

CASE STUDY

Resolution of Colic, Constipation and Sleep Disturbance in an Infant Following Chiropractic Care to Reduce Vertebral Subluxation

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Abstract

Objective: To report on resolution of colic, constipation and sleep disturbance in a male infant undergoing chiropractic care to correct vertebral subluxations.

Clinical Features: Two week old male with history of excessive crying, abdominal distension, constipation, gas and disordered sleep. Objective indicators of vertebral subluxation identified via Logan Basic Technique.

Interventions and Outcomes: Logan Basic chiropractic technique was directed at reducing vertebral subluxations in the pelvis, lumbar and cervical spine. The child experienced a bowel movement immediately following the first adjustment with regular schedule of bowel movements commencing after the 16th adjustment. Excessive crying additionally resolved around this same time period and his sleep improved. Indicators of vertebral subluxation reduced concomitant with symptomology.

Conclusion: The case of a two week old male with a history of colic, constipation, sleep disturbance and excessive crying is presented. Resolution of all presenting complaints was achieved following the introduction of chiropractic care to reduce vertebral subluxations. Additional research on gastrointestinal disorders in children and chiropractic is warranted.

Key Words: *Chiropractic, constipation, vertebral subluxation, colic, Logan Basic Technique, adjustment, manipulation, Webster's technique*

Introduction

The Mayo Clinic defines colic as “crying more than three hours a day, three days a week for more than three weeks.”¹ It usually runs a short course and self resolves within a few weeks or months.¹ The average has shown improvement by age 3 months but some may struggle with it longer.

The irritable infant will cry at the same time each day and the episode will last for a few minutes to hours.¹ During an episode, the infant will develop a high pitched cry and present

with curled up legs, clenched fists, and tight abdominal muscles. However the cause of colic is unknown, it affects 25% of infants. Numerous possibilities have been explored for an explanation ranging from lactose intolerance to the way the baby is fed, but still no clear answers have been found as to why colic affects some and not others.

Since this condition is self resolving, there are few treatment options. It has been reported that prescription drugs used to

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treat colic have proven unsuccessful and they produce grave side effects; while other research suggests using probiotics to relieve it. Other treatment options suggested by The Merck Manual, include holding, rocking, and patting the baby, along with a host of other options.² Alternative remedies reported to have favorable results include herbal teas and remedies, glucose, massage therapy, dietary changes, chiropractic, and aromatherapy.^{1,3}

Constipation, on the other hand, not only affects infants, but it can affect anyone at any age. It is defined as “having a bowel movement fewer than three times per week” and having small, hard, dry stools that are difficult to eliminate.⁴ Most constipation is short lived and not usually serious.^{4,5} Constipation is one of the most common gastrointestinal complaints in the US affecting more than four million Americans a year.

Unlike colic, constipation has several known causes. These causes include but are not limited to low fiber diet, lack of exercise, medications, milk, irritable bowel syndrome, laxative abuse, dehydration, and problems of gastrointestinal tract.⁴⁻⁶ Specific disorders including neurological, metabolic, and systemic have been identified as causes of constipation as well.

Traditionally, constipation is managed depending on the cause, severity, and duration.⁴ Eating a diet high in fiber is often promoted to help the body form proper stools in addition to lifestyle changes to help treat and prevent constipation, like increasing water intake and committing to daily exercise.^{4,5}

For those where dietary and lifestyle changes do not resolve the constipation, laxatives are used. This is the number one over the counter self treatment⁴ though it is important to consult a doctor before using a laxative to ensure the best form is used. Other treatments may be directed at a specific cause, like rectal prolapse. The purpose of this paper is to report a case showing successful chiropractic care of an infant with colic and constipation.

Case Report

History

Patient is a two week old male who presented with a history of excessive crying, abdominal distension, constipation, and gas.

The child was in obvious distress upon presentation with the mother reporting that he exhibited ongoing crying for hours at a time. The child was constantly stressed with clenched fists, unable to have a bowel movement or belch.

