TenJet®
Percutaneous
Tenotomy System

Case Report: Treatment of A Painful Right Achilles Calcific Tendinosis

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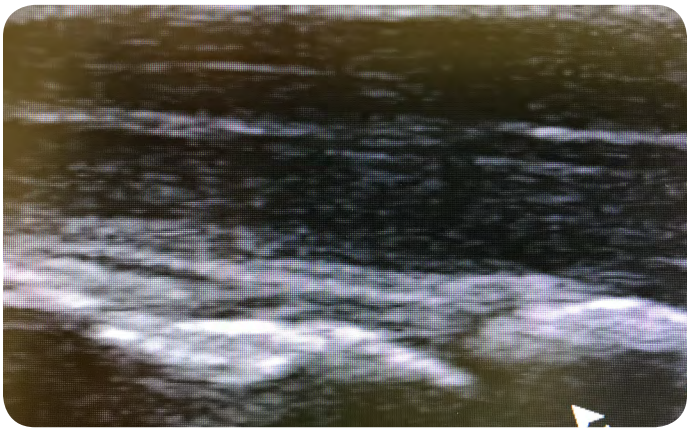
Patient History

A 60 year old male patient presented with worsening right Achilles pain for 9 months, with no particular inciting event. The pain was at the posterior calcaneus, was constant, with or without weight bearing, but worse with standing and walking. He had four weeks of physical therapy with stretching program, shoe inserts, and had continued to worsen.

Examination

On physical examination, he had tenderness at the right Achilles insertion, dorsiflexion was 12 degrees. Lateral x-rays of the Achilles showed three linear calcific densities through the mid Achilles tendon, and numerous calcific densities at the distal Achilles. Patient noted pain at both the mid-Achilles and distal Achilles with ultrasonographic palpation. Ultrasound exam confirmed mixed appearance of hypoechoic tendon and hyperechoic appearance both at mid-Achilles and distal Achilles.

Percutaneous tenotomy with the TenJet® hydrotenotomy device was ultimately recommended, in part due to the large amount of calcifications present. It was thought that this device would provide the greatest debridement capability.



Pre Operative

Treatment

Intra-operatively the diseased portions of tendon were easily identified with ultrasound, and after delivery of local anesthetic, three small stabbing incisions were made. The TenJet needle was successfully placed within the calcific bands, longitudinal and parallel to the tendon fibers, and the areas were rapidly, efficiently, and successfully debrided, utilizing TenJet for approximately 2 minutes total running time. The mixed hyper and hypoechoic areas were removed, leaving an isoechoic and healthy appearance to the mid tendon. A large sub-tendon region was deemed to be predominantly calcified subcutaneous fat beneath the tendon, and was not debrided at that time. The distal Achilles was debrided in the same fashion. After approximately 3 minutes run time, it was estimated that 75% of the diseased tendon had been removed. Some calcific debris remained, but the case was stopped as additional incisions would have been necessary to provide access, which seemed excessive in a high stress area. The patient was placed in a walking boot, and instructed to wear this until day 12 follow up.

Twelve Day Follow Up

The patient was non-compliant and stopped wearing the walking boot at day 7 since his pain had begun to improve. As such he presented at day 12 follow up with a pain rating of 7/10, the same as prior to the procedure. One of the stab incision sites was noted to have slight drainage and slight slough. This was debrided in the office and Steri-strips™ were re-applied. The patient was prescribed Keflex 500mg QID for seven days, and was instructed to continue wearing the boot until next follow up. The patient was to begin an eccentric strengthening program once he is pain free at rest.

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Twenty One Day Follow Up

At day 21, the patient was doing quite well with no pain at rest and almost no pain or discomfort in the right heel when standing. Wound had healed and infection resolved.

One Month Follow Up

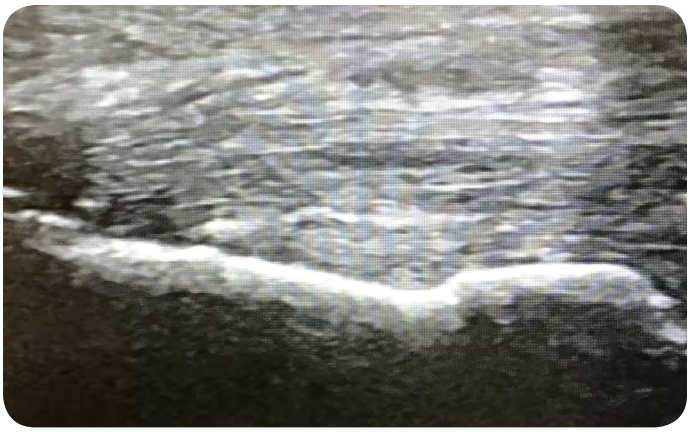
Patient was satisfied with the outcome. Pain improved to zero at rest, and no pain with static standing. He had some achiness with a few degrees of stretch at the insertion of the Achilles. However, this pain was much improved compared to previous, at 3/10 compared to 7/10 originally. He was off Norco, compared to taking four daily prior to the procedure. He had just begun eccentric physical therapy program, and was to continue with two weekly sessions for four weeks. His walking boot had been discontinued.

Three Month Follow Up

The patient had no pain at rest, had achiness with few hours of standing and little pain with walking. He had completed physical therapy, returned to work and had 75% overall improvement.

Six Month Follow Up

The patient is working full time and has remained off analgesics except for Tylenol as needed for unrelated pain symptoms.



Post Operative 6 Months

The TenJet System

The TenJet® Tenotomy System, developed by HydroCision® Inc., North Billerica, MA seeks to provide the benefits associated with surgical debridement of a diseased tendon tissue in a minimally invasive procedure under ultrasound guidance and a local anesthetic. The TenJet system is able to provide selective debridement by discriminating between different tissue consistencies and the procedure is usually completed in 15 minutes.

The TenJet® Tenotomy System includes a power console that delivers high-pressure sterile saline through a miniaturized tube to a distal-end nozzle of a hand piece designed for the tenotomy application. The velocity of the saline, controlled through settings 1 to 10 on the console, creates its own Venturi suction effectively pulling tissue into a cutting window where the jet and suction act simultaneously to cut and remove targeted tissue. The pressure and nozzle parameters built into the system make it possible for the device to selectively debride diseased tissue, which is more gelatinous in composition, while leaving the healthy surrounding, fibrous tendon tissue intact.