ANKLE LIGAMENT INJURIES

Ankle sprains are the most common of all sports related injuries, accounting for over 25 per cent of cases. In more than 75 per cent of cases it is the lateral ligament complex that is injured, in particular the anterior talofibular and calcaneofibular ligaments. Medial ligament injuries are usually associated with a fracture or joint injury.

ACUTE INJURY OF LATERAL LIGAMENTS

Clinical features

A history of a twisting injury followed by pain and swelling could suggest anything from a minor sprain to a fracture.

Imaging

AP and lat view need

Treatment

Initial treatment consists of **p**rotection, **r**est, **i**ce, **c**ompression and **e**levation (PRICE), which is continued for 1–3 weeks depending on the severity of the injury and the response to treatment. (NSAIDs) in the acute phase can be helpful, Functional treatment, i.e. ‘protected mobilization’, leads to earlier recovery of all grades of injury – without jeopardizing stability – than either rigid immobilization or early operative treatment.

OPERATIVE TREATMENT

Persistent problems at 12 weeks after injury, despite physiotherapy, may signal the need for operative treatment. Residual complaints of ankle pain and stiffness, a sensation of instability or giving way and intermittent swelling are suggestive of cartilage damage or impinging scar tissue within the ankle. Arthroscopic repair or ligament substitution is now effective in many cases, allowing a return to full function and sports.

DELTOID LIGAMENT TEARS

Rupture of the deltoid ligament is usually associated with either a fracture of the distal end of the fibula or tearing of the distal tibiofibular ligaments (or both). The effect is to destabilize the talus and allow it to move into eversion and external rotation. The diagnosis is made by x-ray: there is widening of the medial joint space

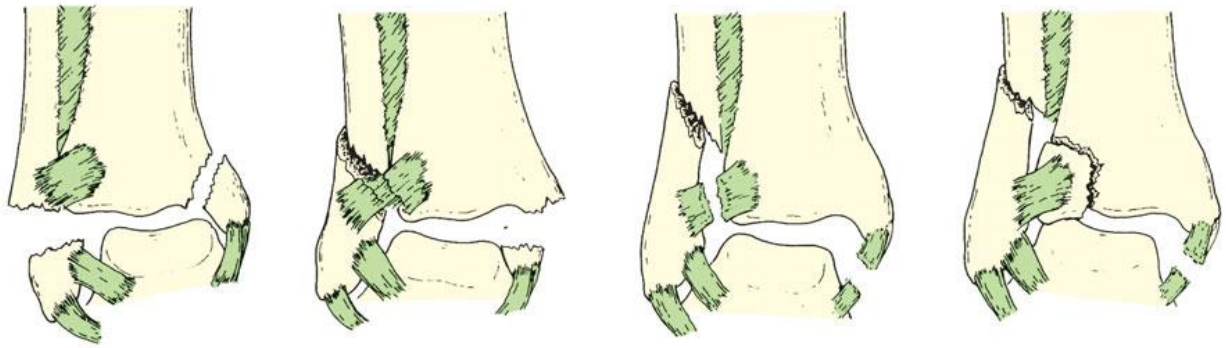
Treatment

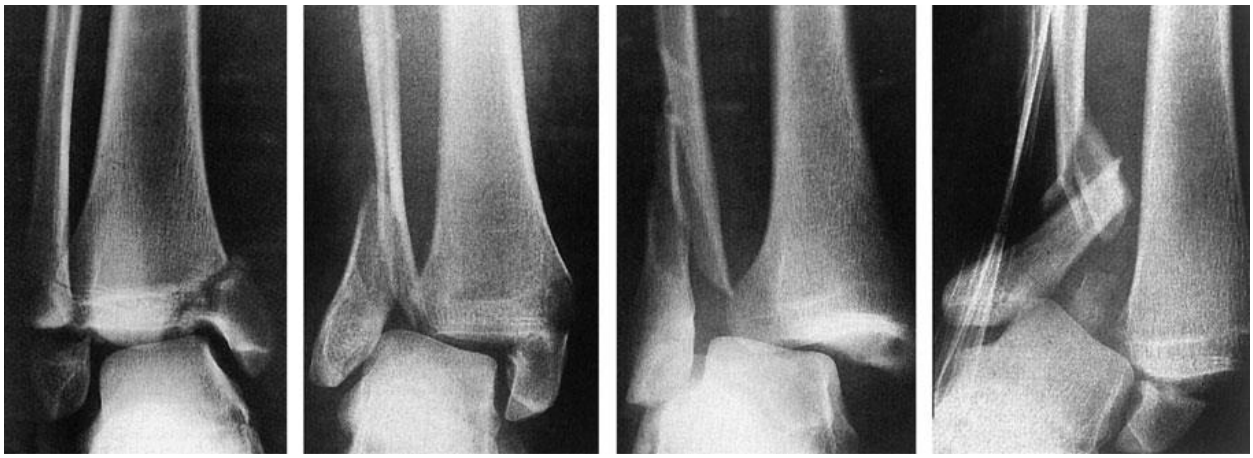
Provided the medial joint space is completely reduced, the ligament will heal. The fibular fracture or diastasis must be accurately reduced, if necessary by open operation and internal fixation. Occasionally the medial joint space cannot be reduced; it should then be explored in order to free any soft tissue trapped in the joint. A below-knee cast is applied with the foot plantigrade and is retained for 8 weeks.

