BILATERAL NECK PAIN, CERVICOGENIC HEADACHE RELIEF WITH COX® TECHNIC AND ART

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CHIEF COMPLAINT

A 65 year old white female presented with bilateral neck pain and parietal headache of at least 5-6 years duration. Working as a graphic designer provokes the chief complaint. She reports it as a tight and achy sensation radiating into the middle trapezius bilaterally, and a 6/10 on the verbal analog scale.

HISTORY

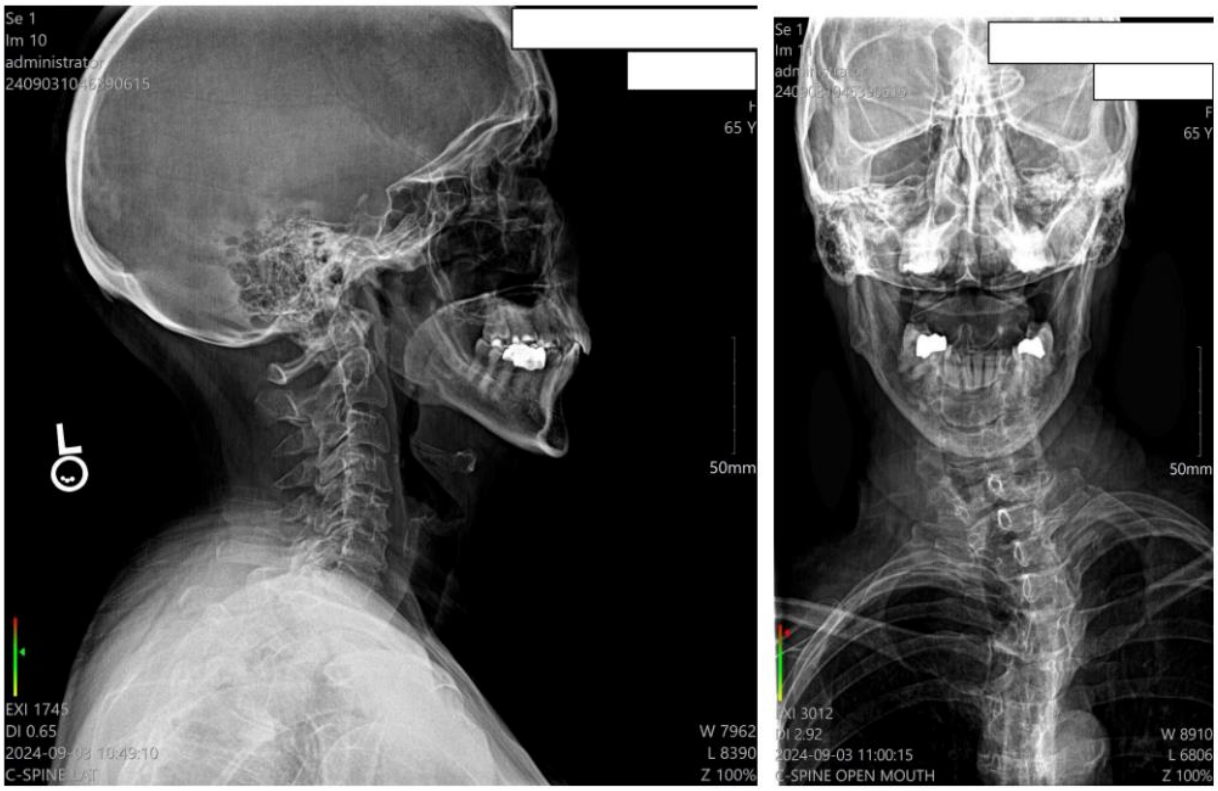
Past medical history revealed hypothyroidism and high blood pressure. Potentially more significant is the presence of a cavernoma, incidentally diagnosed on a MRI investigating the headaches five years ago. Located in the right corona radiata, the cavernoma variably measured around 10 mm in all three planes on successive exams. The second examination found it slightly larger due to subacute internal hemorrhage, but it was unchanged on subsequent exams. Additionally, the patient reported a car accident without changes in symptoms within three months, and a fall off horseback in adolescence. Medications included Gabapentin (prescribed for the headaches), Omeprazole, Levothyroxine, Raloxifene, and Carvedilol.

EXAMINATION

The patient was oriented times three. Inspection revealed forward head carriage and anterior scapulae. Palpation revealed acute sensitivity of the C2 spinous and right facet, as well as the right PSIS and sacrum. Palpation on treatment visits later revealed upper thoracic tenderness and restriction. Myofascial trigger points were palpated in the SCM, suboccipitals, masseter, and temporalis. However, none of these reproduced the chief complaint. Range of motion was unremarkable except for tension pain with right lateral bending. Axial compression and distraction were unremarkable. Range of motion was distinctly reduced in left rotation with the flexion rotation test, although it was non-painful. Full neurologic exam was unremarkable, and mental status was unremarkable, based on paperwork completion and interaction with doctor and staff.

