

# **DIAGNOSTIC ROLE OF TRIGGER POINT INJECTION IN CHRONIC OROFACIAL PAIN**

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**Background:** Myofascial pain is a common cause for chronic orofacial pain. Since orofacial pain can have multiple sources of origin and a wide range of etiologies, making an accurate diagnosis can often be very challenging. Considering the high prevalence of the myofascial component in persistent orofacial pain, trigger point injections using a small volume of local anesthetic can be extremely useful in solving the diagnostic mystery.

**Case Report:** A 60-year-old female patient presented with episodic lancinating pain in the left buccal mucosa, between the cheek and gingiva of the premolar and first molar teeth. Her pain started 15 days after extraction of the first molar tooth 4 months prior. On ultrasound evaluation of the painful area, 2 trigger areas were identified in the region of the buccinator and risorius muscles through elicitation of a deep tenderness and reproduction of the patient's symptoms. These trigger areas were injected with 5 mL of 0.5% lignocaine (2.5 mL at each site) using a 26-gauge needle, following which the patient reported more than 70% reduction in her pain score. Subsequently she was discharged after educating her on stretching exercises for orofacial muscles.

**Conclusion:** The presence of a tender area in the orofacial muscles, which on manual compression produces deep tenderness and reproduction of the patient's symptoms, should prompt the clinician to proceed with trigger point injections. Considering that the procedure is safe, minimally invasive, and a diagnostic as well as a therapeutic modality, it should be considered early in selected patients with chronic orofacial pain who otherwise pose a diagnostic dilemma.

**Key words:** Chronic orofacial pain, myofascial pain syndrome, trigger point injection

## **BACKGROUND**

Orofacial pain is a common symptom experienced by approximately one-quarter of the adult population (1). This intractable pain condition often presents a challenge to the clinician as the pain has multiple sources of origin and a range of etiologies, thus making the diagnosis very challenging. The most common cause of chronic orofacial pain is of musculoskeletal origin; temporomandibular disorders (TMD) have the greatest prevalence, affecting 10% of the adult population (2). TMD can be broadly separated into disorders affecting

the joint itself and disorders of the muscles of mastication (3), the latter being more common (4). The clinical presentation of TMD is characterized by pain in the jaw, temple, ear, or in front of the ear that is affected by jaw movement, function, or parafunction; and replication of this pain occurs on provocation testing of the temporomandibular joint (TMJ) or masticatory muscles (5).

Myofascial pain syndrome (MPS) is described as a painful regional syndrome characterized by the presence of hyperirritable spots known as trigger points (TrPs) in a

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skeletal muscle. In orofacial myofascial pain, masticatory muscles are the most commonly affected muscles and MPS affecting these muscles are grouped under TMD. However, MPS can also affect other facial muscles, and trauma (e.g., dental extraction) can be a predisposing factor (6). Though TMD, particularly TMD of muscular origin, is the most common cause of chronic orofacial pain, a nociceptive type of pain that is not influenced by jaw movements should raise suspicion of myofascial dysfunction affecting other facial muscles (7). It is in this clinical scenario that trigger point injections using a small volume of local anesthetic can provide valuable information regarding the cause of pain.

## **CASE**

A 60-year-old female patient weighing 55 kg presented to us with pain over the buccal mucosa lasting 4 months. The patient complained of pain on the left side, between her cheek and the gingiva of the premolar and first molar teeth. Pain had started 15 days after extraction of the first molar tooth 4 months prior. Her pain was lancinating in nature and was characterized by episodes of spontaneous exacerbations that responded temporarily to nonsteroidal anti-inflammatory drugs (NSAIDs). The patient gave a history of multiple dental consultations and trial of a variety of medications including NSAIDs and carbamazepine with no satisfactory relief. Her medical history was significant for hypertension, which was controlled by medications. Her Visual Analog Scale (VAS) score was 7 of 10 and Douleur Neuropathique (DN4) score was 2 of 10.

On assessment in our pain clinic, she was found to have a trigger zone in the medial aspect of the left cheek. This trigger area was distinguished from local myalgia or muscle tenderness on the basis of the following features. Local myalgia produces tenderness localized to the site of palpation (4), whereas muscle tenderness, a common entity in chronic pain patients, reflects generalized pain on palpation and sensitivity over the involved muscle (6). In this patient, palpation produced a deep tenderness spreading beyond the site of palpation and also reproduced the patient's pain. We made a provisional diagnosis of MPS based on this finding, which is a classical and reliable feature of MPS (8,9). Her temporomandibular joint function was normal and her pain did not increase on mouth opening, chewing, or swallowing.

On ultrasonographic (USG) evaluation of the involved area, muscles appeared to have a uniform echotexture

without any evident hypoechoic areas. Subsequently, a 26-gauge needle was introduced under USG guidance. There was no local twitch response, but 2 trigger areas were identified in the region of the buccinator and risorius muscles through elicitation of deep tenderness and reproduction of the patient's symptoms, similar to the findings on palpation. These trigger areas were injected with 5 mL of 0.5% lignocaine (2.5 mL on each site) under continuous USG visualization, so as to avoid injecting into the adjacent neurovascular structures. The patient tolerated the procedure well and her postprocedure VAS score was 2 of 10. She was discharged with instructions for stretching exercises for her orofacial muscles, to be performed daily. On a follow-up phone call 2 weeks post procedure, the patient continued to have excellent pain relief (VAS score 3 of 10).

