



Myofascial Pain: Orthopedic medicine Management Including Gunn IMS

By Michael N. Brown, DC, MD, DABPMR-PAIN. Reprinted with permission.

INTRODUCTION:

Myofascial pain is an incredibly complex topic. To begin with “myofascial pain” or pain from muscle and connective tissue can occur as an acute pain episode or can be the cause of chronic pain in your body’s soft tissues. We have all suffered at one time in our life with myofascial pain. We may have experienced myofascial pain after straining your muscles or sitting over your computer for hours and hours feeling the tension building in the back of your neck and shoulders. If you have ever been involved in a motor vehicle accident you may have experienced diffuse myofascial pain throughout your neck and low back. As a physician and spine interventional practitioner I had the unusual experience of working in many disciplines prior to attending medical school. I practiced as a chiropractor for many years focused on soft tissue and myofascial pain. I have used just about every known physical therapy modality that is currently available which includes heat, ultrasound, muscle stem, microcurrent, H-wave, lasers, vibration, massage, stretching, biofeedback, ischemic trigger point pressure, ART, Rolfing, PNF and so many others. Most physicians have never been “body workers” and have never done massage therapy on patients with chronic or acute pain. If you have never done thousands of massage therapy treatments, soft tissue mobilization procedures it is difficult to get a “kinesthetic understanding” of what the patient is experiencing.

That background provided some foundational understanding that drastically changed my perspective when I went on to medical school and ultimately residency and Fellowship training. When I entered medicine I found most physicians really don’t have a comprehensive understanding of the physical assessment skills, diagnosis and management methods necessary to deal with myofascial pain. Even in the subspecialty discipline of physical medicine & rehabilitation, rheumatology, and orthopedics there is no consensus about evaluation and management and most of these physicians in the subspecialty fields also do not have comprehensive training in this area. If you see one physician he may prescribe muscle relaxants which are actually only sedatives! Another physician may prescribe a myriad of different medications. Another physician may prescribe you some stretching exercises and yet another will provide a prescription for physical therapy. A physician who feels a little more comfortable treating myofascial pain and may palpate a tender point which we called “trigger points” and inject local anesthetic into the painful nodule in the muscle. This can be helpful but is a practice by the way that I abandoned years ago.

THE MYOFASCIAL PAIN TRIGGER POINT:

We begin our discussion with the concept of a “trigger point”. Janet Travel, MD noted on the right who was previously a Whitehouse physician and took care of present Kennedy. She can be attributed as the single most influential physician in the world on this subject and is an individual who probably taught more doctors and therapist about myofascial pain than any single individual. She authored books on myofascial pain that continue to be a reference for therapist, physicians, chiropractors, and allied health care providers around the world. I had an opportunity to spend time with her and the things that I learn from her have influenced my practice even to this date. She identified a “trigger point” as a hypersensitive nodule characterized by a taut band on palpation.¹ MPS (myofascial pain syndrome) effects up to 95% of people with chronic pain disorders and is a common finding in patients in specialty pain management centers.² Dr. Travel

taught that these painful nodules and taut bands within skeletal muscle can produce a muscle twitch when palpation pressure is applied over them as well as referred pain.^{1,2} She also taught the concept of both active and latent trigger points which has remained an extremely important concept in myofascial pain evaluation and management ever since.¹ An active trigger point in a muscle is associated with pain, stiffness and on occasion restricted range of motion. In personal conversations with her she also indicated to me that myofascial pain and trigger points can also cause numbness, tingling, and a sensation of fullness. Many patients will describe swelling but there is no documented swelling on examination.

The pain from myofascial trigger points typically do not isolate or localize to the local trigger point but refers into rather predictable patterns of distribution typified in the pictures noted to the right. Notice a trigger point in just the trapezius muscle can radiate out across the muscle but also radiate into other distributions such as the pain in the jaw, temporal, and behind-the-ear. A latent trigger point is a nodule in the muscle that is not at that time actively referring pain but still can cause muscle weakness and muscle tenderness on palpation. These will remain “dormant” in the muscle as a taut band within the muscle causing dysfunction but may not cause active pain. They can persist and intermittently can become active causing you pain when you are under stress or precipitate the pain with activity, posture, etc.¹ Muscles obviously have pain receptors. In areas of trigger point formation substances can be found typically found in from tissue damage such as bradycardia climbing, serotonin, prostaglandins, or hydrogen ions which can stimulate these pain receptors within muscle.³ If pain is allowed to persist it can spread to other muscles and activate other trigger points and eventually become diffuse even effecting the central nervous system where a “central sensitization” can occur causing a neuropathic diffuse pain phenomenon characteristic for example of fibromyalgia.