Stress xrays were unremarkable for atlantodental pathology. Cervicothoracic scoliosis measuring 34 degrees, and lumbar scoliosis of 11 degrees, along with accompanying spondylosis and osteopenia were found on plain film radiographs. Additionally, C1/2 was noted in hyperextension, with C2 spinous right rotation.

IMAGING



The image above on the left illustrates the extension of the C1/2 segment. The image above on the right illustrates the cervicothoracic scoliosis, and spinous right positioning of C2.

DIAGNOSIS

Despite being unable to reproduce the headache, the operative diagnosis was cervicogenic headache, with myofascial pain syndrome. Consultation with chiropractic radiology services with regard to the cavernoma cleared the patient for conservative care.

TREATMENT PLAN

Given the cavernoma, the doctor and patient agreed upon cervical treatment with Cox distraction manipulation, and Active Release Technique (ART), three times a week for four weeks. The goal was a 50% decrease in headache and neck tension.

CLINICAL OUTCOME

After negative tolerance testing per the Cox® Technic System protocols, treatment proceeded carefully. On the first visit, Cox® Technic flexion distraction manipulation was performed without occipital straps. Active Release Technique was then performed to the SCM and suboccipital muscles. These are the two most
common muscle groups involved in cervicogenic headache. After the second visit, negative tolerance testing with occipital straps initiated upper thoracic distraction. Drop table manipulation of the pelvis was also performed, and adjustments were generally followed with Active Release Technique to cervicobrachial muscles. After the first visit, the patient noted her wrist monitor indicated worse sleep apnea the previous night, but this did not recur with

subsequent treatments. On the fifth visit, she noted left fingertip tingling. This was provoked in the upper thoracic spine when tolerance testing occipital straps, but was also provoked with Active Release of the cervical facet capsules.

On the sixth visit, her neurologist had switched her from gabapentin to Topamax. At this time, we began doming of the diaphragm, having been unable to reproduce or reduce the headache with adjusting or ART. On the seventh visit, she reported increased headache, with shakiness and anxiety, which she attributed to Gabapentin withdrawal. Bloodwork had also revealed B12 elevation. By the next visit, her neurologist had discontinued her B12, Gabapentin, and Topamax. Additionally, the headaches had finally begun to decrease. By visit 9, she was rating the headache down to 1-2/10, and by reexamination after 12 visits, she rated the overall problem “50% better”. Follow-up examination revealed weakness of the deep neck flexors on the cervical stability test. This suggested dynamic stability was contributing to muscle hypertonicity, creating neck tension, and joint compression. Stability exercises with “ball on the wall” were then prescribed.

IMPRESSION

While it would be difficult to directly mechanically affect this cavernoma with cervical spine manipulation, an abundance of caution nonetheless dictated a conservative manipulative approach. Translatoric manipulation, as discussed in Creighton et al, suggested the creation of less adverse mechanical tension on the vascular tree than other vectored forms of manipulation. This also presented the possibility of relief to a patient in significant distress, who might otherwise have been a poor candidate for treatment.

While the neck tension aspect of the chief complaint was easily reproducible with multiple cervicobrachial muscles, the headache aspect eluded reproduction. As discussed in Cox cervical technic courses, Lu and Ebraheim (1998) observed that the C2 DRG fills 76% of the C1/2 neural canal, and that this level is the largest DRG in the cervical spine. Lu and Erahim also reference Keith (1986) who noted rotation and hyperextension can pinch the C2 DRG between the atlas and axis posterior elements. The dorsal ramus of C2 branches into the greater occipital nerve, which supplies cutaneous sensation to the posterior aspect of the skull. It may be that the presenting headache in this case was the result of C2 DRG compression due to the C1/2 subluxation found on xray.

It is also possible that doming of the diaphragm increased the costothoracic stability on which the cervicobrachial structures relied. Regardless, this case illustrates the need for the chiropractor to possess multiple skillsets to address different problems. Cox® distraction allowed appropriate decompression of the C2 DRG, with Active Release Technique to relieve the myofascial element of the case.

References

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4. Creighton D, Kondratek M, Krauss J, Huijbregts P, Qu H. Ultrasound analysis of the vertebral artery during non-thrust cervical translatoric spinal manipulation. J Manip Ther. 2011 May;19(2):84-90. Department of Physical Therapy, Oakland University, Rochester, MI, USA.