

# Resolution of Infant Reflux Concomitant with Chiropractic Care: A series of 5 cases

---

Nik Dukovac, Ruth Postlethwaite and Clare McIvor

---

**Abstract:** *Objective/Clinical Features:* Colic and reflux are common complaints for infants and neonates, and both conditions represent potentially complex aetiologies. From a chiropractic standpoint, subluxation-based care that ensures optimal oral function and suck-swallow coordination is of value for supporting mothers and babies dealing with reflux. Also, reducing physical stress on the nervous system via vertebral subluxation reduction may change the infant from being in sympathetic nervous system overdrive to a more balanced state with parasympathetic system, allowing for decreased sensitivity of gag reflex, and improved function of digestive system.

*Intervention/Outcome:* Subluxation-based care of five infants with colic and/or reflux, using modified diversified technique and oral soft tissue therapy was concomitant with a significant reduction or complete resolution of colic or reflux.

*Conclusion:* Chiropractic care for the reduction of subluxations may support digestive processes and gag reflex sensitivity via restoring balance between sympathetic and parasympathetic systems as well as improved suck swallow reflex coordination in infants.

**Indexing Terms:** Chiropractic; Subluxation; breastfeeding; case report; case series; reflux

## Introduction

The *Australian Spinal Research Foundation* defines subluxation as ‘*a diminished state of being, comprising a state of reduced coherence, altered biomechanical function, altered neurological function and altered adaptability*’. It is accepted that subluxations can arise from any number of events such as chronic physical or emotional strain, injury, or physical trauma. The birthing process is beautiful yet brutal in nature, and as such investigation into the relationship between upper cervical subluxation and birth trauma has been emphasised in recent chiropractic literature.

Although useful for priming the infant’s nervous and respiratory systems for life outside the mother, the extreme forces placed on a baby can also contribute to the development of subluxations, particularly in the upper cervical region of the spine. Just how may subluxations contribute to colic or reflux?

... subluxation-based care that ensures optimal oral function and suck-swallow coordination is of value for supporting mothers and babies dealing with reflux’



Further research is required to confirm the mechanisms behind these disorders (both of which have complex aetiologies), but one study claimed the following:

Dysfunction of the occipitoatlantal joint (C0/C1) may present in the chiropractic office as a head tilt, preferred head or neck position, torticollis, reduced range of motion, or a unilateral breast preference during breast-feeding. A subluxation of C0/C1 may also affect CNs IX, X, XI, and XII due to the proximity of the jugular foramen and hypoglossal canal to the occipital condyles. In the paediatric patient these cranial nerves play a role in breastfeeding as they innervate the soft palate, pharynx, tongue, and additional structures associated with the suck-swallow-breath synchrony. (1)

It goes without saying that the suck-swallow-breath synchrony is essential to a harmonious digestive process, without which colic and reflux have been known to develop.

While multiple cases addressing infantile colic and acid reflux report onset as following some kind of trauma or head injury, not all do. A retrospective analysis published in 2009 in the *Journal of Pediatric, Maternal & Family Health Chiropractic* explored the relationship between upper cervical spine injury and infantile colic and acid reflux. (2) All infants received an external diagnosis from their physician. Ten of the 16 mothers reported difficulty in their child's birth, requiring additional mechanical force that may have caused the injury. All infants were found to have upper cervical subluxations, and all cases were resolved with upper cervical care. Although this study had a small sample size and lacked the controls necessary to draw conclusions with confidence, it does support the existence of a link between birth trauma-induced upper cervical injury and the onset of acid reflux, or possibly misdiagnosed aerophagia from inefficient breastfeeding, as well as colic.

The case series presented in this paper reports five (5) cases of colic or reflux that resolved or significantly improved concomitant with a course of subluxation-based chiropractic care.

## Case 1

### *Patient details*

An eleven-week-old male presented for care with parents citing primary concerns of colic and reflux. They noted that his condition didn't affect night-time sleep but caused significant discomfort during the day, most often after feeds during which he was bottle fed with expressed breast milk. Parents noted that initially, it was difficult for him to gain weight and when breastfeeding, he 'took a long time to feed'. They were concerned with the spinal health and comfort of the child and specifically noted concerns about a 'curve in his spine'. They also noted that it was easier for him to feed on the left side and that he didn't like tummy time.

