

# CASE STUDY

## Resolution of Pediatric Encopresis Following Chiropractic Care to Reduce Vertebral Subluxation: A Case Study & Review of the Literature

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### Abstract

**Objective:** To document the clinical changes in a patient diagnosed with fecal incontinence receiving regular chiropractic adjustments.

**Clinical Features:** An 8-year-old female with pelvic unleveling and a history of irregular bowel movements presented to a chiropractic clinic with signs of vertebral subluxation. Previous attempts of altered potty training habits and Colace supplements were unsuccessful in regulating her bowel movements.

**Intervention and Outcomes:** The pediatric patient received subluxation-based chiropractic care using the Thompson terminal point technique protocol. Improvements were seen after two weeks of subluxation-based care. After 6 weeks of chiropractic adjustments, the fecal incontinence was resolved, with the patient having no accidents for the first time in her life.

**Conclusion:** While there is limited research on the effect of chiropractic care on digestive issues such as encopresis, studies, including this one, have shown that chiropractic adjustments may have a positive effect on the management and recovery of similar conditions. It is an important area in need of further research.

**Key Words:** *Chiropractic, adjustment, encopresis, Thompson technique, vertebral subluxation, incontinence, pediatric*

### Introduction

#### *Epidemiology of Encopresis*

The DSM-V classifies encopresis as: A. Repeated passage of feces into inappropriate places (e.g., clothing, floor), whether involuntary or intentional. B. At least one such event occurs each month for at least 3 months. C. Chronological age is at least 4 years (or equivalent developmental level). D. The behavior is not attributable to the physiological effects of a substance (e.g. laxatives) or another medical condition except through a mechanism involving constipation.<sup>1</sup>

According to Medscape, encopresis and fecal incontinence may be used interchangeably with the same meaning. For the

purposes of this paper they are used synonymously.<sup>2</sup>

Levine describes two different types of encopresis, primary and secondary. He described primary encopresis as occurring when a child has had encopresis throughout his/her entire life. In primary encopresis, the child was never able to be toilet trained. During secondary encopresis, Levine states that the child was toilet trained at one point in life, and encopresis began after toilet training. Children with both primary and secondary encopresis may suffer from varying degrees of

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constipation. This study states that a long-term sequela of constipation may be megacolon.<sup>3</sup>

In a study performed by Levine, all children over the age of 4 who presented to the Medical Diagnostic Center at the Children's Hospital Medical Center in Boston with encopresis were studied. This study lasted 18 months and included 102 children. The study consisted of children aged 4-13 with the average age being seven years and four months. Of the 102 participants, 87 were male and 15 females. Forty of the children suffered from primary encopresis, and 62 suffered from secondary. It was found that most of the children, 86 of the 102, experienced incontinence in the late afternoon and evening hours. Excitement and stress led to the occurrence of encopresis in 61 of the children. Encopresis occurred at both day and night in 59 of the patients.<sup>3</sup>

A similar study performed by Loening-Baucke examined 482 children whose age ranged from 4-17, and who had been treated at the Children's Hospital of the University of Iowa from birth or under 6 months of age. Of the 482 children studied, 21 of them had been seen for "faecal" incontinence at some point in their life, with 18 being boys and three girls. This equated to 4.4% of the children in the study. Nineteen of the children, or 90%, had constipation combined with "faecal" incontinence. It was found the more boys had the combination of "faecal" incontinence and constipation than girls. It should be noted that 18.3% of children with constipation had faecal incontinence.<sup>4</sup>

In a study performed by Cox et al., they looked at establishing a connection between children suffering from encopresis and certain psychological problems. This study divided children into three distinct groups, which followed very specific inclusion criteria. The groups consisted of children suffering from encopresis, siblings of the children with encopresis, and a non-sibling group. To participate in the encopretic group, children had to be between 6 and 15 years of age and have suffered from encopresis for at least one year. The other two groups (comparison groups) consisted of children aged 6-15 years old and who had not suffered from constipation or encopresis.<sup>5</sup>

The study by Cox et al. used five "instruments" to assess the psychological differences between the three groups. The Child Behavior Checklist (CBCL) was used to assess behavioral problems and competencies, as was the Teacher Report Form (TRF). The difference between the CBCL and TRF was that the mother or maternal guardian completed the CBCL and the child's teacher completed the TRF.

