

Dry Needling a Novel Treatment Option for Post-scar Neuralgia: A Case Report

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ABSTRACT

Local injection therapies, often referred to as “wet needling”, use hollow-bore needles to deliver corticosteroids, anesthetics, sclerosants, botulinum toxins, or other agents. In contrast, “dry needling” refers to the insertion of thin monofilament needles, as used in the practice of acupuncture, without the use of injectate. Dry needling is typically used to treat muscles, ligaments, tendons, subcutaneous fascia, scar tissue, peripheral nerves, and neurovascular bundles for the management of a variety of neuromusculoskeletal pain syndromes. Our case report is about a 64-year-old male patient who presented with pain along the anterolateral aspect of the left thigh which developed after undergoing a hip surgery in 2001. The pain was electric shock like, aggravated on sitting and walking. The patient was treated with drugs like baclofen and paracetamol as we had made a diagnosis of the lateral cutaneous nerve of thigh entrapment, but did not have any relief. Injection of local anesthetic and steroid provided some pain relief, but when radiofrequency ablation was done, it did not produce any results. We then thought of a diagnosis of post-scar neuralgia and dry needling was carried out and the patient reported a pain relief of 50%.

Keywords: Dry needling, Lateral cutaneous nerve of thigh, Post-scar neuralgia.

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INTRODUCTION

Local injection therapies, often referred to as “wet needling”, use hollow-bore needles to deliver corticosteroids, anesthetics, sclerosants, botulinum toxins, or other agents.^{1,2} In contrast, “dry needling” refers to the insertion of thin monofilament needles, as used in the practice of acupuncture, without the use of injectate.³⁻⁶ Dry needling is typically used to treat muscles, ligaments, tendons, subcutaneous fascia, scar tissue, peripheral nerves, and neurovascular bundles for the management of a variety of neuromusculoskeletal pain syndromes.^{3,6,7} Given the broad base of international literature presently available on the technique, it is particularly concerning that the primary US-based, National Physical Therapy Association⁸ and several State Boards of Physical Therapy⁹⁻¹³ have recently narrowed their definition of dry needling to an “intramuscular” procedure, i.e., the insertion of needles into nodules within taut bands of muscle, more commonly referred to as “trigger points” (TrPs) or “myofascial TrPs” (MTrPs).

As early as 1977, Melzack et al.¹⁴ stated that “trigger points are firmly anchored in the anatomy of the neural and muscular systems... and the stimulation of particular nerves or tissues by needles could bring about an increased input to the central biasing mechanism, which would close the gates to (pain) inputs from selected body areas.”¹⁴

The lateral cutaneous nerve of the thigh is part of the lumbar plexus. It functions primarily as a sensory nerve and its composition varies among individuals with several different combinations of lumbar nerves that originate from L1 to L3.¹⁵ The lateral cutaneous nerve of the thigh then emerges at the lateral border of the psoas major, crosses the iliacus, to the anterior superior iliac spine. The nerve then passes under the inguinal ligament and over the sartorius muscle and enters the thigh as it divides into an anterior and posterior branch.^{16,17}

CASE DESCRIPTION

A 64-year-old male patient presented at our outpatient department with complaints of the left thigh pain along the

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anterolateral aspect extending till the knee. The pain was electric shock like associated with tingling. Pain aggravated on walking and standing, and was relieved on rest. The patient had an accident and injured his left hip in 2001 and underwent surgery for the same. The pain started 2–3 months after the surgery. The patient was a known diabetic and hypertensive since 10 years and was on treatment for the same.

On examination, there was an altered sensation over the left anterolateral aspect of the thigh, and Tinel sign was positive. Sensory examination, motor power, and reflexes were normal. Electromyography (EMG)/nerve conduction velocity (NCV) studies revealed left lateral cutaneous nerve of thigh neuropathy.

We had made a diagnosis of entrapment neuropathy of the left lateral cutaneous nerve of the thigh and was started on medications like tab. baclofen 20 mg od and paracetamol 1,000 mg tds, but the patient did not have any pain relief. An injection of lignocaine with 5% dextrose and methylprednisolone was done below the scar tissue around the lateral cutaneous nerve of the thigh. The patient reported pain relief. Later, an ultrasound-guided radiofrequency ablation of the left lateral cutaneous nerve of the thigh was carried out, but still, the patient did not have any pain relief.

We had to exclude the diagnosis of entrapment neuropathy as ablation of the lateral cutaneous nerve of the thigh did not produce

any results. We then thought of a diagnosis of post-scar neuralgia and dry needling was done. The patient was asked to draw a pain map and multiple needles were placed along with it (Fig. 1). In total, eight sessions lasting for an hour were carried out. The patient then reported 50% of pain relief.

DISCUSSION

The first, peer-reviewed journal article on dry needling published by a Western, medical physician,⁶ did not limit needle insertion to muscular TrPs rather, the 241-patient study reported that only 2 of the 14 target structures were muscular TrPs.⁶ The other structures needled included ligaments, scar tissue, tendons, bones, and teno-osseus insertion sites, all of which are types of connective tissue.⁶ In addition, "a high density of neurovascular structures" has been found at dry needling target sites.¹⁸

The initial response of pain relief in our patient to the injection of lignocaine into the scar tissue can be attributed to the membrane-stabilizing effects of local anesthetics. Membrane stabilizing effects involve the inhibition or total abolishing of action potentials from being propagated across the membrane.¹⁹ This phenomenon is common in nerve tissues as they are the carrier of impulses from the periphery to the central nervous system. Membrane stabilization blocks the propagation of action potentials across nerve cells, thereby producing a nerve block.¹⁹

Likewise, there is robust evidence that peri-neural needling of non-TrP structures helps reduce pain and disability while improving sensory and motor nerve conduction velocities.¹⁸⁻²⁴ Perineural needling has also been shown to stimulate microcirculation in patients with mild to moderate carpal tunnel syndrome.¹⁸⁻²⁴

The biomechanical, chemical, and vascular effects of needling either superficial subcutaneous tissue (non-muscular) or deep intramuscular tissue without injectate have been well documented.^{25,26} Improved microcirculation around the knee joint has been demonstrated following "dry" needling into non-TrP locations, and improved muscle blood flow has been found following "manual acupuncture" in the lower extremities.^{26,27}

Dry needling done in and around the scar tissue of the patient resulted in pain relief. The mechanism responsible for this could be that dry needling can reduce peripheral and central sensitization.²⁸ Nociceptive input from muscles is particularly effective in inducing neuroplastic changes in the spinal dorsal horn and likely in the

brainstem.^{29,30} Dry needling may be instrumental in reversing such neuroplastic changes by removing a constant and intense nociceptive source.³⁰

CONCLUSION

This case report describes the successful management of a patient with post-scar neuralgia using dry needling, when all other treatment options were not producing pain relief. It is suggested that dry needling can be considered as an effective treatment option.

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Fig. 1: Dry needling done along pain map of patient

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