### *History and Examination*

The infant, who was born via C-section, had mild subluxations at all levels of the spine on the right side and moderate vertebral subluxations at C1-C2 on the right. He had a banana spine shape that was convex to the left. These, in combination, lead to a diagnosis of a vertebral subluxation complex with subluxations at C1- C2 right posterior. No lingual restrictions were seen or palpated but a mild upper lip tie with minimal restriction to passive elevation was observed and palpated.

### *Management*

The infant was placed on a care plan comprising two sessions per week for four weeks (totally eight visits) before a progress check. His parents were also advised to continue tummy time as a part of his home care regime.

Chiropractic adjustments were delivered at C1-C2 right posterior with sustained contact. Adjustments were performed using gentle sustained contact technique in the direction to reduce

all noted vertebral subluxations, Dural balance and cranial tension were addressed using techniques taught in seminars by *Inspirational Resources Australia*.

### *Outcomes*

At the four-week progress check it was noted that his reflux was much improved and that he was gaining more weight. Feeding took significantly less time. The midwife was now happy with his progress. Vertebral subluxations at C1,2 had reduced to mild, and all others were completely reduced. His dural tension had completely resolved, resulting in the elimination of his banana posture. The infant also enjoyed tummy time by the time of the progress assessment.

## **Case 2**

### *Patient details*

A twelve-week-old male was presented for care with parents listing primary concerns including colic, reflux, constipation, and excessive wind. The parents were also concerned with the spinal health and comfort of the child who was a very 'fussy eater', 'takes a long time to feed and spills a lot of milk.' A goal of care was for the infant to be 100% on the breast rather than fed via expressed breast milk via bottle. At the time of the first presentation he was resistant to tummy time and preferred feeding on the left side.

### *History and Examination.*

The infant was born via a planned, uncomplicated C-section. At the time of the first presentation, he was suffering from colic, reflux, constipation, excessive wind, and very mild right-sided plagiocephaly consistent with a presentation of looking and turning his neck to the right.

He was diagnosed with a vertebral subluxation complex, with specific vertebral subluxations as follows:

- ▶ Severe grade at C1 and C2 on the right
- ▶ Moderate grade at C1 on left, T2 and T3 on both sides
- ▶ Mild grade at SI on left side

### *Management*

He was placed on a care plan comprising two sessions per week for four weeks (totalling eight visits), complemented by a home-care schedule including tummy time and oral STT.

Adjustments were performed to all subluxations using gentle sustained contact technique in the direction to reduce all noted vertebral subluxations, Dural balance and cranial tension were addressed using techniques taught in seminars by *Inspirational Resources Australia*. Oral STT was performed with gentle massage of hypertonic oral muscles. Adjustments were performed at C1 and C2 on the right, as well as T2, T3 and T4 right.

Further care following the progress assessment was to be discussed depending on results of the exam.

### **Outcomes**

Unfortunately, due to family illness, this patient did not return for his progress exam. However, halfway through the care plan his mother noted that he was doing 'So much better, and feeding so much better. I can't believe the difference.' She had achieved her goal of stopping bottle feeding and now solely breastfeeding.

## Case 3 - Reflux and breastfeeding difficulty

### *Patient Details*

A two-month-old male was presented for care with reflux and breastfeeding difficulties. His parents were concerned with the general health and comfort of the infant, who favoured feeding on the right side and whose neck was always turning to the right. At the time of the first presentation he was 100% breastfed and putting on weight and hadn't seen a lactation consultant. However, the mother noted that he had been feeding poorly in the two weeks prior to presentation and appeared to be losing his latch. While he had been sleeping well over the previous month, he was quite resistant to tummy time.

### *History and Examination*

The infant, born via forceps-assisted vaginal birth, had vertebral subluxations at C1 bilaterally and C2 on the right graded as severe, as well as mild subluxation at the Sacroiliac joint on the right. He had a hypertonic muscle tone on the floor of the mouth and mild restriction to tongue elevation. Left cervical spine rotation had a range of motion decreased by 50%.