The CBCL showed that children with encopresis had significantly higher anxiety and depression symptoms than the comparison groups. The TRF did not show a significant difference between the groups for anxiety and depression symptoms. The CBCL and TRF both showed a significantly higher portion of children with encopresis having attention difficulties and social problems versus the children in the comparison groups. Attention difficulties were shown by the CBCL in 20% of children in the encopresis group, and only by 3% of children in the comparison groups. The TRF showed similar numbers for attention difficulty, with 26% of children in the encopresis group and 6% of children in the comparison

group being positive. Social problems were reported by the TRF in 24% of children in the encopresis group vs. only 4% in the comparison groups. The TRF also showed 20% of the encopresis group had withdrawn behavior and only 4% of the comparison groups showed the same behavior. Similar numbers were shown by the CBCL, with 15% of the encopresis group and 2% of the comparison groups showing withdrawn behavior. Children in the encopresis group were also shown to be more disruptive than the comparison groups.

According to the TRF, aggressive behavior was shown by 19% of children in the encopresis group, versus only 2% in the comparison groups. The Family Environment Subscale (FES) was used to measure social-environment characteristics of families. It was shown that families of the encopresis group scored significantly lower in both expressiveness and organization than families in the comparison groups. The Wide Range Achievement Test-Revised (WRAT-R) was utilized to assess learning ability involving reading, spelling, and arithmetic. The encopresis group scored lower than the comparison groups on reading (30% and 13%) and spelling (44% and 23%). The final "instrument" used was the Piers-Harris Children's Self-Concept Subscale (PH), which was used to assess the child's self-concept and completed by the child. There was no difference between the groups in regard to the children's self esteem.<sup>5</sup>

#### *Incidence/Prevalence*

According to a study done by Rajindrajith, Devanarayana, and Benninga, it is estimated that anywhere from 0.8% to 4.1% of children in Western societies are affected by incontinence. This study also showed that children under the age of 10 were at a higher risk of suffering from incontinence than children over 10 years of age. This was attributed to the maturing of body function.<sup>6</sup> The two studies discussed previously, by Levine and Loening-Baucke, show and incidence rate between 3% and 4.4%.<sup>3,4</sup> The study by Loening-Baucke further points out that more boys suffer from incontinence than girls, 7.3% and 1.3% respectively.<sup>4</sup> A study done by Sohrabi et al on 1436 students, between 14 and 19 years old, revealed that incontinence was the fourth most prevalent GI disorder, coming in at 4.3%. It was also determined in this study that a lower socioeconomic level was more likely to result in incontinence when compared to higher socioeconomic levels, 6.2% and 2.1% respectively.<sup>7</sup>

A study performed by van der Wal, Benninga, and Hirasig found prevalence rates similar to the aforementioned studies. It was found that the overall prevalence rate was 3%, with the younger age group, 5-6 year old being affected far more than the older age group, 11-12 year old. The rates for the two age groups were 4.1% for the younger group and 1.6% for the older group. This study also showed a higher rate in boys, 3.7%, than it did in girls, 2.4%.<sup>8</sup>

#### *Medical Management*

In an article published in the Journal of Pediatric Urology, by Koppen et al., treatment of incontinence mainly consists of education and a toileting program.<sup>9</sup> One study performed by Boles, Roberts, and Vernberg consisted of placing a reward system for following scheduled toilet sit guidelines. Upon

successfully following a scheduled toilet sit, a “token” was given out as reward. The “token” could be used to buy toys and other prizes at a store set up by the people putting on the study.<sup>10</sup> Another study performed by Kuhn, Marcus, and Pitner also used toilet sits to help reduce the likelihood of encopresis occurring. This one used to play with toys and talking to get the child to participate in the toilet sits and was termed “bathroom fun”.<sup>11</sup>

