

Epilepsy - A Case Study

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Abstract: Gonstead approach to a young patient suffering from epilepsy where conventional medical treatment had limited results.

Keywords: Epilepsy, seizures, vagus nerve, Chiropractic

Introduction

It has long been evidenced that Chiropractic care can help a patient suffering epilepsy. This article reviews clinical evidence of Chiropractic aiding a 3 year old boy suffering epilepsy.

There are numerous epilepsy syndromes or specific types of epilepsy and their description is beyond the scope of this article.

The management of seizures and epilepsy begins with forming a differential diagnosis, making the diagnosis, and then classifying seizure type and epileptic syndrome. ^{(1) (2)}

The dimensions needed to make a diagnosis of the cause of seizures consist of the epileptogenic zone, semiologic seizure type(s), aetiology, related medical conditions, and seizure frequency. ⁽³⁾

Recent studies suggest that epilepsy that is unresponsive to medical therapy is likely to be refractory from the onset. ⁽⁴⁾ It is with this particular type of epilepsy that current anecdotal evidence suggests that correction of upper cervical vertebral subluxation complex might be most beneficial. ⁽⁵⁾

Case History

A 3 year old boy presented with epilepsy. He typically suffered *peti-mal* seizures as he was waking from sleep. In the previous week he had suffered from a *Grand -mal* seizure lasting 10 minutes.

It was reported that the patient was afebrile at the time of the seizure, though he did develop a urinary tract infection shortly after his admission to hospital. There was no history of head trauma though he was always active and had the usual bumps and falls of childhood. It was reported that his birth process was normal until the latter stages, at which point the patient became distressed so suction was utilised. I understand that his EEG confirmed a diagnosis of epilepsy, though I am not privy to the specifics of this examination.

The patient is currently taking 14mg of Epilim per day, though was still experiencing minor *peti-mal* tremors in the morning before waking.

Clinical Findings

The patient did not appear to demonstrate any abnormalities of gait or station. A broad neurological screen was performed to ascertain the presence of any central signs. There was no evidence of wrist or ankle clonus and coordination appeared within normal limits. Deep tendon reflexes were brisk and symmetrical. I could find no evidence of an upper motor neuron sign and the patient did not exhibit muscular weakness or spasticity.

Palpation of the spine demonstrated marked tenderness over the T6 vertebrae and the posterior ligaments of the left sacroiliac joint, each producing a jump response. Foot flare was greater on the right side. A limitation in anticipated mobility was apparent at the Atlanto-axial articulation in right lateral flexion and left rotation. This was associated with tenderness in the suboccipital musculature. Apart from this I could find no other significant issues.

Radiographic Examination

X-ray of the cervical spine was taken to rule out any pathology or contra-indication to care. These x-rays also confirmed a misalignment of atlas (C1): ASRP.

Chiropractic Diagnosis

A chiropractic diagnosis of subluxated C1 ASRP was gained through a combination of Clinical and Radiographic analysis. It is possible that this was creating nerve interference with the Vagus nerve.

Associated with this a subluxation of the T6 vertebrae was also diagnosed along with a right IN ilium.

As yet no other findings indicate neuromas, tuberous sclerosis or febrile convulsion.

Treatment

Care began by adjusting the T6 vertebrae. Once a set was achieved on this area of the spine adjustments were made to the C1 ASRP and S2 vertebrae using the Gonstead method.

Results

Seizures slowly reduced and only *peti-mal* seizures stopped after 6 visits over 4 weeks. A reactivation of seizures occurred after a acupuncturist administered a cervical manipulation. A further series of adjustments saw resolution of the seizures for a second time.

Discussion

While the mechanism of action of Chiropractic on epilepsy is unknown at this time, it has been proposed that by affecting C1 or by affect CSF flow we can affect the triggers of seizures.

Studies show that electronic stimulation of the Vagus nerve can have beneficial effects for the epileptic patient. Animal studies have provided some insight into the neural pathways and neurochemically changes that may account for its anticonvulsant effect. The nucleus of the tractus solitarius receives most of the afferent input of the vagus nerve.⁽⁷⁾ This nucleus has extensive local connections with neighbouring structures in the brainstem, such as the raphe nuclei and the locus caeruleus, both of which in turn have diffuse cortical projections.⁽⁷⁾

Lesioning of the locus caeruleus in the brainstem ameliorates the anticonvulsant effect of Vagal nerve stimulator in the rat, showing the probable importance of local brainstem connections in the therapeutic response in Vagal Nerve Stimulation.⁽⁸⁾

In addition, the nucleus of the tractus solitarius itself projects diffusely to many regions of the forebrain including the hippocampus and amygdala, both of which are involved in the generation of seizure activity.^(9,10) Vagus nerve stimulation has been associated with elevated neuronal activity as evidenced by increased c-fos production in the amygdala, cingulum, hypothalamic nuclei, and serotonergic and noradrenergic neurons in the brainstem.⁽¹¹⁾ Vagus nerve stimulation also has been associated with increased cerebrospinal fluid levels of glycine and γ -aminobutyric acid, 2 inhibitory neurotransmitters in the CNS, and enhanced dopaminergic and serotonergic activity, all of which may have an ameliorating effect on seizure activity.^(12,13)

It is plausible that a chiropractic adjustment in the upper cervical region could have a similar effect on the vagus nerve as the vagal nerve stimulator, and therefore epilepsy.

The Vagus nerve exits the brain stem at or below the level of C1 before returning through the magnum foramen prior to leaving the skull through the jugular foramen. Either through direct mechanical impingement as a result of swelling in this area or through a stimulation of the neuromere at the C1 level via activation of mechanoreceptors, an adjustment could indirectly influence the vagus nerve.

Due to the various types of epilepsy and their multiple causes it is essential that a correct diagnosis is made of the cause of the seizure. In some cases such as Tuberous sclerosis chiropractic care may have little to no effect, while in others it may see a total resolution of the seizure patterns. To this end it would be desirable to work in conjunction with the consulting neurologist.

Conclusion

Chiropractic care may represent a non-pharmaceutical health care approach for paediatric epileptic patients.

By affecting the vagus nerve it is proposed that the brain's sensitivity to the conditions or stimuli that can trigger seizures is decreased. This is achieved, probably, by increasing the degree of inhibition or by decreasing the degree of excitation in the CNS.

Current anecdotal evidence suggests that correction of upper cervical vertebral subluxation complex might be most beneficial. It is suggested that chiropractic care be further investigated regarding its role in the overall health care management of paediatric epileptic patients.

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