### *Management*

Following the initial assessment he was placed on a care plan spanning two sessions per week for four weeks (totalling eight visits) before undergoing a reassessment. Adjustments were performed to all subluxations using gentle sustained contact technique in the direction to reduce all noted vertebral subluxations. Dural balance and cranial tension were addressed using techniques taught in seminars by *Inspiral Resources Australia*. Oral STT was performed with gentle massage of hypertonic oral muscles. Home-care advice included adherence to tummy time using various techniques to make it easier on the infant, such as tummy time on the chest of the mother while the mother being reclined in a chair at a 45° angle. And to only do so for 2 minutes maximum, but at least 5x per day. Also, to encourage side to side movement of the neck, it was recommended to use an object that the infant was attracted to and to move it from one side of their head to the other, bringing the object all the way to the end of their visual field, and then back again the other direction.

Following the first review, the care plan was revised to one session a week for eight visits. During this time, the same care regime was observed, including home-care advice. At the 4<sup>th</sup> visit of the new care plan the parents reported it was easier for him to turn neck to the right than to the left when on tummy to follow a toy.

Following a second review the care plan was revised to one session every two weeks for five visits then reassessed. In the ongoing care plan, adjustments were focused on Dural balance and cranial work, and adjustments were targeted at C1 on the right, C2 on the right, T4 and left sacroiliac.

### *Outcomes*

#### *Care Plan and Review 1*

At the 5<sup>th</sup> visit parents reported the infant held his head up in tummy time for the first time ever. At the review, dated 09 July 2020, vertebral subluxations was noted as being moderate at C1 and C2 on the right, and mild at C1 on the left. Range of motion tests revealed that left cervical range of motion was now fully restored. There was now normal tone to muscles of the floor of mouth as opposed to hypertonicity noted at the initial visit.

Subjective findings revealed that he still favoured turning his head to the right 'a little bit' but had shown great improvement. He was also enjoying tummy time and breastfeeding well on both sides. The mother was very happy with his progress.

### *Care Plan and Review 2*

At the 6<sup>th</sup> visit of the second care plan, the parents reported the child had started rolling. At the review, dated 03 September 2020, vertebral subluxations were noted as being mild at C2, T3, and T4 bilaterally, as well as C1 and Sacroiliac on the left. The infant no longer favoured the right side at all, and the mother was very happy with progress.

### *Review 3*

At the 3<sup>rd</sup> review, dated 17 December 2020, vertebral subluxations were noted as mild at only C1 and Sacroiliac on the left. The infant's head shape had improved significantly and the mother was very happy with progress.

## **Case 4**

### *Patient details*

A five-week-old male was presented for care having been referred by a lactation consultant. He was experiencing reflux, vomiting and wind pain, and his parents were concerned with the spinal health and comfort of the infant. Despite having his tongue and lip tie released two weeks prior, only minimal improvement in feeding had been noted and parents reported it was still not ideal.

### *History and Examination*

The infant was reported as sleeping well and had been delivered via natural vaginal delivery with no complications noted. Upon examination it was noted that the infant's vertebral subluxation grading was moderate at C1 on the left and severe at C2 on the right.

Notable symptomatology included reflux and vomiting, feeding better on one side, wind pain, and a sensitive gag reflex. It was also noted that he '*didn't mind*' tummy time, and that his vomiting had decreased when the mother decreased her coffee intake.

He was subsequently diagnosed with a vertebral subluxation complex. As with the previous patient, the care plan was agreed upon with the parent and in accordance with objective findings revealed during the progress (report of findings) sessions.

### *Management*

Following the initial examination the infant was placed on a care plan spanning two sessions per week for four weeks totalling eight sessions. During this time, parents were advised to keep up the tummy time. Chiropractic adjustments targeted C1 Left Posterior, C2 Right Posterior, as well as cranial work, and intra-oral soft tissue therapy work as taught in seminars by Inspiral Resources Australia. [*This is the classic upper cervical counter-rotation subluxation - Ed.*]

Following the initial care plan, a second care plan was advised, with a chiropractic visit every 2 weeks and gradually progressing to one visit every four weeks. This care plan was an a mutual agreement between what the recommendations were of the chiropractor and the desires of the parents.

