



Clinical Case Report Competition

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Second Place Winner

Grace Wu

Therapy for the therapist: the effects of myofascial
release and trigger point therapy on relieving
chronic tension headache

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ABSTRACT

Chronic tension headaches are a very common condition that many people suffer from. It is often due to poor posture, specifically forward head posture. Upper Cross Syndrome explains that when the head is anterior to the midline of the body, certain muscles in the head and neck must work harder to keep the head erect and therefore become shortened and tight. Likewise, their counterparts will become overstretched and weakened. This causes fascial restrictions in the area, further exacerbating the condition, and will cause trigger points to form. Trigger point referral from these irritated muscles cause pain in predictable areas in the head and neck, and are symptomatic of a headache.

The purpose of this study is to evaluate if using myofascial release and trigger point therapy will help reduce chronic tension headaches. The subject is a 31-year-old female RMT, who first began suffering from her headaches approximately 6 months ago. As this case is designed to study the relief of the headache symptoms specifically, the objective measures used are based on the subject's reporting on her headaches via a pain questionnaire and a daily headache journal. A cervical spine range-of-motion assessment as well as a postural examination also allowed for an observational assessment of the subject's baseline and progress.

The results from the study indicate that the subject did benefit from the treatments, as she reported a decrease in the intensity and duration of the headaches. Ultimately the final objective results were modest as she fell ill during the course of the case study, which caused many of her symptoms to come

back. However, she felt relief from her pain and is optimistic that she will benefit from further treatments.

Key words: *myofascial release, trigger point therapy, head forward posture, upper cross syndrome, chronic tension headaches*

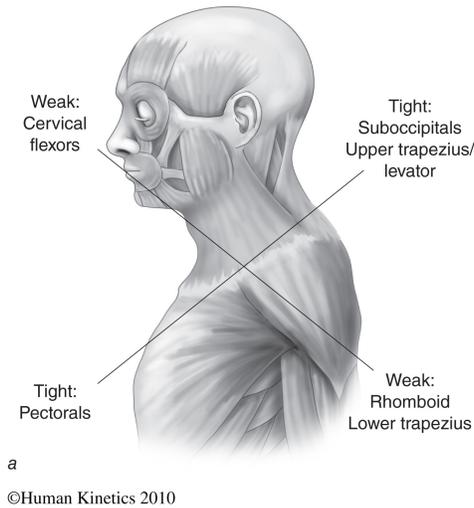
INTRODUCTION

Improper posture can cause musculoskeletal imbalance, which can lead to undue stress on the body and a variety of painful disorders. Forward head posture (FHP) is a very common condition that many adults struggle with, with up to 66% of patients in a clinical setting presenting with their head anterior to their body's centre of gravity (1).

Poor posture is not a disorder itself, but it can lead to the development of painful conditions (2, p. 571). It is reported that approximately 70% of adults suffer from neck pain, and up to 15% of adults complain of neck pain that persist for more than 6 months (3, p. 1). Major factors contributing to poor posture are faulty workplace ergonomics (ie. computer/desk work) and sedentary lifestyles, both of which are predominant and on the rise in North Americans. Along with a number of pathologies that can become complications, forward head posture is a leading cause of tension headaches. This is due to trigger points in the muscles in the neck and head, which become irritated and refer pain to certain areas in the head (4, p. 490). This condition has been suggested to originate from constant isometric contraction of muscles in the head and neck that support the head; the stress from the prolonged contraction causes local ischemia, which produces trigger points within the muscles, and their referral patterns lead to the resultant tension headaches (5, p. 1657).

Forward head posture, if left untreated, can develop into Upper Cross Syndrome (UCS), which is a condition that affects a person's upper back and neck (6, p. 2) (Fig. 1):

Fig. 1: Upper Cross Syndrome



As illustrated in Fig. 1, forward head posture can lead to certain muscles becoming shortened and tight (suboccipitals, upper trapezius, levator scapulae, pectorals) while others become lengthened and weakened (cervical flexors, rhomboids, lower trapezius). As the condition persists the surrounding fascia becomes increasingly adhered, causing more trigger points in the area; as the body attempts to guard from movements that will activate the trigger points, the shortened muscles continue to contract, which further exacerbates the condition. Furthermore, according to Kapanji for every inch the head is anterior to the shoulders, the weight is increased by 10 pounds; a 12-pound head that is 3 inches forward will therefore require the cervical extensors to support 42 pounds (7).

