EXTRACORPOREAL SHOCKWAVE THERAPY FOR THE TREATMENTOF ACHILLES TENDINOPATHIES: A PROSPECTIVE STUDY

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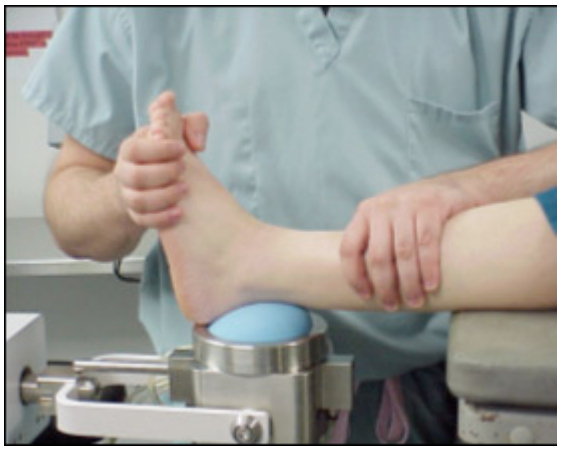
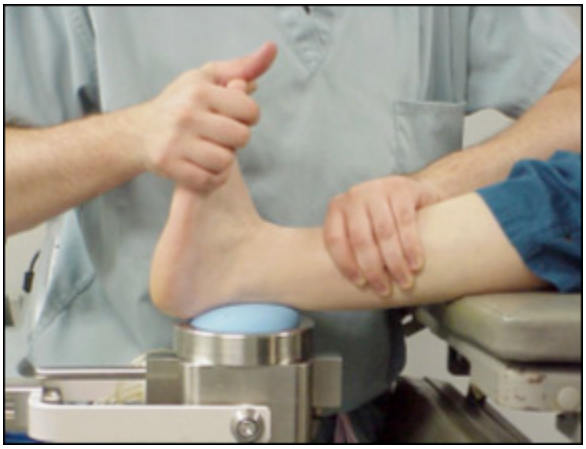
BACKGROUND

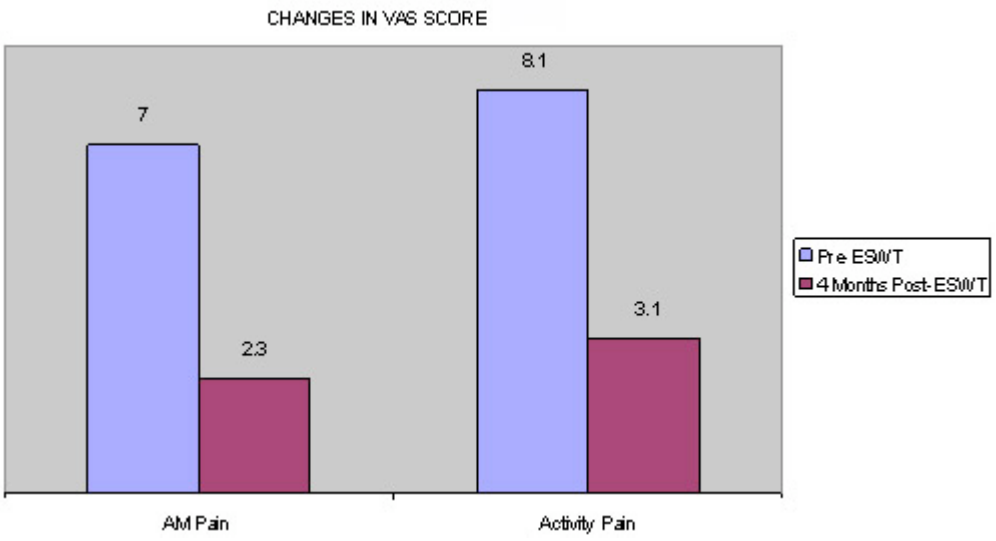
Achilles tendinopathies are common presenting complaints to foot and ankle specialists. However, the management of Achilles tendinosis and insertional Achilles tendonitis is, at times, difficult to manage. Conservative treatments may include rest, ice, NSAIDs, heel lifts, and physical therapy. Surgical options for recalcitrant Achilles tendinopathies include Haglund's Osteotomy with spur resection, Achilles tenolysis with debridement, flexor hallucis longus tendon augmentation, and more recently, Coblation® therapy. Extracorporeal Shockwave Therapy (ESWT) has been shown to be effective in the treatment of chronic tendon pathology in the elbow, shoulder and plantar fascia. This prospective study examines the efficacy of ESWT in the treatment of chronic Achilles tendon disorders.

