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A Case Report of Plantar Fasciitis in Diabetic Female Successfully Treated with Physical Therapy.

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ABSTRACT

Plantar fasciitis is one of the major cause of heel pain(1). Plantar fasciitis is known as an overuse condition as it progresses over time and is a result of prolonged distress that surpasses the innate ability of the body to heal and respond, inevitably leading to failure of the muscles, bones, and ligaments. The indications of plantar fasciitis in the very first steps of the morning are like stabbing discomfort. The pain generally gets easier once the foot is on the move and walking. This pain is however, likely to come back from prolonged duration of standing or getting up from a sitting position. Rehabilitation techniques like Kaltenborn mobilization, Ultrasound, Kinesio taping and stretching have been used to reduce planter fasciitis. The case study elaborates on interventions for plantar fasciitis in diabetic patient. This 36 year old diabetic female reported with pain and swelling in left heel since 6 months along with bilateral knee pain. Pain aggravated with activity and reduced with rest. The patient was mesomorphic in body type. Based on the combination of standard physical therapy assessment techniques the clinical impression was formulated as plantar fasciitis. The patient was diabetic for last 5 years. Physiotherapy Intervention included- Lateral side step action for 5 sets of 15 crossovers, Standing on 1-legged balancing exercise, Ankle inversion and eversion exercise, Kaltenborn mobilisation for subtalar joint, Tissue-specific plantar fascia stretchand Kinesio-Taping. After 12 weeks of treatment and follow up, pain was reduce and muscle strength was increased. Normal gait pattern was achieved. Timely continual physical therapy and patient participation are critical factors for the successful recovery from plantar fasciitis.

KEY WORDS: PLANTAR FASCIITIS, DIABETES MELLITUS, PHYSIOTHERAPY, ANKLE INVERSION AND EVERSION EXERCISE, KALTENBORN MOBILISATION.

INTRODUCTION

Plantar fasciitis is one of the major cause of heel pain(Yelvertonet al., 2019). Plantar fasciitis is known as an overuse condition as it progresses over time and is a result of prolonged distress that surpasses the innate ability of the body to heal and respond, inevitably leading to failure of the muscles, bones, and ligaments(Costaet al., 2007). The indications of plantar fasciitis in the very first steps of the morning are like stabbing discomfort. The pain generally gets easier once the foot is on the move and walking. This pain is however, likely to come back from prolonged duration of standing or getting up from a sitting position (Assadet al., 2020). Conservative plantar fasciitis treatment as advised by the updated clinical guidelines for heel pain and plantar fasciitis that included joint and soft tissue manipulation, triceps surae and plantar fascia muscle elongation, short-term use of taping, foot orthosis to stabilize the medial arch, short-term use of injections, low-level laser, and guidance and guidance on the use of exercise to obtain a healthier value of body mass index (Silleviset al., 2020).

Patient Information: A 36-year-old female primary school teacher with an average body mass index started complaining of both knee and left heel pain and swelling. Symptom aggravated on activity and in morning and relived on rest. With these symptoms, she visited AVBRH,

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where the diagnosis of plantar fasciitis was confirmed by radiological and other approaches. Patient is a known case of diabetes mellitus type 2 since 5 years and is on medications for the same. For these symptoms and diagnosis, after administering drugs, she was sent to the physiotherapy service for further treatment.

Clinical Findings: She detailed her pain at the heel at 6/10on VAS. At the hour of assessment her Lower Extremity Functional Scale (LEFS) score was 39/80, which demonstrates a moderate degree of inability. The subject moved around with an abbreviated position stage and a positive Trendelenburg on the right. She showed diminished dorsiflexion of the correct lower leg both with the knee in extension and flexion. There was a negative straight leg raise, and a negative Tinel test for the tarsal passage. Manual muscle testing uncovered stamped shortcoming of the tibialis posterior at 3/5, shortcoming of the rear arm muscles surae at 3+/5, and shortcoming of the toe flexors at 4/5. Shortening of the rear arm muscles surae complex was exhibited on muscle length testing on the privilege and she showed a positive windlass test on the right.

