



PAEDIATRIC ACUTE CARE GUIDELINE

Fractures - Lower Leg

Scope (Staff):	All Emergency Department Clinicians
Scope (Area):	Emergency Department

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<http://kidshealthwa.com/about/disclaimer/>

Fractures - Lower Leg

This guideline is specific for the assessment and management of fractures of the lower leg (e.g. tibia and fibula)

Background

- Tibial shaft and/or distal third fractures are the commonest leg injury of all ages (approximately 1/3 of leg fractures in children)
- Compartment syndrome is a potential complication, especially in high velocity injuries

General

- Tibial shaft fractures are one of the most common long bone fractures in children
- Toddler fractures are common in mobile children under 3 years old and tend to be stable fractures
- The tibia and fibula are common sites for stress fractures in children aged 8 - 15 years. The proximal third of the tibia is most commonly affected. There is usually gradual onset pain and limp with minimal X-Ray findings and rest is the only treatment required.
- For proximal tibia fractures see [Knee Region Fractures](#) and for distal tibia/fibula fractures see [Ankle Joint Fractures](#)

Assessment

- In high velocity trauma, look for signs of compartment syndrome
- Toddlers fracture may present with limp and minimal history of trauma

History

- A common mechanism of injury for lower leg fractures is a fall resulting in a direct blow or a rotational force
- Sports injuries and motor vehicle accidents are a common mechanism in older children
- Toddlers fractures commonly occur with minimal trauma in the child who is learning to walk and trips over. The mechanism may be trivial and often no injury is recalled by the parents.
- Consider non-accidental injury. Complete an Injury Proforma form for all children < 2 years (A3 sheet located in the Doctor's offices)

Examination

- Tibial shaft fractures will have localised swelling and tenderness with or without clinical deformity. The child will not weight bear on the injured leg.
- Toddler fractures often have subtle physical findings with minimal swelling and tenderness. Toddlers will favour the injured leg and not want to weight bear. Carefully examine the hip, knee and ankle joints to exclude septic arthritis, other injury and other causes of limp.

Investigations

Radiology:

- X-Rays: Anteroposterior (AP) and lateral views. See [Radiology Requests – Limb X-Rays](#).
- For a description of the types of fractures see [Fractures – Overview](#)
- Toddler fractures may have an initial normal X-Ray or appear as an incomplete, usually vertical or oblique, hairline crack in the distal tibia. It is typically seen in only one view. If the initial X-Ray is normal, follow up X-Rays 7-10 days later may show signs of periosteal reaction or healing.

Management

- Seek immediate Orthopaedic advice if there is neurovascular compromise or signs of compartment syndrome
- Undisplaced fractures are managed in an above knee backslab
- Consider other causes of limp in toddlers (such as septic joint and osteomyelitis) in suspected toddler fractures with a normal X-Ray

Initial management



- [Analgesia](#)
- Examine for neurovascular injury (if deficits evident manage immediately) – urgent Orthopaedic Team review
- 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
- In children < 2 years complete an Injury Proforma form (A3 folded sheet located in the Doctor's offices)



Further management

Shaft of Tibia / Fibula Fractures

- Undisplaced tibial shaft fractures should be put in an above knee backslab and followed up in the Orthopaedic Fracture clinic in 1 week. See [Outpatient Clinics](#).
- Isolated fibula shaft fractures rarely need Orthopaedic intervention even if displaced, but should be immobilised in a backslab and followed up in the Orthopaedic Fracture clinic in 7-10 days

 Undisplaced transverse fracture of tibia (arrow)	 Spiral fracture of tibia with minimal displacement
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- Displaced, angulated or shortened tibial shaft +/- fibula fractures should be referred urgently to the Orthopaedic Team for possible reduction
- Fractures with less than 10 degrees angulation and less than 20% displacement may not require reduction but should be discussed with the Orthopaedic Team if there is any doubt
- High velocity injuries or fractures with significant swelling are at high risk of compartment syndrome and should be referred urgently to the Orthopaedic Team for admission

 Oblique comminuted fracture of tibia and fibula	 Completely displaced tibial shaft and fibula fracture from a quad bike accident – high risk of compartment syndrome
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Toddler's Fractures

- Toddler's fractures are managed in an above knee backslab and followed up in the Orthopaedic Fracture clinic in 7-10 days. See [Outpatient Clinics](#).
- If there is a query of a Toddler's fracture (non weight bearing/limping following injury, no fracture seen, well child)
 - No immobilisation is needed
 - Rest at home
 - To return to the ED in 5-7 days if still non weight bearing/limping



Toddler fracture – may not always be as apparent as in this X-Ray

Fractures of the Lower Leg Requiring Urgent Orthopaedic Referral

- Neurovascular compromise
- Compound fractures
- Compartment syndrome or risk of compartment syndrome (high velocity injuries)
- Significant displacement or angulation
- Clinical deformity

Referrals and follow-up

- All fractures of the tibia / fibula are followed up in the Orthopaedic Fracture clinic in 7-10 days. See [Outpatient Clinics](#).

Health information (for carers)


- [Pain Management](#) Health Fact Sheet
- [Patients With Plasters](#) Health Fact Sheet
- Advise parents of the signs and symptoms of compartment syndrome
- Crutches

Tags

above knee, backslab, compartment, compartment syndrome, fibula, fracture, fractures, orthopaedic, plaster, shaft, tibia, toddler, toddlers

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