

Neuromuscular therapy treatment of subscapularis muscle contributes to decrease in arm pain: a case study.

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Introduction

This case demonstrates neuromuscular therapy as clinically relevant in the treatment of pain and paresthesia.

This case highlights how a single muscle may have a significant contribution to whole arm pain, extending beyond the typical referral patterns documented by Travell & Simons' "Myofascial Pain and Dysfunction, The Trigger Point Manual", copyright 1999.

This case demonstrates how direct hands on assessment and treatment to the muscles can decrease pain and increase quality of life quickly, directly and tangibly; unlike an expensive battery of MRIs, X-rays, and prescriptions for painkillers and antibiotics.

This case highlights that often the simplest explanation (muscular pain) is overlooked by the medical community. And how not considering muscles as a source of pain costs clients money and leaves clients in unnecessarily prolonged physical pain, as well as often compounding that with the emotional pain of frustration and despair from irresolution.

The effectiveness of soft tissue treatment in reducing pain is not news to massage therapists. Nor is the prevalence of trigger points found in clients living with pain. But I feel this case is relevant as its context highlights the environment in which therapists often work; adjacent to a medical community which uses mostly advanced screening technologies looking mostly for gross structural or systemic problems in patients who present with varying degrees of pain or dysfunction. Unfortunately, the muscles, a common cause of pain, are too often overlooked in medical evaluation.

The medical community tends to band-aid over this gap in its awareness of muscles as a key contributor to pain. They do so via the over-prescription of pain killers and antibiotics; seeking patient satisfaction even as they fall short of understanding or addressing the cause. Today's allopathic model is largely technology driven, and also driven heavily by client satisfaction ratings. So when technological evaluations come up short in explaining a client's pain, doctors in many cases resort to meeting a client's desire for "treatment" with prescriptions of antibiotics and pain killers; keeping client approval high, but not solving the problem.

The client in this case, in response to her presentation of widespread pain, was given (sold) a battery of 4 MRIs (including a brain scan looking for multiple sclerosis), nerve conduction tests, X-rays, and prescriptions for pain killers and antibiotics.

How many times have you had a client come to you for help, and relate the following scenario? For issues of pain, the patient has sought out help from the conventional medical community, only to be sent home with a prescription for muscle relaxers and painkillers which make them feel bad, and which don't help. This has happened too many times in my practice.

This case also demonstrates the value of soft tissue treatment via neuromuscular therapy in addressing pain not addressed through chiropractic treatments.

Terms

MRI: magnetic resonance imaging

Trigger point: area of persistent contraction within a muscle which refers pain beyond its immediate location

Neuromuscular Therapy: a system of precise examination and treatment of muscle and fascia, utilizing range of motion testing, strength testing, gentle palpation, compression and stretching.

The condition: Upper Extremity Pain and Paresthesia

Upper extremity symptoms of general pain or ache are fairly common. I am not aware of a statistic on how prevalent they are in the general population.

Common signs and symptoms for subscapular dysfunction are: pain in posterior axilla, posterior scapula, posterior upper arm, and painful band around wrist. Possible decreased external rotation of the humerus. Weakness on testing of resisted internal rotation. Possible general dysfunction or impingement symptoms associated with decreased joint stability, usually provided by subscapularis.

Common treatment may begin with examination of tissue via ROM testing, muscle strength testing, and soft tissue palpation looking for trigger points or ischemic bands. Treatment may include gentle warming up the area with massage strokes, gentle compression of trigger points and ischemic areas to relieve local contractions in the muscle. Stretching the muscle post treatment is also considered effective.

Muscle strain or dysfunction may present in anyone who has suffered a specific physical trauma, or long term repetitive use strains. Repetitive use strains may be exemplified by less than ideal posture or less than ideal biomechanics at work, or sustained mental or emotional stress. Any of the above may also result in structural skeletal and arthritic changes which may cause further adaptation and compensatory changes in function of local musculature.

Quality of life for subject

The client has suffered pain for many years, including head, neck, back, arms, hands and legs. Pain had been restricting client's activities. Pain was most notable along spine but includes hips and extremities. Client experienced, fatigue and desperation due to chronic pain.

Literature Review

Keywords searched:

Subscapularis arm pain

Relevant articles found:

In my search I found no articles directly relevant to arm pain and subscapularis.

