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Case report

Osteopathic approach to treating a patient with congenital infantile torticollis reveals unusual presentation of absence of concomitant cranial base strain pattern: A case report

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ABSTRACT

The case of congenital infantile torticollis presented here is instructive to demonstrate how the osteopathic approach to patient diagnosis and treatment may reveal unusual presentation of symptoms. What is unusual in this case is the absence of any cranial base patterns or facial asymmetries, as well as the uniqueness of etiology. Of particular importance, no non-muscular etiologies, including tumor and Arnold-Chiari Malformations, were present. The case illustrates that further research into the prevalence of similar presentations of symptoms is warranted.

1. Introduction

Infantile torticollis is a rare congenital disorder. The incidence of congenital torticollis is reported as 0.3–1.9% [1]. Carreiro reports the etiologies as being muscular or non-muscular [2]. Ballock and Song reported the prevalence of non-muscular torticollis in children as 18.4% of all cases of congenital torticollis [3]. Cheng and associates have studied numerous cases of congenital torticollis with published studies dating from 1994 through 2001. They described congenital muscular torticollis as essentially divided into three groups – postural (27.8% of cases), sternomastoid pseudotumor (35.4% of cases), and muscular alone (36.7% of cases) [4]. Ho and associates reported that birth trauma is the main etiological factor in congenital muscular torticollis [5].

2. Case

A 5-month-old female was brought by her parents for evaluation and treatment following a diagnosis of infantile torticollis. The infant's condition was brought to the attention of the parents approximately 1 month prior. The baby was evaluated by her pediatrician who diagnosed the infant with infantile torticollis and recommended the infant be evaluated by an orthopedic surgeon. The parents wanted to try non-surgical treatment options, and upon recommendation by family friends, wanted to explore osteopathic treatment.

The patient had no prior medical or surgical history. There was no history of any prior trauma (including birth trauma). The infant was spontaneously delivered vaginally at term to a 28-year-old mother who was in excellent health. The mother is 5 feet 5 inches tall and her pre-pregnancy weight was 130 pounds. This was the mother's fourth pregnancy and fourth live birth; there were no miscarriages or elective abortions. The infant weighed 9 lb 6 oz with Apgar scores of 9 and 9. The father is 30-years-old and in excellent health. Older siblings are ages 5, 3, and 2, respectively, all in excellent health. There are no histories of any neurological or musculoskeletal disorders; specifically, there are no histories of any torticollis in the parents or siblings. The review of systems was also non-contributory, except as noted for the presenting complaint.

Physical examination revealed a well-hydrated and well-nourished 5-month-old female, alert and interactive, not in acute distress. The head was normocephalic and atraumatic. No plagiocephaly or facial asymmetry was appreciated. The pupils were equally round and reactive to light; the extra-ocular muscles were intact. Tympanic membranes were intact, pearly gray, and without cerumen bilaterally. Nares were patent, and no congestion, discharge, or epistaxis were appreciated. The throat was moist. The tongue and uvula were midline without deviation. There was no tonsillar hypertrophy. No erythema and exudates were appreciated. Neck was supple and non-tender. No masses, lymphadenopathy, or thyromegaly were appreciated. The heart was of regular rate and

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rhythm, without any murmurs, rubs, or gallops. Lungs were clear to auscultation bilaterally. Respiratory rate was 18 breaths per minute, without use of accessory muscles of respiration. The abdomen was soft and non-tender. Normal bowel sounds were appreciated. No hepatosplenomegaly was appreciated.

Neurological examination showed deep tendon biceps, triceps, brachioradialis, patellar, and achilles tendon reflexes were all 2+; Babinski negative. Infant responded to stimuli; lifts head when both supine and prone. Normal Moro reflex was evident.

Osteopathic structural exam revealed hypertonic left sternocleidomastoid muscle. Head was rotated right and sidebent left at a 45° angle, as measured with a goniometer. The thoracic spine and lumbar spine were straight; no congenital scoliosis was appreciated. No occipital or cervical spine somatic dysfunctions were appreciated. No hypertonicity of the scalene muscles was appreciated. No hip dysplasia was appreciated. No cranial dysfunctions were appreciated. Her cranial rhythmic impulse was appreciated to be about 8 cycles per minute with amplitude of 4/5.

The patient was diagnosed with congenital infantile torticollis (ICD-9CM Code 754.1), muscle spasm (728.85), and cervical spine somatic dysfunction (793.3).

