



Lower Cervical Disc Bulge Causing Headaches and Facial Pain, Treated with Cox® Spinal Decompression Manipulation

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OBJECTIVE:

This case study has been done to inform physicians about lower cervical disc bulges, causing headaches and facial pain. This presentation is uncommon in comparison to upper cervical conditions which cause headaches and facial pain. Therefore this study will share an incidence where a patient's headaches and facial pain were as a result of her lower cervical disc bulge, the anatomy and biomechanics that can create such symptoms, and how this patient was treated.

INTRODUCTION/PATIENT HISTORY:

Patient is a 43 year old female who presented on March 22nd, 2017. The patient is a mother of 2 children and a cake decorator at a local store. She presented with "debilitating headaches", neck pain, and facial pain. She would go on to describe her headaches as a constant 5/10 (Visual Analog Scale-VAS) pain, and would often get to "a 10/10 when they're bad". When her headaches would become severe she would also notice having burning pain into her cheeks, with occasional numbness and tingling into the cheeks. Along with the headaches and facial pain, she had "severe" neck pain at the base of her neck and upper back (C5-T4 region), where she was sensitive to light touch.

The patient's work day consisted of decorating approximately 70-120 cakes a day, which would increase around the holidays. She would note that her neck and facial pain and headaches would typically increase and felt unable to concentrate or function by the end of a regular work day. Even on days off she would typically experience similar symptoms, but she would state that she'd more often be in pain after work.

She previously tried various forms of manual therapy such as: massage therapy, physical therapy, and chiropractic manipulation; noted having minimal relief to no relief at all. Also with previous chiropractic manipulation of another chiropractor she experienced increased pain following, and had reservation about chiropractic manipulation. She was currently using neurontin, serquil, and marijuana for pain relief-which she would state was only be temporary relief, and not always effective. She was eager to discontinue the use of medication, but did not feel she'd be able to due to constant state of pain.

She presented with low back pain as well, but was not of her main concern-as "it was more manageable", than her neck pain, headaches, and facial pain.

EXAMINATION:

Upon observation, she had a morose demeanor, as well has redness along the cheeks bilateral. She is moderately overweight. She presented with mild anterior head carriage, with bilateral



internally rotated shoulders. She was sensitive to light palpation over C5-T4 spinous processes. She had pain in all cervical spine range of motion, except flexion. She had limited range of motion by 10 degrees in extension due to increased pain in her neck that radiated up into the back of her head. She had tender points to palpation within her rhomboids bilateral, and was sensitive to palpation in the upper trapezius, supraspinatus, suboccipitals, and levator scapulae muscles bilateral.

Cranial nerve exam revealed decreased light touch sensation over V2 bilateral, but V1 and V3 were intact, and sharp/dull sensation was intact throughout the trigeminal distributions; all other cranial nerves were intact and within normal limits.

Upper extremity exam revealed decreased light touch and sharp/dull sensation along the C6 dermatome. Manual muscle testing and reflexes were within normal limits. Pathological reflexes were not present.

Lower extremity exam did not reveal any abnormal findings.

Cervical exam revealed a positive Maximum Cervical Compression to the right-with flexion and extension; positive Cervical Compression in neutral, right lateral flexion, and extension; relief of lower cervical symptoms with Cervical Decompression-despite tenderness over the suboccipitals due to hand contact.

Lumbar exam revealed pain in extension range of motion, along with positive tests that include Kemps and Yeomans, for low back pain. All other lumbar orthopedics were negative.

TREATMENT:

Patient was started on a regimen of Cox® Technic Spinal Decompression Manipulation of the cervical spine utilizing Protocol 1-consisting of y-axis distraction and a hand contact made at the occiput-which was tolerated by the patient. After two treatments of decompression manipulation, it was discontinued, because the patient's headaches were made "worse" and she had tenderness to palpation. Therefore, acupuncture treatments were to be added to her care, by Dr. Nathaniel McKee's wife, Dr. Shannon McKee, and an MRI of the cervical spine was ordered to determine the severity of the suspected cervical disc disorder.

