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AOFAS Symposium Addresses Difficult to Treat Ankle Sprains

State of the art techniques discussed by orthopaedic foot and ankle surgeons

Las Vegas – March 12, 2009 – A panel of foot and ankle orthopaedic surgeons at the recent American Orthopaedic Foot & Ankle Society Specialty Day, held as part of the 2009 American Academy of Orthopaedic Surgeons’ Annual Meeting in Las Vegas, discussed different types and methods of treatment of ankle sprains. The panel, including Moderator Mark E. Easley, MD, D. Rod Walters II, PhD, Richard M. Marks, MD, Florian Nickisch, MD, John G. Kennedy, MD and Jeffrey E. Johnson, MD, used a case-based approach to describe their experiences with diagnosing and treating many of the conditions that are responsible for persistent pain and loss of function after ankle sprains.

In addition to a review of conventional treatment methods, the panelists highlighted state-of-the-art techniques of rehabilitation, minimally invasive surgery, and arthroscopy. According to Dr. Easley of the Duke University Medical Center, "In the United States, the incidence of ankle sprains is roughly 2,300 a day, almost 100 every hour. Although the majority of acute ankle sprains heal without surgery, approximately 15-20% of patients have persistent ankle symptoms. Failure of the ankle to heal may be due to cartilage injuries, subtle ankle fractures, tendon tears, development of scar tissue, or abnormalities unmasked by an ankle sprain."

Anterior lateral soft tissue impingement

Richard M. Marks, MD, from the Medical College of Wisconsin, said that chronic ankle pain following a sprain may be caused by differing factors. "A frequently overlooked cause is anterolateral corner impingement (ALCI), which is caused by fibrous scar tissue from torn fibers of the anterior inferior tibial-fibular ligament (AITFL) or fibers from the anterior talo-fibular
ligament (ATFL). These ligaments help to stabilize the lateral ankle. Symptoms vary from either dull, achy discomfort in the anterolateral corner of the joint, or a sensation of ankle instability as a result of pinching of the scar tissue with activity. Often MRIs fail to recognize these instances. An injection of the anterolateral corner with a local anesthetic can help with the diagnosis.”

He went on to say that the best treatment is, “An initial course of immobilization in a stirrup splint or boot combined with physical therapy. Failure to respond after several months of treatment necessitates surgery, which is either performed arthroscopically to remove the scar tissue in the corner of the ankle or in combination with a lateral ligamentous reconstruction.”

Occult fractures

Occult fractures of the ankle and hind foot are rare and often misdiagnosed as ankle sprains, especially since they can be difficult to diagnose on a plain x-ray. Florian Nickisch, MD, from the University of Utah, Department of Orthopaedic Surgery, discussed in his presentation, “They are a major source of prolonged disability, however, and in some instances delaying treatment can result in significant long-term disability for the patient. When evaluating a patient with a presumed acute ankle sprain or residual pain, it is therefore important to be aware of the many occult fractures around the ankle and hind foot and their appropriate management.”

He added, “Most of these occult fractures involve relatively small fragments of the talus, the central bone in the ankle joint or the calcaneus, the heel bone. Many extend into the joint surface of the ankle or the subtalar joint (the joint below the ankle joint that allows the foot to accommodate to uneven ground). Because of their small size and their often obscure anatomic location, these fractures can be hard to see on regular ankle or foot x-rays. A thorough history, including the mechanism of injury, a detailed physical examination, and awareness of these injuries with a high level of suspicion are necessary to make the correct diagnosis. Often advanced imaging modalities like a CT or MRI are required to determine the best treatment. Depending on the size, number of fracture fragments and their displacement, they may require surgery in order to achieve an optimal outcome and prevent long-term disability.”

Talar chondral lesions – acute

Chondral cartilage injuries of the ankle are becoming an increasingly recognized cause of post-residual sprain dysfunction and pain. According to John G. Kennedy, MD, of the Hospital for Special Surgery in New York, “This is, in part, due to increasingly sophisticated imaging and an increased index of suspicion on behalf of the treating physician. Several recent studies have demonstrated an incidence of up to 50% of chondral injuries following high-grade ankle sprains. These are typically shear injuries of the medial and central aspect of the ankle:

- Most lesions are best identified with an MRI.
- Pure cartilage injuries will not typically be picked up by a routine x-ray.
- Patients often complain of clicking, or locking of the ankle joint from the loose piece of cartilage.
Fibrous tarsal coalitions

A fibrous tarsal coalition is an abnormal connection between two bones in the foot which is present since birth. This connection limits the motion of the two connected bones and causes stiffness of the foot, especially the side-to-side motion of the heel. Jeffrey E. Johnson, MD, of Washington University Department of Orthopedic Surgery said, “Although this is a relatively uncommon cause of persistent pain following an ‘ankle sprain,’ it is often overlooked and the diagnosis may be delayed. The two common scenarios in which a tarsal coalition present are: 1) the active adolescent with a complaint of recurrent sprains and a stiff painful hind foot (the patient may not remember a significant ankle injury); and 2) the adult with lingering pain over the outside of the hind foot after a sprain due to a previously painless tarsal coalition that becomes painful after an injury.”

