

ANKLE DISLOCATION

Introduction

Ankle joint dislocation is a relatively uncommon injury *in isolation*.

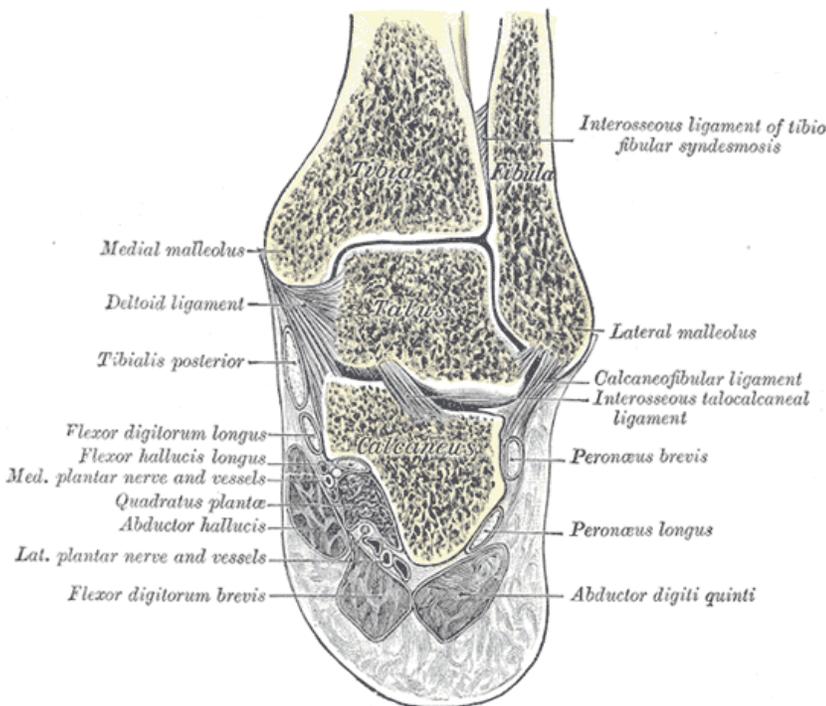
It is more commonly associated with a fracture around the ankle joint, because of the stability of the joint and the large degree of force required to produce the injury, (see separate guidelines for ankle fractures).

The rare subtalar joint dislocation may be mistaken for an ankle dislocation. An ankle dislocation must be differentiated from a subtalar dislocation, as attempts at reduction of a subtalar dislocation by closed techniques are unlikely to be successful and may lead to further injury of the involved articular surfaces.

Ankle dislocations can usually be reduced by closed techniques. Subtalar dislocations will usually require open reduction.

Anatomy

The ankle joint acts in unison with the subtalar joint to enable the full range of movement of the foot.



Coronal section through the true ankle joint (between the talus and tibia and fibula) and the subtalar joint, (between the talus and the calcaneum).

(Grays Anatomy, 1918).

Dorsi flexion and plantar flexion occur at the ankle joint, whilst eversion and inversion occur at the subtalar and transverse tarsal joints.

Classification

There are five types of dislocations seen around the ankle joint. These include:

1. Posterior:
 - This is the most common type of ankle dislocation.
 - The talus lies posterior in relation to the tibia.
 - It is accompanied by either a disruption of the tibiofibular syndesmosis or a fracture of the lateral malleolus.
 - It occurs most commonly when the ankle is plantar flexed. The talus moves in a posterior direction in relation to the distal tibia as force drives the foot backward.
2. Anterior:
 - Anterior dislocations result from the foot being forced anteriorly at the ankle joint.
 - The talus lies anterior in relation to the tibia.
 - Typically, this occurs with the foot fixed and a posterior force applied to the tibia or with forced dorsiflexion.
3. Lateral:
 - These dislocations result from forced inversion, eversion, or external or internal rotation of the ankle.
 - They are associated commonly with fractures of either or both the malleoli or the distal fibula.
4. Medial:
 - This injury is less common than lateral dislocations.
 - They may also be associated with malleoli fractures.
5. Superior dislocation or diastasis injury:
 - This occurs when a force drives the talus upward into the mortise, between the tibia and fibula.

- These dislocations are often the result of a fall from a height. In such cases, the patient should also be evaluated carefully for concomitant spine injury and fracture of the calcaneus.

Complications

The major complications with these injuries include:

1. Vascular compromise:
 - This may occur with significantly displaced injuries, but is uncommon.
2. Skin compromise:
 - This may occur with significantly displaced injuries.
 - There can be significant skin ischemia, in this region with severely displaced injuries. Unless there is timely reduction in these circumstances there is a risk of skin necrosis.
3. Ligamentous damage:
 - Associated ligamentous damage is usually extensive.
4. Compound injury:
 - Due to the relative lack of surrounding protective muscle at the ankle joint, the injury is not uncommonly compound.
5. Secondary osteoarthritis:
 - Associated osteochondral damage of the talar dome may predispose to later secondary osteoarthritic changes.

Clinical Features

1. Deformity, swelling and bruising:
 - Deformity is usually obvious, but may be more difficult to detect if there is significant swelling.
2. Vascular compromise.
 - Severe deformity may result in vascular compromise.
3. Skin tenting:

- Tenting of the skin should be looked for.
4. Check that the injury is not compound
 5. Concomitant injuries:
 - In cases of superior ankle dislocations, concomitant spine injury and calcaneal injury should be also be examined for.
 6. Differentiation from subtalar dislocation:

Ankle joint dislocation:

- Deformity is proximal.
- The ankle and foot remain aligned.

Subtalar joint dislocation:

- Deformity is more distal
- The ankle and foot are malaligned.

Investigations

If there is severe deformity resulting in vascular compromise and/ or significant skin tenting, then reduction should occur promptly, even before radiological confirmation of the injury.

Plain radiography should be done with A-P and lateral views.

Both pre and post reduction films should be taken.

Management

1. Initial first aid, involves the usual treatment for soft tissue injuries: RICE, (rest, ice, compression and elevation).
2. Give analgesia, as clinically indicated.
3. Compound injuries:
 - Give IV antibiotics
 - Give tetanus immunoprophylaxis as clinically indicated.
4. Reduction:

In patients with neurovascular or skin compromise, reduction should occur prior to any radiographs.

Adequate sedation will be needed for reduction. Options include:

- Propofol
- Ketamine
- Nitrous oxide
- Narcotic and benzodiazepine
- A Bier's block technique

Place the knee in flexion to reduce tension on the Achilles tendon.

With one hand on the heel and another on the dorsum of the foot, apply in line traction while maintaining countertraction at the knee.

Failure of reduction may be due to entrapment of the tibialis posterior tendon or the presence of a fracture fragment within the joint space.

5. Post reduction:

- Once reduced the ankle should be immobilized in a backslab and kept elevated.

6. Orthopedic referral:

- As ligamentous damage is often extensive, patients should be referred to the orthopedic unit after reduction, for further assessment and management.

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