During the pregnancy, ultrasounds were performed and there was some concern regarding his kidneys though a formal diagnosis was never made. The obstetrician indicated that the pregnancy should not be allowed to go beyond the due to this and it was also determined that he was in a breech position.

The patient’s mother was under chiropractic care during the pregnancy and Webster’s technique was implemented. Within 2 weeks of administering Webster’s, the baby had turned to a normal position.

The mother had an epidural 4 hours into labour and other than that labour was normal with no complications. He weighed 7lbs 4oz at birth. The next day a diagnostic ultrasound was performed to assess any renal issues, and a course of antibiotics was started to prevent infection. The diagnostic ultrasound came back negative and renal function was normal. Additional testing was performed with the crying and constipation starting the next day. The antibiotics were discontinued the day after the crying started.

He was diagnosed with constipation by his pediatrician who was concerned about breast milk causing constipation and referred his parents to a lactation consultant. The lactation consultant recommended decreasing the amount of milk given.

The child cried regularly. He was not sleeping during the day, and if he wasn’t eating or sleeping, he was crying. At night, his sleep was sporadic and irregular. His parents were not able to sleep or catch up on sleep during the day as he wasn’t napping at all. Eventually, his mother could not sleep at night either as she was so nervous about her baby crying again the next day. The mother’s general practitioner recommended anti-depressants and tranquilizers, however; she tried an over the counter sleep aid instead.

Family history was negative for any significant disease or conditions. He has no siblings and received diphtheria, tetanus, pertussis, polio and hib vaccines.

Examination

He was crying and in apparent distress during his examination. Prominent findings upon examination included hypertonic paraspinal musculature superior to the right iliac crest and the right sacro-iliac joint. There was hypertonic sub-occipital musculature bilaterally with right laterality of atlas and right spinous rotation of the 5th lumbar vertebrae.

Additionally the exam revealed a taut sacro-tuberous ligament on the right, the sacral dimple on the right was visually higher than the left and the right iliac crest was higher on the right compared to the left. Buttock creases appeared even and followed the angle of the sacrum which was assessed as anterior-inferior on the right.

Intervention

Adjustments were administered utilizing Logan Basic chiropractic technique. The primary contact was made with the tip of the 5th digit at the insertion of the sacrotuberous ligament to the sacrum. Auxillary contacts were made at the 4th and 5th lumbar vertebrae on the right side of the spinous process directed medially.

A light contact (6oz or less) was taken on the right lateral aspect of the C1 transverse process with the fifth right digit and held for 6-10 seconds. These adjustments were repeated on each visit. All adjustments performed were Logan Basic with the patient lying prone on his parent. The only modification to the adjustment for a baby was to use a 5th digit contact above the sacrum instead of the thumb.

Logan Basic technique is based on the premise that “misalignment of the sacrum is the primary cause of spinal disturbance above this bone, which, in turn, is the primary cause of disease.”³³ A specialized system is used to measure vertebral misalignment up and down the spine. The Logan adjustment is administered by placing the thumbs near the inferior border of the sacrum and applying light pressure in a predetermined vector to correct sacral misalignment.

Outcome

On the child’s initial presentation he was crying and in obvious distress. He belched during his adjustment and experienced a bowel movement prior to leaving the office and immediately following the first adjustment. Following this he fell asleep. He vomited immediately following several adjustments.

Within five adjustments his mother reported his bowel movements had started to become more regular, and he responded better to belching after meals. Mother commented during the initial period of care that if he missed an appointment his distress would return but resolved with the following adjustment. After 16 adjustments, his mother noted significant and longer lasting abatement of his symptoms and crying. His colicky behavior and constipation had resolved.

The muscular tension in the child’s paraspinals and sub-occipital region also resolved. The iliac crest heights became even. The L4 spinous still remains palpable to the right and the sacral base remains anterior-inferior on the right. The C1 transverse process is not as prominent on the right side as it was upon initial presentation. The sacro-tuberous ligament tension on the right is now markedly reduced, and compares favorably to the left side.