3. Treatment plan

Osteopathic Manipulative Treatment (OMT) to the left sternocleidomastoid muscle (SCM) consisted of Balanced Ligamentous Tension (BLT) and Counterstrain techniques [6,7]. A decrease in the hypertonicity of the left SCM was noted. No significant gross changes in the torticollis were immediately appreciated. The parents were instructed in positioning the infant's toys where she had to turn her head to see them, to carry her so that she looks toward the left side, and to position the crib so that the infant must look to the left side to see them outside the crib. They were also instructed to call to her and stimulate her to look left at various times throughout the day. The parents were also taught gentle stretches which they demonstrated they could perform. They were asked to return in two weeks.

4. Course and response to treatment

Parents brought the patient for follow-up in 2 weeks. Physical examination of the infant again revealed hypertonic left sternocleidomastoid muscle. Head was rotated right and sidebent left at less than a 30° angle (as measured with a goniometer), showing improvement of approximately 15–20° (about 40% improvement). Due to economic reasons, further treatments were to be performed by the physical therapy department at the children's hospital where the parents' health insurance would cover the costs of treatments.

5. Discussion

Infantile torticollis may be divided into those of muscular vs. non-muscular etiology. Of particular concern in the latter are etiologies such as tumor and Arnold-Chiari Malformations. Determining etiology as muscular or non-muscular is important since the latter may have more serious outcomes [8]. Occipital and cervical spine dysfunction, scalene muscle hypertonicity, etc. can lead to facial asymmetries. That these were not present in this case is unusual; the incidence is only 0.3–1.9%.

Cheng and Au reported that patients with muscular torticollis and rotation greater than 30° were more likely to need corrective surgery [4]. Subsequent studies reported the need for corrective surgery for rotation greater than 15° [9]. Cheng and Tang reported that corrective surgery was successful 81.8–88.1% of the time with 1.2% of patients requiring a second surgery [10]. Cheng and associates also reported that for cases where the rotation was greater than 10° that were treated with manual stretching "showed an overall excellent to good results in 91.1% with 5.1% requiring subsequent surgical treatment" [11]. Cheng and associates also reported that "unintentional snapping during the gentle manipulation treatment of congenital muscular torticollis has clinical and ultrasonographic evidence of partial or complete rupture of the sternocleidomastoid muscle. No long-term deleterious effect on the outcome was observed after the snapping" [12]. "Snapping" in this context refers to rupture of the muscle and Cheng associates this with the application of High-Velocity/Low-Amplitude (HVLA) techniques. This medical literature supports the application of BLT and Counterstrain techniques vs. direct techniques, especially Muscle Energy and HVLA. Further investigation of both the association of muscle rupture with the application of direct OMT and also whether there is any "superiority" of indirect vs. direct techniques are warranted.

In a randomized controlled trial of infants less than 6 months old with congenital muscular torticollis, Lee found that the earlier the treatment was initiated, the shorter the duration of treatment [13]. The duration of treatment using manual stretching was 88.2 ± 37.2 days. These data are consistent with the findings of Cheng and associates [12] and Nichter [14].

Shin and associates reported on the genetics of benign paroxysmal torticollis. They reported 8 cases (so this is even rarer than infantile torticollis). They found a possible association of CACNA1A gene mutation with the presence of benign paroxysmal torticollis in infants; however, these appear to be associated with a family history of migraine headaches, ataxia, and upturned gaze [15]. None of these were present in the family history.

The improvement in the torticollis from 45° to less than 30° by treatment of only the left SCM using BLT and counterstrain techniques, supplemented by gentle stretches rendered by the parents, supports the effectiveness of conservative osteopathic manipulative treatment in caring for patients with a muscular etiology for infantile torticollis. Previously reported medical literature advocates the need for surgery in cases such as this; however, the success of the application of Balanced Ligamentous Tension and Counterstrain OMT in this case illustrates that further studies of the application of BLT and Counterstrain OMT are warranted. This case also illustrates that further research into the prevalence of the unusual purely SCM etiology of congenital infantile torticollis without cranial strain patterns or facial asymmetries is warranted.

Author contribution statement

The author (MRB) is solely responsible for the content of this paper. He conceived this project, wrote the first draft of the manuscript, edited, and approved the final version of the manuscript.

Ethical statement

The author has no conflicts of interest and this paper has not previously been submitted for consideration to the IJOM and is not currently under consideration for publication in any other journal (either print or electronic). The paper has not been published elsewhere previously in any form (either print or electronic).

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