My reference is from of my bodywork training and experience, as primarily influenced by the work of Travell and Simons, the curriculum of NMT MidWest's Precision Neuromuscular Therapy, and the curriculum of Boulder College of Massage Therapy.

In my search I did however find a few relevant articles referencing the context in which this client presented; articles about the medical community adjacent to which massage therapists practice. These articles reflect the partiality of the lens through which the allopathic community makes diagnoses and prescribes "medications" and test.

"Pain and disability of the shoulder and arm"

JANET TRAVELL, M.D.; SEYMOUR RINZLER, M.D.; MYRON HERMAN, M.D.

<http://jama.jamanetwork.com/article.aspx?articleid=257842>

The above article highlights the biased diagnostic view point of standard medicine. The references on this article are from the late 1930's and early 1940's. There is no date on this article itself, but it appears that the thinking which Janet Travell describes at that time period still predominate today: "The physician usually thinks of the joints, bursae, tendons or nerves rather than the shoulder girdle muscles as the primary source of pain."

The Thoracic Outlet Syndrome: A Protocol of Treatment

Authors: [Kenneth F. Smith,†,‡](#) BS, PT

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Published: *Journal of Orthopaedic & Sports Physical Therapy*, 1979, **Volume:** 1 **Issue:** 2 **Pages:** 89-99

doi:10.2519/jospt.1979.1.2.89

<http://www.jospt.org/doi/abs/10.2519/jospt.1979.1.2.89#.U3fvjiiUfE>

The abstract of the above article roughly highlights the physical therapy model of treating Thoracic Outlet Syndrome. While non-invasive and holistic biomechanically, no reference is made to evaluating or treating the muscles for intrinsic dysfunction.

"Compartment Syndromes of the Forearm: Diagnosis and Treatment."

GELBERMAN, RICHARD H. M.D.; GARFIN, STEVEN R. M.D.; HERGENROEDER, PATRICK T. M.D.; MUBARAK, SCOTT J. M.D.; MENON, JAYASANKER M.D.

http://journals.lww.com/corr/Citation/1981/11000/Compartment_Syndromes_of_the_Forearm_Diagnosis.32.aspx

There seem to be plenty of articles such as this one above, whose authors explore surgical solutions to soft tissue symptoms; exploring invasive technical (and expensive) fixes rather than looking for simple non-invasive options. Again, highlighting the predominant thinking of our times.

And finally, this following article came to my attention without a search, but just by living in the 21st century. Posted recently by an oncology surgeon in New York, this 2013 article references the “assembly lines of healthcare” and the pervasive misdiagnosis and even lack of diagnosis performed by doctors today as they try to maintain good client ratings; primarily by appeasing patient requests for antibiotics and pain medications, even when they are not called for.

“Patient satisfaction is over rated”

<http://www.medscape.com/viewarticle/821288?src=stfb%3Fsrc%3Dstfb%3Fsrc%3Dstfb>

William Sonnenberg, MD

My reference book:

“Myofascial Pain and Dysfunction; The Trigger Point Manual” Vol. 1.

David Simons, MD., Janet Travell, MD, Lois Simons, PT

Information from the above articles pertinent to this case:

Allopathic evaluation often misses musculature as a significant contributor to pain. Studies in allopathy often look to technical imaging for evaluations and surgery or symptom blockers for a solutions. Considerations all geared to address bone, joint, tendon, nerve, structural or pathogenic problems. Muscles are often not considered.

Trigger points in muscles can account for significant predictable areas of pain in the body.

Thoracic outlet syndrome can account for many upper extremity symptoms. A protocol of soft tissue treatment, often in conjunction with retraining and improved biomechanics is an effective treatment.

Allopathic doctors often resort to/rely on technology for a solution to patient satisfaction, even if they know it is not addressing the issue; for example over prescribing pain killers and antibiotics.

The Case

Subject:

Female, age 49, slender frame.

For work she spent many years bent over a photo processing machine; moving and unloading 50lb. boxes full of paper and equipment. Lots of lifting and twisting was done as she unloaded supplies arriving by palette.