## **DISCUSSION**

This patient presented with unilateral episodic buccal pain, which was not related to mouth opening, chewing, swallowing, or talking. Also, the location of the tender area was medial to the jaw and the masticatory muscles implicated in TMD: the masseter and temporalis (Fig. 1). These features helped us to exclude TMD as a possible cause.

Other differential diagnoses we considered included trigeminal neuralgia involving mandibular division of the trigeminal nerve, inferior alveolar neuropathy following dental trauma, and orofacial myofascial pain. Though a lancinating kind of pain following tooth extraction can be of neuropathic origin, a DN4 score of 2 and a past history of little response to antineuropathic drugs like carbamazepine pointed more in the direction of nociceptive pain. Moreover, her spontaneous exacerbations would often last hours until transient relief was obtained with analgesics. Hence conditions like trigeminal neuralgia, inferior alveolar neuropathy, and atypical facial pain were considered less likely.

Trigger points in the buccinator muscle are typically located in the midcheek region, almost halfway between the angle of the mouth and ramus of the mandible (10). The location of TrP in the left cheek of our patient corresponded well with the above-mentioned classical location of buccinator TrP. The presence of such a trigger zone, the palpation of which replicated the patient's pain and the characteristics of which were different from local myalgia or generalized muscle tenderness, suggested MPS as the probable etiology. The dramatic response to diagnostic trigger point injection further

strengthened the diagnosis. The absence of systemic as well as local signs of inflammation like erythema, swelling, and tenderness within the oral cavity helped us to exclude any infective cause prior to injection.

Muscle relaxants are one class of pharmacological agents commonly used for acute muscle pain and spasm. However, the role of these agents in the management of chronic myofascial pain is debated due to unclear efficacy and adverse effects like sedation (11). Several studies have reported that muscle relaxants like cyclobenzaprine and tizanidine are effective in orofacial MPS, though long-term use has not been tested adequately (2,12,13). However, there are many placebo-controlled studies and literature reviews that have concluded that muscle relaxants are ineffective in orofacial muscle pain (14,15). Our patient had been managed previously with many analgesic medications, including NSAIDs with muscle relaxant combinations. She reported no significant relief with any of these medications and her pain was severe with a VAS score above 7 of 10 on most days of the preceding 2 weeks. Hence, we decided not to go for a trial with muscle relaxants or NSAIDs but proceeded with trigger point injection.

Myofascial pain syndrome involving the muscles of mastication is a common entity and it may be the cause of TMJ dysfunction or vice versa (16,17). However, the presence of MPS in other orofacial muscles is not well-documented in the literature (7,10,18). The maxillofacial region has a high prevalence for the occurrence of TrPs, and MPS involving this area is often an underdiagnosed cause of head and neck pain (19). But unlike other postural muscles involved in MPS, trigger points with typical features such as presence of a tender nodule, taut bands, or local twitch response may not be predominant in orofacial MPS (1).

Therefore, we would like to suggest that the presence of a tender area, which on manual compression produces deep tenderness distinct from local tenderness due to pressure, and more importantly, reproduction of the patient's symptoms, should prompt the clinician to

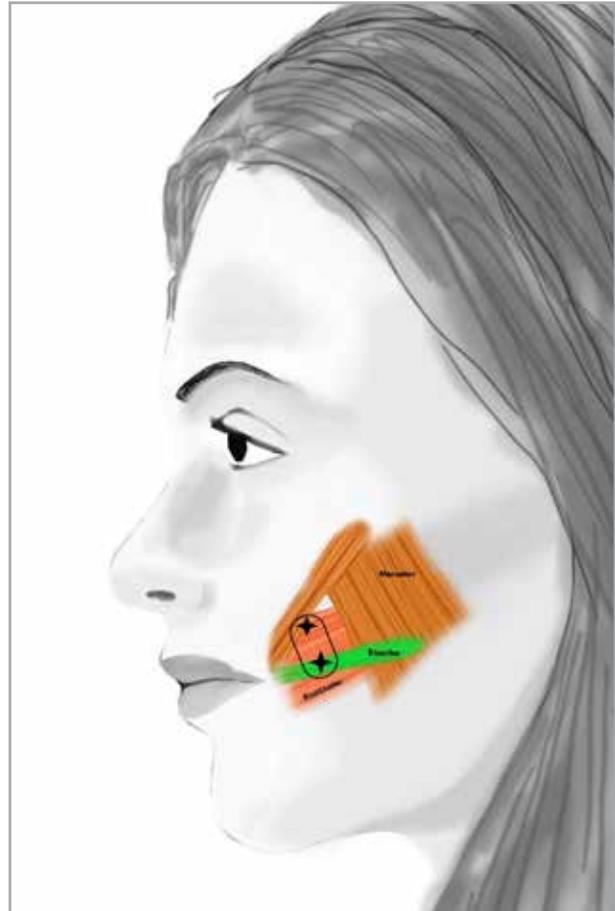


Fig. 1. Location of tender area in patient's cheek (encircled area) was medial to the jaw and masseter. The asterisks show the 2 sites where trigger point injections were performed.

proceed with trigger point injection. Considering that the procedure is safe and minimally invasive, trigger point injection should be considered as an early modality in selected patients with chronic orofacial pain who otherwise pose a diagnostic challenge; this approach helps the patient by preventing undesirable pain, suffering, and unnecessary multi-pharmacy.

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