TANESHA WAS INVOLVED in a motor vehicle accident and complained of pain in her neck, left shoulder, and lower back. She had a series of chiropractic treatments, and a neurologist opined that she suffered from post-traumatic myofascial pain, or myofasciitis. An MRI, however, revealed no abnormalities. Eighteen months after the incident, Tanesha was still complaining of localized pain in her spine as well as headaches. At trial, the medical expert for the defense disagreed with the diagnosis, claiming that the myofasciitis would have been visible on the MRI as either inflammation or swelling. The jury disagreed and concluded that the plaintiff had sustained a permanent soft tissue injury, and awarded $400,000 in damages. On appeal, the defense argued that the plaintiff’s myofascial pain was not verified by objective medical evidence and was inadequate to prove a permanent condition as required under the no-fault law of the state. The appellate court was not impressed with this position and allowed the verdict to stand. Welcome to the world of myofascial pain and trigger points in a personal injury setting, a source of continuing controversy.

INTRODUCTION • Whiplash, sprains and strains, herniated discs, fibromyalgia and even complex regional pain syndrome are fairly well-known conditions that have become part of an attorney’s vocabulary. But what is myofascial pain, a term that is showing up with some frequency in the medical reports of personal injury and disability claimants? This chapter will explore the medical and legal implications of this condition including an examination of how the problem is diagnosed and treated along with a review of how the diagnosis has been viewed by the courts.

Defining the name given to this diagnosis is an appropriate first step. Myo is the prefix for muscle, and fascia refers to the protective covering surrounding a muscle. Myofascial pain, therefore, is a disorder, of a muscle and its covering, that is responsible for
many patient visits to the doctor’s office. Myofascial pain is a localized condition that can affect any skeletal muscle and can cause such manifestations as tenderness, local or referred pain, stiffness, and muscle weakness without atrophy. Discomfort arises from referred pain and muscle dysfunction caused by trigger points, which are tight bands of skeletal muscle with palpable nodes. In non-medical terms, this is known as a “muscle knot.”

Although the diagnosis may be alien to some attorneys, it is well known in the medical community. In fact, myofascial trigger points, or MFTPs, were first described by Dr. Janet Travell and colleagues in 1942 and have been recognized as a common cause of chronic neck and back pain. Less well known is the fact that MFTPs can also cause a wide spectrum of associated symptoms. For example, in one survey of patients with this malady, it was reported that neurological, gastrointestinal, musculoskeletal, and otological symptoms occurred in 10 to 40 percent of the cases. In a litigation setting, a court described the problem in the following way:

Unlike the generic problem of “back strain” myofascial pain syndrome is a chronic form of muscle pain, which unlike normal muscle pain, does not resolve in a few days. The pain is centered around sensitive muscle points called trigger points which are painful when touched; locations of the trigger points include the jaw, neck, low back, pelvis and extremities.

**MYOFASCIAL TRIGGER POINTS**

Myofascial trigger points are localized segments of muscle that have been subjected to trauma either by acute injury, micro-trauma from repetitive stress, and, in some cases, can be the result of a systemic illness. Any skeletal muscle can develop MFTPs, which can be identified by a careful examination of the affected muscle groups for “knots” 2 to 5 mm in diameter and tight bands that are painful when palpated. Unlike a spasm that affects the entire muscle similar to a “Charley horse” or cramp, a trigger point is a small patch of a tightly contracted muscle, or a more isolated spasm affecting just a small patch of muscle tissue. In turn, a collection of painful trigger points is called myofascial pain syndrome or MPS.

The diagnosis of MPS is based on the patient’s history and examination, as there are no laboratory tests or imaging studies that can confirm the presence of MFTPs. Therefore, the criteria for diagnosing this problem is somewhat controversial, and debate exists over whether or not MFTPs are true pathologic entities.