### *Outcomes*

At the first review, C1 and C2 subluxations reduced to a grading of mild. Additionally, the following changes had been noted:

- ▶ By the third session, the feeding had begun to improve, with less wind pain and less reflux/vomiting episodes observed
- ▶ By the reassessment, the mother was very happy with progress. He was showing significantly improved neck motion and was no longer favouring one side over the other when feeding. The mother also noted that he had no more reflux/vomiting, and only minimal wind pain.

## Case 5 – Colic

### *Patient details*

A five-week-old male infant was presented for care with primary concerns of colic and reflux. Additionally, his parents were concerned with his spinal health and comfort.

### *History and Examination*

In addition to the colic and reflux, parents reported that he favoured turning his head to the right and was exhibiting some breastfeeding difficulty. Other than this, the infant had no other noteworthy medical history apart from being born via c-section. A chiropractic examination revealed severe vertebral subluxations at C1 bilaterally and C2 on the left. The infant was diagnosed with a vertebral subluxation complex.

### *Management*

Following the initial assessment, the patient was placed on a care plan comprising two sessions per week for four weeks totalling eight visits. Adjustments were delivered via age/size appropriate sustained contact technique to address subluxations at C1 bilaterally and C2 left. Dural balance, cranial tensions and oral soft tissue therapy were all addressed with techniques as taught by *Inspirational Resources Australia*. Parents were advised on home-care strategies including tummy time and oral soft tissue therapy.

The infant only attended 4 of 8 sessions in this first care plan. The missed sessions occurred in the second month as the whole family was ill.

### *Outcomes*

Despite the lack of a vertebral subluxation progress exam, other outcomes were noted. By the second session, the mother reported that neck movement had already improved. By the fourth session, the mother reported colic and reflux were improving (40% better), and was moving neck both ways more.

## Discussion

My observations of improvement with caring for several infants with vertebral subluxations in addition to displaying digestive issues, and poor oral function, including hypersensitive gag reflex and reflux demonstrates that there is a possible connection between resolution of vertebral subluxations and the autonomic nervous system function. It is my opinion that further research be performed to understand this possible connection.

### *Of note regarding reflux.*

Often times, infants are diagnosed with GERD or Silent Reflux. It is my opinion from conversations with lactation consultants that this is a misdiagnosis. Rather *Aerophagia* would be a more accurate diagnosis. This is thought to be due to the infant's poor latch (demonstrated clinically by a clicking sound by the baby, which signifies the release of a proper latch, and therefore gulping in air while sucking, also seeing milk leak out of the side of infants mouth while feeding signifies a poor latch, and air likely swallowed in). An improvement of latch is often seen following chiropractic care in my experience, and an improvement in digestive function including reflux.

Clare McIvor  
BBus(Admin),  
GD Comms(ProfWrit,Edit),  
GD(Psych)(Cand)  
Writer, ASRF

Ruth Postlethwaite  
BBiomedSc  
Writer, ASRF

Nic M Dukovac  
BSc, DC  
Chiropractor

---

**Cite:** Dukovac N, Postlethwaite R, McIvor C. Resolution of Infant Reflux Concomitant with Chiropractic Care: A series of 5 cases. Asia-Pac Chiropr J. 2022;3.2. URL [apcj.net/Papers-Issue-3-2/#DukovacInfantReflux](https://apcj.net/Papers-Issue-3-2/#DukovacInfantReflux)

### About

Nik Dukovac is a chiropractor, co-owner of Better Back Chiropractic and Adelaide Family Chiropractic in South Australia, and Founder of *MotusPro*, an online platform to assist people who have failed to gain confidence with their lower back despite trying various therapies. He is passionate about paediatric chiropractic care. The first person voice in this report is that of Dr Dukovac.

### References

1. Beardsley K. Resolution of unilateral breast-feeding preference and reflux in a 14-week-old infant with a preferred head position following chiropractic care: a case report. J Clin Chiropr Pediatr. 2019;18(2).
2. Elster E. Sixteen Infants with Acid Reflux and Colic Undergoing Upper Cervical Chiropractic Care to Correct Vertebral Subluxation: A Retrospective Analysis of Outcome. J Pediatr Matern & Fam Health - Chiropr. 2009. 2;1-7.

### *ASRF definition of subluxation*

*'A vertebral subluxation is a diminished state of being, comprising a state of reduced coherence, altered biomechanical function, altered neurological function and altered adaptability.'*

