PAEDIATRIC ACUTE CARE GUIDELINE	
Fractures – Ankle Joint	
Scope (Staff):	All Emergency Department Clinicians
Scope (Area):	Emergency Department

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Fractures – Ankle Joint

Background

- Ankle injuries are common and usually involve a twisting or inversion mechanism
- Before growth plates are fused, physeal injuries are more likely than ligamentous injuries
- The distal tibia physis is the most common growth plate injured

General

- Ankle injuries are common and include ankle sprains, avulsion injuries and physeal injuries
- In children, ligaments are stronger than bone and a fracture is more likely than ankle sprains
- Ligamentous injuries are more likely in older adolescents once the growth plate has fused

Assessment

- An X-Ray should be performed if unable to weight bear
- Assess neurovascular status especially if there is clinical deformity

History

- The most common mechanism of injury is adduction and inversion of the foot

Examination

- There is usually localised swelling and tenderness over one or both malleoli
- There may be clinical deformity of the ankle joint
- Assess the child's ability to weight bear
- Assess passive and active movement of the ankle joint
- Assess for neurovascular compromise

Investigations

Radiology:

- X-Ray views required are: anteroposterior, lateral and mortise views. See Radiology Requests – Limb X-Rays.
- Displaced physeal and triplane fractures may need a CT scan
- For a general description of types of fractures see Fractures Overview

Management

- Ankle sprains should be treated with Rest, Ice, Compression and Elevation (RICE)
- Displaced physeal fractures often need internal fixation

Initial management

- Analgesia
- Examination for neurovascular injury (if deficits evident manage immediately) – urgent Orthopaedic Team referral
- Ice and elevation of affected limb
- Immobilise suspected fracture before X-Rays (e.g. splint, board)
- Antibiotics for compound fractures and tetanus if not up to date
- Patients being referred urgently to the Orthopaedic Team should be fasting

Further management

Ankle Sprains

- Ankle sprains are more common in older adolescents once their growth plates have fused
- The most common ligament injury is the anterior talofibular ligament – clinically there is maximal tenderness just anterior to the distal fibula
- Ankle sprains/ligamentous injuries can be managed with simple analgesia, rest, ice, compression and elevation
- Crutches can be used until the patient can weight bear without a limp
- Patients who are unable to weight bear with no apparent radiological fracture may be managed in a below knee plaster backslab or a cam boot with a follow up with GP

in 7-10 days

Isolated Distal Fibula Fractures

Salter Harris I Fractures

- Salter-Harris I fractures of the distal fibula are commonly missed fractures
- If undisplaced, there may only be evidence of soft tissue swelling over the lateral malleolus on X-Ray
- Clinically there is maximal tenderness over the lateral malleolus
- Isolated undisplaced Salter-Harris I fractures of the distal fibula are managed in a CAM boot for 3-4 weeks with weight bearing as tolerated.
- No formal follow up is required.

Salter Harris II Fractures

- Undisplaced Salter-Harris II fractures of the distal fibula are managed in a CAM boot for 3-4 weeks with weight bearing as tolerated.
- They should be followed up by GP with a repeat Xray in 7-10 days to ensure no displacement.
- Displaced fractures should be put in below knee plaster backslab and followed up in fracture clinic.

Avulsion Fractures of Distal Fibula

- Manage in a CAM boot for 3-4 weeks with weight bearing as tolerated.
- No formal follow up is required

Avulsion of distal
fibula

Epiphyseal Fracture of Distal Fibula

- Manage in a CAM boot for 3-4 weeks with weight bearing as tolerated.
- They should be followed up by GP with a repeat Xray in 7-10 days to ensure no displacement.
- Displaced fractures should be put in a below knee plaster backslab and followed up in fracture clinic.

Undisplaced epiphyseal
fracture of fibula

Distal Tibia Physeal Fractures

- Salter-Harris II fractures of the distal tibia often occur in combination with a greenstick fracture of the fibula
- Undisplaced Salter-Harris II fractures of the distal tibia are managed in a non weight bearing below knee plaster backslab and followed up in the Orthopaedic Fracture clinic in 7 days
- Displaced Salter-Harris II fractures will need reduction – urgent Orthopaedic Team referral

Minimally displaced Salter-Harris II
fracture of the distal tibia

- Salter-Harris III and IV fractures of the distal tibia will involve the articular surface of the ankle
- Any displacement may require internal fixation and urgent Orthopaedic team referral is required

Salter-Harris III fracture of medial malleolus –
required internal fixation

- Tilleaux fracture is a lateral Salter-Harris III fracture of the distal tibia (as the medial part of the growth plate fuses first)

Minimally displaced Tilleaux fracture

- Triplane fracture is a combination Salter-Harris II and Tilleaux fracture of the distal tibia which occurs in 3 planes
- Fractures involving the articular surface will often need a CT scan to evaluate the extent of the fracture and displacement

Triplane fracture of distal tibia

Fractures of Ankle Requiring Urgent Orthopaedic Referral

- Neurovascular compromise
- Compound/Open fractures
- Clinical deformity
- Displaced Salter-Harris fractures of tibia
- Displaced Tilleaux fractures
- Triplane fractures

Referrals and follow-up

- 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.
- Ankle sprains and undisplaced fibula fractures can be followed up by the GP
- All other ankle fractures should be followed up in the Orthopaedic Fracture clinic in 7-10 days. See Outpatient Clinics.

Health information (for carers)

- Patients with Plasters Health Fact Sheet
- Simple Ankle Fractures Health Facts
- Crutches
- Soft Tissue Injuries (Sprain and Strains) Health Fact Sheet
- Pain Management Health Fact Sheet

Tags

ankle, bone, bones, boot, CAM, displaced, distal epiphysis, epiphyseal, fibula, fracture, fractures, joint, knee, limb, malleoli, metaphysics, neurovascular, ortho, orthopaedic, plantar, plaster, sprain, talotibial, tibia, tilleaux, triplane, undisplaced, X-Ray

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