

# Pushed, Pulled, and Invalidated

## A Case of Infant Somatic Dysfunction

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### INTRODUCTION

Birth induced somatic dysfunction, as regularly diagnosed and treated by osteopathic physicians, is not routinely appreciated by traditional obstetric or pediatric care. We will examine a case of infant somatic dysfunction with clinical consequences following a traumatic labor where maternal concern went unchecked by her pediatrician. This case highlights the utility of osteopathic manipulative treatment (OMT) in the management of birth related somatic dysfunction (SD).

### CASE DESCRIPTION

#### History of Presenting Illness

A 32-year-old G2P4004 nurse sought OMT for her 6-month-old male, baby B of a fraternal twin birth for abnormal L arm carriage. Mom reports after birth “B was not moving both arms the same”, the left “like a gorilla”. B also had less dexterity of the left hand/arm and plays with objects more with his R hand. Baby A started crawling before B who appeared “frustrated” and uncomfortable bearing weight in the crawling position. Mom voiced concern to B’s pediatrician and was informed everything was normal and told she was “being paranoid”.

**Review of Systems:** Negative for colic, fevers, fatigue, seizures, growth retardation, feeding or sleep difficulties, fussiness, respiratory distress, cyanosis, vomiting, diarrhea, hematemesis, hemochezia, rashes, bruising, trauma.

#### Perinatal History

4 months: bicycle accident; mom landed on her head, chest and torso bruising her left ribs. She sought no intervention. 5 months: tripped while jogging and landed on her face and left shoulder. No intervention. 9 months: Accident while “scooting” on a Razor: landed on the handlebars on her abdomen. She was sore, sought obstetric care and was cleared.

#### Birth History

Labor was augmented with chemical induction and restricted to the lithotomy position with directed pushing. Mom recalls being encouraged to have a cesarian section in lieu of free labor, and characterized the experience as “premature and unnatural.” Baby A (APGAR 9/9, 6lbs 7oz) birthed “easy” while B (APGAR 9/9, 6lbs 14oz) was malpositioned so she “could not push effectively”. B required multiple maneuvers and internal pulling on his arms and ultimately facially presented (Figure 1). Both babies were born healthy, 22 minutes apart and without other complicating factors after 17 hour of labour and discharged on post partum day 2. Mom volunteered that her 1st labor experience as vastly different: Also fraternal twin birth, 30 hour labor, delivering 5.5 hours apart and free to labor in positions she found comfortable with self directed pushing.

**Past Medical/Surgical History:** None

#### Social History

Lives at home with parents and 3 siblings. No smoking in the home. No environmental exposure risks. Bottle fed from birth. Sleeps in crib alone with sibling in same room.

#### B’s Physical Exam

General: Heathy appearing, WDNW infant male. Playful, engaged, smiling. No distress.  
Head: NCAT, patent anterior fontanelle.  
Eyes: EOMI, good eye contact.  
Neck/Throat: Mild L>R posterior auricular adenopathy.  
Cardiovascular: RRR, no MRG. Good peripheral pulses.  
Respiratory: Non labored breathing, CTA bilaterally.  
Abdomen: NBS, soft, NTND, no organomegaly.  
Neurological/Reflexes: Good palmar grip strength. Reflexes WNL. L wrist flexor compartment increased tone. Moves all extremities but with reduced passive ROM of LUE. Sits up unsupported, rolls supine to prone unassisted.

Figure 1



By William Smellie - Plate XXV, "A Set of Anatomical Tables with Explanations", Public Domain, <https://en.wikipedia.org/w/index.php?curid=20851037>

#### Osteopathic Structural Exam (OSE)

Head: SBS Flexed, OAESIRr, L condylar compression, R occipitmastoid interosseous strain.  
Neck: L SCM & anterior scalene muscle hypertonicity, bilateral L>R trapezius muscle hypertonicity  
Thoracic/Back: Reduced primary curvature, L sacroiliac joint resistant to lateral decompression  
Ribs: L upper ribs inhaled  
Upper extremities: L humerus internally rotated, elbow slightly flexed. L radio-ulnar joint pronated. Reduced passive ROM to L shoulder. Fascial strain through L arm into axilla and upper thorax.

