

Sacro Occipital Technique

Research Conference

May 19, 2011 – Nashville, Tennessee



Vision Induced Migraine Headaches: A Case Report

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Case History

- A 53-year-old white female patient presented with a history of migraine-type, intense headaches, “dizziness” and “eyestrain” that began approximately 7 months ago.
- The patient stated that “I can read but I cannot see” and that her “eyes cannot focus”.
- She denied any trauma associated with the onset.
- Patient denied any traumatic or pathologic visual problems including: amblyopia, anisometropia, diplopia, strabismus, glaucoma, ophthalmoplegia, pterygium, retinitis, or macular degeneration.

Case History

- The patient had a history of lower back pain that began after a motor vehicle accident in 1983. She said that the eyestrain makes the back pain worse.
- She had recently gone back to school to study Chinese Medicine and had noticed a significant increase in the symptoms and severity since classes began.
- The symptoms improved with rest and sleep and worsened with continuous use of her eyes when studying.

Case History

- Frequent breaks from studying allowed the patient to complete her schoolwork, but interfered with her quality of life and significantly lengthened her study time.
- She made special arrangements to have extra time for examinations due to the headaches and dizziness brought on by reading.

Case History

- The patient has been to see five different eye doctors prior to her initial visit to the clinic and received and filled 6 different eyeglass prescriptions in an attempt to alleviate the problem.
- She had also seen a neurologist who reported no pathology and did not recommend medication or imaging studies.
- She was wearing corrective lenses with bifocals.
- She stated that she felt that the clinic is her last hope to be able to continue in school.

Medical History

- Hashimoto's thyroiditis since 1997
- Thyroidectomy in 1997
- Synthroid 0.1 mg daily and a blend of 38 Chinese herbs for thyroiditis from her Chinese Medicine practitioner

Physical Exam

- BP:118/70
- HR: 78
- PEERLA, sclerae are non-icteric and extra ocular muscles are intact. There was no ptosis of the eyelids, no pterygium present, conjunctivas were normal and no cataracts noted visually.
- Cranial nerves II-X were intact and normal function was noted.
- Muscle strength was 5/5 in all extremities and deep tendon reflexes are 2/4.

Osteopathic Evaluation

- Cranium was the area of greatest restriction, with significant tissue texture changes noted at the sub-occipital region
- Her thoracic outlet was restricted fascially in right rotation
- T₁ (Flexed, Rotated and Sidebent - Left) FRS_L
- Right 1st rib exhalation restriction with a primary bucket handle component
- Increased paravertebral muscular tension was noted bilaterally between T₁₂-L₂
- L₅ (Extended, Rotated and Sidebent - Right) ERS_R
- Left superior innominate shear
- Left superior pubic shear
- Left/right sacral torsion
- Right anterior innominate rotation
- Left proximal fibular head anterior

Osteopathic Treatment

- Osteopathic manipulative therapy (OMT) was performed to all areas listed above utilizing functional, balanced ligamentous tension, muscle energy, visceral, and facilitated positional release techniques. Cranium was treated with a combination of indirect and direct sutural, fluid and visceral (brain parenchyma) techniques. The treatment was tolerated well and the patient reported a complete resolution of the acute headache.

Visual Treatment

- The patient was then evaluated for cranial strain with her eyes closed and covered to occlude any incoming light. The same evaluation was then performed with her eyes open and the results were compared. With her eyes closed and covered the patient was found to have no cranial strains present, as she had just undergone treatment to remove all above noted strains. When the cover was removed and the eyes opened the patient's cranium immediately changed with noted strains of cranial extension, a right torsion, vertical strain and a left lateral strain pattern. Due to those findings it was determined that there may be a need prescribe a modification to her eyeglasses to help neutralize the cranial strains. Utilizing ophthalmologic principles as they relate to "Osteopathy in the Cranial Field" the prescription that removed or significantly reduced her cranial strains was:
 - OD: -4.37 sphere, -1.25 x 023° cylinder
 - OS: -4.12 sphere, -1.00 x 177° cylinder
 - +1.00 reading addition bilaterally

Follow Up

- The patient returned in two weeks with the new eyeglass prescription. When placing the glasses on her face, she noted a feeling of pressure at the frontal bone that was similar to the feeling presenting just prior to her headaches. This was identified as a cranial vertical strain. The frames were then re-fitted to her face using ophthalmologic principles (face form was adjusted until the vertical strain was removed, the frames were “x’d” with the right lower portion of the lens being adjusted toward the face to remove a small left cranial side-bending rotation, and the pantoscopic tilt was adjusted to balance the muscle tension of the suboccipital muscles). The patient was instructed in how to care for the glasses and what to expect from the eyeglass treatment. The fitting of the glasses resolved the vertical strain and the patient’s feeling of pressure. A brief cranial treatment to further release the frontal area (ethmoid bone and right frontal/nasal suture restriction) and the brain parenchyma was rendered at that time. She left the office symptom free.

Follow Up

- The patient phoned the office the next day to say that her headache symptoms were very aggravated. She was instructed to continue to wear the glasses and take “over the counter” pain relievers as necessary. A return office visit one week later revealed that, after three days of symptom aggravation, the headaches had completely disappeared and her eyestrain was improved, but still present. Additional eyeglass frame adjustment alleviated the feeling of eyestrain (added refinement of face form adjustment). A frontal bone right-sided intraosseous strain and brain parenchyma release completed this treatment. She was then instructed to return as needed for adjustments of the glasses and for treatment only if symptoms did not improve after seeing her local osteopathic physician.
- The patient has been followed for over one year with approximately bimonthly eyeglass adjustments and one revised prescription. Her headaches have completely resolved and she is doing very well in college.

Discussion

- In this case the patient's symptoms appeared to be a direct result of visually induced somatic strain influencing the cranial bones and causing headaches and other complaints. This seems reasonable because of the unresponsiveness to other forms of care, her response to the OMT and cranial care, ophthalmological prescriptive modification, and then modification of the eyeglasses.

Discussion

- It can be reasoned that myofascial imbalance caused by her eyestrain resulted in an abnormal tension on the cranial bones that induced the strain patterns that resulted in her headaches. This was noted by comparing the patient's cranial movement and strain patterns with the eyes closed and covered (no visual input) with the eyes open (visual input). The process of light entering the patient's visual processing system caused cranial strain (visually induced somatic strain or visual somatic strain). This strain was neutralized with eyeglass lenses and frame adjustments giving the patient a cranium that would now accept a treatment and remain stable longer between treatments. Her eyes were able to relax and not place abnormal tensions on the cranium.

Conclusions

- This case study illustrates that a subset of patients may present with a clinical condition that either affects vision or the vision affects the condition. This dynamic interrelationship can be classified as a visual somatic strain. Functional assessments to evaluate for a visual somatic strain can be used to improve the neuromusculoskeletal head, neck, and postural kinematics where vision plays an important role. Collaborative efforts can be made to develop interdisciplinary co-treatment opportunities between osteopaths, chiropractors, podiatrists, ophthalmologists, dentists, and other allied professionals so that the sufferers of the effects of visual somatic strain can be helped and their quality of life improved. Greater research into this phenomenon should be investigated initially with case controlled and practice based studies.

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