Effect of Dry Needling in Management of Plantar Fasciitis – Case Report

Faisal K. Alhabib¹* Nezar Al Torairi² Hisham Saad Addowais³ Sultan Mohamed Samoun Bantan⁴

¹ Physiotherapist at PSMMC, Riyadh KSA

² Clinical Supervisor at Physiotherapist Male Orho OPD at PSMMC, Riyadh KSA

³ Chief Physical Therapist Prince Sultan Military Medical City, Riyadh Saudi Arabia

⁴ Physiotherapy Technician, at PSMMC, Riyadh KSA

Abstract –

Study Design: Case Report.

Background and Purpose: Myofascial trigger points (MFTP) are the first choice of treatment for all researchers and clinicians in neuromusculoskeletal pain. Trigger point dry needling (TPDN) is an invasive technique involving MFTP stimulation by monofilament needle. The aim of this case study is to find out results of TPDN is main choice of treatment in plantar fasciitis pain patient.

Case Description: A 32-year-old male patient working as senior cook is suffering from heel pain since 6 month due to long-term standing and wearing tight shoes. Traditionalist administration alternatives for this condition are numerous however there is no solid proof supporting viability of any single choice. This case report concentrated on proof based physiotherapy treatment of a patient with plantar fasciitis. Visual Analog Scale (VAS) score (where 0 shows no torment and 10 greatest conceivable agony) was 5/10 preceding mediation. The patient was treated for Plantar fasciitis with TPDN and stretching of the plantar fascia and Achilles tendon, intrinsic foot muscle strengthening, manual therapy of myofascial chains and utilize of heel pads. Home activities included myofascial discharge with tennis ball and tin, standing stretches to triceps surae and reinforcing of inborn foot muscles on towel.3 sessions with 3 days interval.

Outcomes: There was no torment (0/10) provided details regarding VAS Scale after mediation and no hindrance or utilitarian restrictions, including typical scope of motion.

Discussion: The patient had the option to return to work with no issue and he had the option to continue his past duties without torment. TPDN with Stretching exercises intervention proved beneficial for the healing of plantar fasciitis. Further future research is recommended to know if TPDN intervention, with stretching exercises is effective in other body parts pain and long-term treatment follow ups in superior patient cluster.

Key Words: Dry Needling, Stretching Exercises, Plantar Fasciitis, Ultra Sound

·····X·····

INTRODUCTION

Heel torment because of plantar fasciitis is described by agony and delicacy focused under the average tubercle of the calcaneus on weight-bearing surface, specifically immediately after rest, for example, getting up in the morning1. The most well-known foot issue experienced by foot and lower leg authorities that effects about 10% of individuals throughout their life, and it is answerable for around one million doctor visits annually2. One national investigation of restorative specialists in the United States throughout the years 1995 to 2000 found that around one million patient visits to doctors or

medical clinic outpatient departments per year were for plantar heel pain3. Furthermore, an ongoing Australian investigation of 3206 grown-ups found that roughly 20.9% indicated that they had heel pain, although this study did not differentiate between plantar heel pain and pain in other parts of the heel⁴. It is commonly acknowledged that plantar heel torment dominatingly influences moderately aged just as more established grown-ups. In an investigation of 784 North American people group staying inhabitants matured 65 years or more prominent, 7% revealed agony and delicacy underneath the heel5. Plantar heel pain influences more established grown-ups it is likewise normal in the athletic population, being evaluated to add to 25% of all foot wounds identified with running6.Plantar impact point torment has been appeared to affect wellbeing related personal satisfaction. An ongoing case control concentrate found that people with constant plantar heel torment are seriously restricted in their capacity to embrace physical activities and come up short on the vitality to attempt day by day assignments, have a poor impression of their wellbeing status and experience social isolation7. Various customary medications are at present used to treat plantar fasciitis including calf extending, foot taping, manual therapy (joint activation and control; assembly of delicate tissue close to locales of nerve entrapment and uninvolved neural preparation procedures), foot orthosis, oral and injectable anti-inflammatories, and night splints⁸.

Alternative treatment for plantar heel agony is trigger point dry needling, which includes incitement of myofascial trigger focuses (MTrPs) utilizing a fine fiber needle. Dry needling is progressively utilized by physical specialists for the treatment of neck torment, shoulder torment, knee torment, back thigh torment and low back torment9.

Despite the fact that MTrP dry needling is ending up progressively utilized for the treatment of plantar heel torment, just two examinations have been distributed that have explored the adequacy of this intervention for this disorder10,11.

Tillu and Gupta10 discovered a noteworthy improvement in plantar heel torment, as estimated on avisual simple scale (67.9% improvement, p = 0.047), with a four-week (one treatment for every week) time of needle therapy pursued by about fourteen days of dry needling of the calf and heel regions. Perez-Milan and Foster11 additionally exhibited a huge decrease in torment (46% improvement, p < 0.001) with a six-week (one treatment for every week) program of needle therapy and dry needling of the heel and curve. However, the nature of these preliminaries as estimated by the Quality Index was poor and thusly the constructive outcomes of the MTrP treatment are probably going to have been overestimated. The aim of this case report was to investigate whether deep trigger point dry needling is more effective for plantar heel pain.