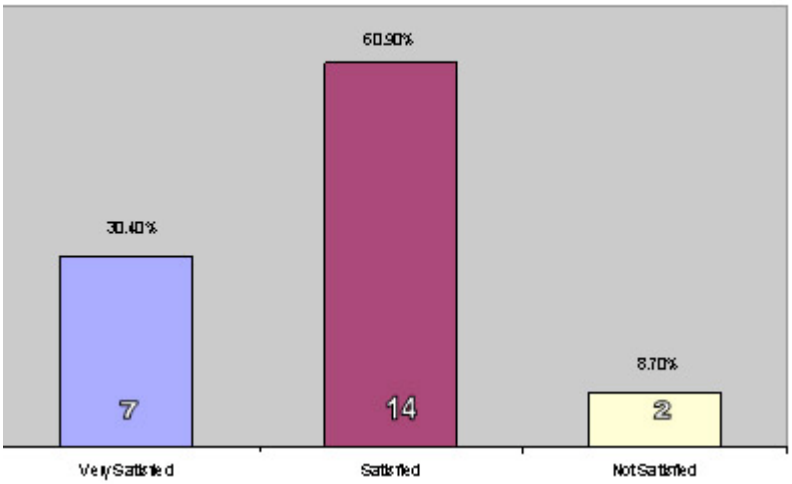
MATERIALS AND METHODS

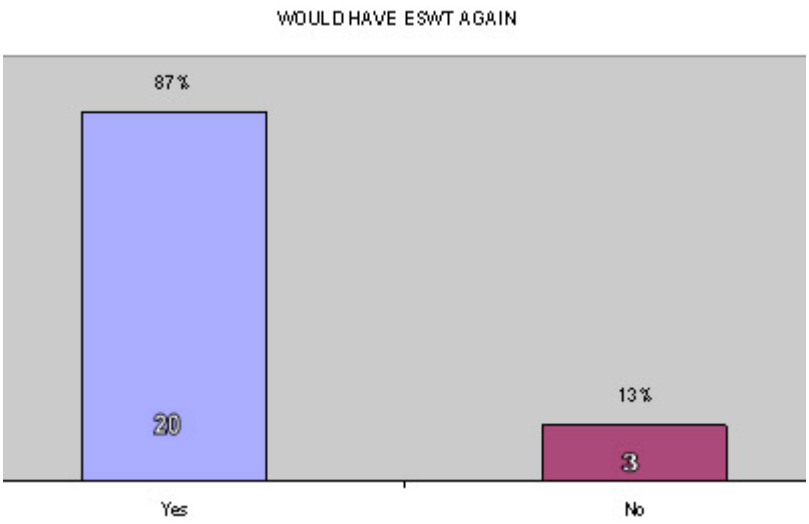
23 patients/23 feet were treated with ESWT for Achilles tendinosis and/or insertional tendonitis at the Weil Foot and ankle Institute. Indications for treatment were a minimum of 6 months of conservative care, and a visual analog pain score (VAS) >5. All patients completed a pre-treatment questionnaire regarding VAS scores for morning and activity pain, duration of symptoms, and previous treatment. Under intravenous sedation and local anesthesia, the symptomatic tendon was treated with an Orbasone® electrohydraulic ESWT generator using 21 kV, 2 Hz, 2000 pulses divided into two directional applications in dorsiflexion and neutral position of the ankle joint (Pictures #1,2) Ultrasound targeting was not found to be necessary for treatment targeting. The patients were discharged, weight bearing as tolerated with athletic shoes for 2 weeks. After 2 weeks, patients were permitted to wear regular shoe gear and return to activities as tolerated. Post-operative questionnaires were completed at 4 months regarding improved condition, willingness to repeat procedure, patient satisfaction, and change in VAS score.

