



Effectiveness of Positional Release Therapy in the Management of Plantar Fasciitis: A Case Report

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Abstract

Plantar fasciitis is one of the most common conditions diagnosed in the foot and presents with many treatment options. However, there is still scanty evidence supporting the effectiveness and use of Positional Release Therapy (PRT) in the management of the condition. In this study, we reported a case of a 35-year-old housewife who was diagnosed medically with plantar fasciitis of 6 months duration. Conservative management using ultrasound, stretching/strengthening exercises, ankle joint mobilisation and home programme proved ineffective during the first two weeks of her management with VAS score still 6/10 from 8/10 at presentation. However, treatment modification using PRT nullified the patient's symptoms during the other two weeks of the rehabilitation protocol (VAS = 2/10). Foot and Ankle Ability Measure was 18 pre-intervention and after the PRT for 2 weeks became 4 points. The findings of this report suggest that PRT should be incorporated in the physiotherapy management of patients with plantar fasciitis.

Keywords: *Positional Release Therapy; Plantar Fasciitis; Pain; Trigger Points.*

Introduction

Plantar fascia is a connective tissue type arranged in three layers (medial, central and lateral) that is capable of movement and alteration with the tissues around it (McKenney *et al.*, 2013). It is connected in chain as a single band of tissue providing tensile strength to the body (McKenney *et al.*, 2013; Behnam *et al.*, 2014). It functions in stabilising the medial longitudinal arch of the foot so that during propulsive phase of gait cycle, flattening of the arch will absorb shock and serve for accommodation to irregular surfaces through the windless effect mechanism (Costa & Dyson, 2007). Plantar fasciitis results most often from pathology of the central plantar fascia which originates from the medial calcaneal tubercle to the metatarsal heads (Schwartz, 2014). Plantar fasciitis, also called heel spur or heel pain syndrome, is an overuse syndrome resulting from excessive tension or repeated stresses on fibrous aponeurosis that exceeds the adaptive capacity of the body (Costa *et al.*, 2007; Dyck, Boyajian & O'Neill, 2004). Plantar fasciitis affects approximately 2 million people annually and it is the most common condition diagnosed in the foot and represents 8% of all injuries (Koca *et al.*, 2014). The condition affects sedentary as well as athletic individuals but it is more

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commonly seen in obese women and younger athletes with lack of cushioning in footwear (Behnam *et al.*, 2014; Schwartz, 2014). Risk factors for plantar fasciitis include obesity, decreased ankle range of motion, prolonged standing, decreased first MPJ (metatarsophalangeal joint) extension and increased age (Schwartz, 2014; Dyck, Boyajian & O'Neill, 2004). Plantar fasciitis pain is of gradual onset, sharp and diffusely located initially which later localises to medial calcaneal tuberosity (Roxas, 2005). 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 (Schwartz, 2014; Cleland *et al.*, 2009). There may be signs of swelling and tenderness to palpation (Schwartz, 2014). Conservative treatment for plantar fasciitis includes rest and avoidance of causative factor, iontophoresis, stretching and strengthening exercises, ultrasound, foot orthoses, night splints, taping, and corticosteroid injections (Cleland *et al.*, 2009). Dietary consideration may include use of vitamin C and glucosamine sulphate (Roxas, 2005). Surgical treatment for this condition is fasciotomy (Schwartz, 2014; Roxas, 2005). This study aims to highlight the effectiveness of Positional Release Therapy (PRT) in the management of a patient with plantar fasciitis.

Case Report

Mrs. MDS was a 35-year-old housewife who presented to Physiotherapy Out-patient Department with a complaint of heel pain in her left foot. The pain started six months ago with gradual onset. Pain was worst in the morning and at the end of the day. However, it ceased after some movement, but returned following prolonged standing and getting up from a seated position or prolonged rest. She had no history of high heel shoe use or any trauma, but occasionally trekked while carrying her baby on her back from her house to the main town which covers a distance of approximately 2 km. She had an average of 5 hours of standing during household activities. Anthropometries measures of her height and weight were 1.5m and 80kg respectively yielding a BMI of 26.67 kg/m² and had no co-morbidities. Her pain was 8 on the visual analogue scale (VAS) at the time of presentation. Tinnel's sign for tarsal tunnel syndrome and squeeze test for calcaneal stress fracture were performed and the results were negative. The longitudinal arch angle, active and passive talocrural joint mobilisations were within normal ranges but there was a click sound on subtalar joint distraction. There was mild swelling and tenderness at the heel, plantar fascia and medial malleolus, mild Achilles tendon tightness, and pronation of the left foot. Plane radiograph (AP and medial) of the left foot revealed a heel spur.