Traditionally neck pain and headaches are treated allopathically by medication, namely NSAID's and acetaminophen. However, while the medication can relieve symptoms the conditions themselves have not been addressed.

People suffering with these disorders commonly seek after physical therapies, such as chiropractic, physiotherapy, and massage therapy, to alleviate their condition.

The irony of massage therapy as an effective form of treatment for neck pain is that massage therapists' biomechanics can often lead to increased stress on the upper body. Along with the previously mentioned desk workers, manual therapists are often in positions that require a sustained forward arm position (8, p. 3). The upper extremity and back are the principal areas of disorders (9, p. 426), and though massage therapists are well educated on the prevention and relief of pain, they are predisposed for developing workplace-related conditions due to their "awkward positions and repetitive and forceful motion in all body regions" (9, p. 437). The subject for this case study was chosen because her profession as a massage therapist leads her to be susceptible to forward head posture and chronic tension headaches.

Therefore the hypothesis of this case study is that the subject's chronic tension headaches, caused by referral from specific muscles in her head and neck, will be reduced by using two exclusive manual modalities, myofascial release and trigger point therapy.

METHODOLOGY

This case study involves 10 one-hour treatments with 4 assessments done at the 1st, 4th, 7th, and 10th treatments. The assessment measures include a

pain questionnaire and a range of motion assessment (done at the 1st, 4th, 7th, and 10th treatments), and a daily headache diary.

The subject is a 31-year-old female RMT. She has been registered since October 2012 and practices four times per week with an average of six clients per day, each mostly treated during one-hour sessions. She is height-weight proportionate, moderately fit, and stays active through yoga and walking her dog. She has seen massage therapists, a naturopath, and a physiotherapist irregularly in the past for her complaints but has agreed to temporarily cease treatments with other therapists for the duration of this case study. She would take NSAID's and acetaminophen when necessary and has agreed to report whenever she has while the case study was in session.

At the initial assessment she reported moderate to severe headaches that plagued her regularly for the last 6 months. She noticed that she usually woke up with a headache that would often increase in intensity throughout the day, and would peak at the end of the day, especially after doing multiple massage treatments. She has on occasion had to cancel treatments and leave her clinic because the pain was too intense, and she reports that she is frustrated with how they have interfered with her personal and professional life. She identifies them as tension headaches, and while the pain fluctuated the predominant areas of complaint are in the neck, at the base of the skull, at the crown of her head, and behind her eyes. She reported that the pain felt equal on both sides of her head, and her neck feels slightly tighter on the right but recognizes that both sides will need to be addressed.

TREATMENT

The 10 hour-long treatments were done over a 40-day period, with an average of two sessions per week. The subject fell ill for several days between the 7th and 8th sessions and requested not to be treated until she had begun to recover.

The treatments involved the subject beginning in a prone position for 1/3 of the treatment (on average 20 minutes), and supine for the remaining 2/3 (on average 40 minutes). Myofascial techniques used included cross-hands, bowing, skin rolling, and muscle shaping/separation, and the trigger point techniques were ischemic compressions and muscle stripping. As her pain is equal on both sides, all muscles were treated primarily bilaterally. Hydrotherapy was not used during treatments as the purpose of this case study is to explore the efficacy of myofascial release and trigger point therapy on reducing the subject's pain, and likewise homecare was not discussed as the therapist's exclusive intervention is being discussed.

The muscles treated and the modalities used each session varied according to how the subject presented. Based on the initial assessment, the pain could be caused by referral pain from activated trigger points in her head and neck. The muscles that refer to these areas (neck, base of skull, crown, and behind eyes) include sternocleidomastoid, splenius capitis and cervicis, trapezius, suboccipitals, and levator scapula. Other muscles involved in head forward posture include platysma, scalenes, pectoralis minor and major; while the subject's complaints do not include traditional referral pain from those

muscles, it is important to address those muscles to help with her condition. Varying modalities were applied for different muscles, as shown in Table 1.

TABLE 1: Muscles Treated and Techniques Used

Muscles/Area Treated	Techniques Used
Upper back/shoulders (C7-T3): <i>middle trapezius, levator scapula, splenius cervicis</i>	Cross-hands, bowing, muscle shaping, ischemic compressions, muscle stripping
Posterior head and cervical spine (occiput-C6): <i>suboccipitals, splenius capitis, upper trapezius</i>	Cross-hands, bowing, skin rolling, muscle separation, ischemic compressions
Anterior neck and chest: <i>sternocleidomastoid, pectoralis major and minor, platysma, longus colli</i>	Cross-hands, bowing, muscle shaping, muscle separation, ischemic compressions, muscle stripping

Swedish techniques such as stroking and kneading were used to clear the areas after receiving deep treatments, as well as mild stretching and active muscle contraction to reset the muscles.