In both of these studies, the incidence of incontinence was successfully reduced.<sup>10,11</sup> A study by Reid and Bahar involved parent education to help eliminate their child’s problem with encopresis. It was determined that the problem stemmed from bullying from an older sibling. The parents were instructed to allow the younger child to defend himself and let his anger out when the bullying occurred. Upon being allowed to do this, the encopresis the child was dealing with ended.<sup>12</sup>

## **Case Report**

### *Patient History*

An 8-year-old female presented to the clinic for chiropractic evaluation and management of her pelvis after her gymnastics coach noted that her “hips were uneven”. The patient’s medical history included asthma that had been resolved with allergy shots, four elbow dislocations between the ages of one and four, a head injury at 4-years-old after falling from monkey bars, and irregular bowel movements (3-4 per week). It was stated that she was taking two Colace pills two times per day, for a total of 4 pills daily to help regulate her colon. The patient was having accidents where she would soil herself and her clothing.

### *Chiropractic Examination*

Upon examination, the patient did not have any positive orthopedic or neurologic exam findings. X-rays were taken and there was no evidence of any osseous or soft tissue pathology in the lumbar or pelvic region. Vertebral subluxation listings were obtained from the X-rays and indicated the following: T9 spinous process had moved posterior, right rotated, and right closed wedge (PRI), L1 spinous process had moved posterior, right rotated, and right open wedge (PRS), L3 spinous process had moved posterior, right rotated, and right open wedge (PRS), L5 spinous process had moved posterior, left rotated, and left open wedge (PLS), and the right ilium had moved posterior and inferior (PI). The diagnosis given to the patient was lumbar vertebral subluxation.

### *Chiropractic Care – Intervention*

Specific chiropractic adjustments were made using a Thompson terminal point drop table. Thompson technique is a high velocity, low amplitude style of adjusting. According to Cooperstein, the drop table serves 3 purposes: “(a) reduces wear and tear on the doctor, (b) enables low-force adjustments to be delivered safely and effectively, and (c) permits fine-tuning of the forces applied through adjustments of the tension on the drop pieces.”<sup>13</sup>

Over a period of two and a half months, the patient was seen

20 times. At each of these visits, the patient was assessed for subluxation using the Thompson analysis, which utilizes the Derifield-Thompson leg check. To perform this leg check, the patient is put in the prone position, and the doctor looks for a short leg. The legs are then flexed, and the doctor rechecks the short leg. After the legs are flexed, there are three possible outcomes. The short leg could get shorter; the short leg could stay the same; or the short leg could get longer.<sup>14</sup>

At most every visit, the patient received an adjustment in the thoracic, lumbar, sacral, and sometimes the cervical region. The most adjusted segments were sacrum and L3. These two segments were adjusted every visit. The sacrum adjustment was performed with the patient prone on the table. The doctor would have the patient raise each leg in the air, with the knee staying extended. The doctor would then have the patient cross one leg over the other, determined by which leg was the lowest when raised. The doctor contacts the apex of the patients’ sacrum with the pisiform of the inferior hand and contacts the inferior part of the posterior superior iliac spine (PSIS) with the pisiform of the superior hand. The doctor would perform 3-4 thrusts utilizing the drop of the table.<sup>15</sup>

The lumbar adjustments were made using a single hand contact, with the doctors’ pisiform contacting the mammillary process of the patients’ lumbar vertebrae. One thrust would be delivered, utilizing the drop of the table. Thoracic adjustments were delivered the same way as the lumbar adjustments, with a single hand contact utilizing the drop of the table. Cervical adjustments were made by contacting the spinous process of the cervical vertebrae with the lateral aspect of the doctor’s index finger, and applying a posterior to anterior thrust, utilizing the drop of the table.

