

## CLINICAL VIGNETTE

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# Myofascial Pain: Effective Diagnosis and Treatment May Prevent Surgery

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### *Case Presentation*

A 57-year-old female with a history of anxiety, depression, and temporal mandibular joint (TMJ) disorder presents to the UCLA East West Medicine clinic with diffuse neck, shoulder, and back pain for the past two years.

The patient reports the pain started after a motor vehicle accident two years ago, resulting in a cervical strain (whiplash) injury. Since then she has tried multiple modalities to help treat her pain, including massage, chiropractic manipulations, physical therapy, and yoga. These modalities helped alleviate her pain, but only during the short duration of treatments.

Magnetic Resonance Imaging (MRI) of the cervical spine showed straightening of the normal lordotic curvature. There was no evidence of stenosis, degenerative disc disease, or disc protrusion. After receiving the MRI results, the patient sought evaluation from an orthopedic surgeon who recommended minimally invasive decompression surgery. It was thought that relieving the pressure on the cervical nerves may help decrease the pain.

The patient declined surgery as she wanted to try conservative measures first. She also was reluctant as multiple family members had experienced failed back surgery for similar pain symptoms. Subsequently, she obtained a second opinion from a spine specialist who diagnosed her with myofascial pain syndrome. He recommended trigger point injections and referred her to our clinic.

On presentation to the clinic, the patient reported that her pain was diffuse, radiating from her neck down to her lower back. She describes the pain as dull, aching, and constant. She reported limited neck and back range of motion due to pain. The pain caused her significant fatigue and frustration. She denied any radiculopathy symptoms or weakness.

She takes ibuprofen as needed for pain. Her other medications included desvenlafaxine as needed, cetirizine as needed, and alprazolam nightly.

On review of systems, she denied symptoms of anxiety or depression since starting desvenlafaxine 5 years ago. She described her sleep as restful, with poor initiation requiring alprazolam. Her social history revealed she worked with her husband in commercial real estate. They commuted 4 hours from Los Angeles to Arizona every other week.

On initial physical exam, vital signs were within normal limits. Her posture was poor, with shoulders rounded forward. Her range of motion (on neck rotation, shoulder rotation, back flexion and extension) was limited by pain. On palpation, hyperirritable trigger points were noted in all locations of her pain complaint (as demonstrated in Figure 1) with radiating pain to surrounding muscle groups consistent with myofascial pain syndrome. Taut skeletal muscle bands were palpated on her shoulders and back. Strength, sensation, and reflexes of the upper and lower extremities were normal.

An integrative treatment plan was initiated which included a trial of trigger point injection (TPI) therapy and lifestyle modifications. The patient was shown neck, shoulder, and back stretches to help relieve tension. We also recommended initiation of magnesium citrate supplementation to help with muscle tightness. The patient was encouraged to use heat packs to further help relieve muscle tension and pain. Alternatively, cold application was discouraged as it would cause her underlying muscles to contract, thus exacerbating her myofascial pain. She was advised on posture training.

We discussed decreasing her use of alprazolam, but the patient was hesitant to stop as she gets tremulous without the medication. For stress management, we recommended meditation and mindfulness practices.

She return to our clinic for a series of 8 treatments every 2 weeks. At each visit, about 20-30 trigger points injections with 1% lidocaine were performed in the splenius capitis, splenius cervicis, levator scapulae, latissimus dorsi, and thoracolumbar muscle groups. The injections were also performed on the masseter and temporalis muscles to relieve her TMJ pain.

At each visit, the patient reported improved pain. By the eighth visit, the trigger point injections along with her self-care resulted in complete resolution of her pain. The patient stated that it was only with the addition of TPIs that her neck, shoulder, and back pain improved. Furthermore, the pain from her TMJ disorder also improved, and she found herself not grinding her teeth as much during the night. At each visit, we discussed the importance of regular lifestyle modifications in maintaining the beneficial effects of the TPI therapy.

## Discussion

Myofascial pain syndrome (MPS) is a regional pain disorder caused by the presence of myofascial trigger points (MTrPs) within muscles or fascia. Females are at a significantly higher risk for developing MPS than males.<sup>1</sup>

Clinical identification of MTrPs remains central to the diagnosis and treatment of this syndrome. MTrPs are discrete, palpable nodules in a taut band of skeletal muscle that can be active (painful at rest) or latent (tender upon palpation). Schematic representation of a trigger point complex is shown in Figure 2. Reduction in pain after trigger point therapy can be diagnostic and therapeutic in managing MPS.

MPS can be acute or chronic. Acute MPS can resolve spontaneously, or with simple treatments, such as applying heat, physical manipulation of the soft tissues, or stretching. In contrast, chronic MPS requires more complex treatment modalities, including invasive measures that deactivate MTrPs, such as dry needling or injections with analgesics, corticosteroids, or botulism toxin.<sup>2,3</sup>

A trigger point injection is an effective procedure that may provide immediate relief of pain in both acute and chronic myofascial pain. The injection deactivates a MTrP by releasing the muscle knot, thereby relieving muscle pain and tightness and restoring functional impairment due to the MTrP. Depending on the severity and location of the pain, the frequency and total number of injections can vary for each patient. Potential risks of trigger point injections include muscle fiber damage, excessive bleeding, infection, vasovagal syncope, or internal organ injury. Nevertheless, these risks can be mitigated with proper technique and knowledge of body anatomy.<sup>4</sup>