RESULTS

The McGill Pain Questionnaire was completed at the beginning of treatments 1, 4, 7, and 10 (Appendix 4). A differential score was given at each re-assessment to evaluate whether the pain had increased or decreased, and a total score was given at the end of the 10th treatment. The results are shown in Table 2.

The subject also tracked her headaches daily on an application on her phone, which allowed her to indicate the pain level out of 10 she was experiencing, where the pain was, and the type of pain she was experiencing

(Appendix 5). She was asked to complete it every day at 8:30pm. Graph 1 illustrates the headaches the subject was experiencing.

An observational C-spine range-of-motion assessment and a postural examination were also done during the assessments. The ROM was indicated on the charting (Appendix 3), and Figs. 3 and 4 demonstrate the difference in the subject's posture before the first treatment and one week after the last treatment was completed.

TABLE 2: McGill Pain Questionnaire

Tx 1	Tx 4	Tx 7	Tx 10	Difference	% Decrease/Increase
19	16 (-3)	12 (-4)	17 (+4)	-3	16%

GRAPH 1: Headache Diary

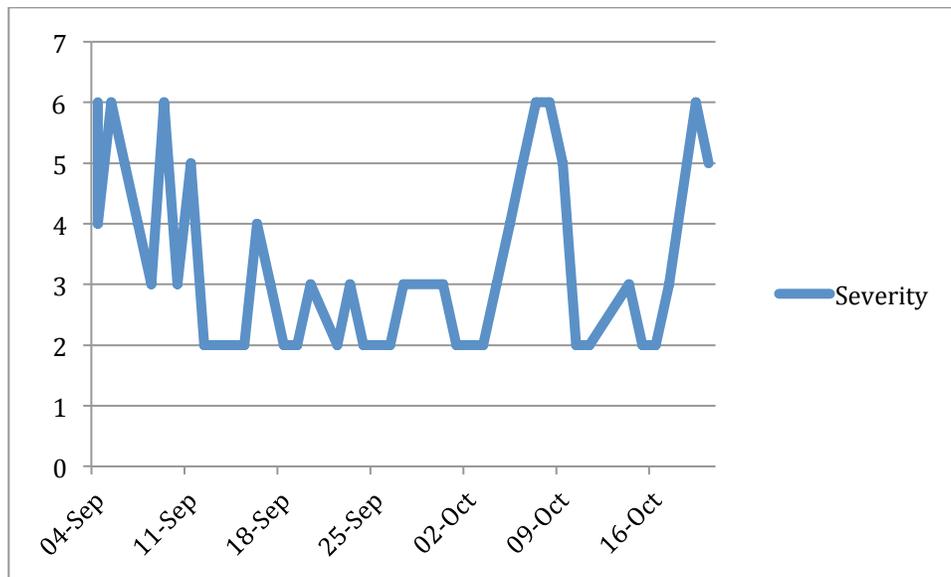


FIG. 3: Subject's postural assessment at treatment 1

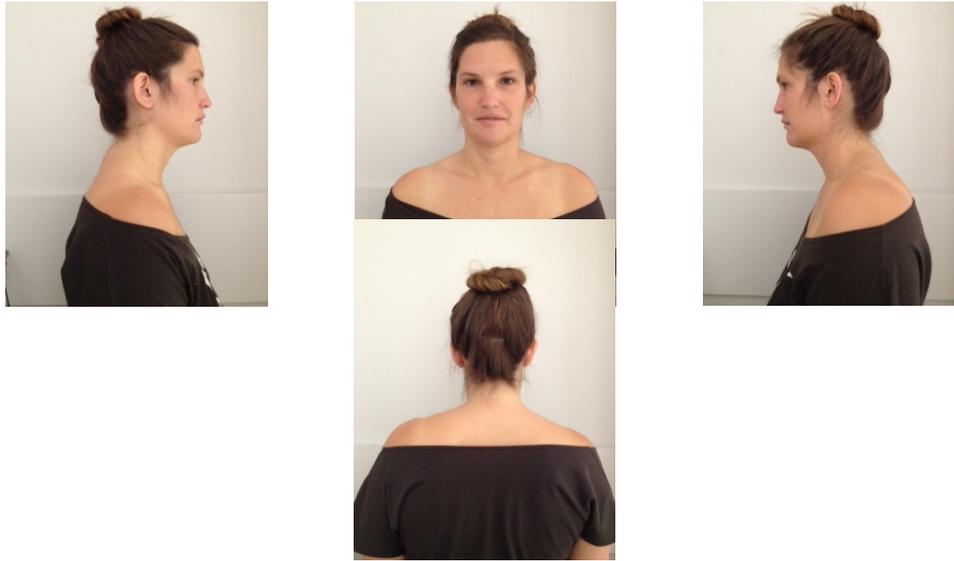


FIG. 4: Subject's postural assessment 1 week after treatment 10



DISCUSSION

There was an overall decrease of 16% in the pain the subject was experiencing. As seen in Table 2, re-assessments at treatments 4 and 7 show

noticeable progress being made, with a decreased score of 7 after the first 7 treatments; however, the subject fell ill with a cold and through her illness regained many of the symptoms she was experiencing previously. Between the 8th and 10th treatments there was less significant change in her pain; even though she had mostly recovered she was still symptomatic and guarded. Therefore the 16% is a modest representation of the progress the subject was making overall. Graph 1 also indicates the fluctuations the subject experienced as the case study occurred. The graph reflects the progress the subject was making until treatment 7, as well as the sudden change in her headaches.

Overall the treatments seem to be effective. As previously discussed, the subject reported a decrease in the pain she was experiencing, and commented that had she not become sick she would have seen a significant difference after the 10th treatment. She also discussed that monitoring her headaches has allowed her to see patterns in the pain, such as the constant increase in pain after a day of work, and in stark contrast the decrease in pain she felt after a treatment. She also reported that since the case study began she did not take any pain medication, even when she fell ill; she felt certain that the combination of recovering from her cold and with the remaining (and any future) treatments she would be relieved of her headaches once again. The case study shows positive results in that her reflection is indicative that the treatments not only helped with her physical symptoms but also facilitated a renewal in seeking regular therapy for her pain.

