# Princess Margaret Hospital for Children Emergency Department Guideline

PAEDIATRIC ACUTE CARE GUIDELINE			
Fractures - Foot			
Scope (Staff):	All Emergency Department Clinicians		
Scope (Area):	Emergency Department		

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# Fractures - Foot

This guideline is specific for the assessment and management of foot fractures

# **Background**

- Fractures of the hindfoot and midfoot are uncommon in children
- Forefoot fractures rarely lead to complications

#### General

- Children's feet are flexible therefore hindfoot and midfoot fractures are relatively uncommon
- Metatarsal and phalangeal fractures are more common and usually evident on clinical examination

## **Assessment**

• Be aware of potential compartment syndrome in crush injuries or multiple fractures of the foot

## History

- Common mechanisms of injury are crush injuries, stubbing of toe, kicking and tripping
- Tarsal fractures are uncommon in isolation, and are usually seen in crush injuries
- Calcaneal fractures commonly occur after a fall from a height landing on the heels. In

- these cases, compression fractures of the spine should also be considered.
- Consider non-accidental injury. Complete an Injury Proforma form in all children < 2
  years (A3 folded sheet located in the Doctor's offices)</li>

#### **Examination**

• There is usually localised pain, swelling and tenderness with reluctance to weight bear

#### **Investigations**

#### Radiology:

- X-Rays: dorsopalmar, oblique and lateral views. See Radiology Requests Limb X-Rays.
- If the calcaneus is tender, calcaneal views must be specifically requested since calcaneal fractures may not be visible on standard views
- A CT scan may be indicated in talar fractures, intra-articular calcaneal fractures, severe crush injuries or suspicion of Lisfranc injury
- For descriptions of types of fractures see <u>Fractures Overview</u>

# Management

• The majority of foot fractures do not require operative treatment

## Initial management

- Analgesia
- Immobilise suspected fracture before X-Rays (e.g. splint)
- Examine for neurovascular injury (if deficits evident manage immediately) urgent Orthopaedic Team referral
- Ice and elevation of effected limb
- Antibiotics for compound fractures and consider <u>tetanus</u>

#### **Further management**

#### **Hindfoot Fractures**

- Fractures of the talus and calcaneus are uncommon in children
- Fracture of the talar neck occurs most frequently in hindfoot fractures of children and may be complicated by osseous necrosis – these should be referred to the Orthopaedic Team
- Intra-articular fractures of the calcaneus should be referred to the Orthopaedic Team
- Minimally displaced talar and non intra-articular calcaneal fractures are managed in a below knee plaster backslab and followed up in the Orthopaedic Fracture clinic in 7 days.



Fracture of neck of talus



Talar dome fracture – looks simple on plain X ray but CT shows multiple intra-articular bony fragments.

#### **Midfoot Fractures**

- Fractures of the navicular, cuboid, cuneiform and tarsometatarsal junction (Lisfranc) are rare in children and are usually seen in combination with other foot fractures
- Be wary of compartment syndrome in major midfoot fractures
- Avulsion fractures of the navicular or cuboid are managed in a below knee plaster backslab and followed up in the Orthopaedic Fracture clinic in 7 days.
- Tarsometatarsal fractures (Lisfranc) and complex fractures should be referred to the Orthopaedic Team.

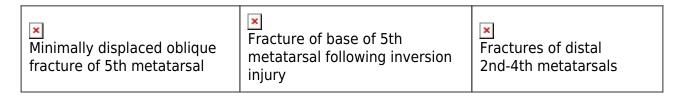
#### **Metatarsal Fractures**

- Minimally displaced fractures of the metatarsals are managed in a non-weight bearing below knee backslab and followed up in the Orthopaedic Fracture clinic in 7-10 days.
- A cam boot may be suitable for undisplaced shaft fractures of the 1st to 4th metatarsals
- Displaced or multiple metatarsal fractures should be discussed with the Orthopaedic Team
- Avulsion fracture at the base of the fifth metatarsal (insertion of peroneus brevis) is a
  relatively common fracture in children. These are immobilised in a CAM boot with
  Orthopaedic Fracture clinic follow up in 7 days. Differentiate avulsion fractures of the
  base of the fifth metatarsal with Jones fractures which involve the 4th and 5th
  intermetatarsal joint these are managed in a below knee backslab with Orthopaedic
  Fracture clinic followup.

# **Phalangeal Fractures**

- The degree of soft tissue injury is often more important than the fracture in phalangeal fractures
- Compound fractures, proximal phalanx and intra-articular fractures of the great toe should be referred to the Orthopaedic Team.
- Proximal phalangeal fracture of the great toe should be immobilised in a Darco Shoe, non-weight bearing and followed up in Orthopaedic Fracture Clinic
- Other phalangeal fractures can be managed with buddy strap and Darco walking shoe or sturdy shoes and do not require specific follow up
- Dislocations of the phalanges can be reduced in the Emergency Department and buddy

strapped. No specific follow up is required.



## Fractures of Foot Requiring Urgent Orthopaedic Referral

- Neurovascular compromise
- Compound fractures
- Compartment syndrome
- Hindfoot (talar and calcaneal) fractures
- Midfoot fractures (Lisfranc injury)

## Referrals and follow-up

- Simple phalangeal fractures and dislocations require no specific follow up
- Other foot fractures should be followed up in the Orthopaedic Fracture clinic in 7-10 days. See <u>Outpatient Clinics</u>.
- All children who have a plaster placed should have a plaster check at 24 hours. They can return to the Emergency Department to be assessed by the triage nurse.

## **Health information (for carers)**

- Pain Management Health Fact Sheet
- <u>Patients with Plaster</u> Health Fact Sheet
- Crutches
- Patients with Forefoot Fractures (Medical Surgical Shoes) Health Fact Sheet

### **Tags**

boot, calcaneus, compound, cuboid, cuneiform, dislocation, feet, foot, forefoot, fracture, fractures, hindfoot, kick, lisfranc, metatarsal, metatarsals, midfoot, navicular, orthopaedic, phalanges, phalanx, talus, tarsal, tarsals, toe, toes, trip

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