CASE REPORT

A 32-year-old male patient working as senior cook visited Physical Therapy department with complaint of severe heel pain in right foot. The pain started a 6 months ago and was gradual and burning type. His pain was worst in the morning and at the end of the day. However, it ceased after some movement. symptoms returned Moreover, his following prolonged standing and getting up from seated position or prolonged rest. He had history of use of tight shoes . His work involving 4 hours of continuous standing and had an average 6-7 hours of standing a day. Furthermore, his height was 5 feet 6 inch and weight was 65 kilogram. His pain was 5/10 on visual simple scale (VAS) at the hour of introduction. Tinnel sign for tarsal passage disorder and press test for calcaneal pressure crack were performed and results were negative. There was expanding and delicacy saw at the heel and his Achilles ligament exhibited snugness. His X-ray showed a heel spur.

TREATMENT:

His treatment program included dry needling ultrasound at 1.5 watts/cm² for 5 minutes, icing, gentle stretches to Achilles tendon for 10 times, intrinsic muscle strengthening and home exercises. Home activities included myofascial discharge with tennis ball and tin, standing stretches to triceps surae and fortifying of natural foot muscles on towel. After 2 weeks, he reported no significant improvement and his treatment plan were modified. In the wake of surveying the writing, there was expansion, taping, extending of the plantar sash, and manual treatment of myofascial chains and utilization of heel cushions. Accentuation was set manual treatment including myofascial on discharge and grating back rub. Icing was supplanted with warming methodology. After 2 weeks, he had much improvement and his pain intensity was 3 on VAS. Same treatment was continued for 2 more weeks and the patient was assessed for complaint of pain, the VAS score after four weeks was 0. Span of every treatment session went on for 30 minutes. Patient was instructed for forestalling the repeat of the issue and was stressed to proceed with home activities for further 2 weeks. Dry needling was dependent on lower leg muscles trigger points, particularly four trigger focuses of gastrocnemius muscle and such decisions were made by one physical advisor authority with 10 years of involvement in this field12. With regards to this examination, dry needling included the incitement of MTPs, utilizing a dry needle with the length of 30-50mm and measurement of 0.6mm. Treatment was led inside a 30-minute time allotment. The patient was lying level, and following the inclusion the needle was incompletely pulled back and progressed over and over to deliver a fitting reaction. Patient was touchy to addition of the needle, the control would be

Journal of Advances and Scholarly Researches in Allied Education Vol. 16, Issue No. 6, May-2019, ISSN 2230-7540

diminished. This action was inadequate to lessen the difficult stimulus, the control would be ceased and the needle left in situ. The needle was left in the muscle for whatever length of time that it wasneeded to deliver a suitable responseand was being endured by the patient.Appropriate reaction depended on twitchresponse, in which needle developments wererepeated until the jerk reaction of themuscle was vanished. When this has occurred, the needle was left in the situ forfive minutes. This permitted adequate timefor the improvement to die down in delicate patient.

The impacts of dry needling were evaluated at three time purposes of standard, fourweeks after intercession and four weeksafter pulling back treatment.



Figure 1- Dry Needling Procedure

DISCUSSION :

Treatment choices for plantar fasciitis can be partitioned into moderate and careful measures. There is an expert agreement that 70-90% of heel torment patients canbe oversaw by non-careful modalities13.Although an assortment of treatment choices are accessible for torment decrease and improving joint scope of movement in patients with plantar fasciitis, there is pretty much nothing convincing evidence to support these various treatments^{14,15}. As of late, dry needling or potentially infusion of helpful meds (neighborhood anesthetics, steroids, botulinum poison A) have been read for plantar fasciitis treatment. Of these treatment alternatives, steroid infusions are all the more ordinarily utilized in treating intense and incessant plantar fasciitis, particularly when increasingly moderate administrations ineffective. are controlled preliminaries Randomized have demonstrated that this technique has some present moment benefits16.Despite dry needling being progressively utilized for musculoskeletal pain.which includes incitement of MTPs, as an elective treatment choice for musculoskeletal pain. Myofascial trigger point (MTP) is a hyperirritable spot in skeletal muscle tissue, and it is related with an extremely touchy discernable knob in a rigid band and may bring about trademark delicacy, alluded torment, engine brokenness and even autonomic marvels. There is no reasonable rule to utilize dry

needling for plantar fasciitis17.Only a couple of studies were led on the adequacy of dry needling in plantar heel torment treatment18. Just four distributed quasiexperimental preliminaries have researched the adequacy of trigger focuses needling in calming plantar heel pain19-22.Another investigation has demonstrated that manual localisation of the back tibial muscle using anatomical milestones had a disappointment pace of 88%23. All the above study support our study.

