

# Dry Needling: A Beneficial Alternative for Managing Trigeminal Neuralgia in a Young Patient: A Case Report

Archana Y Nankar<sup>1</sup>, Khaja J Khan<sup>2</sup>, Gautam Das<sup>3</sup>

## ABSTRACT

Trigeminal neuralgia (TN) typically affects the elderly and is uncommon in younger people. Managing a young patient resistant to pharmacological treatment could be challenging. Radiofrequency (RF) ablation of gasserian ganglion due to its side effects like deafferentation pain is a less desirable option. Dry needling reduces peripheral and central sensitization by its action on the descending pain inhibitory system and segmental antinociception. It has been successfully used to treat a variety of neuromusculoskeletal pain syndromes and could be effective in such patients. Here we present a case of a 22-year-old young man with TN of the right side of his face for 4 years, involving all the three divisions of the trigeminal nerve. He was being treated for the same with carbamazepine 200 mg thrice daily since 2 years. He suffered from paroxysms of electric shock like pain either occurring spontaneously or triggered by nonnoxious stimuli to specific areas of his face called as trigger zones. We treated him with dry needling, done in these trigger zones, which gave him more than 50% pain relief after two sessions. Hence, we conclude that dry needling could be a beneficial alternative for managing young patients with refractory TN.

**Keywords:** Dry needling, Trigeminal neuralgia, Young patients.

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## INTRODUCTION

"Probably no more atrocious suffering is known..." are the words used by Massachusetts physician EP Hurd to describe trigeminal neuralgia (TN) in the year 1890.<sup>1</sup> Trigeminal neuralgia is a chronic neuropathic pain condition affecting the face and is associated with decreased quality of life, impairment of daily function, unemployment, depressive symptoms, and high morbidity particularly in the elderly.<sup>2</sup> Onset is usually after age 40 with peak occurrence between the age 50 and 80.<sup>1</sup> Trigeminal neuralgia is uncommon in people younger than 30 years of age, with only 1% of cases reportedly occurring in those younger than 20 years of age.<sup>3</sup>

The pathophysiology of TN remains unclear. Evidence suggests that pain occurs because of pressure on the trigeminal nerve root at the entry zone into the pontine region of the brain stem. Compression by tumor or blood vessel may cause local pressure, leading to demyelination of the trigeminal nerve. These demyelinated axons are prone to ectopic action potential generation.<sup>4</sup>

The practice parameters and guidelines published in 2008 from the American Academy of Neurology and the European Federation of Neurological Societies<sup>5</sup> recommend starting treatment with drugs. Interventions like RF ablation are reserved for patients who are refractory to medical therapy or when drugs are causing unacceptable adverse effects.<sup>6</sup>

Radiofrequency ablation is less invasive and achieves initial pain relief in 90% of patients, but pain-free rates decline gradually in successive years, and after 5 years only 50% of patients are pain free. The most common complications reported are trigeminal distribution sensory loss (50%), followed by dysesthesias (6%), anesthesia dolorosa (4%) characterized by persistent, painful anesthesia, or hypoesthesia in the denervated region, corneal numbness with risk of keratitis (4%), and aseptic meningitis (0.2%). Hence, it is used to a greater extent in elderly or ill patients and would be a less desired option in a young patient.<sup>5,6</sup>

<sup>1,3</sup>Department of Pain Medicine, Daradia Pain Hospital, Kolkata, West Bengal, India

<sup>2</sup>Alleviate Pain Management Clinic, Bengaluru, Karnataka, India

**Corresponding Author:** Archana Y Nankar, Department of Pain Medicine, Daradia Pain Hospital, Kolkata, West Bengal, India, Phone: +91 9952637083, e-mail: archunankar111@gmail.com

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Dry needling, a novel technique, which uses a thin filiform needle to penetrate the skin and stimulate underlying myofascial trigger points, muscular, and connective tissues to manage neuromusculoskeletal pain, could be an effective option to treat refractory TN in a young patient. The advantages of dry needling being immediate reduction in local, referred, and widespread pain.<sup>7</sup>

## CASE DESCRIPTION

A 22-year-old young man presented to us for evaluation of a 4-year history of pain from TN of the right side of his face. His pain was electric shock like triggered by eating, talking, face washing, brushing, light touch, or even spontaneous. The attacks lasted for 2–3 minutes and sometimes were as frequent as 3–4 times in an hour. The pain was so intense that it was accompanied with watering from his eyes. Trigger zones of the attacks were located above the lips, along the right lower jaw (preauricular region) and the forehead. Thus, all the three divisions of the trigeminal nerve, that is ophthalmic, maxillary, and mandibular, were involved. He was being treated with carbamazepine 200 mg thrice daily since 2 years. The neurological exam of his face did not reveal any deficit. His recently done magnetic resonance imaging brain was normal.



Fig. 1: Dry needling done in the trigger zones (pain areas) of patient

We decided to treat him with dry needling in the areas of the trigger zones. Multiple needles were inserted in the pain areas of his face (Fig. 1) and were kept for a duration of 1 hour, rotating the needles every 15 minutes. He underwent two such sessions done a week apart after which he reported having more than 50% pain relief.

## DISCUSSION

“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.<sup>8,9</sup>

In 1977, Melzack et al. pointed out “The stimulation of particular nerves or tissues by needles... would close the gates to (pain) inputs from selected body areas. The cells of the midbrain reticular formation are known to have large receptive fields.... It is possible, then, that particular (distant) body areas may project especially strongly to some reticular areas, and these, in turn, could bring about a complete block of inputs from particular parts of the body.”<sup>8-10</sup>

Likewise, it has been proven that perineural needling of nontrigger point structures helps reduce pain and disability while improving sensory and motor nerve conduction velocities.<sup>9,11,12</sup> Perineural needling also stimulates microcirculation in patients with mild to moderate carpal tunnel syndrome.<sup>9,11,12</sup>

Trigeminal neuralgia is associated with trigger zones that are areas of the face or head that upon nonnoxious stimulation (touch or vibration) elicits an attack.<sup>1</sup> In our patient, those areas were above the lips, the preauricular region and forehead on the right side of the face. Dry needling in these areas resulted in pain relief.

The most likely mechanism of pain relief by dry needling was hyperstimulation analgesia via the descending pain inhibitory system,<sup>13</sup> segmental antinociceptive effects,<sup>14</sup> and reduction in peripheral and central sensitization.<sup>15</sup>

## CONCLUSION

Management of a young patient with TN refractory to medical management could be challenging. Complications of RF ablation make it a less desired technique in such patients. In such a scenario, dry needling could offer a relatively safe and effective treatment option.

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