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Functional Outcome and Results of Silicone Heel Pad in Treatment of Planter Fasciitis

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ABSTRACT

Objective:
To assess functional outcome & results of silicone heel pad in treatment of planter fasciitis.
Design:
Prospective clinical study with 6 months of follow-up.
Methods:
Clinically proven one hundred patients of planter fasciitis participating in study included in study according to inclusion and exclusion criteria on OPD basis after getting written and informed consent , treated by prescribing silicone heel pad by single author*, evaluation of functional outcome and results done by outcome parameter i.e. proportion of pain relief, which was defined as the cut-off point for both the % Max Total Pain Relief (TOTPAR) and the Pain Intensity Difference (PID%) scales.
Results:
Hundred patients enrolled in study initially and during the course of study eight (8%) patients were lost to follow-up , while 11(11%) patients switched to other mode of treatment because of persistence of symptoms. In the remaining 81 patients Silicone heel pad reported a better outcome measure in planter fasciitis associated with heel pain as 66 (81.48%) patients showed reduction in heel pain to a tolerable limit. There were statistically significant difference between pain relieved and treatment duration ($p<0.05$).
Conclusions:
Conservative intervention with silicone heel pad is effective mean of treatment without complication in patients of planter fasciitis for short term. Long term results in pain management are less effective, so for long term relief in pain Silone heel can be used as an adjunctive to other various treatment modalities like PRP injection intralesionally or surgerical processes etc.

KEYWORDS Planter fasciitis(PF), PRP, Silicone heel pad

INTRODUCTION

Heel pain is one of the commonest complaint in the day to day orthopaedics practice & plantar fasciitis (PF) is the most common cause of chronic heel pain in adults[1]. According to studies It is said that 1 in 10 people suffers from PF in their lifetime[2]. PF is more common in middle-aged obese females and young male athletes.PF is also known as painful heel syndrome, chronic plantar heel pain, heel spur syndrome, runner's heel & calcaneal periostitis[3]. The calcaneum is separated from plantar skin by a complete honeycombed fibro-fatty fat pad that acts as a shock absorber.The posterior tuberosity of calcaneum has medial and lateral processes. The medial process gives attachment to the Flexor digitorum brevis (FDB), Abductor hallucis (AH), and the medial head of Quadratus plante (QP) as well as the central band of plantar fascia.

The plantar fascia or plantar aponeurosis is a dense,broad-band, multilayered ,fibrous aponeurosis on the sole of the foot[4]. It originates from anterior and medial aspect of calcaneum from medial tubercle and inserted at base of proximal phalynx in form of five digital bands.This fascia assists in forming the longitudinal arch of the foot[5] that is especially designed to disperse weight around the plantar medial tubercle of the calcaneus. The origin of the plantar fascia is the most "fixed" point and is most prone to injury. Pain in heel is typically worse in the morning or after sitting for a while, this reduces after walking for a while as the muscles warm up and stretch of fascia reduces. Later on severity may increase. Localized tenderness present at inferomedial aspect of calcaneal tuberosity along with mild swelling or erythemia. Some of the etiopatogenesis of PF are degenerative changes, repetitive traction producing microscopic tears, nerve entrapment syndrome etc. thorough clinical examination and routine blood tests and radiographical evaluation should be done in PF. NCV & EMG of abductor digiti minimi is useful and USG shows thickening of planter fascia.

There are various treatment modalities available for plantar fasciitis ranging from conservative approach in form of rest, oral non-steroidal anti-inflammatory drugs (NSAIDs),soft slippers,shoe inserts,silicone heel pads local steroid or PRP injections,pop cast & dorsiflexion night splint to endoscopic or open surgerical procedures like release of PF from calcaneal tuberosity, removal of calcaneal spur, release of flexor digitorum brevis, neurolysis of nerve to abductor digiti minimi are available. Although most cases of plantar fascia can be successfully managed with a conservative approach, but surgery is considered after the failure of the conservative treatment[6]. Silicone heel pad non-invasive modalities made of a skin like medical-grade silicone that resists bacterial growth and does not dry out, provides a useful balance between support and flexibility which is readily accepted by the plantar fasciitis patients. It may also be helpful when worn overnight to position the foot and heel to provide pain relief and a gentle stretch. It will not flatten under repeated pressure from walking or standing and has a very long life expectancy[7]. Silicone heel

pads for plantar fasciitis are used to help relieve the tension and resultant inflammation associated with plantar fasciitis inflammation and degeneration of the thick band of tissue that supports the sole of the foot. Silicone is a cheap, safe and effective accommodating non-invasive material. The current study was planned to evaluate short and long term results and functional outcome of use of silicone heel pad in planter fasciitis.

MATIRIALS AND METHODS-

After approval from institutional ethical committee (IEC), clinically diagnosed hundred adult patients of both sexes of symptomatic planter fasciitis of more than two months duration without any h/o local injection included in study and patients with any history of local steroid injection in past 2 months, Patient having tarsal tunnel syndrome ,patients with generalised inflammatory disorder (gout disease, ankylosing spondylitis, rheumatoid arthritis or lupus), any local infection or malignancy, diabetes, hypothyroid, neuropathy or any vascular insufficiency Patient who had previous surgery around ankle, joint instability, previous trauma and significant co morbidity of lower limb excluded from study.