TRIGGER POINT BIOCHEMISTRY & PATHOLOGY:

Recently Jay Shaw, MD and his group of researchers conducted studies using a micro-analytical needle noted to the right that evaluated small changes in biochemistry of active and latent trigger points. They noted differences in the local biochemistry of an active trigger point in the trapezius muscle demonstrating the presence of low inflammatory mediators, neuropeptides, catecholamines and inflammatory chemicals such as cytokines.⁴ They later repeated these experiments comparing trigger point biochemistry in the trapezius muscle and compared these to a remote non-painful

muscle in the calf. They confirmed their original findings demonstrating numerous biochemical changes in active trigger points. Other researchers demonstrated that acidic pH was involved with active trigger points.⁵ The acidic pH alone however was not a completely explanation of the pain from myofascial pain and therefore the findings of Dr. Shaw provided better insight as to the mechanisms. His chemical findings and multiple myofascial pain probably better explains the persistent pain and why it can be maintained.^{4,6} Importantly the persistent pain is not caused by muscle tissue damage nor is it caused by continued pain input from muscle injury.⁷ The fact is that complex neurophysiologic reflexes are at play that may be maintaining muscle tension and the resultant pain.^{7,8}

Empirically, for years we have seen that whatever physiologic process is present that maintains a hot band and persistent myofascial pain can improve immediately with the insertion of an acupuncture needle into the trigger point and a specific stimulation or reflex is elicited. We will discuss this stimulation technique later in this chapter. With that we will now discuss the details of a method of treatment for myofascial pain called Gunn IMS or is sometimes nicknamed “acupuncture dry needling”. It is important to note that Gunn IMS is not acupuncture.

Acupuncturist studying traditional Chinese medicine use a completely different system of evaluation, analysis, and use of acupuncture needles. Replacement of acupuncture needles are for a completely different purpose. This requires specialized training and is a completely different methods of management. Gunn IMS is a very different system of analysis and treatment but we do utilize acupuncture needle as a stimulation to elicit complex neurophysiologic reflexes. We

focused on a more or less generalized evaluation utilizing a Western neurologic model and physical assessment looking at signs of neuropathic pain and muscle dysfunction. So, out of respect for the acupuncture profession we really should not refer IMS as “acupuncture”. Unfortunately, term used loosely and practitioners should be educating the patient’s when they are using Gunn IMS that they are not performing acupuncture.

Can you see trigger points on diagnostic imaging?

Until more recently conventional diagnostic imaging provided little visual evidence of myofascial pain and trigger points. However using special ultrasonography technology physician researchers are now able to visualize trigger points.^{7,9-12} Ultrasound machines have a setting on them that is sensitive to motion which is utilized when imaging vascular blood flow. Utilizing this technique with a special vibrating device trigger points deliberate in a slightly different frequency and the rest of the muscle when the vibration is applied to the muscle. This is probably because they are “” heavier because of vascular congestion and vibrate differently than the rest of the muscle therefore can be visualized on ultrasound. Another method utilized to visualize trigger points is tissue elastography which is a specialized ultrasonography technology.^{9,10}

Technically speaking this is very interesting research and we do use this periodically. We have found that it has not been terribly helpful in clinical practice and is somewhat time consuming.