Her treatment regimen included ultrasound for 10 minutes, gentle stretching to triceps surae and Achilles tendon, intrinsic foot muscles, talocrural and subtalar joint mobilisations and home programme. Application of topical diclofenac cream (50g) 3 times daily for two weeks was also part of the regimen. Home exercises included myofascial release with tennis ball and tin, calf stretching exercises and strengthening of intrinsic foot muscles on towel.

Two weeks post-intervention, the patient reported that foot swelling subsided but there was no significant improvement with regard to pain symptom (VAS = 6). Thus, her treatment plan was modified. Positional Release Therapy (PRT) was introduced as a modification to her treatment and when delivered, the patient had her pain symptoms

relieved to some extent (VAS = 4). Subsequent session focused on PRT owing to its quick and effective pain relief leaving behind other aforementioned physical therapy interventions. The patient had her pain symptom completely relieved (VAS = 0) within 4 sessions of treatment using PRT which lasted for 2 weeks.

The PRT Procedure

- ✧ Patient was placed in a prone lying position with the knee flexed to approximately 90° and foot resting on the left hand of the therapist who was standing by the side of the patient.
- ✧ The patient was then asked to dorsiflex the foot to accentuate the fibers of the plantar aponeurosis for palpation.
- ✧ The therapist used his right hand to glide across the aponeurosis with firm pressure from its distal insertions to its proximal origin at the medial calcaneus.
- ✧ The location of any tender points or fasciculatory response of the tissue, particularly at its origin at the calcaneus was noted (Figure 1).
- ✧ Once the most dominant tender point or fasciculation (or both) was determined, the therapist sat on the couch and placed the toes of the patient in the sulcus of his left shoulder to promote phalangeal flexion.
- ✧ The ankle of the patient was moved into marked plantarflexion with the left hand of the therapist. The therapist then used his right hand to apply a light pressure with the pad(s) of the finger(s) at the location of any trigger point and maintained the pressure for 2 minutes or until pain subsided (asking the patient to report VAS score at the interval of every 30 seconds).
- ✧ Fine tuning involving calcaneal internal or external rotation by the therapist's left hand based on the location of the lesion was applied to maintain the most position of ease (position of less sensitivity) (Figure 2).
- ✧ This procedure was followed throughout each PRT treatment session until further reassessment revealed no or less pain.
- ✧ The duration of each treatment session lasted for 15 minutes and the patient was treated twice a week for 2 weeks.



Figure 1: *Trigger points palpatory procedure (fingertechnique)*

Figure 2: *PRT procedure with plantar aponeurosis stretching*

Discussion

This study discussed a case report of plantar fasciitis typically affecting a 35-year-old middle-aged ice seller woman with a history of occasional long distant trekking and prolonged standing during household activities. Plantar fasciitis can occur at any age, but it commonly affects middle-aged women (Behnam *et al.*, 2014; Schwartz, 2014). The exact aetiology of this condition is undetermined but the risk factors are believed to be multi-factorial (Schwartz, 2014; Dyck, Boyajian & O'Neill, 2004). There are many treatment options for this condition with varying results but there is scanty evidence supporting the effectiveness and use of PRT for the management of the condition. The treatment regimen we used during the first two (2) weeks proved ineffective in the management of pain symptom while modified treatment plan using PRT nullified the patient's symptoms.

Positional Release Therapy, originally termed strain-counter-strain, is a therapeutic technique that uses static ischemic compression, a position of comfort (POC) and fine tune on reflexogenic trigger points (TrPs) to resolve the associated dysfunction (Jones, 1995; D'Ambrogio, 1997; Chaitow, 2014). Essentially, PRT is the opposite of stretching. For example, if a patient had a tight, tender area on the calf, the clinician would dorsiflex the foot to stretch the calf in an effort to reduce the tightness and pain. Unfortunately, this might lead to muscle guarding and increased pain. Using the same example, a clinician who employs PRT would place the tender point in the position of greatest comfort (plantarflexion), shortening the muscles in an effort to relax the tissues and decrease the pain (Irving, 2006; Wearing, 2006; Lareau, 2014). In plantar fasciitis, the position of comfort is achieved by placing the patient in a prone lying position, knee flexed to $\approx 60^\circ$, with marked metatarsal and ankle plantarflexion, calcaneus compressed towards the toes and moved into varus and valgus positions with fine tuning followed by static ischemic compression on a trigger point for 90 seconds to 3 minutes or until pain symptom is diminished. It has been proven by several authors (Buchbinder, 2004; Chaitow, 2001, 2007, 2014; D'Ambrogio, 1997; Speicher, 2016) to be very effective in the management of somatic dysfunctions.

Conclusion

Positional Release Therapy is effective in the management of plantar fasciitis and should be included in the rehabilitation protocol of patients with heel pain.

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