Dr. Johnson continued, “The key to making the diagnosis of this condition after a sprain is to perform a careful examination of the ankle to determine if the location of tenderness is over the ankle ligaments (as in a sprain) or over the typical locations for a tarsal coalition, which are slightly lower on the side of the hind foot. In addition, the physical exam will demonstrate limited side-to-side range of motion of the foot. Careful scrutiny of the x-ray will often identify the abnormal bone formation indicating a tarsal coalition; however, a CT scan is often obtained to confirm the diagnosis. If the pain does not resolve with ankle rehabilitation and immobilization, surgical excision of the painful connection between the calcaneus and navicular bones is recommended. This will not significantly improve the range of motion of the foot, but it will relieve pain.”

Ankle rehabilitation

D. Rod Walters, PhD, a consultant in sports medicine, said his approach to ankle rehabilitation includes restoration of range of motion, strength, ankle function, and sport specific conditioning. “Failure to do these things results in chronic ankle dysfunction, an anomaly affecting some 20-50% of lateral ankle sprain patients. Ankle dysfunction is characterized by pain, inflammation, and loss of motion and may produce long-term disability and function, leading to increased treatment costs and time loss for patients.”

He continued, “For injury prevention, strengthening of the muscles of the ankle should include all appropriate motions – and include exercise of concentric (shortening) and eccentric (lengthening) contractions. The eccentric mode is so important, especially in sport activity, and is often overlooked due to the difficulty associated with determining the actual deficit. When approaching bracing or taping options for the ankle, the focus needs to be on control of the calcaneus (heel bone) to minimize motions associated with the subtalar joint (true ankle motion of inversion and eversion) while syndesmosis (high ankle sprain) injuries indicate attention to the first ray (great toe and the area it articulates within the foot) and the corresponding motions of pronation and supination. Brace options for these two injuries should address these needs.”

This symposium makes it easy to understand the various types of conditions that comprise the term “ankle sprain.” From the simple to the complex, from the short-term injury to long-lasting
condition, this seminar illustrates the many different aspects to what otherwise might be thought of as a simple ankle sprain.

To find an AOFAS orthopaedic surgeon in your area, go to www.aofas.org.

About AOFAS
The AOFAS promotes quality, ethical and cost-effective patient care through education, research and training of orthopaedic surgeons and other health care providers. It creates public awareness for the prevention and treatment of foot and ankle disorders, provides leadership, and serves as a resource for government, industry and the national and international health care community.

About Orthopaedic Foot and Ankle Surgeons
Orthopaedic foot and ankle surgeons are medical doctors (MD and DO) who specialize in the diagnosis, care, and treatment of patients with disorders of the musculoskeletal system of the foot and ankle. This includes the bones, joints, ligaments, muscles tendons, nerves, and skin. Orthopaedic foot and ankle surgeons use medical, physical, and rehabilitative methods as well as surgery to treat patients of all ages. They perform reconstructive procedures, treat sports injuries, and manage and treat trauma of the foot and ankle.

Orthopaedic foot and ankle surgeons work with physicians of many other specialties, including internal medicine, pediatrics, vascular surgery, endocrinology, radiology, anesthesiology, and others. Medical school curriculum and post-graduate training provides the solid clinical background necessary to recognize medical problems, admit patients to a hospital when necessary, and contribute significantly to the coordination of care appropriate for each patient.

Education
AOFAS members have the following credentials:

- Completed four years of medical school. The curriculum covers basic and clinical sciences, surgery, internal medicine, pediatrics, family medicine and all other medical specialties
- Completed five years of accredited graduate medical education (residency training) in orthopaedic surgery
- Many orthopaedic foot and ankle surgeons also complete advanced fellowship training in foot and ankle surgery.
- Satisfactory completion of the national medical licensing examination
- Continuing medical education credits over a specific time period. Board certification: Certified by or eligible for examination and certification by the American Board of Orthopaedic Surgery or the American Osteopathic Board of Orthopedic Surgery
- Each member must hold membership in the American Academy of Orthopaedic Surgeons (AAOS).

When selecting a medical provider to care for your feet and ankles, be sure to ask him/her about:

- Medical school education
- Accredited residency training
- Areas of practice specialization
- Experience in your prescribed treatment (surgical and/or non-surgical)

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