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Chronic Ankle Pain (Unresolved Ankle Sprain)

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Introduction

Unresolved, chronic ankle pain secondary to ankle inversion sprain is a commonly seen condition. Many mechanisms have been suggested as the reason for chronic ankle pain: lack of appropriate and early immobilization in severe cases; lack of appropriately prescribed mobility and strengthening exercises; development of scar tissue; development of late hypermobility; secondary, continuing aggravation due to unrecognized or untreated hyperpronation; too much immobilization. Common, acute inversion ankle sprain and its management is first covered followed by diagnosis and treatment of chronic ankle pain. Representative case studies will be presented in Part II of this article (see Feb. 12, 1993 issue).

Common, Acute Inversion Ankle Sprains

Inversion sprain is the most common injury affecting the ankle joint. Injury frequently occurs to the anterior talofibular ligament. The calcaneofibular ligament may also become involved if inversion occurs while the ankle is at a right angle. However, the sprain usually occurs with inversion stress when the foot is also slightly plantar flexed. Occasionally, the posterior talofibular ligament may also become injured.

When the foot plantar flexes, the posterior portion of the talar trochlea advances in the ankle mortise. This creates an added space between the posterior portion of the talus and the malleolus inducing lateral instability. The lateral collateral ligaments are shorter and weaker than the medial collateral ligaments. Additionally, the anterior ankle joint is capsular and the posterior ligaments are thin.¹ The calcaneofibular ligament is the only component of the lateral collateral ligaments that is extracapsular and is stronger than the anterior talofibular ligament.

Ankle sprain is commonly seen in the presence of uncompensated rearfoot varus, forefoot valgus, rigid plantar flexed first ray, and the cavovarus foot.²

The intensity of force governs the type of injury produced. Most inversion sprains involve an element of internal rotation and plantar flexion of the foot. Young people tend to tear ligaments and injure epiphysis while older people tend to fracture the lateral malleolus.² Ligament tears rarely occur in the middle, usually sustaining a tear at either the proximal or distal point of attachment.¹ A small bone fragment may be avulsed with the ligament rather than the ligament actually tearing. Therefore, inversion type ankle injuries can tear lateral ankle ligaments, fracture the lateral or medial malleolus, cause separation at the distal tibiofibular syndesmosis, and occasionally fracture the posterior lip of the tibia.² Ankle stability occurs with rupture and anterior displacement of the talus in the ankle mortise.

Treatment

Initially, control of swelling must be considered. Effusion favors the formation of adhesions which can delay healing. Swelling should be controlled by application of a firm bandage, cold, rest, and elevation of the leg. Oral anti-inflammatories may also be used to help minimize inflammation.¹

Plain film radiographs should be taken immediately to rule out fractures. Stress views are helpful in determining ankle instability due to ligamentous rupture.¹

If a strain is diagnosed then daily bandage changes with continuation of ice therapy is helpful. After about four days the cold pack modality can be replaced by immersing the involved area in hot water to the patient's tolerance for 10 to 15 minutes daily.

Active nonweightbearing exercises should be started within the first few days, and the patient should put the involved foot and ankle through all the normal ranges of motion. Dispersal of edema, maintenance of muscle tone, and the prevention of adhesions will result if done frequently.¹

Chiropractic physiotherapy modalities and treatments, such as ultrasound, whirlpool baths, and iontophoresis, help recovery but are not superior to the ice, heat, and active exercises already mentioned. Please take notice of our additional discussion in this paper on the use of manipulation and mobilization.

Providing there are no ligamentous tears, and that swelling has subsided, the ankle should be taped and weightbearing usage resumed. Taping will help to give stability and prevent further stretching of the

ligaments while the healing process continues. Depending on the appearance, function, and pain of the ankle, sports activities should be avoided for one to three weeks.¹ Proprioceptive sense can be retrained by coordination and balancing exercises. Additionally, specific strengthening exercises may be used to isolate and improve certain muscle functions.

Treatment of avulsion or tear of the lateral collateral ligament generally involves casting. The cast is generally kept on for 10 weeks and may have a walking heel applied. Occasionally, surgical intervention may be necessary.

It is not our intention to cover in depth this well-known and accepted material on acute sprain and its management. We wish to deal with chronic, recurring or continuing ankle pain secondary to an inversion sprain. (Note: Chronic ankle pain in this paper will mean pain secondary to ankle sprain of more than six months duration and has been resistant to previous orthopedic or podiatric treatment.)

Unresolved, Chronic Ankle Sprain

One common cause of unresolved, chronic ankle sprain is unrecognized and untreated excessive pronation.² Chiropractic authors have also written about the need to recognize and treat excessive pronation as a cause of chronic ankle sprain.^{3,4} It also appears to be the consensus within podiatry that unrecognized, excessive pronation is a common cause of chronic ankle pain.^{5,6,7} The prescription of orthotics has been reported as useful in relieving chronic, unresolved ankle sprains,^{2,3} and we are in agreement with this consensus although it should be noted that no controlled study, as of this writing, has absolutely proven that orthotics, which correct pronation, will resolve chronic, unresolved ankle sprains.

There are still hyperpronated patients who, despite orthotic therapy, or patients who are not pronated, that have suffered inversion ankle sprain (and do not need orthotics to correct excess pronation) that continue to have chronic ankle pain. These patients have chronic ankle pain due to unrecognized and untreated joint dysfunction.

The primary purpose of this paper is to document effective treatment of unresolved, chronic ankle pain by appropriate diagnosis and manipulative treatment of feet and ankle joint dysfunction.

Michaud published case studies in which marked weightbearing rearfoot inversion, in compensation to a marked secondary forefoot valgus, produced an ankle predisposed to easy inversion sprain -- in essence a hypersupinated foot which could easily "tilt over the edge" into an inversion sprain.² Michaud outlined the

prescription of orthotics that pronate the hypersupinated foot and suggested appropriate manipulative and physiotherapeutic diagnosis and treatment.³ This subject was adequately covered by Michaud and need not be discussed here.

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