Research Article

The use of myofascial techniques (dry needle) for the treatment of maintained muscle contraction in peripheral facial palsy sequelae

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Abstract

Introduction: Based on the clinical and neurophysiologic similarities between the myofascial pain and the facial palsy's maintained muscle contraction, we considered treating the latter with dry needling the trigger points found in the physical examination.

Objective: To assess the effect of dry needling as a method of treatment for the maintained muscle contraction, to improve pain and tightness as well as to facilitate movement.

Materials and Methods: We performed dry needling techniques to 5 random patients with facial palsy with maintained muscle contraction and trigger painful points noticed in physical exam. The dry needling technique was applied one or two months after botulinum toxin injection. After one week, the patient answered the Patient Global Impression of Improvement Scale and the Clinical Global Impression of Improvement Scale, through which relief of pain and tightness were assessed and the Likert scale to assess improvement in movement.

Results: The Patient Global Impression Improvement Scale results were "Much improved" in 4/5 patients and “Very much improved” in 1/5 patient. The Clinical Impression of Improvement Scale was "Improved” in all patients. The assessment of improvement in movement through the Likert Scale was of 5 in all cases.

Conclusions: Patients refer significant improvement in both pain and movement. We consider that the dry needling technique as a supplemental treatment after botulinum toxin may improve maintained muscle contraction and facilitate movement in the affected side of the face.

Maintained muscle contraction manifests as a muscular tension after aberrant regeneration of the nerve. If there is axonal damage, its regeneration will inevitably cause hyperactivity of the previously paralyzed muscles. Just as it occurs in the myofascial syndrome, during the physical exam of the patient with maintained muscle contraction (MMC) it is common to find painful trigger points within the muscle. The most common localizations are the procerus, the levator labii, the buccinators muscle, zygomaticus minor, depressor anguli oris, mentalis and zygomaticus major.

Based on the clinical similarities between the MMC in the facial palsy and the tense band found in the myofascial pain, and given that the neurophysiologic mechanisms for both entities are mediated through peripheral and central components, we pose the treatment of the MMC with dry needling of the trigger points.
points. With such treatment the hope is to improve the pain and the hypercontractility without causing functional alterations.

In this manuscript, the use of a mechanical stimulus from a needle used as a physical agent to treat the myofascial pain syndrome after a severe facial palsy is explained. The term dry needling is used [1–3], to distinguish it from other invasive techniques that include infiltration of substances ranging from anesthesia, NSAIDs or botulinum toxin [4]. It has proven to be a very efficient way of treating the myofascial trigger points, especially when combined with physiotherapy treatment which helps enhance its effect [1,5,6].

The dry needle technique consists on introducing monopolar needles coated with teflon in the myofascial trigger point (MTP), 1 cm deep [7,8]. These needles have the advantage of being thicker than the acupuncture ones, enhancing their capacity, and the coating facilitates the glide through the skin diminishing pain. Thanks to this technique, patients with MMC secondary to peripheral facial palsy from any etiology can be treated. Initially, weekly sessions are performed, and these are spaced in time, depending on the results obtained.

**Materials and Methods**

We randomly chose five patients from our daily clinical practice: 4 women and 1 man, with ages ranging from 40–51 years old. Time since facial palsy varied from 1–17 years, and one of the cases was a bilateral facial palsy. All patients had been treated with neuromuscular training and botulinum toxin (BT). Dry needle sessions were held 1 or 2 months after the BT.

During the patient’s visit and after signing the informed consent, a Facial Grading System and a physical examination looking for MMC and trigger points, were done. Once the affected areas were recognized, antiseptic measures were implemented and the dry needle was inserted (Figure 1). Screw in and out myofascial technique is practiced, and the appearance of the local twitch response with the sympathetic response is obtained. This is repeated two or three times in a 10–15 minute-period.

![Figure 1: Patients treated by puncture dry with needle of acupuncture with guide on the trigger or the muscle band.](image)

One week after treatment, both patient and/or doctor respond the following questionnaires:

Table 1. Patient Global Impression of Improvement Scale: a number is chosen to best describe the improvement in pain/contracture after the needling treatment.

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<thead>
<tr>
<th>Score</th>
<th>patient 1</th>
<th>patient 2</th>
<th>patient 3</th>
<th>patient 4</th>
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<tr>
<td>Much better</td>
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Table 2. Clinical Global Impression of Improvement Scale: the doctor chooses a number to best describe the improvement in the patient’s contracture after the dry needling sesión.

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Table 3. Likert Test: is a basic question: Do you consider it is easier to move your face after the treatment?

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**Results**

Given that this is a preliminary project, we want to take the opportunity to present the use of the dry needling approach for treating the MMC in the patient with facial palsy.

Evidently, the small sample size does not allow for statistical data, and this being an observational study.

**Patients’ and doctors’ evaluations were as follow:**

According to the Patient Global Impression of Improve Scale (Table 1) results were: 4 patients responded 2 (better) and one patient selected option 1 (much better).

In the Clinical Global Impression of Improvement Scale (Table 2) results were 2 (better) for all patients.
As mentioned above, our results are preliminary. Improvement is translated into less rigidity of the affected side of the face and less interference of the MMC with the facial movements, improving pain and achieving less distorted facial movements. This more relaxed MMC helps patients in the neuromuscular retraining, as a better motor control is obtained.

Conclusions

1. Based on the clinical similarities between the MMC of the facial palsy and the tense band observed in the myofascial pain, we propose treating the MMC with dry needling of the trigger points found in the clinical exam. The goal is to improve pain due to hypercontractility and facilitate movement of the hemifacial muscles, with no risk of provoking functional losses.

2. Subjectively, a decrease in volume of the treated area has been documented, noted both by the patient and the physician.

3. This therapy can be a coadjuvant treatment to botulinum toxin injections, with the aim of improving hypercontractility and favoring facial movements in the affected side.

References