### *Chiropractic Care – Outcome*

Over the course of care, there were gradual improvements seen with the regularity of the patients’ bowel movements and in the incontinence, she was experiencing. After a month of adjustments, the patient was almost completely accident free. After a little over a month of adjustments, the patient was no longer experiencing the incontinence and was able to sleep in panties for the first time ever. After two and a half months of adjustments, the patient was no longer having any incontinence issues, was no longer taking the Colace pills, and was living a normal, happy life.

## **Discussion**

### *Chiropractic Literature*

There is currently a limited amount of research available regarding chiropractic adjustments and their role in gastrointestinal disorders. There have been even fewer studies completed on chiropractic adjustments alleviating bowel incontinence. There are, however, some promising studies that have been published on this topic.

Kamrath describes the chiropractic care of a 5-year-old boy who was presented with inability to voluntarily control his bowel or bladder since birth. All other motor and sensory functions were normal, and the child had no complaints of pain. At birth, he was diagnosed with an intradural,

intramedullary spinal cord lipoma that tethered the spinal cord at L5-S4 nerve roots. This lipoma was surgically removed as well as the spinal cord untethered at two months of age.<sup>16</sup>

The child received chiropractic adjustments using the Activator adjusting instrument on a left PI ilium along with shortwave diathermy in the lumbar spine for 15 minutes. After two treatments, the child began to show improved bladder and bowel control, and after five treatments, he was able to fully control his bladder and bowel during the day and night. He discontinued care after five visits and maintained voluntary control over his bladder and bowels for six months before gradually regressing to no control. At this time, he began receiving chiropractic adjustments without the implementation of shortwave diathermy. After 4 treatments, he again regained full voluntary control over his bladder and bowel.<sup>16</sup>

Eulitt and Giannakakis summarize the chiropractic care of an 8-year-old male who presented with chronic constipation, severe abdominal pain, and involuntary release of fecal material. Visits to a pediatrician and gastroenterologist for medication did not resolve his symptoms. The patient was instructed to increase water and decrease sugar intake when diversified chiropractic care began.

The patient received various cervical, thoracic, lumbar, and sacral adjustments at different visits throughout the course of care. Also, on four separate occasions, an electrical percussive instrument was used to stimulate and massage the abdominal wall. After 12 visits, the child was having regular bowel movements daily and no abdominal pain or fecal incontinence. The patient continued to receive regular chiropractic adjustments and has had no follow-up complaints of the initial presenting problem.<sup>17</sup>

Barber and Ring wrote a case study on a 5-year, 8-month-old female patient with functional constipation and encopresis that had begun at age three. The child would have approximately 1-week period of normal bowel movements in between the encopresis events. The patient's pediatrician told them that there was no physical abnormality present that could describe the child's incontinence. The patient was adjusted with a combination of diversified and Thompson technique. She received adjustments sporadically with long breaks in between and a mild reduction of symptoms. The patient experienced a rapid return of encopresis symptoms when the adjustments were discontinued. However, once she was adjusted weekly, her symptoms ceased, and she remained accident free.<sup>18</sup>

Patterson summarizes the chiropractic care of a 7-year-old male patient diagnosed with encopresis. He would not have a bowel movement for upwards of five days at a time, followed by a period where he experienced an uncontrolled sudden release of a large amount of fecal matter. He had been prescribed stool softeners and milk of magnesia by his medical doctor for two years without any results. He was diagnosed by the chiropractor as having cervical and lumbar subluxation complexes and was adjusted with diversified technique in those regions.