Subjectively, as discussed, he has normalized bowel movements with improved regularity, belches normally after meals, and the frequency and duration of the crying episodes have reduced considerably. His parents have indicated that he now only cries when he is hungry or tired. He is also more active through the day which seems to help him sleep at night and nap time.

Discussion

Colic

Chiropractic has been effective in treating a wide range of childhood ailments and the literature has shown favorable results in infants who receive chiropractic care for colic.⁷⁻²¹ These studies show that there are various chiropractic interventions or techniques where improvement in colic have occurred. These include Diversified,⁸ Toggle,^{11, 19} Upper Cervical,¹² Logan Basic,¹³ Activator,¹³ Craniosacral,^{13,18, 20} sustained light pressure,¹⁴ and various other techniques.^{15, 18, 21} The basis of these studies have one important aspect in common and that is: “the clinical observation that functional disturbances of the vertebral column may cause symptoms similar to those of infantile colic.”¹⁴

Miller described a seven step process on how to provide proper chiropractic care to infants with colic.⁹ She goes into

detail as to how to define the problem, the role of the chiropractor, examination, differential diagnosis, rationale for chiropractic care, and plan of management. Since there is no known cure for colic, evidence is inconclusive that chiropractic care is beneficial but several studies have documented less crying in those treated by chiropractors.⁹⁻²¹

Since parents are more educated about the benefits of chiropractic care, they opt to enroll their children in treatment. In response to changes in the profession over the years, a survey of chiropractors in the UK was done to gather opinions about the benefits of chiropractic intervention in pediatric, adolescent, and adult conditions.⁷ The results from this mailed survey revealed that musculoskeletal conditions are effectively treated with chiropractic care and chiropractic intervention in the treatment of colic was perceived to be beneficial by more than 50% of the respondents.

Hipperson conducted a case series on two infants, one of which was a 7-week old male infant diagnosed with colic, reflux, and sleep disturbances. It was also noted that he had a traumatic birth and went into distress during the final hour. He received chiropractic care three times a week for three weeks. After the fourth visit, symptoms of colic significantly decreased and sleeping habits improved. After seven visits, the reflux had resolved.⁸ There are several other cases and randomized trials in the literature documenting the successful treatment of colic with chiropractic care.⁹⁻²¹

A retrospective study in 1985 assessed the reasons infants were seen by chiropractors and the patient charts showed that 70% sought out chiropractic care for infantile colic,¹⁶ of which 54% reported being cured and 37% improved. This study was followed in 1989 by a prospective multicenter¹⁷ study involving 316 infants with colic where 94% of them improved with chiropractic care. The authors concluded that chiropractic care is effective in treating infantile colic.¹⁷ These two studies showed positive effects of spinal manipulation for infantile colic. The limitation addressed in each study was the fact that neither had a control group.

Other studies have focused on colic and duration of birth^{22,23} with evidence that infants with shorter delivery time were more likely to develop colic later. Also noted to increase the incidence of colic were stress and physical symptoms during pregnancy as well as negative experiences during the childbirth.²²

Constipation

Chiropractic has also been cited in the literature for producing favorable results in patients with complaints of constipation.²⁴⁻³² Like colic, various techniques have been used to treat constipation, which include Activator,²⁴ Diversified Full Spine,^{24,25,27,30} Gonstead,²⁶ Chiropractic Biophysics,²⁸ and Grostic.²⁹

A case series completed by Alcantara and Mayer,²⁴ included three infants with complaints of constipation. All of them were experiencing bowel movements once a week to every three to four days. After unsuccessful trials of dietary changes and medical care, chiropractic successfully resolved the constipation. Other cases in the literature have reported

similar positive results as well.²⁵⁻³⁰

Chiropractic not only helps young infants but it has also been documented in cases of helping young adults and elders. A case was described of a 27 year old female who sought chiropractic care for an injury and upon examination, it was discovered she had several abnormal findings including infertility and constipation. These changes in physiology were not successfully treated with medical interventions. After 14 chiropractic visits she reported improvement in her signs and symptoms and also conceived.²⁶ Another interesting case in the literature involved a 64 year old female with chronic constipation²⁷ who also tried various remedies to resolve it but did not have any success. She followed her regular routine and used chiropractic as the only intervention and after being under care for about five weeks, she began reporting regular and consistent bowel movements.²⁷