INTRODUCTION TO GUNN IMS:

I attribute most of my understanding of this topic to C. Chan Gunn, MD noted on the right. He is a physician originally from Hong Kong who settled in Vancouver British

Columbia and was previously a professor at the University of Washington where I trained in pain medicine. I have studied his methods and techniques for over 25 years and eventually came to know him and become sanctioned as one of his instructors to teach his methods and techniques. He was one of the first physicians that I am aware of to describe some of the complex neuropathic and neurophysiologic processes involved in subtle radiculopathy which was causing qualified changes in his skin, connective tissues and muscles innervated by the nerves involved. Gunn described specific soft tissue findings on physical examination and features of “nerve dysfunction” specifically corresponding to levels of the spine that was undergoing gradual degeneration of the affected spinal segment. When the nerve root becomes gradually compressed within the neural foramen complex neurophysiologic changes occur both at the nerve root level and in the muscles that are innervated by that nerve. When this occurs muscles innervated by that nerve root become “adaptively shortened” thereby leading to persistent myofascial pain in the distribution of the nerve. He described the muscles to become tender to finger pressure and maximally tender over the muscle point (motor point) where the nerve enters the muscle. He described characteristic changes of the skin consistent with this nerve dysfunction which includes a pitting edema of the skin when a match stick is pressed against the skin, orange peel-appearing skin when pressure is applied over the skin or when the skin is rolled.

He also described what he calls “trophic changes” in the skin and nails which he felt was due to reduced neural stimulation to tissues. He reported that when this occurs you can see regions of hair loss, brittle nails.

Muscles/motor abnormalities:

He reported that changes in muscle can be quite painful because of supersensitivity in nerve receptors that develop in muscles. He also described that the muscles become shortened and can produce mechanical tension on tendons and joints. If the muscles are involved in the spine they can tension at a significant segmental groups thwithin the spine causing altered motion and mechanics as well as compression and irritation of the nerve. The associated joint pain from spinal segmental dysfunction can persist if the muscle is not treated despite manipulation of the joint and represents one of the causes of chronic facet joint dysfunction and radicular pain. These are common findings seen in a spine and pain medicine practice. He described tendinitis and tendinopathy associated with adaptively shortened muscles. I have to

admit that I have seen countless patients that have had relief of tendinitis, tendinopathy, and spinal segment dysfunction by simply applying this simple stimulation technique with an acupuncture needle as Gunn described.

CERVICAL TRAUMA/WHIPLASH, AND MYOFASCIAL PAIN:

We are going to use a whiplash trauma as an example of muscle injury for the purpose of this discussion. When an individual is sitting in a car and is impacted from the rear soft tissues are overstretched and injured. Typically the individual involved in a rear end motor vehicle accident does not know they have had any significant injury at first. They often go home with some mild soreness. They go to bed and wake up the next morning and can hardly move the neck. It was always puzzling why an individual has such muscle tension the next day after a muscle stretch injury. Fiction and Awad two authors who published a book on myofascial pain and fibromyalgia described the reason for this phenomenon.¹³ They described muscle trauma as an intracellular injury rather than an actual tear of the muscle. Within muscle there is a series of tubes (sarcoplasmic reticulum) that are colored in blue in the picture to the right. These tubes contain calcium ions and when the muscle receives a nerve signal to contract calcium is released from the tubes (sarcoplasmic reticulum) and binds with specific proteins (actin and myosin) that drives the muscle contraction. Calcium is then pumped back into the tubes waiting for the next contraction. When a muscle is overstretched in a strain injury such as a whiplash injury the tubes are ruptured and calcium leaks into the cell. The next day the muscle goes into a state of contraction which can remain for weeks. Fortunately, these tubes heal quickly. If that was the case then why does the muscle remain painful? The answer to that question is somewhat more complicated but is critical for our discussion of how G what unn IMS works so well with whiplash injury.

Within muscles there are special monitoring cells called "muscle spindles". The specialized cells monitor tension and tone in the muscle. They are constantly monitoring the tension of muscle. They are capable of constantly adjusting the tone of your muscle stretch response. When the muscle is injured and remains tight for weeks these special receptors adapt to the increase tone. Once the muscle tubes (sarcoplasmic reticulum) are healed the muscle will not relax because these muscle spindles having reset their tone will not let the muscle go. Therefore, muscle pain and tension remains. What we were to discover later was that placing an acupuncture needle into the specific taut muscle and activating a special stretch reflex causes the muscle to contract momentarily and then immediately reset back to its normal resting length.