Although some theories suggest that MFTPs are on the same spectrum of disorders as fibromyalgia, MFTPs and fibromyalgia are not one and the same. MFTPs are localized areas of injury and discomfort, whereas the pain from fibromyalgia is more diffuse and thought to reflect a central pain syndrome. Myofascial trigger points can be objectively identified during a careful examination of the patient; whereas a fibromyalgia diagnosis relies on the subjective responses of the patient as he or she is examined for sensitive trigger zones. Finally, and most importantly, MFTPs are more easily treated than fibromyalgia.

Myofascial trigger points are quite common, especially in the cervical musculature, and are most often found in patients 31 to 50 years of age with a greater incidence in women than men. Several studies have even reported that up to 85 percent of back pain and 54 percent of neck pain accompanied by headaches are caused by myofascial discomfort. Developing most frequently in the axial musculature (neck and back), MFTPs are associated with poor posture and can develop insidiously from occupational activities such as cradling the telephone handset between the head and shoulder, sitting in an awkward position in front of a computer, or non-vocational activities such as bending one’s head for a prolonged period of time while knitting or reading. Another common cause of MFTPs is acute trauma, such as a flexion-extension injury from a motor vehicle accident. In some cases, however, a specific cause cannot be identified.

The pathophysiology of a myofascial trigger point remains speculative. One theory is that muscle injury stress disrupts the sarcoplasmic reticulum, a tubular network structure found in striated muscle fibers, releasing free calcium ions. In the presence of adenosine triphosphate (ATP), a molecule that stores
energy, ionic calcium causes the actin and myosin of the muscle fibers to lock into place. This action results in diminished blood flow and release of painful substances such as serotonin, histamine, kinins, and prostaglandins in the injured area.27

**NEUROLOGICAL SYMPTOMS •** Myofascial trigger points frequently produce neurological symptoms such as headache, dizziness, and sensory problems including tingling and numbness. Therefore, physicians need to be aware of the possibility of MFTPs when patients present with such symptoms.

**Headaches**

Headache is a frequent consequence of a neck injury: conversely, neck pain is common in patients who suffer from headaches.28 Headaches occur in 55 to 66 percent of patients who sustain a whiplash-type injury, and neck pain is reported in 73 percent of patients with migraine headaches.29 Although the cause of headache following a whiplash injury is often the result of cervical facet dysfunction,30 MFTPs may also develop at the same time and account for persistent headache in many patients.31

The mechanism of headaches generated or exacerbated by MFTPs most likely involves the trigemino-cervical complex, a sensory network that integrates pain input from the neck with pain centers in the face and head.32 Constant painful stimuli from neck muscle trigger points converge on the trigeminal nucleus caudalis located in the upper cervical spinal cord, which is a nerve center that controls sensation to the head.33 This continuous stimulation results in an amplification of pain signals to the trigeminal pathways, which relay sensory information from the head and face.34

Myofascial trigger points typically cause “tension” headaches that originate either directly from the trigger points in the muscles of the head such as the temporalis, or indirectly from the cervical musculature.35 These headaches may be severe and debilitating, raising concerns of an expanding intracranial mass or infection. Myofascial trigger points also can precipitate migraines or contribute to their worsening. Continuous painful input from the neck muscle trigger points stimulate the migraine neural pathways, resulting in an increase in the frequency and/or severity of migraine headaches.36

As early as 1981, the head and neck muscles were recognized as important for migraine generation.37 Trigger points can influence the frequency, severity, and treatment of migraines.38 With appropriate trigger-point therapy, these headaches often come under better control, decreasing in both frequency and severity.39

Individuals who have frequent migraine headaches, as in one to three per week, or those who do not respond to appropriate preventive and/or abortive therapy often have cervical MFTPs. With the application of specific myofascial therapy to the cervical musculature, patients report that the frequency of their headaches decrease significantly, eliminating the need for preventive medications. When these individuals do experience migraines, they find that their headaches generally respond more effectively to medication such as a triptan or other abortive therapy including drugs such as Imitrex, Imigran, Zomig, or Relpax. Also, those patients who experience daily tension headaches that are present with the superimposed migraine pattern see improvement in their chronic headaches as well.