A review of literature was conducted by Holbrook to determine if chiropractic was an effective treatment for constipation.³¹ There were six cases involved in this review and most patients had a bowel movement ranging from two days to a week after receiving an adjustment, therefore, chiropractic care was deemed to be effective in treating childhood constipation. A limitation addressed in this study was the fact that there were so few cases involved making it hard to generalize about the effectiveness of chiropractic care for this condition.³¹

Dietary Approaches

In addition to chiropractic care as an alternative method of treatment, probiotics,¹¹ and eating particular foods have also been noted to help relieve signs and symptoms of these two conditions. In his book, "101 Foods that Could Save Your Life", Grotto suggested foods to eat to address particular health concerns. The following foods were suggested to treat colic: eggs, fennel, ginger, and horseradish. In an effort to treat constipation, it was suggested to eat apples, barley, beans, cardamom, cherries, flax, grapes, lemons, oranges, plums, and sesame.³² Each entry in the book included a brief history of the food's origin, therapeutic benefits backed by scientific research, tips for use and preparation, and a recipe.

Mechanism

The basis of chiropractic care is to find and remove nerve interference to allow proper body function. In this case, subluxations were reduced to improve the quality of life of a child with complaints of colic and constipation. It is believed that chiropractic care affects the receptors in joints and surrounding tissues^{11,12} since receptor communication is altered if vertebral subluxations are present.⁸⁻¹²

Related mechanism to explain how chiropractic may be involved in colic would begin at the birthing process. Trauma from internal and external forces applied to the infant during labor may cause cervical spine injuries, which induce vertebral subluxations. Once these subluxations are present, changes in the neuromusculoskeletal system and associated soft tissue becomes evident.¹⁸

In the case of a five year old female, Grostic upper cervical

technique was used to resolve complaints of constipation and the mechanism proposed was the Dentate Ligament-Cord Distortion Hypothesis, whereby the effects of a vertebral subluxation produce mechanical distortions of the spinal cord. Spinal cord traction that affects the spinocerebellar tracts could irritate the hypothalamospinal fibers. This could lead to decreased function of the parasympathetic nerves and slow down and/or alter the function of the colon. Also noted is the degree to which atlas is rotated as it may cause changes in parasympathetic function²⁹ due to how close the Vagus nerve is to the transverse process of atlas as it exits the skull.

Another mechanism of interest is Korr's theory of somatic joint dysfunction which proposes that a subluxation can cause facilitation of the nerves when there is disturbance in a joint. These changes will result in multiple impulses firing which change the state of the neuron. Changes in the neuronal activity will eventually lead to dysfunction and hyperactivity of the sympathetic nervous system. This causes a decrease in the enzymes of digestion, peristalsis, and anal contraction. Chiropractic care could decrease these disturbances of the joints and return homeostasis thereby resolving complaints of constipation.³¹

In an analysis of 650 children undergoing chiropractic care Ressel and Rudy discuss vertebral subluxation in conjunction with somatic, visceral, and immune complaints.³⁴ They described a new subluxation pattern seen in children which they called the pelvic distortion subluxation complex (PDSC). They discussed how PDSC was associated with colic, constipation, and many other childhood conditions.

The main point here was the fact that early in life the nervous system of a child learns "proprioceptive patterns and acquires future habits and reactions by responding to repetitive stimuli. However, such a developing nervous system is not always able to distinguish between proper and improper stimuli...", therefore it conditions the system for future responses in adulthood.³⁴ So by addressing PDSC in the pediatric patient it is proposed that there may be a decrease in somatic, visceral, and immune complaints.

Conclusion

The case of a two week old male with a history of colic, constipation, sleep disturbance and excessive crying is presented. Resolution of all presenting symptomology was noted following the introduction of chiropractic care concomitant with a reduction in vertebral subluxation. Additional research on gastrointestinal disorders in children and the efficacy of chiropractic in such cases is warranted.

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