REFERENCES

- 1. Barrett S.J. & O'Malley R. (1999).Plantar fasciitis and other causes of heel pain. Am Fam Physician; 59(8): pp. 2200-6.
- 2. Crawford F. (2005).Plantar heel pain and fasciitis. ClinEvid(13): pp. 1533-45.
- 3. Riddle D.L., Schappert S.M. (2004). Volume of ambulatory care visits and patterns of care for patients diagnosed with plantar fasciitis: a national study of medical doctors. Foot Ankle Int, 25(5): pp. 303-310.
- Hill C.L., Gill T., Menz H.B., Taylor A.W. (2008). Prevalence and correlates of foot painin a population-based study: the North West Adelaide health study. J Foot AnkleRes, 1: p. 2.
- Dunn J.E., Link C.L., Felson D.T., Crincoli M.G., Keysor J.J., McKinlay J.B. (2004). Prevalence of Foot and Ankle Conditions in a Multiethnic Community Sample ofOlder Adults.Am J Epidemiol 2004, 159: pp. 491-498.
- Clement D.B., Taunton J.E., Smart G.W., McNicol K.L. (1981).A survey of overuse running injuries. Phys Sportsmed, 9: pp. 47-58.
- Irving D.B., Cook J.L., Young M.A., Menz H.B. (2008). Impact of chronic plantar heelpain on health-related quality of life. J Am Podiatr Med Assoc,98(4): pp. 283-289.
- McPoil T.G., Martin R.L., Cornwall M.W., Wukich D.K., Irrgang J.J., Godges J.J. (2008). Heel pain—plantar fasciitis: clinical practice guildelines linked to the international classification of function, disability, and health from the orthopaedic section of the American Physical Therapy Association. J Orthop Sports Phys Ther;38(4): pp. A1-A18.
- 9. Furlan A.D., van Tulder M.W., Cherkin D.C., Tsukayama H., Lao L., Koes B.W., Berman B.M. (2005). Acupuncture and dry needling for low back pain: anupdated

systematic review within the framework of the Cochrane collaboration. Spine,30(8): pp. 944-963.

- 10. Tillu A. & Gupta S. (1998). Effect of acupuncture treatment on heel pain due toplantar fasciitis. Acupunct Med, 16(2): pp. 66-68.
- 11. Perez-Millan R., Foster L. (2001). Low frequency electro acupuncturein themanagement of refractory plantar fasciitis. Med Acupunct, 13(1): pp. 1-6.
- 12. Simons D.G. T.J., Simons L.S. Ravell & Simons' (1999). Myofascial pain and dysfunction: the trigger point manual. 2nd ed. Baltimore: Williams & Wilkins.
- Othman A.M., Ragab E.M. (2010). Endoscopic plantar fasciotomy versus extracorporeal shock wave therapy for treatment of chronic plantar fasciitis. Arch Orthop Trauma Surg.;130(11): pp. 1343-7. Epub 2009/12/25.
- 14. Cole C., Seto C., Gazewood J. (2005). Plantar Fasciitis: Evidence-Based Review of Diagnosis and Therapy. American Family Physician;72(11): pp. 2237-42.
- 15. McNally E.G., Shetty S. (2010). Plantar fascia: imaging diagnosis and guided treatment. Semin Musculoskelet Radiol;14(3): pp. 334-43.
- 16. Crawford F. & Thomson C. (2003).Interventions for treating plantar heel pain. Cochrane Database Syst Rev 2003(3):CD000416.
- Cotchett M.P., Landorf K.B., Munteanu S.E., Raspovic A. (2011). Effectiveness of trigger point dry needling for plantar heel pain: study protocol for a randomised controlled trial. J Foot Ankle Res;4: p. 5.
- Cotchett M.P., Landorf K.B., Munteanu S.E. (2010). Effectiveness of dry needling and injections of myofascial trigger points associated with plantar heel pain: a systematic review. J Foot Ankle Res 2010; 3: p. 18.
- 19. Tillu A. & Gupta S. (1998). Effect of acupuncture treatment on heel pain due to plantar fasciitis.Acupunct Med;16(2): pp. 66-8.
- 20. Perez-Millan R. & Foster L. (2001).Low frequency electroacupuncture in the

management of refractory plantar fasciitis. Med Acupunct;13(1): pp. 1-6.

- 21. Cotchett M.P., Munteanu S.E., Landorf K.B. (2014). Effectiveness of trigger point dry needling for plantar heel pain: a randomized controlled trial. PhysTher; 94(8): pp. 1083-94
- 22. Behnam A., Mahyar S., Ezzati K., Rad S.M. (2014).The use of dry needling and myofascial meridians in a case of plantar fasciitis. J Chiropr Med; 13(1): pp. 43-8.
- 23. Yang S.M., Lee S.H., Kwon H.K. (2008). Needle electrode insertion into the tibialis posterior; a comparison of the anterior and posterior approaches. Arch.Phys Med Rehabil, 89: pp. 1816-1818.

Corresponding Author

Faisal K. Alhabib*

Physiotherapist at PSMMC, Riyadh KSA

faisalalhabib55@gmail.com