The results from this case study seem on par with current research. Massage therapy is one of the most common forms of therapy to treat neck pain (3, p. 2), and Quinn et al's 2002 study shows that there is evidence supporting massage therapy as an effective non-pharmacological treatment for chronic tension headaches (5). This is important to RMT's because massage therapy should be encouraged as a forefront method for reducing chronic tension headaches, which is a very prevalent disorder in North America. Furthermore, although it was not discussed thoroughly in this case study, massage therapy is also immensely beneficial in preventing conditions such as forward head posture through treatment, homecare, and education, which would mitigate chronic tension headaches caused by poor posture. As many people seek non-allopathic approaches to controlling pain, other health care professionals such as medical doctors, chiropractors, naturopaths, and physiotherapists can be confident in endorsing massage therapy as a non-invasive and effective alternative to treating their clients' neck pain and headaches.

One of the major limitations of this case study is that only subject's report on her pain was objectively measured. As the focus of the case study was on treating muscles specific to the referral pain as it presented each session, and not on treating forward head posture, all measurements were kept pertaining to her reporting. While there was a visual difference in her head forward posture and an observational increase in her C-spine ROM, neither was objectively measured for the purpose of the case study. By measuring the degree of her posture and her ROM using a goniometer and establishing a baseline, then

reassessing after a number of treatments, it would give further insight as to the efficacy of the modalities in reducing her head forward posture.

Another limitation is that there were no hydrotherapy, homecare, or remedial exercises involved. These modalities are all instrumental in reducing chronic tension headaches, and could have potentially increased the amount of change in the subject's condition. Also, researching her biomechanics at work could offer more insight as to which specific activities of daily living could be exacerbating her condition.

CONCLUSION

Chronic tension headaches are a very common condition that many people struggle with daily. It can range from mildly uncomfortable to debilitating, and in the subject's case, disruptive of her personal and professional life. Although the results are modest she has benefited from the treatments, and has noticed an overall reduction in pain. Broader treatment of her posture, as well as the addition of homecare and hydrotherapy, could help further her well-being.

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Fig. 1 retrieved from Muscle Imbalance Syndromes – Upper Crossed Syndrome on Oct. 18, 2013: <http://www.muscleimbancesyndromes.com/janda-syndromes/upper-crossed-syndrome/>