#### Assessment and Plan

B sustained intrauterine and intrapartum SD, notable in the cranium, C-T spine, upper ribs, and left UE with myofascial strain and equivocal mild functional thoracic outlet syndrome affecting the radial nerve and elbow supination. Primary care dismissed maternal concern. OMT trial initiated with balanced ligamentous tension and facilitated positional and myofascial release to reduce above SD, improve ROM and optimize function. Treatment was well tolerated without complications.

#### Treatment Course

**Second Encounter:** At 3 week follow up mother report that 2 days after initial treatment, B was better able to bear weight on his forearms and played with both hands. OSE: latissimus dorsi muscle hypertonicity just distal to its humeral attachment, posterior axillary fold tension. OMT performed to these areas.

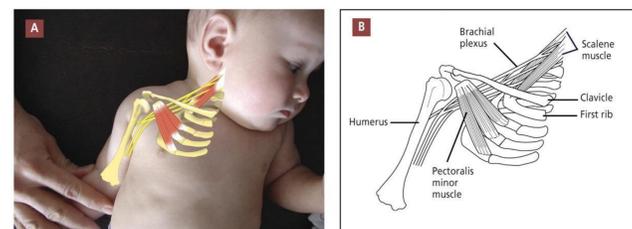
**Third Encounter:** Following second treatment B was atypically tired for the remainder of the day. The following day he crawled for the first time and generally “looser”, more playful and able to pull himself up to a cruising position. OSE: reduced SD of LUE, less trapezius muscle tension, persistent OA extension. OMT performed to these areas.

**Fourth and final encounter:** B developed interim mild URI symptoms OSE: recurrent L SCM and scalene muscles tension. OMT performed to facilitate cervical lymph drainage. Last encounter, B was crawling, used both hands to play and with overall less muscle muscle tension on exam and per mother.

### DISCUSSION

Maternal trauma, forced labor, rapid delivery, manual extraction, and birthing maneuvers are all potential factors in birth injury<sup>4</sup>. Mom opined that the challenges of her first labor were inherently addressed by a self-directed birth, pushing when she felt the urge, and changing positions based on comfort. As such, “Current evidence for management of the second stage of labor supports the practices of delayed pushing, spontaneous (non-directed) pushing, and maternal choice of positions.” and is less stressful to mother and baby than directed pushing, possibly reducing likelihood of trauma<sup>5</sup>. While it is beyond the scope of this discussion to address the merits and degree of intervention, this case includes circumstances that favor increased risk of trauma that was obvious on OSE.

Figure 2



Mason, DC, DO; Ciervo, CA, DO. The Journal of the American Osteopathic Association, February 2009, Vol. 109, 87-91.  
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The involved anatomy (Figure 2) includes the cervical musculature, thoracic outlet, axillary sheath and contents. The scalene triangle is formed by the posterior border of the anterior scalene, anterior border of the posterior scalene and the superior border of the 1st rib at the base. Through this

#### Discussion Continued

passes the brachial plexus contained in the axillary sheath (neurovascular bundle) and continues as the appendicular fascia of the upper extremity<sup>6</sup>. True neonatal brachial plexus injury, ~1-2/1000 births, found in shoulder dystocia, results from stretch or avulsion of the nerve bundle causing variable degrees of gross motor deficit. B’s case, however, is more benign. The intrapartum maneuvering likely contributed to strain to his general appendicular myofascia while the facial presentation produced reflex cervical muscle spasm compromising the thoracic outlet, and in this case C 5-6 nerve roots related to forearm supination<sup>7,8</sup>. The vestiges of B’s birth are reflected on his OSE with anterior cervical, extended OA and upper extremity findings. The response to treatment further supports a compressive force and is consistent with what one would expect when the offending forces of an outlet syndrome are removed<sup>9</sup>. While force during labor can result in neonatal trauma, the forces of this labor were not appreciated as such and therefore not addressed earlier on. Subsequent maternal concern and physician disregard was a missed opportunity for a strong doctor-parent relationship, the gateway to effective history taking, improved outcomes and patient satisfaction<sup>1,2</sup>. The pediatrician could have empathized with mom’s concerns, fostering a “co-participant” relationship, potentially changing outcome<sup>3</sup>. This validation could have empowered mom to seek alternative care at an earlier time.

### CONCLUSION

This case highlights the importance of the osteopathic approach. Osteopathic medical thinking appreciates gestational and intrapartum mechanisms of trauma and their role in newborn function and development. OMT is therefore important in the diagnosis and management of otherwise unrecognized, clinically relevant birth related traumas.

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