ANKLE INJURIES

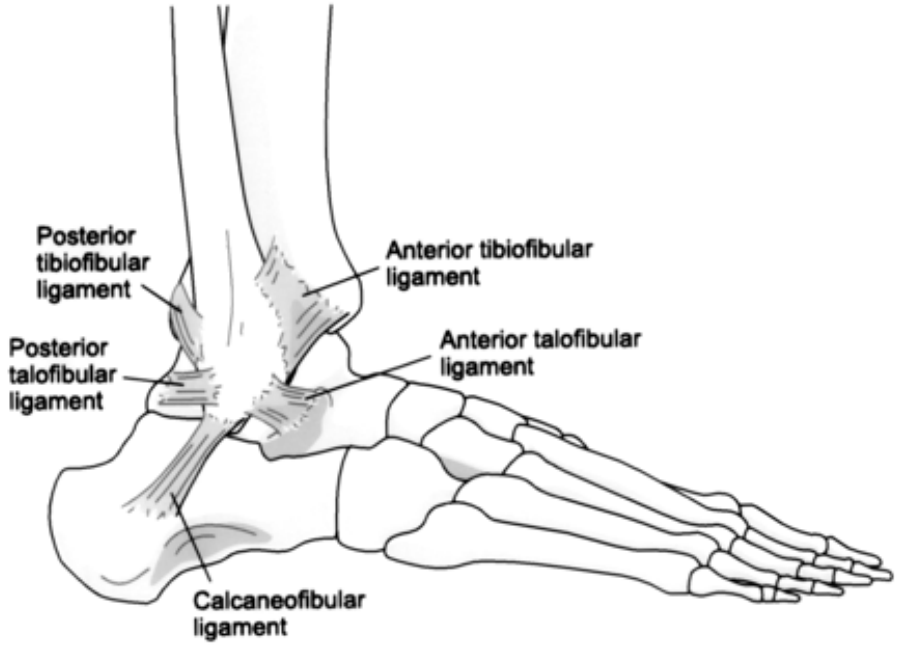
Ankle injuries are very common in the Paediatric A&E setting. The commonest injury is a sprain of the lateral ligament complex occurring secondary to an ankle inversion injury

Anatomical considerations:

An understanding of the anatomy of the ligaments around the ankle will aid your assessment and management of ankle injuries.

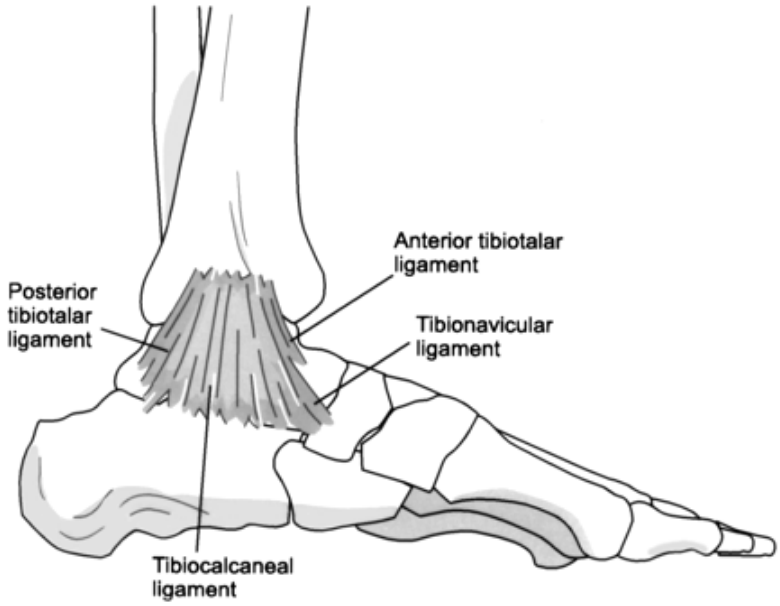
The lateral ligament complex of the ankle comprises 3 ligaments:

- Anterior talofibular ligament
- Posterior talofibular ligament
- Calcaneofibular ligament



The medial ligament complex (the deltoid ligament) comprises 4 ligaments:

- Anterior tibiotalar ligament
- Tibionavicular ligament
- Tibiocalcaneal ligament
- Posterior tibiotalar ligament



Indications for X-ray

In children over the age of 6 the Ottawa ankle rules can be used to assess the need for an X-ray.

An ankle X-ray is indicated if there is pain the malleolar zone and any of the following are present:

- Bony tenderness along the distal 6cm of the posterior edge of the tibia or the tip of the medial malleolus
- Bony tenderness along the distal 6cm of the posterior edge of the fibula or lateral malleolus
- Inability to bear weight both immediately and in A&E (4 steps)

A foot X-ray is indicated if there is pain in the midfoot zone and any of the following are present:

- Bony tenderness at the base of the 5th metatarsal
- Bony tenderness at the navicular bone
- Inability to bear weight both immediately and in A&E (4 steps)

In children under the age of 6 X-rays should be considered if there is significant pain, swelling, a mechanism consistent with a fracture or inability to weight bear. If unsure about the need for a X-ray this should be discussed with a A&E middle grade.

Assessing the severity of ankle sprains:

If there is no fracture present the ankle should be assessed for the severity of the ankle sprain. There are 3 degrees of ankle sprain:

1. First degree
    - Mild pain
    - Minor swelling
    - Minimal joint instability
    - Mild stiffness

2. Second degree
    - Moderate pain
    - Significant swelling
    - Bruising present
    - Some loss of ankle motion
    - Difficulty weight bearing

3. Third degree
    - Severe pain and swelling
    - Joint instability
    - Marked loss of ankle motion
    - Unable to weight bear

Management of fractures:

Fractures should be placed in a backslab or aircast boot and referred to the fracture clinic for follow up. If placed in a backslab the child should be made non-weight bearing until reviewed in fracture clinic.

Management of sprains:

1. Rest

The child should be advised to rest the area and avoid activities that cause pain. First degree sprains normally settle within 7 days, second degree sprains take 2-4 weeks and third degree sprains can take up to 6 weeks to recover fully.

2. Ice

Ice should be applied to the area every 2-4 hours for 10-15 minutes for up to 3 days. No ice should be directly applied to the skin as this can cause burns. The ice can be wrapped in a tea towel or a pillow case.

3. Elevation

The ankle should be raised above horizontal whenever possible to assist with reducing swelling.

4. Analgesia

Some children will require analgesia such as paracetamol or ibuprofen to assist with pain during the recovery period.

5. Crutches

Grade 1 sprains will usually not require crutches. Grade 2 or 3 sprains will often require crutches but partial weight bearing should be encouraged and it should only be needed for 2-3 days after the injury. Occasionally severe grade 3 sprains will be very unstable and will need to be placed in an aircast boot and referred to fracture clinic for follow-up. If unsure about the need for this please discuss with an A&E middle grade.

6. Ankle exercises:

The child should be encouraged to gently exercise and stretch the ankle joint during the recovery period. Please refer to the ankle exercises sheet that can be found in Paediatric A&E.

Marc Barton A&E Registrar 2nd September 2013
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