All the patients were explained about the study and an informed consent was obtained. Only those providing consent to participate in the study were enrolled in the study. Paticipents were treated by prescribing silicone heel pad by single author*. Patients were followed up for 6 months. No analgesic was prescribed during follow up except tab paracetamol (650 mg) SOS.

At baseline, the demographic information and medical history of the patients was obtained. Assessment of results had done by outcome parameter i.e. proportion of pain relief, which was defined as the cut-off point for both the %Max Total Pain Relief (TOTPAR) and the Pain Intensity Difference (PID%) scales[8,9].

STATISTICAL ANALYSIS-

The statistical analysis was done using SPSS (Statistical Package for Social Sciences) Version 15.0 statistical Analysis Software. The values were represented in Number (%) and Mean±SD.

RESULTS-

Table-1 Baseline data

Demography Male/Female	42/58 Total 100
Age of patients Mean/SD	43.1±9.16 yrs, Range 16-62 yrs
Patient lost follow up	8
Patient switch to other Rx	11
Finally patients participated in study	81
Significant reduction in heel pain	66 (81.48%)

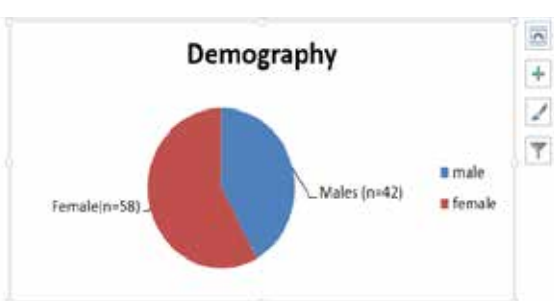

Figure-1 Demography

Out of 100 enrolled patients 42 were male (42%) and 58 were females (58%) and mean age of participants was 43.1±9.16 yrs, age of participants ranged from 16 to 62years.

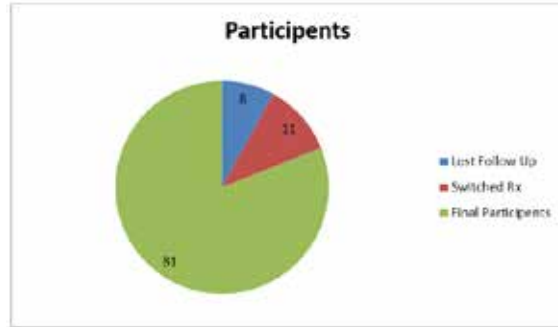

Figure-2 Participents

Hundred patients enrolled in study initially and during the course of study eight (8%) patients were lost to follow-up , while 11(11%) patients switched to other mode of treatment because of persistence of symptoms. Finally 81 (81%) participated in study till final follow up.

Table-2 Evaluation of Functional Outcome

Pain relief at follow up	At 1 month	At 6 month	Total
Present	52 (64.2%)	14 (48.28%)	66 (81.48%)

Figure-3 Functional Outcome

Out of the 81 patients who completed the six-month follow-up, 66(81.48%) got relieved from pain or reached tolerance level. The 29 (35.8%) patients who were still in pain at one month were followed up for 6 months. During the six-month follow-up in out of these 29 patients 14 (48.28%) pain also reached to tolerable limit or relieved leading to 81.48% of total reduction of pain at six months follow up in participants ($p<0.05$) which is a meaningful and statistically significant improvement.

DISCUSSION-

Yucel U et al.[10] established that plantar fasciitis is more prevalent in female patients compared to male patients (76.6% vs. 23.3%). Comparable results are found in our current study stating that out of 100 enrolled patients 42 were male (42%) and 58 were females (58%).. The present study provides evidence that plantar fasciitis patients were older (43.1±9.16 yrs). Yucel U[10] and Turlik MA et al.[11] presented similar results (47.4±7.9 and 46.2±6.4 years). The present study showed that silicone heel pad is affordable and readily available non-operative treatment for the treatment of plantar fasciitis patients. With time and a good conservative treatment plan, 84.09% patients were able to resolve their condition or reach a tolerance level where it did not have much effect on their lifestyles. It showed preferable reduction in some aspects of pain in plantar fascia in the short term as patients got relieved more at one month (64.2%) while less at six month (48.28%). Crawford F. et al[12] reported improvement in 72% patients at 6-month follow-up. Our study showed slightly higher incidence of pain relief (81.48%) due to small sample size. We could not find the reason for not alleviating the symptoms in

35.8% in one month and 51.72% in 6 months study period who got silicone heel pad treatment. There could be some other factor causing the symptoms in plantar fasciitis that need to be explored. . However, there is some evidence that silicone insole may be more effective for plantar fascia patients in the short term or for long term relief in pain Silone heel can be used as an adjunctive to other various treatment modalities like PRP injection intralesionally or surgerical processes etc.

CONCLUSION-

Conservative intervention with silicone heel pad is effective mean of treatment without complication in patients of planter fasciitis for short term. Long term results in pain management are less effective, so for long term relief in pain Silone heel can be used as an adjunctive to other various treatment modalities like PRP injection intralesionally or surgerical processes etc.

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