IMAGING: CERVICAL MRI RESULTS (credit to Dr. Dilraj S Ghumman, MD, for MRI results)

Findings:

"Straightening of the normal cervical lordosis and mild degenerative endplate change and anterior endplate spurring at C5-C6 and C6-C7.

"Disc desiccation with mild disc height loss at C5-C6 and C6-C7. (Figure 1)

"C5-C6: Moderate right paracentral disc protrusion indents the right ventral thecal sac resulting in mild central canal stenosis. There is no impact upon the cord. Uncinate hypertrophy results in mild to moderate left foraminal stenosis. The right neuroforamen is patent.

"C6-C7: Circumferential disc bulge with small to moderate broad-based posterior disc protrusion results in mild central canal stenosis. There is mild neuroforaminal stenosis.

Conclusion:

"Small to moderate right paracentral disc protrusion at C5-C6 indents the right ventral thecal sac resulting in mild central canal stenosis. (Figure 2) Mild to moderate left foraminal stenosis at C5-C6 and mild bilateral foraminal stenosis at C6-C7." (Figure 3)



Figure 1



Figure 2



Figure 3

TREATMENT (CONTINUED):

The MRI confirmed the diagnosis of a lower cervical disc bulge with stenosis present, and major health concerns were ruled out, treatment consisting of Cox® Technic Spinal Decompression was resumed. After a month lapse in chiropractic treatment, and a month of acupuncture



treatment administered, the patient presented with headaches that were still present, and her pain was rated at a 5/10 (VAS) in her neck, however she could tolerate palpation-despite still have tenderness, and the hand contact required for Cox® Technic (at the base of the occiput, or above the affected level). Protocol 1 was initiated again using a hand contact at the base of the occiput-as to avoid her hypertonic and tender suboccipitals. After the 1st treatment following the MRI, the patient returned stating that her pain had reduced to a 3/10 (VAS) and her headache was only a “dull ache”. After two treatments: she was at a 3/10 (VAS), but she did not have a headache, and noted no weakness or numbness in her arm or hand. Following 5 treatments (2x a week) of Cox® Technic Spinal Decompression of the cervical spine, she was able to work that week, and do yard work the previous weekend without having a headache, neck pain or numbness, and would state: “that was the first time in 10 years”. She would have fluctuations of her pain over the next 5 visits, from a 0-5/10, but she would state when a 5/10 pain, that it was “tolerable and it wouldn’t get any worse than a 5/10”-also she did not miss work due to pain or headaches.

She would be treated 2x a week for 2 months and saw an increase in her energy and physical activity, both at work and at home.

Treatment over the two months would also consist of Protocol II of Cox® Technic Spinal Decompression Manipulation of the Cervical spine (lateral flexion and rotation bilateral) as the C6 dermatomal pain/numbness diminished, end-range loading: chin retraction, soft tissue therapy (of the muscles that were listed in the examination findings), and postural corrections/therapeutic exercises.

She continues to receive chiropractic care 2-4x a month currently to avoid any progression of joint changes within the cervical spine, and prevention from disc injuries and headaches. Since getting her to the point of maintenance care, she has days to weeks without headaches, and limited to no neck pain.

DISCUSSION:

Cervicogenic Headaches

Cervicogenic headaches are a type of headache that is caused by an irritation within the cervical spine. Of all the causes of headaches, cervicogenic headaches make up approximately 16%. (1) Commonly patients with cervicogenic headaches will present with associated neck pain, or vice versa (neck pain with an associated headache). The genesis of the headache can originate from multiple sources, such as: myofascial, facet joint hypertrophy-degeneration, disc bulge/herniation, cervical stenosis, and/or other causes. Typically the cervicogenic headaches will originate from the upper cervical spine; however there have been cases where cervicogenic headaches originate from the lower cervical spine, as in this case. (2, 3) With this being an uncommon presentation, physicians should rule out other causes that may be more common, but consider checking the lower cervical spine as the cause of the headaches-especially when there is a presentation of lower neck pain.