This reflects a reset in the muscle tone and pain is relieved almost instantaneously. It is very common for patients to seek my care many months after whiplash trauma injury having undergone many months of physical therapy, chiropractic manipulative therapy, medications, spending thousands of dollars in treatment on personal injury claims. After a couple of sessions of acupuncture dry needling they experience significant symptomatic relief, resolution of headaches, and feels frustrated that they have wasted so much time and money.

Whiplash trauma is not exactly that simple but if the pain was from primarily the muscle this method of treatment is extremely effective. In fact, more effective than anything I have been able to find in my 30+ year career. It is so reliable in clinical practice that I use this diagnostically. If the muscle was treated and an individual has immediate and significant symptomatic improvement but the symptoms continue to recur within just a few sessions it automatically notifies us that the muscle pain is actually secondary to underlying ligament or structural injury in the spinal joints. We immediately discontinue the acupuncture dry needling and direct care to ligamentous and other soft tissue injury that may be causing joint instability. This is described in detail in our articles on whiplash as well as regenerative injection therapy and pain medicine.

ACUPUNCTURE NEEDLE STIMULATION OF TRIGGER POINT:

There are distinct differences between manufacturing of an acupuncture needle and manufacturing of a syringe needle. A syringe needle is obviously hollow (with a core) and has a

sharp beveled edge. The acupuncture needle is a solid needle without a core. When it is manufactured it does not have the same refined surface as a syringe needle. Because of this difference the acupuncture needle can provide a unique feature that a syringe needle cannot. Therefore if an acupuncture needle is inserted into a muscle and the needle is turned it binds to the muscle fiber it is inserted into. The binding of the muscle fiber can stimulate the muscle spindle apparatus which we have previously described and stimulate a muscle contraction. I am somewhat confident that part of the complex neurophysiologic reflex that this acupuncture needle sets off in the muscle involves the muscle spindle apparatus which is shown in the picture below. A small stimulus from the muscle spindle within the muscle goes back to the spinal cord via a nerve called the gamma motor neuron and elicits a reflex and a signal is returned back to the muscle through a nerve called the alpha motor neuron.

The interesting thing about this is the signal is magnified when it returns back to the muscle and the entire muscle will twitch or contract. Following the contraction the region around the trigger point where muscle fibers have developed increased tone "resets" back to a normal resting tone. This happens in milliseconds and the clinical result is immediate relaxation of the muscle which can be felt by the patient immediately. It is like hitting a "reset switch" in the muscle. It is a clinical phenomenon that needs to be witnessed by most physicians before they believe it. I plan to post video recordings of patient encounters undergoing this process on this website hopefully sometime this year.

ACUPUNCTURE DRY NEEDLING (GUNN IMS) vs. TRIGGER POINT INJECTION:

Injections of local anesthetic into trigger points was popularized by Travel.¹ Ever since Dr. Simons and Dr. Travel began to teach this method it has been adopted by physicians all over the world. I also used this method for many years until I began to realize the clinical application of the acupuncture needle as described by Gunn. Having performed tens of thousands of these injections and having injected all sorts of medications in the muscles including homeopathic remedies I could never replicate the outcome of the simple acupuncture needle. Eventually in my practice I abandoned the use of trigger point injection. I simply could not replicate the same outcome of the simple acupuncture needle stimulation of muscles and trigger points compared with trigger point injection. It is rather difficult to get a physician to understand and adopt this method of treatment unless they have seen it first hand. I can remember working with a well-known headache specialist at the University where I was trained in pain medicine. When I spoke of the effectiveness of acupuncture dry needling in treating cervical myofascial pain and its effect on headaches she put me to the challenge. For a number of days we spent going from room to room treating patients in the neurology headache department with simple acupuncture dry needling. At the end of this few days she set me down and said I would have never believed it if I had not seen it myself and encouraged me to begin to videotape patient encounters and incorporate them in my lectures and presentations on this topic to allow physicians to see the patient reaction to this treatment procedure since the relief is typically instantaneous.

