CURRENT CONCEPT REVIEW 2:

MINIMALLY INVASIVE TECHNIQUES IN FOOT AND ANKLE SURGERY

Moderator:

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9:45-9:55 am – Calcaneus Fractures: Treatment by Percutaneous Reduction and External Fixation

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Calcaneal fractures are the most commonly fractured of the tarsal bones. Intra-articular fractures are usually the result of high energy trauma and, despite appropriate treatment, can lead to devastating consequences.

Despite this, it is only within the last 2-3 decades that surgical intervention has superceded non-operative treatment as the recommended therapy for these disabling injuries.

Traditional procedures have evolved to require a large, extensile lateral incision and in some instances, even a medial incision. The injury itself is reputed for its complications, but it is also understood that the surgical approach and extent of procedure, combined with frequently lengthy delays in treatment due to soft tissue considerations, can lead to suboptimal results and outcomes. Wound problems are among the most common problems seen with delayed healing, infection or just delayed treatment secondary to significant swelling and/or blistering being quite common scenarios.

Surgical technique for these injuries will be discussed focusing on newer, less invasive methods which will detail the speaker’s approach to the management of calcaneal fractures, both open and closed, with percutaneous reduction and external fixation. Results of more than 30 patients treated by this method will be reviewed.

Advantages to this technique include increased ability to address the fracture sooner, thus allowing better opportunity for more accurate reduction through more limited incisions. Fracture blisters and swelling are less of a consideration as large incisions and tissue flap retraction are not necessary. Fixation is rigid, but only temporary and allows for potentially earlier weight bearing which enhances better mobility in the polytrauma patient and may also aid in the desensitization of the plantar fat pad thus leading to fewer post operative sequellae related specifically to this issue. There are even suggestions that application of the fixator in the appropriate fashion adds an element of distraction to the subtalar joint, thus providing a protective element against post traumatic arthritis, although this is not proven. Additionally, this method has huge advantages for the smoking population of calcaneal fracture patients because, again, the incisions are minimal. Similarly, this technique has been applied to many patients with potential for wound healing problems for any other reason, eg. Diabetes, rheumatoid disease, dysvascularity, etc.
As will be seen, this technique is also the speaker's preferred method of management of open calcaneal fractures which carry a reportedly significant complication risk when managed by more traditional methods.

In summary, this is a different perspective on calcaneal fracture management, not to supplant currently utilized techniques, but to supplement or enhance the surgeons cadre’ of approaches to a difficult problem.

◆ 9:55-10:05 am - Endoscopic Gastrocnemius Recession

Saul G. Trevino, MD
Columbia, Missouri

◆ 10:05-10:10 am - Less Invasive Techniques in Achilles Tendon Repair

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Traditional open surgical approaches for the management both of tendinopathy and ruptures of the Achilles tendon (AT) have resulted in high risk of infection and morbidity. For this reason, minimally invasive surgical approaches have been developed.

Advocates of minimally invasive AT surgery cite faster recovery times, shorter hospital stays, and improved functional outcomes as the principal reasons for adopting these new approaches when compared to traditional open techniques.

Open procedures on the AT can lead to difficulty with wound healing because of the tenuous blood supply and increased chance of wound breakdown and infection. Moreover, the broad exposure given by open procedures may case extensive iatrogenic disruption of the subcutaneous tissues and paratenon, increasing the potential for peritendinous adhesions.

Critics have raised questions about increased percentage of complications (i.e. sural nerve damage).

We present the recent advances in the field of minimally invasive AT surgery for acute ruptures of the AT and our technique.

The goals of management of AT ruptures are to minimize the morbidity of the injury, optimize rapid return to full function, and prevent complications.

Recently has been reported on the Achillon mini-incision technique, comparing the basic mechanical properties of the tendon suture performed using the Achillon method with those of the long established Kessler method, and assesses whether the strength of the repair was related to tendon diameter. They concluded that the Achillon repair had comparable tensile strength to the Kessler repair.

When compared to the Achillon repair our technique is cheaper, and allows a stronger repair, as it allows to use a greater number of suture strands (eight) for the repair of the AT.

The patient is positioned prone. Areas 4–6 cm proximal and distal to the palpable tendon defect and the skin over the defect are infiltrated with 20 ml of 1% Lignocaine. Ten ml of Chirocaine 0.5% are infiltrated deep to the tendon defect. A calf tourniquet, skin preparation and steridrapes are applied. A 1 cm transverse incision is made over the defect using a size 11 blade. Four longitudinal stab incisions are made lateral and medial to the tendon 6 cm proximal to the palpable defect.