

CASE STUDY

Resolution of Chronic Constipation and Neck Pain Following Chiropractic Care in a 6-Year-Old Female

Matthew Horkey, BS, DC¹

Abstract

Objective: To report on the chiropractic care of a 6 year old female with subluxations, constipation and neck pain.

Clinical Features: A 6 year old female with constipation, neck pain, vertebral subluxations and gastrointestinal pain.

Interventions and Outcomes: High-velocity, low-amplitude (HVLA) adjustments at specific vertebral locations were administered at the areas of vertebral subluxation. Mother and patient reported bowel movements improving from once every 4-5 days to bowel movements every day along with resolution of neck pain.

Conclusion: Successful chiropractic care for a patient with a challenge in lifestyle due to irregular and sporadic bowel movements. Frequency of bowel movements was achieved as well as a decrease in gastrointestinal and cervical pain.

Key Words: *Chiropractic, constipation, gastrointestinal tract, vertebral subluxation, pediatric*

Introduction

Constipation among the pediatric population is well documented. It has been reported that approximately 3% of general pediatric outpatient visits and 25% of pediatric gastroenterology consultations are related to a perceived defecation disorder.¹ A search was performed using PubMed using “constipation” and “all child” as the key terms. In this search, 90 articles were identified with 27 applying to children who did not have an underlying chronic condition.² An estimated 1.7 million US children reported constipation in a 2-year period of 2003 and 2004 in a Medical Expenditure Panel Survey.² The annual health care costs for children with constipation is approximately \$3,400 a year.²

There are several accepted treatments for constipation, like dietary fiber, biofeedback, and laxatives.³ These treatments are not always effective as studies have shown that 30% to 50% of children continue to have symptoms a year after the initial diagnosis.⁴

The literature suggests that in response to stress, there may be slowed gastric emptying with increased sympathetic activity is the major component of increased stress.⁵ Increased sympathetic activity will inhibit parasympathetic activity which is responsible for proper digestion and gut motility.⁵

The literature suggests that the vertebral subluxation increases sympathetic activity, thus adding stress to the body.^{6, 8} Kent

1. Private Practice of Chiropractic, Jakarta, Indonesia

suggests that abnormal interspinous movement leads to a cascade of effects; including disruption of mechanoreception and an increase of noxious stimulation to the articulations of the vertebral column and surrounding tissues.⁶

Budgell reported that noxious stimulation of interspinous tissues normally leads to increases in adrenal sympathetic nerve activity. He also suggests that noxious stimulation of the interspinous tissues is associated with peristaltic movement and a sharp decrease in gastric muscle tone. This decrease in gastric muscle tone was more greatly associated with thoracic stimulation versus lumbar stimulation. This is what Budgell coined the spinovisceral reflex.⁷

The purpose of this paper is to report a case of successful chiropractic management of a child with constipation, vertebral subluxations, and neck pain.

Case Report

History

Patient is a six year old female with a history of constipation and neck pain. The patient has suffered from constipation since the age of two. Her mother could not recall any mode of onset. The cycles of constipation were described as recurring and at times it would take days for the patient to have a bowel movement. Bowel movements were very intermittent, spanning from once a week to every 2 or 3 days. She also had gastrointestinal pain that was described as very mild and on the lower end of the pain scale. It was noted that she experienced motion sickness if she was in a car for more than 30 minutes. Adding raw fruits and vegetables and limiting dairy appeared to aid in alleviating the problem. However, since the parents were both students, with 5 children, they admitted to not completely eliminating dairy from their children's diets.

The neck pain began 6 months prior to the examination. The pain was described as an intermittent, dull ache. There was no qualitative number given, however it was described as "very low." The pain was described as being worse in the morning and being alleviated with massage and stretching. Falling asleep with objects such as toys in the bed seemed to exacerbate the problem. Further history revealed tonsillitis, with episodes occurring every 2-3 months from age 1 to 5. The issue had resolved at the time of examination.

Her diet was considered very healthy, consisting of "lots" of fruits and vegetables, peanut butter and jelly, and ham sandwiches. Her liquid intake was adequate, which included only water. She was reported as sleeping 9-10 hours per night in a number of positions; back, side, and stomach.

She was not under any medical care for constipation upon presenting to the office. She has tried Castoria, a children's laxative, but discontinued use due to ineffectiveness.

Examination

She appeared to be a healthy energetic 6-year-old girl, with an age appropriate height and weight. Her vital signs were all within normal limits. Upon further examination all

developmental milestones in the areas of gross motor skills, fine motor skills, social skills, communication skills, and adaptive skills were normal. Gait and sensory function in upper and lower extremities were all within normal limits. Cranial nerve testing was negative. Deep tendon reflexes were 2+ bilaterally at the patellar, achilles, biceps, brachioradialis, and triceps.

