Dynamic Chiropractic

HEADACHES & MIGRAINES

Case Studies: Migraines Resolved by Occipital Lift

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In examining patients suffering from migraines, I have consistently found that atlanto-occipital joint dysfunction is present and that adjusting the joint with an occipital lift almost always gives the patient relief from pain, nausea and photophobia within minutes following the adjustment.

I hypothesize that migraine headaches are initiated by a neurological trigger causing extreme vascular permeability in the cranium, which fills the head with fluid, thereby producing a migraine headache. That neurological event is set off by dysfunction of the sympathetic nervous system in the cranium caused by subluxation at the atlanto-occipital joint (CO-C1).

Setting the Stage

Migraine headaches have been classified as classic, common, complicated and cluster; the etiology is the same for all. The sympathetic nervous system controls blood-vessel diameter in the cranium and pupil diameter as it innervates the dilator pupillae muscle in the eye via the superior sympathetic chain. The pupils are constricted by the sphincter muscle of the pupil, which is innervated by the parasympathetic nervous system via the ciliary ganglion.[1]

Joint dysfunction at the CO-C1 articulation causes the sympathetics to fire, resulting in vasoconstriction of the vasculature in the head. The vasoconstriction leads to local tissue hypoxia, which is the pre-migraine aura. Hypoxic tissues become acidic and release substance P, bradykinins and histamine, which cause vasodilation and increased capillary permeability.[2] This chain of events floods the cranium with fluid, causing the migraine headache. Firing of the sympathetics also dilates the pupils, which explains the photophobia many migraine sufferers experience.

In the following case studies, pupils were measured as an indicator of sympathetic nervous system change, not as an indicator of pain. Pain produces only small changes in pupil diameter. Chapman, et al., measured the change in pupil size caused by pain. He used electrical shock to induce pain. Low levels of electrical noxious stimuli produced a .25 mm increase in pupil diameter and barely tolerable electrical shock produced a .37 mm increase in pupil diameter.[3] In the absence of eye or nerve pathology, change of pupil size should be a good indicator of autonomic nervous system change.

Yakinci, et al., investigated autonomic nervous system function in childhood migraine patients. He reported: "Our results demonstrate A.N.S. dysfunction, with hyperactivity of both the sympathetic and parasympathetic nervous systems, in children with migraine."[4]

Case Reports

Three patients suffering from migraine headaches per International Headache Society criteria were adjusted at the atlanto-occipital joint using an occipital lift. All had a history of unilateral, long-lasting

headache, and all three suffered from photophobia and nausea. (Patient #2 also reported experiencing audiophobia with some of her headaches.)

They were asked to complete a paper pain analog scale one month prior to commencement of treatment, and weekly for four weeks after the start of treatment, recording the number and severity of any migraine headaches they experienced. (Patient #3's headaches did not resolve after one month, so she was treated and monitored for one year.)

Their pupils were measured using a plain millimeter ruler pre- and post-adjustment of CO-C1 under identical lighting, as instructed in the textbook *Primary Care Optometry*.[5] For comparison, three patients with no history of migraine headaches were adjusted at the atlanto-occipital joint; their pupils also were measured pre- and post-adjustment of CO-C1.

The Migraine Group

Patient #1 was a 49-year-old female who presented with neck pain she rated verbally at 9 (1-10 scale, 10 being the worst pain she had experienced), and migraine headaches occurring daily and constant for two months. At her initial presentation, she rated her headaches verbally at 9 (1-10), and reported nausea and photophobia.

The neck pain and headaches had an insidious onset. She further complained of moderate low back pain, which also had an insidious onset one month prior.

History and examination revealed no systemic illness and no recent trauma. Physical examination revealed a female patient standing 65 inches tall and weighing 240 pounds. Standing cervical and lumbar lordosis, as well as thoracic kyphosis, was observed to be within normal limits. Standing, her right shoulder and right iliac crest appeared elevated. She is left handed. Straight leg raised to 80 degrees bilaterally produced no radicular signs or symptoms at her lower extremities. She could perceive vibrational stimuli at all of her distal extremities. Prone, her right leg appeared short.

Static and motion palpation revealed vertebral segmental misalignment with aberrant joint motion at her lumbar, thoracic and cervical spine, as well as subluxation at her thoracocostal articulation, right sacroiliac and both atlanto-occipital articulations.

She was adjusted on two separate occasions using an occipital lift at CO-C1 and diversified technique full spine. She was adjusted at the initial presentation and again three days later. On both occasions, motion and static palpation revealed subluxation at CO-C1.

She was asked to complete an analog pain scale to report the number and severity of her headaches during the month prior to treatment and weekly for four weeks after the start of treatment. I also measured her pupils after full-spine adjustment, and just prior to and just after adjustment of the atlanto-occipital joints.

Patient #2 was a 19-year-old female who reported migraine headaches daily for two years, which she rated verbally at 8 (1-10), with associated nausea and photophobia. She further complained of upper back pain (mild to moderate) and mild low back pain. She had suffered no recent trauma and had not been diagnosed with any systemic illness.

Physical examination revealed a female standing 63 inches, weighing 113 pounds. Her cervical spine

appeared hypolordotic; thoracic kyphosis and lumbar lordosis appeared normal while standing. Standing observation revealed her right iliac crest and right shoulder were elevated. She is right handed. She had a mild left thoracic functional scoliosis. She was not able to extend her neck for George's test. Straight leg raised to 70 degrees bilaterally produced no radicular signs or symptoms at her lower extremities. She could perceive vibrational stimuli at all of her distal extremities.