The effect of needling treatment for the management of MPS has been well documented.<sup>5-7</sup> Needling is believed to cause release of endogenous opioids, allowing for decreased pain perception. Additionally, needling has an anxiolytic and antidepressant effect by activating the noradrenergic and serotonergic pathways.<sup>8,9</sup> Aside from the neuropathic relief of pain, needling also remodels the muscle. Mechanical disruption of a taut band with needling reduces the overlapping of actin and myosin filaments, thereby restoring the resting length of the sarcomere.<sup>9,10</sup> Also, with controlled microtrauma to the tissue, vasoactive substances are released leading to vasodilation and increased blood flow to needled regions, thus allowing for improved healing of taut muscles.<sup>8</sup>

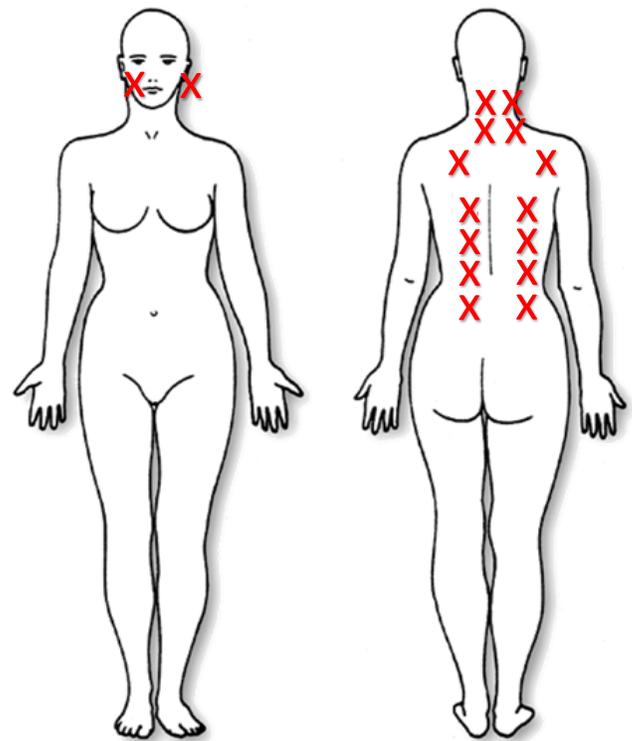
To effectively manage chronic MPS, the underlying medical conditions also need to be addressed.<sup>11</sup> These medical conditions may include repetitive trauma, nutritional deficiencies, poor mechanical posture, obesity, lack of sleep, emotional stress, and inflammatory conditions.

Factors such as sleep deprivation, anxiety, depression, and other psychological states have been reported to be associated with

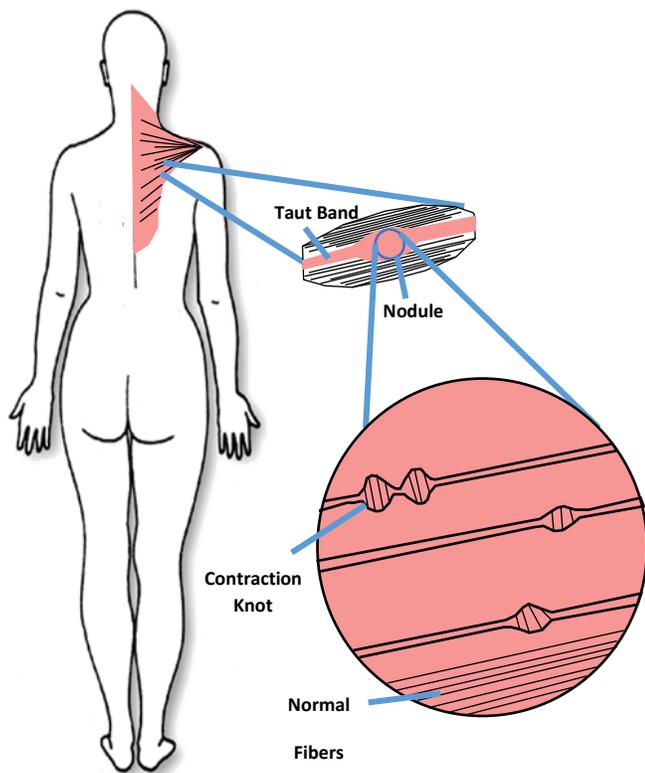
MPS. Addressing these factors remains a significant part of MPS management.<sup>12</sup> Previous studies found mindfulness meditation acts on the same brain regions involved in assimilation of myofascial pain and has shown promising potential in reducing chronic pain in MPS patients.<sup>13</sup> Meditation has also been found to alleviate sleep disturbance, anxiety, and depression in patients with myofascial pain syndrome.<sup>14</sup>

Noninvasive treatments that may help relieve MTrPs of chronic MPS include spray and stretch with vapocoolant, transcutaneous electrical nerve stimulation, physical therapy, deep tissue massage, laser therapy, yoga, meditation, and ultrasound therapy. Magnesium deficiency has been associated with myofascial pain, and oral supplementation has been demonstrated to be beneficial in improving myofascial pain syndrome.<sup>15,16</sup>

This case report describes the successful management of a patient with chronic MPS using TPI therapy and lifestyle modifications. Proper evaluation along with appropriate diagnosis and treatment of MPS should be considered in patients with chronic pain, especially in those considering high risk procedures, such as surgery.



**Figure 1:** The location of hyperirritable trigger points palpated on the patient is indicated by the red “X”.



**Figure 2:**

Schematic representation of a trigger point complex. This picture demonstrates a taut band of muscle with discrete palpable nodules consisting of multiple contraction knots. These palpable nodules are the myofascial trigger points that can be active (painful at rest) or latent (tender upon palpation).

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