Treating Plantar Fasciitis Conservatively: Evidence-Based Case Report

Abstract

A 44 year old obese female housewife had plantar fasciitis due to long-term standing and frequent high-heeled use. Conservative management options for this condition are many but there is no strong evidence supporting effectiveness of any single option. This paper focused on evidence based physiotherapy treatment of a patient with plantar fasciitis. The treatment strategy included ultrasound at 1.5 watts/cm2 for 4 minutes, iontophoresis with acetic acid, taping, stretching of the plantar fascia and Achilles tendon, intrinsic foot muscle strengthening, manual therapy of myofascial chains and use of heel pads. Home exercises included myofascial release with tennis ball and tin, standing stretches to triceps surae and strengthening of intrinsic foot muscles on towel. Dietary consideration included vitamin C (1-3 g/day) and glucosamine sulphate (500mg three for times/day). The patient recovered after 6 weeks of evidence-based physiotherapy treatment.

Keywords

Heel pain; Physiotherapy; Plantar fasciitis; Risk factors; Treatment

Abbreviations

VAS: Visual Analogue Scale; BMI: Body Mass Index

Introduction

Fascia is a connective tissue type arranged in three layers that is capable of moving and alteration with tissue surrounding it [1]. It is connected in chains as a single unit providing tensile strength to the body [1,2]. Plantar fascia is strong and thick band of fibrous aponeurosis that stabilizes the medial longitudinal arch of the foot [3]. During the propulsive phase of gait cycle, there is flattening of the arch which serves for shock absorption and accommodation to irregular surfaces through the windless effect mechanism [4]. Plantar fascia originates from medial calcaneal tubercle to metatarsal heads [3,5]. Plantar fascitis, also called heel spur or heel pain syndrome is an overuse syndrome resulting from excessive tension or repeated stress on fibrous aponeurosis exceeding reparative and adaptive capability of the body [4,6]. However, recent research suggests the condition being non-inflammatory degenerative process; hence the term “fasciosis” is more appropriately employed [5,7]. Moreover, heel spur is forward extension of plantar tuberle and half of the plantar fascitis victims have heel spurs. There are 15-25% people in general population with heel spurs and obesity as well as aging contributes to their increasing proportion [3]. Plantar fascitis affects approximately 2 million people annually [6]. It is the most common reason for heel pain, specifically targeting calcanei [8]. The condition affects sedentary as well as athletic individuals but it is more commonly seen in middle aged women who are predominantly obese and younger athletes with lack of cushioning in footwear [2,3,5]. Risk factors for plantar fasciitis have frequently been documented in previous studies [3,5,6].

Plantar fasciitic pain is of gradual onset, sharp and diffusely located initially which later localizes to medial calcaneal tuberosity [3]. Typically, the pain is most severe in the morning or after prolonged sitting (rest period) which lessens with movement but intensifies with long-standing weight-bearing [3,5-7]. There may be signs of swelling and tenderness to palpation [3,5]. Conservative treatment for plantar fasciitis includes rest and avoidance of causative factor, i.e., non-steroidal anti-inflammatory drugs, iontophoresis with acetic acid, stretching of Achilles tendon and plantar fascia, strengthening of intrinsic muscles of the foot, therapeutic modalities including ultrasound, manual therapy, heel pads and night splints, taping, extracorporeal shockwave therapy, dry needling and corticosteroid injections [2-5,7]. Dietary consideration may include use of vitamin-C and glucosamine sulphate [9]. Surgical treatment for this condition is fasciotomy [5,9]. This study aims to highlight effectiveness of evidence based physiotherapy treatment for plantar fasciitis.

Case Report

Mrs. SM who is a 44 year old female housewife visited Rotary Physical Therapy and Rehabilitation Center with complaint of severe heel pain in right foot. The pain started a year ago and was gradual and burning type. Her pain was worst in the morning and at the end of the day. However, it ceased after some movement. Moreover, her symptoms returned following prolonged standing and getting up from seated position or prolonged rest. She had history of high heel use at social gatherings and was very social. She carried out chores involving 4 hours of continuous standing and had an average 6-7 hours of standing a day. Furthermore, her height was 5 feet 1 inch and weight was 74 kilogram yielding a BMI of 30.2 kg/m2 and had no co-morbidities. Her pain was 7 on visual analogue scale (VAS) at the time of presentation. Tinel sign for tarsal tunnel syndrome and squeeze test for calcaneal stress fracture were performed and results were negative. There was swelling and tenderness noticed at the heel and her Achilles tendon demonstrated tightness. Her X-ray showed a heel spur...
A study by Martin et al. reported a decline in pain intensity with a treatment plan. A study got pain relief through stretching and 35% patients in a disease and pain symptoms in this study. Similarly, 83% patients with rest treatment. Stretching and strengthening hampered the symptoms. Wolgin et al. [6] reported pain relief in 25% patients ineffective while modified treatment plan nullified the patient knowledge. This is the first study from Pakistan highlighting the effectiveness of evidence based physiotherapy treatment for plantar fasciitis.

**Conclusion**

As, fascial connective tissue works as a single unit, Nguyen recommended that treatment of plantar fasciitis should be on the pain site and remotely located suspected areas [2]. Manual therapy and massage was used throughout the plantar area and triceps surae so as to treat the complete unit. The notion that the condition is degenerative rather than inflammatory was supported in a study by Lemont et al. [6]. For this, dietary supplements were recommended as they are effective in healing the body and degenerative disorders [9]. To my best possible knowledge, this is the first study from Pakistan highlighting the effectiveness of evidence based physiotherapy treatment for plantar fasciitis.

**References**


**Figure 1:** X-ray of the patient showing heel spur.