



Minimally Invasive Sinus Tarsi Effective for Intra-Articular Calcaneal Fractures

Written by Emma Hitt Nichols, PhD

The minimally invasive sinus tarsi approach yielded similar clinical and radiologic results compared with the extensile lateral approach for the treatment of displaced intra-articular calcaneal fractures with no wound complications. Yeong-Seub Ahn, MD, Chonnam National University Hospital, Gwangju, Korea, presented data from a study that compared the outcomes of minimally invasive sinus tarsi compared with the extensile lateral approach for the treatment of intra-articular calcaneal fractures.

The current standard treatment of displaced intra-articular calcaneal fractures is open reduction and internal fixation, which is achieved by 1 of 2 methods: the minimally invasive sinus tarsi approach or the extensile lateral approach. The advantage of the extensile lateral approach is that it provides an excellent view of the subtalar joint, a more accurate reduction of the facet fragment, access to the calcaneocuboid joint, and sufficient area to fix a plate. However, the extensile lateral approach is associated with an incidence of wound problems of up to 30%, deep infections, injury to the sural nerve, and subtalar arthritis.

By contrast, the advantages of the minimally invasive sinus tarsi approach include less soft tissue trauma, less risk of operative complications, and a maintained good reduction of the fracture site. However, the minimally invasive approach is more difficult to perform and there is poor visualization of the fracture site. Because there have been few studies to compare the 2 approaches, the purpose of this study was to compare the outcomes of the extensile lateral and minimally invasive sinus tarsi approaches for the treatment of displaced intra-articular calcaneal fractures.

In this study, 100 patients were treated between September 2004 and December 2011. Patients were assessed with a radiographic evaluation for Böhler's angle, the critical angle of Gissane, and calcaneal length, height, and width. The clinical evaluation included American Orthopaedic Foot & Ankle Society (AOFAS) score, the Visual Analog Scale (VAS) for pain, and the Foot Function Index (FFI).

The clinical outcomes, including AOFAS score, VAS, and FFI, were similar among both groups. Similarly, there was no significant difference between the 2 approaches in terms of the critical angle of Gissane ($P=.424$), Böhler's angle ($P=.409$), and calcaneal length ($P=.423$), height ($P=.371$), and width ($P=.419$). There was a significant difference in wound complications between the 2 groups, with 13.3% of patients experiencing a wound complication in the extensile lateral group compared with 0% in the sinus tarsi group ($P=.004$). Other complications, including sural nerve injury, peroneal tendinitis, and subtalar arthritis, occurred at similar frequencies among the 2 groups.

In conclusion, Prof Ahn stated that, in his opinion, the data from this study indicate that use of the extensile lateral or minimally invasive sinus tarsi methods resulted in similar clinical and radiologic outcomes; however, there were lower rates of wound complications associated with the sinus tarsi approach.

HA Injection, Dry Needling Equally Effective, Safe in Patients With Incurable Plantar Fasciitis

Written by Phil Vinall

Ultrasound-guided hyaluronic acid (HA) injection and dry needling are effective and safe for patients with plantar fasciitis who did not respond to commonly performed conservative therapy, according to Kang Lee, MD, Kangwon National University Hospital, Chuncheon, Republic of Korea.

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HA is a naturally occurring biological substance that has proven safe to use for treating plantar fasciitis. The purpose of this prospective comparative study was to determine the efficacy of HA on plantar fasciitis that did not respond to common noninvasive treatment methods. Patients with pain in both heels for ≥ 10 months whose symptoms were not relieved by or who experienced recurrence after conservative treatment were enrolled. Plantar fasciitis was diagnosed as first-step pain, pain after < 40 minutes of walking, tenderness, and thickened plantar fascia on ultrasound.

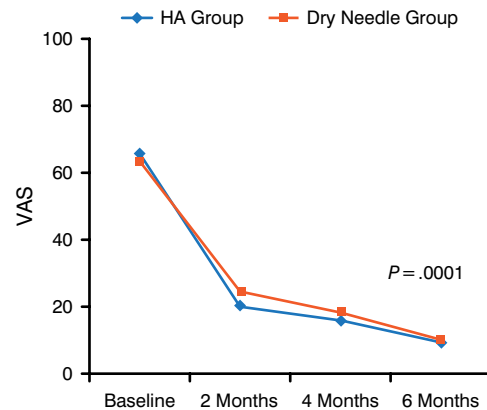
Of the 212 patients eligible for assessment, 81 were enrolled to receive HA on their right foot and dry needling on the left. Twenty patients were lost to follow-up, leaving 61 patients for the final analysis. Patients had a mean age of 46 years (more women than men), a mean body mass index of 29.4 kg/m^2 , and a mean duration of symptoms of 14.9 months. Various treatment modalities were tried before enrollment, including stretching, physiotherapy, oral medications, steroid injections, and acupuncture.

Prior to treatment, patients received a prefabricated insole and plantar fascia-specific stretching education (3 minutes twice daily). Following injection of 1 ml of 1% lidocaine in each foot, 2 ml (20 mg) of sodium hyaluronate (3000 kDa/ml) was injected into the right foot under ultrasound guidance into 3 areas: the insertion of the plantar fascia to the calcaneus, the fascia itself, and the perifascial space. Dry needling was performed on the left foot. Both treatments were administered once per week for 3 weeks. Patients were assessed for pain every 2 months after injection using the visual analog scale (VAS) and the American Orthopaedic Foot & Ankle Society (AOFAS) Ankle-Hindfoot Scale. Plantar fascia thickness was assessed at 2 and 6 months.

Pain assessment with VAS showed a significant improvement compared with baseline in both groups ($P = .0001$). Patient-rated pain scores dropped from a mean of 65 for the HA group and 63 for the dry needle group at baseline to 19 and 24, respectively, at 2 months, and 9 and 9.7, respectively, at 6 months (Figure 1).

A significant difference between the HA and dry-needling arms for VAS was noted at 2 months ($P = .039$), but not at 4 or 6 months. The AOFAS score increased from 55.1 ± 13.9 to 84.0 ± 6.5 in the HA group and from 55.3 ± 12.7 to 83.8 ± 6.7 in the dry-needling group. The between-group difference was not significant. The thickness of the plantar fascia between baseline and follow-up in both groups was not significantly different, nor was it significantly different between the 2 arms. There were no major complications. Injection site pain was experienced by 18 patients, and tingling sensation by 6 patients; both conditions spontaneously resolved.

Figure 1. Mean VAS Decreases Following HA and Dry Needling



HA, hyaluronic acid; VAS, visual analog scale.
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In addition to its direct therapeutic effect, HA acts as a scaffold with internal bleeding from multiple punctures, which can promote healing. With regard to dry needling, the blood clot from multiple punctures may have stimulated the healing process, or the needle itself may have had some role. Additional studies are needed in this area.

These findings are limited because this was not a randomized study and had a short follow-up period. In addition, the initial treatment varied from patient to patient, and there may have been varied effectiveness among the 3 injection target points.

Nevertheless, this first prospective comparative study with HA for management of plantar fasciitis showed that HA is clinically effective and safe. Furthermore, the clinical course during treatment may have been altered by introduction of the needle itself into the plantar fascia, the authors concluded, regardless of the use of the injection.

PODO More Effective Than Weil Osteotomy in Reducing Pressure Under Second Metatarsal

Written by Phil Vinall

Umur Aydogan, MD, Penn State Hershey, Hershey, Pennsylvania, USA, presented data showing that when compared with classic and modified Weil osteotomy, proximal oblique dorsiflexion osteotomy (PODO) is more effective in reducing average and peak pressures under the second metatarsal.