Cervical range of motion was identified as restricted in left rotation and right lateral flexion in comparison to flexion, extension, right rotation, and left lateral flexion which all were within normal limits. Thoraco-lumbar ranges of motion were all within normal limits. The tempo-mandibular joint examination revealed slight deviation on the right with tenderness on the right and left sides.

Prone leg check revealed a short right leg with no heel to buttock restrictions. Motion palpation revealed restricted segments at C2, T11, and Sacrum with palpatory tenderness on the left at C2 and T1. Infrared devices were used to read paraspinal muscular temperature. Heat differential readings were found at C2 and T1. Radiographs of the spine were not taken.

Patient was diagnosed with cervical-thoracic-sacral subluxation complex associated with cervicgia aggravated by poor sleeping posture and concomitant with chronic constipation.

Intervention

Management plan included checking the patient 1 time per week and adjusting subluxations using high-velocity, low-amplitude (HVLA) adjustments at specific vertebral locations; then re-assessing the patient within 30 days. Lifestyle modifications included educating the patient's parents on proper sleep position as well as encouragement of increasing daily fruits, vegetables, and water intake.

Adjustments were administered at the following segments: C1, C2, T2, T4, T6, L3 and Sacro-Iliac joints at different times throughout the course of chiropractic care. The patient was analyzed using motion palpation and supine leg checks. A specific contact, high-velocity low amplitude adjustment was delivered to areas of subluxation.

Cervical adjustments were administered initially in the supine position. The head was laterally flexed towards and rotated away from the contact. The contact used was the lamina-pedicle junction at C2, and the lateral mass of C1. The opposite hand rested on the table and stabilized the segment above. The line of drive during the adjustment was anterior, medial, and superior.

Later in the course of care, upper cervical adjustments were administered in a side lying position using a table with a cervical drop piece. A cervical drop piece mechanically assists the doctor and patient while administering the adjustment. The head piece is elevated slightly when loaded; the doctor then administers the HVLA thrust, causing the head piece to return to its original position. There are no audible cavitations, as the drop piece is designed to absorb most of the force introduced into the spinal segment.

The patient's head was placed down on the drop piece. The contact used was the transverse process of C1. The clinician's pisiform was placed on the transverse process of C1 or the lamina-pedicle junction at C2. The opposite hand was placed on top of the contact hand allowing both pisiforms to be in the same line of drive. A drop was administered with no recoil and with a medial and inferior line of drive for C1 and a medial and superior line of drive for C2.

Thoracic adjustments were given in the prone position with a bilateral thumb contact. The clinician stood straight away over the contact segment. The thoracic transverse processes were used as the contact point. The line of drive was anterior and superior taking into account the vertebral facets and disc plane lines.

Lumbar adjustments were administered in the prone position using a lumbar drop piece. The clinician stood straight away over the contact segment. The lumbar spinous process was contacted with the pisiform of the clinician's inferior hand. The line of drive was anterior and superior taking into account the vertebral facets and disc plane lines. The thrust was delivered with no recoil.

In the pelvic region, the adjustments were administered on the patient's side with her contact side up. The leg on the involved side was flexed with the involved side foot resting on the inferior leg at the area just above the patella. The PSIS of the side facing up was contacted with the pisiform of the clinician's inferior hand. The clinician's superior hand stabilized the body at the area of the shoulder. The patient was rolled towards the doctor to bring the joint to tension. A body drop was administered to deliver the adjustment.

Leg checks and palpation were administered after each adjustment to determine if correction was made.

The patient was checked once a week for the first four weeks and re-assessed thereafter.

Outcome

After 13 visits, a re-physical was performed with the same indicators as the initial examination. The patient's mother reported the constipation issues had resolved. In addition to the report of no gastro-intestinal pain; frequency of bowel movements had changed from once every 4-5 days to daily. Her neck pain had completely resolved during the second month of care. The parents of the patient were encouraged to maintain regular chiropractic care.

Discussion

Millions of children suffer from constipation each year. The medical treatment of pediatric constipation ranges from fiber and polyethylene glycol to biofeedback and cow's milk. Medical intervention suggests using Cisapride, but some disagree citing risks outweighing the benefits.³

Patient management in a chiropractic paradigm suggests the cause of disease lies within the body versus the allopathic paradigm which believes illness and disease comes from an external factor.⁹ Chiropractic is based on the premise that the

body has an innate ability to heal and that this ability is coordinated and controlled by the nervous system. Any interference in the nervous system will impede the body's ability to heal and adapt to its environment. In the chiropractic profession, this interference is referred to as vertebral subluxation.⁶

Chiropractic has been cited in the literature for producing favorable results in patients with complaints of constipation.^{4, 8, 19-23}

Quist reported an 8-year-old boy with chronic constipation and sacral subluxation. Quist applied external massage starting in the right lower quadrant of the abdomen following the large intestine in addition to adjusting the sacrum with diversified adjusting technique. The patient reported an immediate improvement.⁴

