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Case report

A case report on efficacy of instrument assisted soft tissue mobilization in a patient having heel pain

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ABSTRACT

Heel pain is the most common ailment of foot, affecting 10% of population including both younger as well as elder people. It also affects the lifestyle of these patients. Plantar fasciitis is one of such conditions which can cause heel pain. Plantar fasciitis is the result of inflammation of plantar aponeurosis due to its attachment on calcaneal tuberosity. Physiotherapy in form of soft tissue mobilization and stretching can be beneficial to achieve functional goals. The commonest sites for identifying this condition are: 1) Experiencing tenderness and pain in medial tubercle of heel bone 2) painful first step in morning and 3) Pain due to prolonged standing or weight bearing. Instrument Assisted Soft-tissue Mobilization (IASTM) and aggressive manual soft-tissue mobilization (AMSTM) are reported in improving soft-tissue mobility in individuals having plantar fasciitis. A 28-year-old female, diagnosed case of plantar fasciitis complaining of heel pain and difficulty in walking, underwent physiotherapy for 4 weeks, which resulted in reduction in pain intensity and increased foot and ankle's abilities. This case report suggests that physiotherapy given in the form of IASTM led to improving the functional goals progressively and significantly which is a major aspect leading to a successful recovery.

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

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INTRODUCTION

Plantar fasciitis is defined as a result of inflammation of plantar aponeurosis as it is attached on tuberosity of calcaneum. It is also referred as plantar heel pain, which is known to affect approximately 10% of population once in their lifetime. It is not only common in athletes, active individuals and military personnel but also is diagnosed in individuals with sedentary lifestyle. The commonest sites for identifying this condition are: 1)Experiencing tenderness and pain in medial tubercle of heel bone 2) painful first step in morning and 3)Pain due to prolonged standing or weight bearing.[1][2].

Martin et al reported that in plan of care for individuals with plantar fasciitis, soft-tissue mobilization should also be considered. Various techniques like muscle trigger point release therapy, Instrument Assisted Soft-tissue Mobilization (IASTM) and aggressive manual soft-tissue mobilization (AMSTM) are reported in improving soft-tissue mobility in individuals having plantar fasciitis [3–6]. This case report describes about a patient diagnosed with plantar fasciitis, having pain and difficulty in walking.

Patient information

Presenting a case of 28 years old female, house-wife by profession, started experiencing heel pain on first step out of bed in morning and while walking since January. For first few days she managed the heel pain at home with local home remedies but got no relief, so after few days i.e on 25th January, 2021 she visited the orthopaedic department for further treatment. Investigations were done i.e X-ray .She was diagnosed with plantar fasciitis. She was given medications and was asked to rest, but got no relief. She was advised physiotherapy for further management, so she visited the physiotherapy department on 11th February. Her chief complaints were pain in the left heel region and difficulty in standing and doing the household chores.

Clinical findings

A proper informed consent was taken from the patient prior to treatment. Physical examination was done; she was explained about the treatment procedure. She was examined in sitting position with the affected leg resting on the non-affected leg. The area of pain was clearly exposed 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], on first step in morning was 9 and before beginning of treatment was 7. FAAM score before beginning of treatment was 41%.

Physiotherapy management

Session 1 (1 to 3 weeks)

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

Figure 1: IASTM using the edge mobility tool

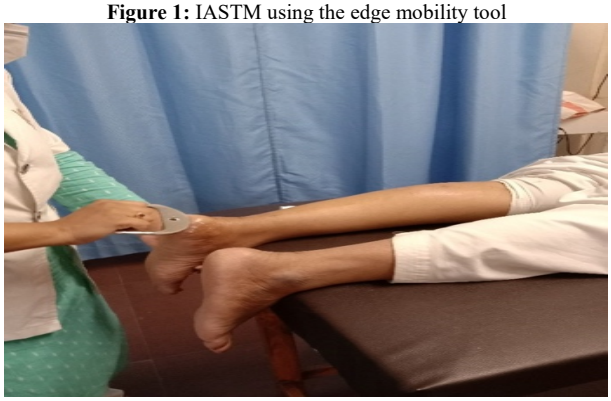

Figure 2: IASTM using the edge mobility tool.

Post-test score was recorded as

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

DISCUSSION

The present intervention done on heel pain subjects showed positive results in pain reduction and improved functional activity of ankle joint. Instrument assisted soft tissue mobilisation relieves pain of the patient as well as reduces 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 Bulbuli[1] 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 immediate effects of M2T blade on acute heel pain. The primary outcome measure was foot function index. Pre-test and Post-test ranges were recorded. The intervention showed positive results in pain reduction and improved functional activity of ankle joint. Post intervention results demonstrated statistical and clinical significance which proves its efficacy in the treatment of soft tissue [12].

The result of this case report can also be matches with the study of Carrie a Rowlet[1] 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 beneficial effects in reducing the pain intensity and improving the foot and ankle function in patients with heel pain. The IASTM technique given by using edge mobility tool is proven to be effective in patients with heel pain as very less studies have been carried out on the effects of edge mobility tool.

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