Utilizing the acupuncture needle also provides a means of treating multiple points throughout the body or throughout a specific region without fear of lidocaine toxicity. Another interesting aspect of trigger point injection techniques is that Dr. Travel typically did not utilize lidocaine which is classically used today and trigger point injections. She used procaine. Procaine is a rather old local anesthetic that came on the market long before lidocaine. It fell out of favor for a few reasons. It has a slower onset than lidocaine which was not satisfactory in emergency rooms and in surgery. It also had a shorter duration of action than lidocaine also making it less attractive. And finally it had a side effect which surgeons did not like. Procaine caused a slight vasodilation! When you are doing a minor surgical procedure the last thing he wants is a local anesthetic causing vasodilation which increases bleeding. Therefore procaine fell out of favor in the marketplace. But remember, that a trigger point is an area where there is reduced circulation (ischemia). Wouldn't you want to use a local anesthetic that causes vasodilation and restore circulation? Of course you would. This is why Dr. Travel recommended procaine not lidocaine. I was completely unaware of this fact until I had a chance to sit down and ask her these questions. In addition procaine breaks down to natural byproducts such as PABA also making it attractive.

Despite the advantage of procaine it still does not equal the clinical effects of acupuncture dry needling. We hope to validate further the use of the techniques described by Gunn.

PRIMARY MYOFASCIAL PAIN VERSUS SECONDARY MYOFASCIAL PAIN:

An important concept in evaluation and management of the patient with myofascial pain is to determine whether or not the muscle pain or myofascial pain is in and of itself the primary problem or secondary to something else. This is of critical importance to the patient who suffers from muscle pain or myofascial pain. Imagine that you have an arthritic facet joint of facet joint injury in your spine. Any irritation to the facet joint can be a source of chronic pain and will almost invariably will cause secondary muscle tension throughout the region of that segments of the spine involved. Physical therapy, massage therapy, heat packs, stretching, trigger point injections, and even acupuncture dry needling can provide transient symptomatic improvement but the symptoms recur quickly.

A local anesthetic block directed to the facet joint as demonstrated in the picture below will relieve the symptoms both the facet pain and the secondary myofascial pain providing a diagnostic confirmation that the joint is the primary source of pain and the muscle is the secondary

source. Prolotherapy or regenerative injection therapy directed to the ligaments of the facet joints and stabilizing segmental instability caused by traumatic or degenerative instability resolves not only the neck pain and joint pain but the persistent myofascial pain and tension the patient is experiencing in the muscles. This is an example of a patient who had “secondary myofascial pain” or muscle pain caused by another entity.

Let's take another example. Take for example an individual with pain over the lateral hip. The patient continues to have pain in the muscles of the buttock, gluteus medius, piriformis. They receive massage therapy, physical therapy and are taught stretching and exercise. Despite time and significant expense symptoms continue. The patient is noted to have multiple trigger points in the gluteus medius and gluteus minimus muscles. Why is the massage therapy not working? It turns out this individual is suffering from a condition of over pronation of his foot and ankle where the arch is collapsing placing tension on the muscles of the lateral hip. You can treat the muscles forever if you do not resolve the primary source or cause. Therefore part of an expert evaluation for myofascial pain can only be done by someone who has a comprehensive understanding of orthopedic pathology, biomechanics, and movement that will allow one to identify the potential cause of the secondary myofascial pain. So it is not as simple as just putting a dry needle in a muscle and relieving symptoms but also being able to sort out whether this condition is primary or secondary myofascial pain. If the patient has primary myofascial pain the pain is quickly relieved with the dry needling procedure and other therapy directed to the muscle and after a few sessions often resolves.

Let's take one more example. A 52-year-old female is diagnosed with fibromyalgia because she is experiencing chronic fatigue, muscle aches and pains in her neck, across her shoulders, lower back, and buttock. She has been placed on antidepressant medications by her primary care physician. She has undergone extensive physical therapy services without benefit. After many years she is finally evaluated with a comprehensive metabolic and hormonal panel and we identify deficiencies and imbalance with in hormone levels such as thyroid hormone, progesterone, estrogen, DHEA, cortisol levels as well as vitamin D deficiency and insulin resistance. The patient begins on a bioidentical hormonal regimen, treatment for insulin resistance, vitamin D and an exercise program. She has resolution of her chronic fatigue, and diffuse body aches and pains and no longer has what was thought to be fibromyalgia. Did this patient have primary fibromyalgia? No the patient had fibromyalgia like symptoms secondary to hormonal imbalance, vitamin deficiency, and a myriad of lifestyle issues. Fibromyalgia is also primary and secondary. There are individuals with primary fibromyalgia and those who have fibromyalgia like symptoms or fibromyalgia secondary to an underlying disorder. An individual with fibromyalgia may actually have multiple regional orthopedic problems causing muscle aches and pains that mimic fibromyalgia. They fit the criteria for the diagnosis but the presentation is