Ressel and Rudy conducted a large study of 650 children and found that 96% possessed subluxations of the pelvis. They suggested that there was a correlation between vertebral subluxation and a number of somatic, immune, and visceral complaints, including constipation.⁸

Hewitt reported a case of a 7-month-old female who had constipation since birth. After administering full spine and cranial adjustments, the patient's bowel function returned to normal.¹⁹ Ericksen reported a 5-year-old female with chronic constipation and after administering Grostic upper cervical care, the patient showed a significant improvement in bowel function.²⁰ Marko described the case of a 10 month old female who developed constipation after switching diets, from breast milk to solid foods. Care was administered according to chiropractic biophysics technique and resulted in an improvement of symptoms, but not complete resolution.²¹

Alcantara and Mayer,²² also reported favorable results on three infants with complaints of constipation. All of them were experiencing less frequent bowel movements. Dietary changes and medical care were unsuccessful so chiropractic was sought. Chiropractic care successfully resolved each case of constipation.

In his recent work, Batte reported successfully treating a two week old male with complaints of constipation. This infant experienced a bowel movement immediately following the first adjustment. A regular schedule of bowel movements began after the 16th adjustment.²³

Chiropractic Mechanism

Further investigation of the physiologic effects of vertebral subluxation suggests that it may be causative of increased sympathetic activity or stress. Bhatia, Tandon and Tougas all suggest that this increased sympathetic activity slows gastric emptying.^{5, 10} Tougas specifically stated that reports point to a generally decreased vagal (parasympathetic) outflow or increased sympathetic activity in conditions usually associated with slow or decreased gastrointestinal motility.¹⁰ Models of vertebral subluxation can provide a link between vertebral subluxation and increased stress/sympathetic activity; more specifically the dysafferentation model outlined by Kent and Seaman.^{6, 11, 12}

Understanding these models of vertebral subluxation starts with understanding kinesiological dysfunction. Dishman stated that effects of chronic pathomechanics include fibrosis, contracture, adhesions, deformity, and structural derangements.¹³ All of these phenomena suggest altered motion between adjacent vertebra, which can modulate activity between group I to group IV afferent nerves as seen in animal models.^{14,15} This altered or increased activity in afferent nerves is what Kent and Seaman referred to as dysafferentation.^{6, 11, 12}

During dysafferent input into the nervous system, a number of different processes take place. The restricted joint motion decreases firing of mechanoreceptor axons, groups I – III, and increases firing of nociceptive axons.¹² The stimulation of nociceptive fibers, which have been identified as group IV afferent nerves,¹⁵ has a number of physiologic effects, including those outlined in vertebral subluxation. The vertebral subluxation can set off a cascade of effects including a nociceptive barrage to the dorsal, anterior, anterolateral horns, interneurons, and segmental preganglionic sympathetic neurons. Muscle spindles are innervated by sympathetic fibers, which suggests that positive static palpation findings may correlate with increased sympathetic activity.^{11, 12}

The increased nociceptive barrage also reaches subcortical areas such as the hypothalamus which is known as the neuroendocrine control center. Stimulation of the hypothalamus can contribute to secretion of catecholamines, corticotropin-releasing factor (CRF), cortisol, and increased neural sympathetic tone via the hypothalamus-pituitary-adrenal axis (HPA).^{11, 12} Bhatia and Tandon outline these very same pathways; they suggest that these processes alter the central stress circuitry leading to an increase in CRF production, thus equaling a chronic increase in stress. They suggest increased stress leads to decreased gastrointestinal function.⁵

Catecholamines can act as noxious stimulation of vertebral joints^{11, 12} which is significant because Budgell directly states that noxious chemical stimulation of the interspinous tissues are associated with arrest of peristaltic movement and a sharp decline in gastric muscle tone.⁷ This information should come as no surprise because Korr hypothesized that somatic dysfunction may affect the functioning of viscera innervated by the same segmental levels.¹⁶ Sato also witnessed a reduction in gut motility in rats after increased sympathetic activation.¹⁷

Chiropractic adjustments restore proper motion to intervertebral joints. This restoration of motion increases mechanoreception and decreases nociception.^{6, 12, 18} The reduction of nociception interrupts the cascade of effects that induce increased sympathetic activity. The reduction of sympathetic activity can be deduced to relieve a number of visceral symptoms including chronic constipation. This case study does not prove that chiropractic care will cure constipation, however it adds to an already existing body of case studies suggesting a relationship.

Conclusion

The patient in this case study responded favorably to

chiropractic care. Chiropractic is a philosophy, science, and art that suggest that the body has an innate ability to heal itself if interference to the nervous system is removed. Administration of chiropractic care in this case alleviated symptoms of constipation, GI discomfort and neck pain. More research is needed in the area of the chiropractic adjustment and its effects on physiology and visceral function.

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