

Case Report

Extracorporeal Shock Wave Therapy in Patient with Plantar Fasciitis: A Ultrasonographic Outcome

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ABSTRACT

Plantar fasciitis (PF) a frequent source of heel pain. It can affect 10% of the population. Risk factors include increased body weight, female gender, difference in limb length, altered biomechanics of the foot such as promoted foot, and prolonged standing. The aim of this case study was to evaluate the shock wave therapy treatment of plantar fasciitis patients using ultrasonography.

Keywords: Plantar fasciitis, shock wave therapy, fascia thickening, ultrasonography

INTRODUCTION

Plantar fasciitis (PF) is a frequent source of heel pain. It can affect 10% of the population. Plantar fasciitis can result from injury of the PF or due to disturbed biomechanics of the foot. ^[1] The PF is a group of elastic and collagenous fibers which originates from the medial part of the calcaneus and is attached to the forefoot along with various other tissues. Under the effect of chronic strain, elastic fibers become straight and stiffening of the fascia occurs. ^[2] Risk factors include excessive foot pronation or flat feet, high-arched feet, shortening of the Achilles tendon or gastrocnemius muscle, limb length discrepancy, obesity, overtraining, prolonged standing or walking, and improper gait. ^[3]

The shock wave therapy (SWT) has been introduced in the 1990s as a therapeutic option for insertion tendinopathies, as it aids in the healing process. It has been recently used in the treatment of plantar fasciitis which is refractory to the usual conservative measures. ^[2]

Ultrasonographic of the foot is also useful in diagnosis and treatment follow-ups with including plantar fascial thickening, hypoechogenicity at the insertion upon the calcaneus and features of edema including blurring of the boundary between the fascia and surrounding tissues and decreased echogenicity. [3,4]

During the past decade, ESWT has become increasingly used worldwide, and based on some well-controlled trials; recently it was approved at the FDA for treatment of plantar fasciitis in the USA. ESWT has been used recently as a non-invasive and effective modality in the treatment of patients with chronic heel pain who are resistant to other commonly used conservative treatments. [5]

CASE REPORT

A 48 year old male patient complaints pain in the right plantar region. The pain was constant sharp ache that was worse in the morning. The condition worsened with standing and walking and had been present 1 month. Pain is severe in the early morning and increasing with load. On palpation, tenderness in the plantar fascia and difficulty in walking. In addition, he reported occasional swelling of the ankle but denied numbness or tingling.

The patient indicated great difficulties to perform daily life activities (as walking, climbing stairs and getting up from chairs) due to the pain and felt worried about the stability of his ankle. No other treatment or drugs (NSAIDs, steroids and other analgesics) were used for 4 weeks before the study began or during the study period.

Table 1: Results of PF Thickness after and before Shock wave therapy

Parts	Duration	Thickness
Before treatment		
Right Plantar Fasciitis Thickness	1 st week	4.0 mm
Left Plantar Fasciitis Thickness		Normal
After treatment		
Right Plantar Fasciitis Thickness (Figure 2)	2 nd week	3.0 mm No oedema