**Dizziness**

A frequent complaint of those with cervical MFTPs is dizziness. These individuals describe their dizziness in nonspecific terms such as feeling off balance and unsteady or in the context of “walking on a cloud.” In one study of patients with cervical MFTPs, 23 percent reported experiencing dizziness.40 Interestingly, these patients also were found to have other otological symptoms such as tinnitus (42 percent), ear pain (41 percent), and reduced hearing (17 percent). Nausea also was common, but vomiting was not a symptom.41

Such patients often indicate that their dizziness worsens with prolonged or repetitive bending of the head and neck. For instance, Travell and Simons noted patients reporting feelings that they would “pitch over backwards” when looking up or fall forward when looking down.42 Patients with these types of symptoms are usually referred for neurological or
otolaryngological evaluation. Although most patients with this “cervicogenic vertigo” have concomitant neck pain and/or headaches, some, especially those who are elderly, will deny any neck discomfort when questioned or report only minor stiffness.

These patients should have a careful examination for trigger points in the cervical area. When the trigger points are treated with appropriate myofascial therapy, the dizziness usually resolves. The mechanism of the dizziness is likely related to excessive proprioceptive input from the cervical muscles, especially the clavicular division of the sternocleidomastoid muscle and the trapezius muscle. Travell and Simons theorize that dizziness results from proprioceptive information from the cervical musculature that helps orient the body. Because of its attachment to the mastoid process, the sternocleidomastoid muscle may also refer pain deep into the ear and cause tinnitus.

Sensory Symptoms

More than a quarter of patients with cervical MFTPs experience sensory symptoms in the upper extremities and face such as numbness and tingling. Pain also can be referred distally from MFTPs in patterns that do not follow known dermatomal, myotomal, or sclerotomal patterns. In fact, one researcher suggests that pain referred from MFTPs follows the distribution of acupuncture meridians.

The distribution of sensory symptoms caused by MFTPs depends on the location of the trigger points. For instance, cervical trigger points can refer numbness and tingling to the face, head or upper extremities. Upper extremity motor impairment, such as weakness or incoordination can arise from pain generators in the neck. Trigger points in the lumbar region can refer sensory symptoms to the legs. On the other hand, thoracic trigger points may mimic a thoracic radiculitis. Patients who have such symptoms are often referred to a specialist to rule out other causes such as multiple sclerosis or neuropathy. Sensory symptoms and findings caused by MFTPs closely mimic those of a radiculopathy.

The referral of sensory symptoms distant from trigger points is likely because of changes in processing within the brain and spinal cord. For example, Niddam and colleagues demonstrate that a center within the brainstem, the periaqueductal gray matter of the midbrain, can alter and regulate pain signals from neck muscle MFTPs. Other suggested mechanisms include the convergence of sensory inputs with projections to higher sensory centers of the cerebral cortex, branching with multiplication of the pain nerve fibers from the affected muscle, amplification of pain signals from the trigger point, and spread of neuronal activity from sympathetic nerve fibers.

TREATMENT • Successful treatment of MFTPs usually eliminates or significantly reduces the associated neurological symptoms. The goal in trigger-point management, therefore, is to restore muscle fiber length in the affected segments. Management of MFTPs includes both non-pharmacologic and pharmacologic therapies.

Non-Pharmacologic Therapy

Myofascial trigger point therapy is a manual technique that involves applying pressure to a trigger point to release the pathologic contraction of the muscle segment and to stretch that segment in order to restore normal muscle fiber length. The duration of treatment varies from person to person, but an initial course is usually manual therapy twice a week for three to four weeks. To be effective, trigger point therapy must be performed by a physical therapist skilled in manual therapy with myofascial release techniques. Traditional physical therapy that initially involves vigorous exercise and traction often does not help and sometimes causes the symptoms to worsen. In addition, acupuncture, stress management, and relaxation techniques, when combined with myofascial release therapy, can help patients ease the pain caused by MFTPs.

