of the paperclip passes just through the nail
  ◦ Apply antiseptic ointment and a simple dressing
  ◦ Prophylactic antibiotics are not required
  ◦ Instruct the patient to keep the finger dry for three days
  ◦ A simple aluminium finger splint may provide some protection

Finger Tip Fractures: Refer to Fractures - Hand
• With crush injuries of the tip of the finger, soft tissue injury is more important than bony injury
• Generally, fractures of the tip of the distal phalanx require not treatment other than symptomatic buddy strapping or an aluminium finger splint
• However, if there is associated nail bed injury or pulp laceration, the fracture is a compound fracture and an opinion should be sought from the Plastic Surgical Team
• Antibiotics may be needed

Tendon Laceration

• Lacerations caused by sharp objects (e.g. broken glass) are at increased risk of associated tendon injury
• Examine joint movement carefully
• Any suspicion of tendon laceration should be referred immediately to plastic surgery team
• Keep the patient nil by mouth while awaiting hand surgeon review

Amputation of the Finger (s)

Stump Care:
• Irrigate with saline to decontaminate
• Cover with saline-moistened sterile gauze
• Control bleeding with direct pressure
• Splint and elevate hand

Care of the amputated part:
• Irrigate with saline to decontaminate
• Wrap in saline-moistened sterile gauze
• Place in a water tight plastic bag
• Place bag in a container of ice water
• **Consult with Plastic Surgical Team urgently**

Dislocations

• Isolated dislocations are rare in children because their ligaments are stronger than bone, and trauma sufficient to induce dislocation in adults invariably results in bony fracture in children - refer to Fractures - Hand guideline.
• If a true dislocation is seen, it may be reduced in ED under nerve block +/- sedation. Refer to plastic surgery if irreducible.
• Immobilise appropriately post reduction (thumb spica or buddy strap), and follow up in plastic surgery hand clinic.
[caption id="attachment_6792" align="aligncenter" width="150"] Thumb dislocation[/caption]

Tags

amputation, avulsion, buddy strap, crush, cut, deformity, dislocation, finger, fingertip, fracture, fractures, growth plate, haematoma, hand, hand trauma, injuries, injury, laceration, metacarpal, nail, nail bed, palmer, phalangeal, phalanx, plastic surgeon, plastic surgical,

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References

Yeh PC, Dodds SD. Pediatric Hand Fractures. *Tech Orthop* 2009; 24: 150-162

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