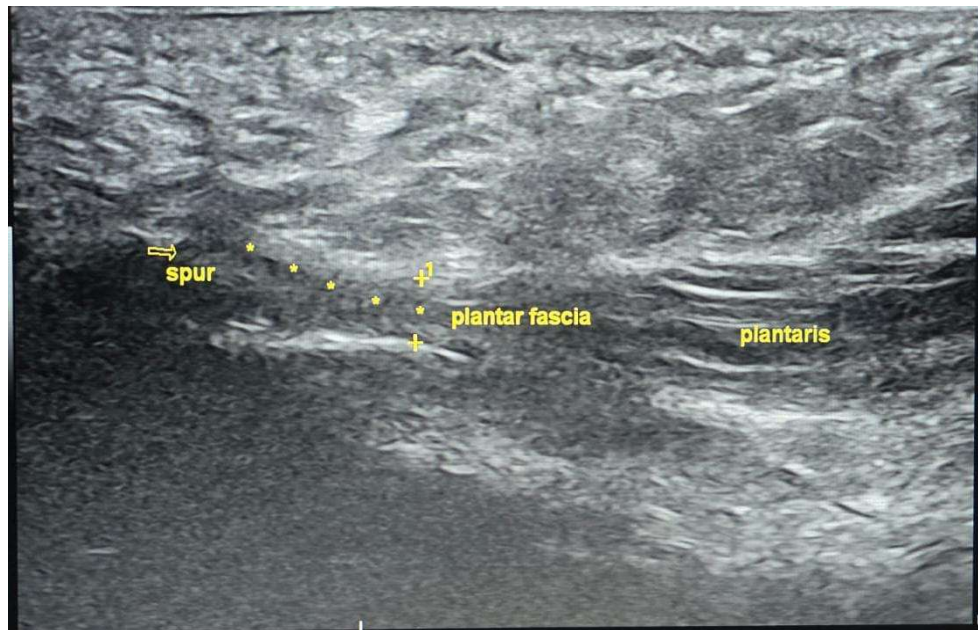


Figure 1: Before treatment, Ultrasound finding shows plantar fascia (PF) thickness as 4.0 mm on the Right side.

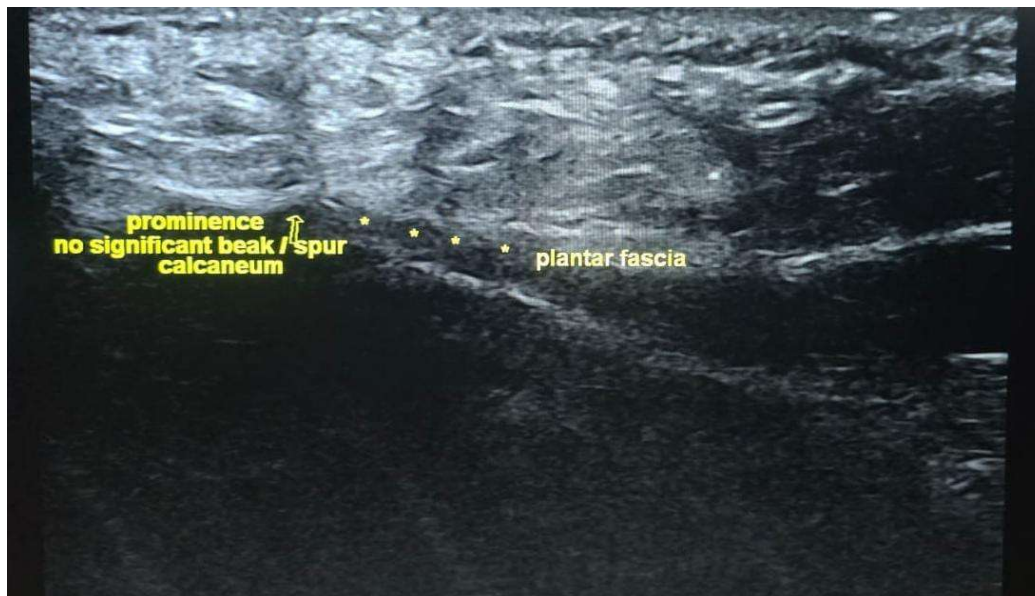


Figure 2: After treatment of shock wave therapy, the ultrasographic findings show plantar fascia (PF) thickness was reduced to 3.0 mm on the right side.

DISCUSSION

We aimed to evaluate the changes in PF thickness in patients with plantar fasciitis undergoing ESWT. The visual analogue scale (VAS, 0–100) was used for evaluating heel pain severity. Pain score and thickness of PF were recorded before treatment (figure 1).

Ultrasonography is an important tool in the diagnosis and evaluation of patients with plantar fasciitis through detection of thickening of the PF and its hypoechogenic pattern at calcaneal insertion. ^[6] The

thickness of the plantar fascia was measured ultrasonographically about 2 cm distal of the medial calcaneal tuberosity. Pain estimation on a visual analogue scale (VAS) and the comfortable walking time were recorded.^[7]

Extracorporeal shock wave therapy was provided by a Shockwave Pro-1000(TR-15) (Techno Med Electronics, India) equipped with an outline 7.5 MHz linear array ultrasound positioning system. The patient position was lie in the prone position and their ankles were stabilized. The point of maximal heel tenderness was palpated and marked with a skin marker. US jelly was applied to the heel and low energy ESWT (0.10 mJ/mm², 600 shocks). The frequency of shock was 1Hz. Patient received 2000 shock waves/session of 0.2 mJ/mm & total 4 treatment sessions by trained physiotherapist in each session.

CONCLUSION

In conclusion, after treatment, extracorporeal shock wave therapy shows significantly reduced the plantar fasciitis thickness and decreased heel pain & oedema within one week.

CONFLICT OF INTERST: Nil

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