Pharmacologic Treatment

There is no pharmacologic agent that is specific for treating MFTPs. Any pharmacotherapy must be administered in conjunction with physical therapy and can be administered orally, topically, or by injection. Oral medications such as muscle relaxants can improve muscle function. Nonspecific agents such as antidepressants, non-steroidal anti-inflammatory
drugs, anticonvulsants, and opioids are usually used for pain control. Topical agents include local anesthetics or nonsteroidals in either a patch or gel form. Local anesthetics with or without corticosteroids, neurolytic agents, or botulinum toxin can be injected directly into trigger points to “break up” the localized muscle knots. Some investigators have even concluded that simple dry needling of the trigger points can be effective.

Follow-Up Care

A post-treatment program is necessary to maintain the achieved clinical improvement. Myofascial therapy may not entirely eliminate symptomatic active trigger points, which are characterized by a local twitch response followed by pain during palpation, but may convert them to asymptomatic latent points, which can be activated by reinjury. To prevent this from happening, patients need to make appropriate ergonomic changes in their work and day-to-day activities to avoid repetitive stress on the injured muscles. For example, patients with cervical myofascial trigger points should use a telephone headset when spending long periods on the phone or change their position to avoid bending their heads while knitting or reading. In addition, a strengthening and conditioning regimen for the affected muscle groups, usually taught by a physical therapist, is beneficial.

MYOFASCIAL PAIN IN A CLAIMS SETTING

- A disorder such as MPS demonstrates the distinction between the analysis and procedures found in the medical fields and the nature of scrutiny found in adversarial legal practice. Although myofascial trigger points and MPS are routinely diagnosed and treated by physicians, the criteria used for its diagnosis remains somewhat controversial because no routine biochemical, electromyographic or diagnostic imaging procedures reliably detect the presence of MFTPs. The diagnosis is literally in the hands of the doctor, as MFTPs are objectively identified by a skilled examiner through careful palpation of the injured musculature. This palpation results in an involuntary painful response, or a positive jump sign resulting in a patient response. In a claims setting, the lack of a definitive test to establish this disorder creates a recipe for disagreement and suspicion, as does the fact that a doctor must rely on the injured party’s feedback. These facts have led to different views in various federal and state courts regarding this medical problem. For instance, one opinion noted that MPS is a “contentious” diagnosis in the medical community, whereas another cited to a Mayo Clinic pronouncement that MPS is a chronic form of muscle pain that centers around sensitive points in the muscles that are painful when touched. Needless to say, the defense may be faced with an uphill battle when attempting to prove myofascial pain in a claim setting.

Causes Of Myofascial Pain

Assuming that a claimant has demonstrated that he or she has the hallmark signs of myofascial pain or myofascial trigger points, an attorney’s job is not finished. The next inquiry is to ascertain the cause of that pain response or, in a legal context, to determine if the problem is proximately caused by a tortfeasor’s actions or an injury that can be claimed in a workers’ compensation or other disability setting. Although the most common reason for MPS is trauma, either acute or repetitive, there are some less recognized causes, and this is an important area of investigation that should be explored in a litigation or administrative setting.

As a starting point, it is not always possible to establish the cause of MPS. As noted in Awad v. Sec. of Health and Human Serv., MPS “is a term used to describe a situation in which an individual over a period of months or longer has chronic fibrous tissue pain of unknown cause in a localized area of the body.” Other potential causes include the microtrauma of daily living and the chronic strain from sedentary habits. Myofascial pain may also be related to systemic inflammation disorders, infection, minor stress, overstretching of muscles or overuse in repetitive movement, arthritis, a psychogenic anxiety tension state, hypothyroidism, estrogen deficiency, mild anemia, and certain vitamin deficiencies. A few studies suggest that the condition could be related to general fatigue, a heart attack, stomach irritation, and inadequate sleep. Counsel, therefore, should scour the medical records for other possible causes of myofascial pain and not merely assume it is from trauma.