THE MANAGEMENT OF SOFT TISSUE ANKLE INJURIES

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ABSTRACT

The anatomy of the ankle, and the types of sporting injuries that occur in this joint, are described. Traditional treatment of soft tissue injuries involves immobilisation, and the value of this is questioned. An alternative treatment strategy is described, and involves immobilisation and compression for twenty-four hours, followed by rapid mobilisation using a balance board. This alternative strategy can bring about full functional mobility in 94% of patients within 14 days.

ANATOMY OF THE ANKLE JOINT

To describe adequately injuries to the ankle, it is reasonable to re-emphasise the basic anatomy. The ankle is a modified hinge joint, with the talus acting as a ball-bearing within the true mortice. The sides of the mortice are the malleoli. The lateral malleolus is the fibular element, and is considerably longer than and somewhat behind the medial malleolus, giving an oblique axis and contributing to the rotation or torque conversion effect of movement in the ankle joint. The ankle joint is a synovial joint, the stability of which depends on the fibrous inferior tibiofibular joint and a composite of supportive ligaments described below. Additionally there are muscle groups subtending the joint and their tendons, which also offer, through submaximal tonicity, functional stability.

The medial ligament

The deltoid ligament is a triangular band of ligament with two distinct layers. The outer layer arises superiorly from the full width of the medial malleolus, and descends in a fan-shaped expansion to attach anteriorly to the navicular bone, medially to the calcaneus, and posteriorly to the talus.

The lateral ligaments

These consist of three separate elements. The anterior talofibular ligament runs from the anterior border of the lateral malleolus to the lateral surface of the talar neck. When the foot is in the neutral position, the ligament runs horizontally forwards and medially. The ligament tightens during plantar flexion of the foot. The posterior

talofibular ligament originates on the posteromedial aspect of the fibula, and runs to the tubercle of the talus. The calcaneal element, the calcaneofibular ligament, arises from the antero-inferior aspect of the lateral malleolus running obliquely and posteriorly to its insertion on the lateral surface of the calcaneus. The ligament acts only in dorsiflexion, and is not closely adherent to the capsule of the joint.

ANKLE INJURY

Fourteen per cent of all injury in sport occurs at the ankle, making it the most commonly injured structure in the body. The typical method of injury is one of inversion, plantar flexion and internal rotation. From this description it can be seen that the anterior talofibular ligament is the component at risk. The injury is usually sudden, characterised by acute pain and swelling of rapid onset. The patient can nearly always bear weight.

Most sprains are stable, with incomplete rupture, and the patient often continues to be active for a considerable time after the injury before complaining. Even in the unstable ankle, only 25% are unable to bear weight following injury.

Swelling, about chicken-egg-sized, will occur in front of the malleolus, subsequently extending anteriorly and downwards; staining is a late feature. Pain is usually the most dramatic feature, and effective management requires that this be relieved as soon as possible. However, mobility is probably the most important con-

sideration. Mobility is significantly abnormal if it is shown by X-ray to be greater than 6° when compared with the opposite side. Eriksson (19) from the Karolinska Institute, in his work on major ligament reconstruction, noted that inhibition was cortical and related to pain. He therefore reasoned that if pain could be overcome at an early stage, a more active regimen of rehabilitation could be instituted. He used caudal epidural anaesthesia immediately postoperatively, and achieved enviable results. Our regimen for the treatment of ankle sprains, is to use standard physiotherapy equipment (ice, friction massage and a balance board) 80 patients were treated, of whom some 94% acquired full functional mobility within 14 days.

To ascertain the place that pain has with regard to the rate of functional recovery, a trial was started to assess the add-on effect of analgesic and anti-inflammatory drugs in the treatment of sprains and strains. The results showed pain to have a highly significant effect. The majority of patients achieved recovery to a functional level within seven days.

The gearing of a balance board was set at a maximum of 20° in the acute stage, increasing within the normal range as the patients' symptoms diminished. Additionally friction massage was used over the affected area in ten-minute doses, as trial showed that longer than this produced considerable fatigue. The pressure involved in this form of massage was 5 to 7 kg cm⁻², and equates to that achieved by blanching soft tissue with the thumb, as is subjectively practised by physiotherapists.

Additionally, strapping applied in a weave pattern allowed dorsiplantar flexion without loss of motor power, thus encouraging mobility without putting the anterior talofibular ligament under stress.

If inhibition is overcome, activity as the mainstay of treatment is preferable to rest and immobilisation. A suggested regimen for management would be ice with compression bandaging for twenty-four hours (the compression prevents inhibition by overstimulation from effusion), followed by mobilisation using a balance board, an item used in all physiotherapy departments.

REFERENCE

Eriksson, E., 19