Motion and static palpation revealed subluxation at her lumbar, thoracic and cervical spine, as well as her right sacroiliac and both atlanto-occipital joints. She was treated on three separate occasions over a 12-day period using an occipital lift bilaterally at the atlanto-occipital joints and full spine using diversified technique. At all three treatments, motion and static palpation revealed joint dysfunction at CO-C1.

She discontinued treatment after three treatments as she was no longer having headaches, due to lack of money, and she also visited with a local medical doctor for other issues, who advised against chiropractic treatment and ordered an MRI to diagnosis her headaches. The MRI was negative for pathology. Her pupils were measured pre- and post-adjustment of CO-C1. She was asked to record the number of migraines and their intensity on a paper analog scale for the month prior to the start of treatment and weekly for four weeks after the start of treatment.

Patient #3 was a 16-year-old female who presented to my office complaining of daily migraine headaches she rated at 10 (1-10) with associated nausea and photophobia. She reported that the headaches had started about six months prior following two bad skiing accidents in which she jammed her neck.

Physical examination revealed a 67-inch-tall female weighing 138 pounds. Standing, her cervical spine appeared hypolordotic, with normal curves at her thoracic and lumbar spine. Standing, her left shoulder was elevated, as well as her right iliac crest. She is right-handed. Straight leg raise to 80 degrees bilaterally produced no radicular signs or symptoms at her lower extremities. She could perceive vibrational stimuli at all of her distal extremities.

Her history and examination also revealed possible hypothyroidism; Free T3 was mid-range and testing of female hormones indicated estrogen dominance, which has not been treated.

Motion and static palpation revealed joint misalignment with aberrant segmental motion throughout her spine, particularly at her atlanto-occipital joints bilaterally. I treated her 27 times in a one-year period using heat, massage and chiropractic manipulative therapy. I employed a bilateral occipital lift at the atlanto-occipital joint on every visit. On most visits, her pupils were measured pre- and post-adjustment of CO, under identical lighting. She was asked to report the number of headaches and intensity on a 1-10 analog pain scale for the first three months.

The Control Group

Two female patients and one male patient with no history of migraine headaches, but whose atlanto-occipital articulation was found through motion and static palpation to be malpositioned with associated aberrant joint motion, were adjusted full spine and bilaterally at CO-C1 using an occipital lift. Their pupils were measured pre- and post-adjustment of CO-C1.

If dysfunction of the sympathetic nervous system causes migraine headaches and adjustment at CO-C1 stops that dysfunction, I would expect the migraine patients' pupils to be smaller after the adjustment.

I would not expect change in pupil size with the control patients, as their sympathetic nervous system is not dysfunctional.

Results / Discussion

Both treatments of *patient #1* revealed pupils that were bilaterally equal and measured 4 mm pre-adjustment and 2 mm post-adjustment. A pupil diameter decrease of 2 mm is significant; barely tolerable noxious stimuli only produce .37 mm change.[3]

On the visual analog scale, she reported daily migraine headaches rated pre-treatment at 9 (1-10) in terms of severity. She reported no more migraine headaches for four weeks after the first treatment. In the three days between treatments, she reported only one headache that was so mild she did not consider it to be a migraine. She had a 100 percent reduction in migraine headaches for the four weeks after the start of treatment.

Patient #2 was treated three times within a 12-day period. Bilateral pupil diameters measured pre-adjustment on each of the three days were 5 mm, 6 mm and 5 mm, respectively; versus 4 mm, 5 mm and 4 mm, respectively, post-adjustment. Pupil diameter decreased 1 mm pre- to post-adjustment of CO-C1 on all three treatments.

On the visual analog scale, she reported daily headaches she rated at 7.3 (1-10) for the month prior to treatment. The first week after start of treatment, she experienced no headaches. During the second week after the start of treatment, she reported 1-2 migraines she rated at 2.3 (1-10). During week three of treatment, after she had discontinued chiropractic care on the advice of her medical doctor, she reported 3-4 migraines she rated at 2.7 (1-10). During the fourth week after the start of treatment, she reported daily migraines she rated at 6.7 (1-10)

Comparing the four weeks pre-treatment to the four weeks post-treatment, she had 28 migraines pre-treatment and only 12 migraines post-treatment for a 57 percent reduction. She rated the average headache intensity / severity pre-treatment at 7.3 (1-10) and post-treatment at 2.9 (1-10) for a 60 percent reduction in severity.

Patient #3 reported that in the month prior to commencement of treatment, she experienced daily migraines she rated at 8 (1-10). The first and second month after beginning of treatment, she reported daily migraines she rated at 7 (1-10). On month three, after the start of treatment, she reported 16 headaches she rated at 5 (1-10).

Since the fourth month of treatment, she has improved steadily with once-per-month treatments. When I last treated her, she reported no headaches in the 24 days since I last adjusted her, 3-4 headaches in the month prior to that and one headache in the month prior to that. On all visits in which her pupils were measured pre- and post-adjustment, they decreased in size between 1 mm and 2 mm post-adjustment.

None of the three non-migraine patients' pupils changed size pre- to post-adjustment of CO-C1. My proposed etiology of autonomic nervous system dysfunction caused by joint dysfunction at the atlanto-occipital articulation explains the migraine headache scenario, and the change of pupil size pre- and post-adjustment in migraine sufferers and not in non-migraine sufferers. It also demonstrates objectively the involvement of the autonomic nervous system in the precipitation of migraines.

Author's note: As these case studies involved only six patients, a larger study is needed.

References

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