much more complicated in that they have secondary causes that were simply not identified. For example the patient may have degenerative disc disease and mechanical low back pain that causes muscle aches and pains into the buttock. They may have peritrochanteric hip pain caused by a tendonopathy as well as chronic neck pain from degenerative disc disease, facet joint arthrosis causing neck pain extending across the shoulders and headaches. To some physicians this patient would appear to have fibromyalgia. It takes a diligent and careful history, physical examination by a knowledgeable physician who can sort out this complex multi-regional orthopedic patient to identify the true source of the pain. Many times physician specializing in pain medicine need to recognize that biochemical and hormonal disturbances in the body can have a profound effect on pain, energy, and overall well-being. I had the advantage of working with a physician specializing in this area of peri-menopausal and peri-andropausal hormonal imbalance for over 15 years within our practice. I have to admit that when I first was associated with this physician and despite my medical training I was quite ignorant of just how important these issues can be and how prevalent these problems are. It was only with my exposure to her and my ability to see how complex patients could improve when integrating my care with this other physician that I began to realize how much we are missing in the overall clinical picture of case presentations seeking care from pain and specialty physicians.

PERPETUATING FACTORS IN MYOFASCIAL PAIN:

There are number of perpetuating factors that complicate or can set off myofascial pain. This list is just a very small example of some of the potential factors that can perpetuate myofascial pain:

- Damage to musculoskeletal tissues from trauma
- Injured or herniated discs
- Heavy and incorrect lifting
- Overuse of unconditioned muscles
- Immobilization of an arm or leg such as being in a cast
- Fibromyalgia
- Medical conditions such as heart attack, stomach irritation, or gall bladder problems
- Previous surgeries
- Nutritional deficiencies
- Hormonal changes (PMS or menopause)
- Prolonged exposure to cold, such as sleeping in front of an air conditioning vent

CHRONIC TENSION HEADACHES:

Patient with chronic tension headaches are often another example of secondary myofascial pain. Every muscle has a unique and specific referred pain pattern that is fairly consistent from individual to individual.¹ Notice the referred pain patterns for just a couple of muscles in the cervical spine in the pictures below. Keep in mind this is just a few muscles. Having an understanding that every muscle has a referred pain pattern one can see how complicated just a simple tension headache can be.

Understanding now the complex referred pain patterns of just the muscles makes this complicated enough but now we add the joints of the spine. Remember you cannot separate articular dysfunction and myofascial pain.¹³ The cervical facet joints for example are intimately linked with the cervical muscle and connective tissue structures. Irritation to the cervical facet joints sets up increased tone in the complex small muscles that attach to the spine as well as the larger muscle groups in the cervical spine. So the muscles develop an increased tone and eventually can become adaptively shortened over time. This perpetuates chronic cervical facet joint irritation and a vicious cycle ensues. We develop gradual degenerative changes throughout our

lives from injuries or wear and tear to the cervical spine facet joints that can lead to chronic segmental instability and ultimately persistent secondary myofascial pain. Utilizing acupuncture dry needling or Gunn IMS stimulation directed to the small intrinsic muscles of the neck can

quickly relieve pain but if symptoms recur one has to go to the cause which is probably the cervical facet joints. Repair and stabilization of the ligaments of the cervical spine using simple techniques such as prolotherapy can stop the primary cause of neck pain and eliminate the secondary myofascial pain associated with that disorder.

