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RESEARCH ARTICLE

EFFECTS OF DRY NEEDLING ON CALF MUSCLE IN CASE OF MYOFASCIAL TRIGGER POINT WITH MILD RESTRICTION OF KNEE JOINT MOVEMENT: A CASE STUDY

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Abstract

Background: Trigger point on calf muscle is a common musculoskeletal condition it is usually felt as an intense pain when the concerned extremity is used to put on weight. The upper medial and upper lateral trigger points refer pain locally to the back of the knee causing slight end range restrictions. It is the most common musculoskeletal complaint presenting to physical therapy.

Objective: Reduction of calf pain and to improve the end range of motion of the knee joint. Thus, helps in enhancing the functional activities.

Methods: The study was done on one patient aiming to reduce calf pain and mild end range restriction of knee joint movements, we used dry needling technique for treatment purpose.

Result: We found reduction in the calf muscle pain and improvement in end range of movement of the knee joint after 2 sessions of dry needling.

Case Representation: one patient came to us having pain on calf muscle, local tenderness and end range restriction of the knee joint and patient was having no history of trauma patient was undergoing for analgesic medication.

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Introduction:-

At present scenario trigger points are very common condition, creates many physical discomforts and moves human life very painful. It is widely accepted by clinicals and researches as a primary source of pain. The trigger points and MTSP are hypersensitive areas in skeletal muscle, fascia, tendons and ligaments.¹ Trigger point is defined as a hyperirritable spot within a taut band of skeletal muscle fascia which produces pain on compression at a target and around the surrounding structures. The formation of trigger points is due to overuse fatigue or injury of muscle.

Trigger points are often seen in many muscles and cause pain attacks in 85% of the population. The main objective in the treatment of trigger point is to resolve the spasm, reduce the pain and inactivate the trigger points. There are

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many techniques like spray, stretch technique, ultrasound therapy, nerve stimulations heat packs are used as non-invasive treatments. Dry needling, local anesthetics and botulinum injections are the preferred invasive methods.^{1,2}

Dry needling is basically of two types-

Superficial dry needling (SDH) is the introduction of the needle into the surface tissue to a depth of 5-10 mm directly above the palpable MTrPs. Deep dry needling (DDN) is the introduction of a needle directly into a deep myofascial trigger point, causing the LTR. Deep dry needling is considered to be the most effective tool for inactivating trigger points.^{25,27} Few case studies have been done to release myofascial trigger point of calf muscle using dry needling therefore, this study has targeted to face the concerning persistent release of MTrP in the calf muscle.

Material And Methods:-

Report of case

The study was done on one patient having persistent pain in the right calf muscle who had come into physical therapy department. Patient had end range restriction of the knee joint, muscle spasm, pain, redness, tenderness, numbness, tingling and weakness in the right leg. They had pain and difficulty in walking.

Examination and evaluation

Patient explained pain as moderate in the right calf muscle with end range restriction of knee joint and pain was evaluated 5/10 on vas scale. The patient was evaluated as he started to walk, pain became severe and it was 7/10 on vas scale. He was 30/80 on lower extremities functional scale (NEFS), Patient was having difficulties with ADLs. His main objective was to return to the life pain free.

Clinical findings following completion of initial examination and evaluation. Patient current impairments includes—

1. Pain in the leg which radiates up to the hip
2. Inability in the leg.
3. Decreased weight bearing and single leg stance of the right limb.

Examination and evaluation showed, patient was in good condition for dry needling session

Method of application of dry needling

patient positioning

Patient is prone, with the ankle supported.

Needle type

Used 0.25 to 0.30mm needle.

Needling directions

Myofascial trigger point was identified and needle was inserted in either gaster, in a lateral to medial direction (medial head) or in a medial to lateral direction (lateral head).

Gastrocnemius:

Needle the medial head in same side line, the lateral head in contralateral sideline, with the hip and knee flexed. Always angle the needle, either towards the knee for upper gastrocnemius or towards ankle for the lower part. Carefully avoid branches tibial and peroneal nerves and the popliteal vessels.

Soleus:

The soleus muscle can be palpated deep to and to the anterior bulk of gastrocnemius. Needle in the same way.



Interventions

1. Consent form was signed by patient to initiate dry needling session.
2. One session treatment was provided on daily bases.
3. Patient received dry needling therapy one time per day for 4 to 5 seconds for 2 days.
4. Gentle knee joint mobilization exercises were given to the patient along with two days dry needling session. Each session is of 4 to 5 seconds.

Measurement tools

Measurement tools During this study three different measurement tools were used:

1. Visual Analog scale (VAS): [11] VAS is a pain rating scale 1-9 first used by Hayes and Patterson in 1921. scores are based on self-reported measures of symptoms.
2. Lower extremity functional scale (LEFS): [14] LEFS is a 20-item condition specific questionnaire LEFS scores range from 0 to 80 points, with 11. Delgado, D., Domenica, A., Lambert, B., Boutres, S., McColloch., Robbins, PC. Moreno, AB., Harris, M R. (2018). Validation of digital visual analogue scale pain scoring with a traditional paper based visual analogue scale in adults. Journal AAOS global research and reviews, 2(3), Article e088. doi. 10.5435/jaaosglobal-d17-00088
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3. Medical research council (MRC) system, [13].

Outcomes

Patient was treated in the clinic daily. A total of two dry needling sessions were given to the patient for two days, along with gentle knee exercises. His persistent pain in the calf muscle was reduced to 0/10 on vas scale. Thus, the end range restriction, muscle spasm, radiating pain, tingling and weakness of the knee joint had been achieved by the patient following two sessions of treatment patient had no pain on calf muscle and can walk independently without any sign of difficulty. He improved his LEFS score from 30/80 to 80/80. Patient stated that he can walk easily without pain and was fully satisfied with dry needling session.

Conclusions: -

After following sessions of dry needling, it is concluded that it can be used for a wide variety of myofascial trigger points. In this study we concluded that dry needling technique can be used in the trigger point of calf muscle to treat pain, spasm, redness, tingling and end range restriction of knee joint in combination with gentle knee exercises.

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