Relevant medical history:

Client presented with extensive pain. Client has suffered pain since the original injury to her low back while lifting boxes in 1990. Presentation of pain at her first neuromuscular therapy visit with me included head, neck, back, arms, hands and legs. Pain had been restricting client's activities. Pain was most notable along spine but including hips and extremities. Client

experienced, fatigue and desperation due to chronic pain. Client had been prescribed pain killers but no longer wanted to take them.

Client's best guess at contributors to her arm pain and paresthesia was the work she did staining a deck by herself, and grouting a bathroom; both done with her dominant Right arm.

Medical/Technical evaluations:

Cervical, thoracic and lumbar MRIs and X-rays reveal compression fractures throughout most of spine. Degenerative disk disease (disk bulges) at many levels including cervical, thoracic and lumbar. An MRI brain scan for multiple sclerosis showed negative. Nerve conduction tests also negative.

Symptoms:

Neck pain bilateral. Jaw pain on Left. Sub occipital pain. Thoracic pain; especially at crest of moderate kyphosis T5-T8, R>L. Paresthesia; Right 3-5 fingers "comes down outside of Right arm" through extensor compartment. Also some days this presents like radial nerve distribution on back of Right hand. Sometimes as numbness of hand. Sore "tweaked" lumbar area. Ache in Right posterior lateral hip, posterior lateral aspect of leg and lateral toes. Sore Left gluteus medius area. Right knee pain; she feels like she compensates in her knees when her back hurts.

Other treatments and results:

After I had treated her 4 times, the client received steroid injections at Left L4 and L5 facet joints. She reported feeling better. However lumbar facet test/Kemp's Test in the week after her injection revealed significant pain still in Left lumbar, and apprehension due to feeling weak in Right lumbar.

She has also previously received a steroid injection into her Left gluteus medius for pain there, but it still is a source of pain.

Just before coming to see me, client had received and taken a prescription for antibiotics for persistent jaw pain. The antibiotics did not relieve the jaw pain. When her primary care physician could not account for client's jaw pain, the client asked the doctor for antibiotics, thinking to herself (for no good reason) that it might be an infection. The physician complied with the request for antibiotics, based solely client's request. That's scary!

The client finally came to me for neuromuscular therapy, based on the recommendation of a chiropractor from whom she had been receiving ongoing care for years. She was tired of taking pain killers. She was disheartened and frustrated.

Subject's goals from treatment:

Reduction or elimination of chronic widespread pain throughout her body. Ability to live without taking pain killers. Ability to work, walk, and function as a normal person without constant pain sapping her energy and spirits.

Treatment

Pre-Tx Measurements:

No measurements taken on the subscapularis muscle ROM pre-treatment. Client presented no significant decrease in ROM appearing worthy of measure relating to her arm pain.

Course of treatment:

Treatment of this client is widespread, over many sessions and many areas of her body. Treatment is ongoing; client was experiencing widespread pain beyond the scope of this case study. I have treated this client 16 times, with 1 hour sessions. Just a fraction of 4 separate 1 hour visits were related directly to her arm pain. Most of the results relating to subscapularis seemed to come from just one visit, her 7th visit. Surprisingly, there was an unexpected return of multiple trigger points to subscapularis on her 16th visit, though she had no complaints at that time of arm pain.

On her initial visit I found trigger points in subscapularis but treated it only briefly. I was taking a general inventory, identifying areas of concern that day, not getting into thorough treatment.

On her 7th visit, we addressed her rotator cuff, multiple trigger points were found in her subscapularis which related directly to her area of most pronounced arm pain; where it “comes down outside of Right arm” including the deltoids, the extensor compartment, the hand and fingers. The client’s comment was that, “It refers everywhere”. A brief treatment (5-8 minutes) of subscapularis quickly and significantly reduced client’s prolonged arm and shoulder girdle pain.

On her 8th visit she reported much less but continued paresthesia in Right arm. We again revisited subscapularis more deeply; exploring the deeper recesses under the scapula, again treating subscapularis for less than 5 minutes. I found reduced tenderness this time and again found a few remaining trigger points referring to the shoulder and down the arm.

On her 9th visit she reported upon arrival that her Right arm was much improved, with only a vague sense of numbness.

On her 11th visit she reported arms and hands were significantly improved Bilaterally.

