

A case study on Therapeutic Effect of instrument assisted soft tissue mobilization in patient with heel pain

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ABSTRACT

Heel pain is the most found illness of foot, affecting 10% of population including both younger as well as elder population. It also affects the lifestyle of these patients. Plantar fasciitis is one of such disorders which can cause heel pain. Plantar fasciitis is the outcome of inflammation of plantar aponeurosis due to its extension on calcaneal tuberosity. Physiotherapy intervention in form of soft tissue mobilization and stretching can be helpful in achieving practical goals. The commonest sites for locating this condition are: 1) Encountering tenderness and pain in medial tubercle of heel bone 2) sore first step in morning and 3) Pain due to extended standing or weight bearing. Instrument Assisted Soft-tissue Mobilization (IASTM) reports in improving soft-tissue mobility in individuals having plantar fasciitis. A 27-year-old female, diagnosed with plantar fasciitis complaining of heel pain and difficulty in walking, undergone physiotherapy for 4 weeks, which develop reduction in pain intensity and increased foot and ankle's potentials. This case study suggests that physiotherapy intervention given in the form of IASTM led to boosting the functional goals more and more which is a vital aspect leading to a victorious recovery.

Keywords: Physiotherapy, Instrument assisted soft tissue mobilization, Heel pain, Plantar fasciitis

INTRODUCTION

Plantar fasciitis is defined as a outcome of swelling of plantar aponeurosis as it is attached on tuberosity of calcaneum. It is also mention as plantar heel pain, which is wellknown to affect approximately 10% of people once in their lifetime. It is common in athletes, active individuals and military personnel but also can reflect in person with sedentary lifestyle. The frequent sites for identifying this condition are: 1) Reflecting tenderness and pain in medial tubercle of heel bone 2) Sore first step in morning and 3) Pain due to extended standing or weight bearing.^{[1][2]}

Martin et al reported that in plan of care (intervention) for people with plantar fasciitis, soft tissue mobilization should also be taken into account. Various approaches like muscle trigger point release therapy, Instrument Assisted Soft-tissue Mobilization (IASTM) are reported in improving soft-tissue mobility in individuals having plantar fasciitis ^[3-6]. This casestudy describes about patient diagnosed with plantar fasciitis, having pain and difficulty in walking.

Patient information

Presenting a case of 27 years old female, house-maker by profession, experiencing heel pain on first step out of bed in

morning and while walking since January. For first few days heel pain was control at home with local home remedies but it was temporary, so after few days i.e on 25th January, 2022 she visited the orthopaedic department of Rama Medical College for further treatment. Radiographical Investigations were done i.e X-ray and was discover with plantar fasciitis. She was on medicines and was asked to rest, but felt no relief. She was told to be on physiotherapy intervention, so she visited the physiotherapy department on 11th February. Her main complaints were pain in the left heel region and difficulty in standing and doing the household chores.

Clinical findings

A proper informed consent was signed prior to treatment. Physical assesment was performed; she was explained about the intervention procedure. She was assesed in sitting position with the affected leg resting on the non-affected leg. The area of pain was clearly revealed i.e from calf region to the foot. On palpation, pain was felt at the heel site. Windlass Test was positive ^[7].

Outcome measures

Pre-test score was recorded as:

NPRS ^[9], was 9 on taking first step in morning and 7 before beginning of treatment. FAAM score before beginning of was 41%.

Physiotherapy management

Session 1 (1 to 3 weeks)

Score was recorded for FAAM scale and NPRS Pre-treatment. Patient lying in prone position on couch, with ankle out of bed. Position of Therapist standing beside affected ankle. Application of Lubricant or moisturizer on the affected leg, i.e from calf to the mid foot. IASTM using the edge mobility tool was given for 2 minutes. 2 session of intervention of IASTM per week were given [10]. After IASTM intervention, the patient was advised and explained regarding calf muscle stretches and plantar fascia stretches as a part of home exercise program. Stretching of Calf muscle (3 repetitions with 30 sec hold each) and Stretching of plantar fascia (3 repetitions with 30 sec hold each) [11].

Session 2 (4th week)

The treatment for IASTM was given for 8 sessions with the home exercise program. Post treatment i.e after 8th session, outcome measures were again recorded for FAAM scale and NPRS. IASTM + Home exercise program were given to increase the ability of foot and ankle and to reduce pain.

Post-test score was recorded as

NPRS was 5, on first step in morning and before beginning of treatment was 6. FAAM score was 96% after end of treatment.

DISCUSSION

The present intervention done on subjects with heel pain showed positive results in pain reduction and in improving functional activity of ankle joint. Instrument assisted soft tissue mobilisation reduces pain of the patient as well as releases the stress of the therapist as the pressure required to use tool is less than that of hand.

The post treatment values can be compared with the study of Ashwini Bulbuli¹ et al (2017), who conducted a Pilot study on acute heel pain using a M2T (IASTM) blade. 15 subjects of acute heel pain were recruited in the study, who met both the inclusion and exclusion criteria. The study was done to see the instant effects of M2T blade on acute heel pain. The primary result measure was foot function index. Pre-test and Post-test ranges were recorded. The interference showed positive results in pain relief and improved functional activity of ankle joint. Post treatment results demonstrated statistical and clinical significance which proves its effectiveness in the management of soft tissue [12].

The outcome of this case study can also be matched with the study of Carrie a Rowlet¹ et al (2018), who performed a study (randomized control trial) to determine the efficacy of IASTM of gastro-soleus complex in comparison to traditional stretching intervention on dorsiflexion ROM. In conclusion, a single session of IASTM or stretching increased ankle dorsiflexion ROM in weight bearing lunge test (WBLT) and MRP2 (Modifies Root Position). Both IASTM and stretching appeared to have greater effect on soleus muscle flexibility as evidenced by ROM gains measured with the knee in flexion [13].

CONCLUSION

It this study it can be concluded that combining both the IASTM and Exercises have got better effects in reducing the pain intensity and improving the overall function of foot and ankle in patients with heel pain. The IASTM intervention given by using edge mobility tool is proven to be productive in patients with heel pain as very few studies have been carried out on the outcome of edge mobility tool.

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