After a month of this chiropractic care, his symptoms had improved, and he was able to discontinue all medication.<sup>19</sup>

Brocker and Woslanger describe the case of a 9-year-old male who presented with chronic constipation and encopresis which began one week before the initial visit and was increasing in frequency and volume. He was on MiraLax, vitamin D, vitamin C and supplements at the time of care. After three weeks of diversified high-velocity, low amplitude (HVLA) adjustments, his bowel function began to normalize and there was a decrease in the frequency and volume of incontinence he was experiencing.<sup>20</sup> Alcantara and Mayer describe a similar case of a 21-month-old female who was experiencing severe constipation and encopresis. The child received HVLA thrusts at L4, L5, and sacrum, which resulted in an immediate bowel movement. After three months of regular chiropractic adjustments, the patient's constipation and encopresis was resolved.<sup>21</sup>

Unlike the former cases discussed involving children, Lisi and Bhardwaj summarized the chiropractic care and outcome of a 35-year-old female with low back and buttock pain, saddle anesthesia, and bladder and bowel incontinence. The bowel incontinence was secondary to a recent surgery for acute cauda equina syndrome. The patient was adjusted using a side-posture HVLA technique at the L4, L5, and S1 levels, as well as passive myofascial release of the lumbosacral musculature. After four treatments, the low back and buttock pain was resolved. Immediately following each adjustment, there was a transient improvement in the saddle sensation. There were no long-term changes in the saddle anesthesia or bowel and bladder incontinence, however, there were also no adverse reactions.<sup>22</sup>

#### *Proposed Mechanism*

The homeostatic regulation of gut function is achieved by both branches of the autonomic nervous system being anatomically and functionally integrated with visceral sensory pathways.<sup>23</sup> Through this close correlation in neural pathways between the brain and gastrointestinal system, it can be hypothesized that a disturbance in neurological function can lead to gastrointestinal dysfunction. Tougas states that decreased parasympathetic outflow or increased sympathetic activity can lead to slow or decreased gastrointestinal motility.<sup>23</sup>

Korr proposed the somatosympathetic reflex hypothesis, which states that proper functioning of the sympathetic nervous system is dependent on continuous and accurate sensory information to be sent to the central nervous system from the musculoskeletal system. Based on this hypothesis, if there is any type of musculoskeletal trauma or stress present, it can lead to segmental sympathetic nervous hyperactivity.<sup>24</sup> With this trauma or stress present, there may be functional changes in the viscera such as decreased motility in the gastrointestinal tract.

Similar to the above hypothesis, Kent discussed the dysafferentation model as a possible connection between visceral dysfunction and vertebral subluxations.<sup>25</sup> Seaman defines dysafferentation as an imbalance in afferent input that causes an increase in nociceptive input and decrease in mechanoreceptor input.<sup>26</sup> This imbalance in afferent input to the central nervous system will in turn cause a compromise in the efferent response, which may also affect the viscera.<sup>25</sup>

Chiropractic adjustments act as a physical means to correct vertebral subluxations and remove somatic dysfunction in the body. When this dysfunction is removed and musculoskeletal stresses are reduced, afferent input to the central nervous system is regulated, decreasing the sympathetic hyperactivity. This mechanism may be attributed to how chiropractic adjustments help alleviate fecal incontinence in this case study. Although more research is needed in this area in order to support this hypothesis, it appears as though there is a relation.

#### Limitations

While the results of this case study are promising, there are important limiting factors present that need to be discussed. The patient was taking two Colace pills two times per day with the goal of regulating her bowel movements. She had been taking these pills for three months with no results; however, she was still taking them when the chiropractic adjustments began. The Colace pills could have been a palliative factor in helping her bowel movements regain regularity. Another possible limitation would be that the patient simply “grew out of” the problem. Although unlikely, spontaneous regression of fecal incontinence may be considered a possibility.

#### Conclusion

The objective of this case study was to outline the results from subluxation-based chiropractic care of an 8-year-old female with fecal incontinence. As described above, after 2 months of receiving chiropractic adjustments, the patient was no longer suffering from fecal incontinence. The discussion goes into detail of other case studies where children suffering from incontinence have been helped by chiropractic care. While there is need for more research involving this topic, there is evidence indicating that chiropractic care could be a viable co-management option for patients suffering from fecal incontinence.

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