On her 15th visit she reported Right hand and arm aching again when she was reaching up to do her hair in the morning. Other concerns were of higher priority that day, but I went through a brief palpation of subscapularis and rotator cuff. Nothing of particular note was found. Following the treatment she reported a decrease of arm discomfort. Perhaps this general attention to rotator cuff tissues was sufficient to provide relief. Or perhaps it was the treatment of trigger points found in anterior scalines relating to the Right arm that day which helped, or both.

On her 16th visit, she had no complaints of arm symptoms. An examination of subscapularis, purely out of curiosity, revealed that a surprising number of trigger points had returned there, referring all down her arm again.

Treatment of subscapularis in detail:

Treatment given was a gentle palpation exploration and compression of the subscapularis muscle. Subscapularis held many trigger points and tenderness throughout. Treatment was done with client in side lying position, lying on non-affected side. Therapist, standing or seated on the edge of the table behind the client facing cephalic. Therapist uses far/outside hand to lift affected arm/shoulder into about 80 deg. abduction and slight extension. Therapist places near treating hand on client's side ribs lateral to scapula, palm against ribs with fingers pointing cephalic, into axilla; careful to avoid long thoracic nerve compression. Therapist lowers client's arm back to their side, overlying therapists hand with the arm/lateral scapula. Therapist, with free outside hand reaches to medial border of scapula and pulls it gently into protraction, sliding the scapula (and subscapularis) up onto the dorsal side of treating hand laying still on the rib cage. Using gentle movements of protraction, retraction, elevation and depression of the scapula, therapist explores all aspects of the subscapularis as it moves across the back of the static treating hand.

As trigger points and tender spots are located against the back of the treating hand, pause. Allow referral pain or local tenderness to subside before moving on to the next trigger point or area of interest within the muscle. Continue in this way until all tissue has been examined or client needs a break.

One brief treatment (maybe 5-6 minutes) of subscapularis in this way revealed an array of trigger points which referred beyond the typical referral patterns documented in Travell and Simons. Referral distribution included the whole arm, shoulder girdle and many ipsilateral ribs; most notably the dorsal forearm and hand. This was among the client's primary areas of pain. While referrals were very strong, they resolved quickly.

No follow up stretches were performed on initial treatment. I did follow up treatment with stretches of subscapularis following her 16th visit.

Other muscles also relating/referring pain to her arm symptomology:

Anterior scalines: to anterior shoulder and upper arm

posterior scalines: to 4th and 5th digits

serratus posterior superior: to arm and digits 1-3

latissimus: to hand, 4th and 5th digits

teres major: to hand, 4th and 5th digits, forearm

teres minor: shoulder, arm, 5th digit

infraspinatus: to arm, hand

flexor compartment: relating to paresthesia in hand

extensor compartment: to hand

iliocostalis in upper thoracic especially T3: to arm

Results

Client reported immediate decrease and then cessation of pain in arm during and immediately post initial treatment. The next week she also reported decreased symptoms. The following three weeks she reported symptoms decreasing to insignificant. On the 8th week she reported some return of symptoms. Client is still symptom free in the arm but trigger points are returning to subscapularis.

Discussion

Conclusion:

Neuromuscular therapy, primarily over a course of 3 weeks but continuing, yielded direct, immediate, effective reduction of arm pain symptoms related to subscapular involvement. I am encouraged by the finding that her most pronounced symptoms seem to be fully replicated and relieved via addressing subscapularis and related musculature directly.

My question is, why did the trigger points in subscapularis return so quickly? I am leaving room for the possibility that nerve irritation near the spine may be contributing to the downstream destabilization of subscapularis,

Challenges in this case would only be that there are many muscles which may affect the arm and shoulder girdle. Therefore it is necessary to consider the whole of the shoulder girdle's function in relation to her kyphosis as a possible contributing factor, and to not assume it is subscapularis alone causing the majority of pain symptoms.

While subscapularis is the focus of this case study, the client presented with many areas of pain and dysfunction throughout her body. It is gratifying to see that all of the areas are quickly responding positively to the inclusion of neuromuscular therapy to her ongoing and concurrent chiropractic care.

As a population, we would be better served if more health providers understood the relevance of muscles as a contributor to pain, and the role neuromuscular therapy can play both in assessing and in treating that pain.