MALLEOLAR FRACTURES OF THE ANKLE

Fractures and fracture dislocations of the ankle are common. Most are low-energy fractures of one or both malleoli, usually caused by a twisting mechanism. Less common are the more severe fractures involving the tibial plafond, the pilon fractures, which are high-energy injuries often caused by a fall from a height.

The Danis–Weber classification OF ankle
based on the level of the fibular fracture





A B C D

Type A – a fibular fracture below the syndesmosis and an oblique fracture of the medial malleolus (caused by forced supination and adduction of the foot).

Type B – fracture at the syndesmosis, often associated with disruption of the anterior fibres of the tibiofibular ligament and fracture of the posterior and/or medial malleolus, or disruption of the medial ligament (caused by forced supination and external rotation).

Type C – a fibular fracture above the syndesmosis; the tibiofibular ligament must be torn

Type D --the ligament avulses a small piece of the tibia. Here, again, there must also be disruption on the medial side of the joint – either a medial malleolar fracture or rupture of the deltoid ligament.

X-ray
At least three views are needed: anteroposterior, lateral and a 30-degree oblique 'mortise' view. The level of the fibular fracture is often best seen in the lateral view

Treatment

Fractures are visible on x-ray; ligaments are not. Always look for clues to the invisible ligament injury– widening of the tibiofibular space, asymmetry of the talotibial space, widening of the medial joint space, or tilting of the talus – before deciding on a course of action.

In assessing the accuracy of reduction must be met

(1) the fibula must be restored to its full length;
(2) the talus must sit squarely in the mortise, with the talar and tibial articular surfaces parallel;
(3) the medial joint space must be restored to its normal width, i.e. the same width as the tibio-talar space (about 4 mm);
(4) oblique x-rays must show that there is no tibiofibular diastasis.

UNDISPLACED FRACTURES

a below-knee cast is applied with the ankle in the neutral (anatomical) position. The plaster may need to be split and, if so, it must be completed or replaced when swelling has subsided. A check x-ray is taken at2 weeks to confirm that the fracture remains undisplaced. An overboot is fitted and the patient is taught to walk correctly as soon as possible. The cast can usually be discarded after 6–8 weeks. Ankle and foot movements are regained by active exercises when the plaster is removed.

DISPLACED FRACTURES

Reduction of these joint and internal fixation is usually performed to stabilize the reduction, not all such fractures require surgery.

The medial malleolar fracture is nearly vertical and after closed reduction it often remains unstable; internal fixation of the malleolar fragment with one or two screws directed almost parallel to the ankle joint is advisable. A perfect reduction should be aimed for, with accurate restoration of the tibial articular surface. Loose bone fragments are removed. The lateral malleolar fracture, unless it is already perfectly reduced and stable, should be fixed with a plate and screws or tension-band wiring. Postoperatively a ‘walking cast’ or removable splintage boot is applied for 6 weeks; the advantage of removable splintage is that early physiotherapy can be commenced.

Postoperative management After open reduction and fixation of ankle fractures, movements should be regained before applying a below-knee plaster cast, or removable support boot. The patient is then allowed partial weightbearing with crutches; the support is retained until the fractures have consolidated (anything from 6–12 weeks).

Complications

EARLY Vascular injury , *Wound breakdown and infection*

LATE

Incomplete reduction , *Non-union , Joint stiffness , Algodystrophy , Osteoarthritis*