Figure 1: X-ray of ankle joint taken in lateral view Calcaneal spur seen

Specific Tests
Foot function test: - Pre 59% Post 32%
VAS: - Pre 6/10 Post 3/10

Therapeutic Intervention: Patient underwent regular physiotherapy treatment. The aim was to reduce pain and swelling and improve gait pattern. Physiotherapy Intervention included- Lateral side step action for 5 sets of 15 crossovers in either direction involving crossing 1 foot over the other. Exercise of forefoot extension: for 5 sets and 15 repetitions in each set. Standing on 1-legged balancing exercise: initially done with eyes open, then with eyes closed on the deck, then for 1 minute on an uneven surface. Ankle inversion and eversion exercise: at the edge of a step, 3 sets of 15 repetitions for the improvement of strength of the specific muscle group targeted. Soleus and Gastrocnemius stretching 3 sets of 30 seconds each for the flexibility of the muscles. Kaltenborn mobilisation for subtalar joint to improve joint play. Tissue-specific plantar fascia stretch (Ryanet al., 2014)and Kinesio-Taping(Dholeet al., 2020).

Follow up and outcome: Before the finish of the meetings, she had the option to stroll with no torment and was autonomous in versatility. The patient came for active recuperation with inspiration and was promptly able to do whatever she was inquired. Short term taping was carried out every week over the left foot. She was taught home exercise programs, which she performed sincerely and came for follow up weekly. Reduced windlass effect was seen after 8 weeks of follow up and in the end of 12 weeks, the effect was resolved completely.

DISCUSSION

In patients with diabetes, the prevalence of plantar fasciitis was significantly higher compared to those without diabetes, especially in patients with type 2 diabetes. Planter fasciitis is the inflammation of plantar fascia which led to pain. Many factors contribute to plantar fasciitis like arch of the foot- high arch r low arch foot, age, long standing posture and diabetes. The higher prevalence of plantar fasciitis was also related to female gender and higher BMI (Priesandet al., 2019; Dholeet al., 2020). This was the main concern during follow ups as of the possibility of recurrence. The patient was prompt and regular which was a major benefit. As she was from a background of education profession, she was willing to learn and inculcate adaptive changes in daily life. Patient was told to avoid wearing high heels and footwear or proper size and soft sole was suggested which was followed by the patient.

Early detection of both Diabetes Mellitus and Plantar Fasciitis in the patient helped make appropriate changes in early phase and to follow proper rehabilitation protocol. It would have led to secondary complications of diabetic foot seen in many patients (Garianiet al., 2020; Waneet al., 2020). Few of the related studies on diabetes were reviewed (Rathiet al., 2019; Unnikrishnanet al., 2020; Warjukaret al., 2020; Rajaet al., 2019; Papalkaret al., 2018). Some of the key studies on diabetes were reported by (Khatib et. al 2014; Shrivastava et.al. 2020; Gaidhane et. al., 2015; and Ray et.al., 2019).It was averted in this case for further time being. The patient's socio-economic background and age also led to better prognosis. Pre diabetic foot management was taught to the patient which included washing of foot properly, cutting nails, regular inspection of foot, proper shoe size and shoe hygiene and was successfully followed by the patient. Apart from this regular stretching exercise for both planter fascia and gastrocnemius and soleus was followed showing significant improvement in both range of motion and in pain management.

CONCLUSION

Plantar fasciitis can limit functional activities and can disturb the kinematic chain. After the physiotherapy intervention significant changes were seen in the pain swelling as well as the functional ability and muscle strength. This case report focused on structured physiotherapy program for successful recovery of the patient.

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Ethical Clearance: The institution Ethics committee clearance is obtained.

Conflict of interest: Nil.

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