Facial Pain Originating from the Neck

In this case study we find a patient suffering from cervicogenic headaches originating from the lower cervical spine, but she also has associated face pain-as described in the patient history. The patient had a pattern of pain and decreased sensation within the V2 (mandibular branch) dermatome of the Trigeminal nerve (cranial nerve 5). Despite the abnormal finding in the trigeminal nerve (and Tic Diloureaux was considered in the DDX), the pain was associated with her neck pain, as both would increase by the end of her work day, and/or with physical activity. This correlation is not uncommon, as the trigeminocervical nucleus (TCN) is anatomically positioned within the cervical spine, and nociceptive input from C1-C6 innervated structures can stimulate the TCN neurons to create the illusion of face pain and headaches. Therefore this patient had a C5-C6 and C6-C7 disc bulge that were potentially creating headaches and facial pain-given the central canal stenosis, which was likely exacerbated with the patient's daily workload and ergonomics. Therefore treating her neck pain, the root of problem, caused decreased headaches and facial pain, by decreasing the compression of the nerve roots and central canal.

Treatment of Cervicogenic Headaches

There are a variety of treatment options that have been proven effective for treating cervicogenic headaches. The main goal of these treatments should be finding and treating the cause, whether it be myofascial, discal, joint, and/or other cause, without establishing the cause, treatment will likely be ineffective. Research has supported that manual modes of therapy are beneficial regardless of age, gender, or the chronicity. Also outcomes are better for resolution of cervicogenic headaches when exercise programs and manipulative therapy are combined. High Velocity Low Amplitude (HVLA) chiropractic manipulation has been proven effective in the treatment for cervicogenic headaches, but in the Journal of the American Osteopathic Association, HVLA if done "too vigorously" can increase the headache. (4) Not stated in the JAOA, but should also be considered is the patient's tolerance and pain levels-as in this case, the patient was sensitive to palpation and would not be a good candidate for HVLA manipulation. Which is why Cox Technic Spinal Decompression Manipulation was utilized as it is less aggressive in comparison to HVLA manipulation. In another case where a patient who previously had a spinal fusion from C4-C7, suffering from neck pain and headaches was treated with Cox® Technic Spinal Decompression Manipulation, the patient noted decrease headaches and neck pain. (5) Cox® Technic may not be the appropriate treatment in all cervicogenic headaches, but as long as the cause is being addressed, and if the patient can tolerate it, Cox® Technic can be very effective as it is a conservative manipulative therapy.

Cox® Technic Effects/Benefit

Cox® Technic Spinal Decompression Manipulation was found beneficial in this patient's case for multiple reasons, as it has been effective in other cases-such as the one above. Along with the conservative, less aggressive nature of the technique, it is similar to standard HVLA chiropractic manipulation as it restores the physiologic ranges of motion. It also widens the disc space-increases disc height, reduces intradiscal pressure, separates the zygapophyseal joints, and



increases the neuroforaminal spaces. These effects of Cox® Technic Spinal Decompression Manipulation, all proved to be vital in this patient's case, given the neuroforaminal and central canal stenosis, uncinated hypertrophy, disc bulges, and disc desiccation-refer back to the MRI results. Combined with the structural benefits, there is a chemical component which is effective by the suppression of nociceptive activity via afferentation.

CONCLUSION:

Cervicogenic headaches make up approximately 16% of headaches, but rarely originate from the lower cervical spine. This case study has been shared to make physicians aware of an uncommon case where a patient's cervicogenic headache and facial pain originated from disc bulges within her lower cervical spine. Along with the awareness of such a presentation, the benefits of manual medicine, specifically Cox® Technic Spinal Decompression Manipulation, are to be considered when treating cervicogenic headaches.

LIMITATIONS:

The patient was being co-managed with acupuncture treatments, and the specific treatment points, protocols, and outcomes were not obtained for this case study. This is only one case, and further research on lower cervical spine disorders causing cervicogenic headaches should be done; as well as Cox® Technic used for treatment in such cases. Lower cervical disc disorders causing cervicogenic headaches, are relatively rare, and more commonly occur in the upper cervical spine, which therefore limits the research.

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