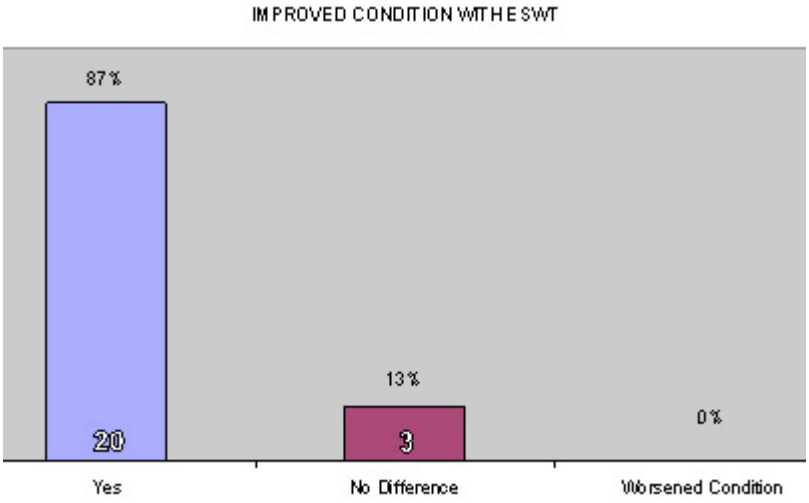





CHANGES IN VAS SCORE
7
2.3
8.1
3.1
AM Pain
Activity Pain
Pre ESWT
4 Months Post-ESWT


PATIENT SATISFACTION WITH ESWT FOR ACHILLES TENDINOSIS
30.40%
7
60.90%
14
8.70%
2
Very Satisfied
Satisfied
Not Satisfied





RESULTS

The mean amount of time with pain pre-ESWT was 27 months (range 6-96 months). The mean follow-up was 20 months (range 4-35 months). 91% of the patients were satisfied (14/23 patients) or very satisfied (7/23 patients) with treatment, and 2 patients were unsatisfied. 87% (20/23 patients) stated that ESWT improved their condition, 13% (3/23) said it did not affect the condition, while none stated that ESWT made them worse. 87% (20/23 patients) stated they would have the procedure again if given the choice. The mean VAS score for morning pain decreased from 7.0 to 2.3 four-months post-ESWT, and activity pain decreased from 8.1 to 3.1 at four-months post-ESWT (Graphs #1-4).

DISCUSSION AND CONCLUSION

ESWT has been shown to be effective and safe in treating plantar fasciosis and lateral epicondylitis in a number of clinical trials. In a series of 432 consecutive patients treated with surgery for chronic insertional Achilles tendonitis, Paavola et.al. relates an 11% complication rate, including skin edge necroses, superficial wound infections, seroma formation, hematoma, scar formation, sural nerve irritation,

partial rupture, and deep vein thrombosis. Costa et.al. conducted a double-blind randomized placebo-controlled trial of ESWT for Achilles tendinosis in 43 patients (20 treatment group, 23 placebo) with follow-up for 1 year. They found no difference between the treatment and placebo groups. and had 2 cases of subsequent tendon rupture in patients above 60 years of age. Low power (0.2 mJ/mm2.) ESWT was used 3 times at 1 month intervals and titrated according to individual pain tolerance to a maximum of 0.2 mJ/mm2. In our current study, all patients received the same pulse amount and strength of treatment, namely, 2000 pulses at 21 kV, 2Hz in one operating room session. We feel that this protocol may allow patients to begin return to function at a more structured pace, and could therefore be a reason for the difference between Costa et.al.'s study and our own. There were no complications in either this prospective study nor with any other of our patients undergoing ESWT. 91% of patients were either very satisfied or satisfied with the outcome of the procedure, and pain scores dramatically decreased for both morning and activity pain on the VAS at 4 months post-operatively. We conclude that high power ESWT is safe, non-invasive, and effective, and has role in the treatment of chronic Achilles tendinopathy.

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