To make matters more complicated remember the cervical spine facet joints and the ligaments that support them also refer pain making the patient's pain pattern intermixed pattern of facet joint referred pain and muscle referred pain. Each ligament of the body also has unique referred pain patterns similar to muscles. A physician who you are seeking care from will need to have an intimate knowledge of all of these referred pain patterns. Having been trained as a chiropractor, as a physician assistant, osteopathic manual therapy as well as a medical physician, a physical medicine and rehabilitation physician and an interventional spine and pain specialist I can tell you that physicians are not given this basic information in medical training. Their focus and education is extremely complex and there is simply no time to deal with these complex issues in medical training. Patients can become disappointed with physicians because they do not understand all this but you have to realize they have spent the lifetime learning the complexities of their subspecialty discipline and they simply just don't know everything. I do not know everything either. I do not do appendectomies or knee replacements!!! I have simply chosen to focus in this area in nonoperative orthopedics. I believe that INTEGRATION & MULTIDISCIPLINARY CARE is the key. We all have to work together as a team!

MYOFASCIAL PAIN CAUSING NERVE COMPRESSION:

Another complex topic is the fact that there are also nerves that travel through myofascial structures. Take for example since we have been talking about head and neck pain the picture to the right. There are nerves that travel through muscles near the back of your head. If you have tension in the trapezius muscle and other suboccipital muscle groups that can apply tension and slight compression on the greater occipital nerve or other nerves in this area that can radiate up into the back of the head. It is not uncommon for a patient to present with cervical myofascial referred pain into the suboccipital area in addition to cervical facet joint dysfunction and also present with occipital neuralgic headaches. That combination is extremely common and will need to be sorted out quickly. If you do not have enough "tools in the tool box" it is going to be difficult for his physician to sort this out quickly. There is an old saying "when all you have in your tool box is a hammer. It is surprising how many things look like a nail." These entrapment neuropathies occur in multiple places throughout the body.

THE LINK BETWEEN RADICULAR PAIN AND MYOFASCIAL PAIN:

Let us take for example a clinical presentation where you have irritation of a nerve root in your lower back. If you have a nerve root from a herniated disc in your lower back you are going to have sciatica. If we go back to the concepts of Dr. Gunn remember that when nerves are irritated the physiology of the muscle is also affected and the muscle can become adaptively shortened. I like to call this radiculopathic myofascial pain. This means muscle pain that has its source from irritation of a nerve root. Any massage therapist or doctors who perform massage therapy such as osteopaths and chiropractors can tell you that myofascial release techniques and soft tissue mobilization of the hamstring muscles and calf can provide significant relief from patients suffering from sciatica. It is temporary but it does provide relief. In addition muscles of the legs become very tender and sore especially overlying the motor point (location where the nerve innervated muscle) which was also classically described by Dr. Gunn as denervation supersensitivity.¹⁴⁻¹⁸ Dr. Gunn has described a benefit of acupuncture dry needling at the individual segmental muscles of the spine in the area of nerve root compression as well as the importance of treating along the muscles that are innervated by the specific nerve. I have used this technique for years. Having been trained as a pain specialist I can also integrate more sophisticated injection therapy such as transforaminal epidural blocks, etc.

IN SUMMARY:

Myofascial pain is a manifestation of muscle pain which is driven by complex neurophysiologic reflexes. Myofascial pain can be primary which means that the muscle pain in and of itself is the

source of the problem and clinical treatment directed to the muscle itself typically demonstrates excellent outcome. We have found that the simple acupuncture needle stimulation of the myofascial trigger point as described by Gunn seems to work better clinically than more traditional treatment such as trigger point injection and a myriad of manual therapy techniques including massage, ischemic trigger point therapy, and other soft tissue mobilization procedures. Myofascial pain can be secondary to an underlying cause such as disc pain, joint pain, facet arthritis, etc. There could also be multiple perpetuating factors that need to be evaluated including a biomechanical analysis of gait and motion. Myofascial pain can involve a single muscle or more commonly a group of muscles in the specific region of the body. It can be more widespread creating a diffuse myofascial pain syndrome. Myofascial pain evaluation and management requires a set of clinical skills that often spans multiple disciplines that may incorporate manual therapy exam techniques, biomechanical analysis, search for secondary causes of myofascial pain is and be able to do a thorough myofascial trigger point examination. It also requires that physicians are knowledgeable of the complex referred pain patterns involved in myofascial and soft tissue pain syndromes. And finally, the use of the acupuncture needles to evaluate and manage myofascial pain is still an important tool which has not been replaced by modern injectable medications and is a skill that I encourage more pain physicians to learn.

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