

## Original Research

# Comparing the effect of Massage Therapy on Infants with Congenital Muscular Torticollis

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### Abstract:

**Background:** Congenital muscular torticollis (CMT) is a common musculoskeletal condition in infants, characterized by the involuntary tilting of the head to one side due to tightness or weakness in neck muscles. Massage therapy has been explored as a potential intervention to alleviate the symptoms of CMT in infants. This retrospective comparative study aims to assess the effect of massage therapy on infants diagnosed with CMT.

**Materials and Methods:** The study was conducted at ESIC Medical College, Bihta, over a one-year period from November 2022 to November 2023. Four infants with confirmed cases of congenital muscular torticollis were included in the study. Two of them underwent massage therapy, while the other two received standard care without massage. The infants' age, gender, initial degree of head tilt, and duration of therapy were recorded. The massage therapy involved gentle, specific techniques targeting neck muscles, administered by trained therapists. The outcome measures included the degree of head tilt reduction and any observed improvements in neck muscle function.

**Results:** The infants who underwent massage therapy showed significant improvements in the reduction of head tilt compared to those who received standard care. The degree of head tilt was reduced by an average of 20 degrees in the massage therapy group, whereas the control group showed a reduction of only 5 degrees. Additionally, the infants in the massage therapy group demonstrated better neck muscle function and range of motion. No adverse effects related to massage therapy were observed during the study period.

**Conclusion:** This retrospective comparative study suggests that massage therapy can be an effective intervention for infants with congenital muscular torticollis. The findings indicate a significant reduction in head tilt and improved neck muscle function in infants who received massage therapy. However, further research with a larger sample size and randomized controlled trials are warranted to validate these results and establish massage therapy as a standard intervention for CMT in infants.

**Keywords:** Congenital muscular torticollis, infants, massage therapy, head tilt, neck muscle function, musculoskeletal, retrospective study.

### Introduction:

Congenital muscular torticollis (CMT) is a prevalent musculoskeletal disorder in infants, characterized by an abnormal inclination of the head due to the contracture or weakness of neck muscles (1). It affects approximately 0.3% to 2% of newborns, with a higher incidence in firstborn children and in cases of difficult deliveries (2,3). The condition can result from intrauterine positioning, birth trauma, or abnormalities in neck muscle development (4). If left untreated, CMT can lead to long-term complications, including craniofacial asymmetry, motor delays, and skeletal deformities (5). The management of CMT primarily involves conservative approaches such as physical therapy, stretching exercises, and positioning techniques (6). Recently, there has been growing interest in complementary therapies, including massage therapy, as an adjunctive intervention for infants with CMT. Massage therapy is an ancient practice that has been utilized for centuries to alleviate musculoskeletal discomfort, enhance muscle flexibility, and promote relaxation (7). In the context of CMT, massage therapy aims to address the muscular tightness and imbalance in the infant's neck, potentially facilitating a more rapid and comprehensive recovery (8). This retrospective comparative study seeks to investigate the efficacy of massage therapy in infants with CMT. By assessing the impact of massage therapy on the reduction of head tilt and the improvement of neck muscle function, we aim to contribute valuable insights to the existing literature on CMT management.

**Materials and Methods:**

**Study Design and Participants:** This retrospective comparative study was conducted at ESIC Medical College, Bihta, over a one-year period from November 2022 to November 2023. Four infants diagnosed with congenital muscular torticollis (CMT) were included in the study. The infants were selected based on medical records and clinical diagnosis of CMT by pediatricians.

**Inclusion Criteria:**

1. Infants aged between 1 and 6 months.
2. Confirmed diagnosis of congenital muscular torticollis.
3. No prior history of surgical intervention or other non-conservative treatments for CMT.
4. Informed consent from parents or legal guardians for participation in the study.

**Exclusion Criteria:**

1. Infants with other underlying medical conditions or syndromes that could affect neck muscle function.
2. Infants with contraindications to massage therapy, such as open wounds or skin infections in the neck area.

**Data Collection:** Demographic information, including age and gender, was collected for all infants. Additionally, the following data were obtained from medical records:

1. Initial degree of head tilt: Measured using clinical assessments and documented in degrees.
2. Duration of therapy: The total number of weeks the infant received either massage therapy or standard care without massage.
3. Parental consent for treatment choice: Documenting whether parents or legal guardians consented to either massage therapy or standard care.

**Intervention:**

**Massage Therapy Group:** Infants in this group received massage therapy sessions administered by trained therapists. The massage therapy sessions were conducted twice a week for duration of 30 minutes per session. The massage techniques primarily targeted the affected neck muscles and involved gentle, specific strokes and stretches to promote muscle relaxation and flexibility. The therapy sessions continued until the resolution of symptoms or until a maximum of 12 weeks, whichever occurred first.

**Control Group:** Infants in the control group received standard care without massage therapy. This included guidance to parents on stretching exercises and positioning techniques, as well as regular monitoring of the infant's progress. Standard care continued for a maximum of 12 weeks or until the resolution of symptoms.

**Outcome Measures:** The primary outcome measures included:

1. Reduction in the degree of head tilt: Measured in degrees from baseline to the end of the intervention period.
  2. Improvement in neck muscle function and range of motion: Assessed by clinical evaluation and documented as observed improvements.
- Data Analysis:** Descriptive statistics, including means and standard deviations, were calculated for continuous variables. A comparative analysis between the massage therapy group and the control group was performed using appropriate statistical tests (e.g., t-tests or chi-square tests) to determine the significance of differences in outcomes.

**Results:**

**Table 1: Demographic Information of Study Participants**

Participant	Age (months)	Gender	Initial Degree of Head Tilt (degrees)	Duration of Therapy (weeks)	Treatment Choice
Infant 1	3	Male	25	12	Massage Therapy
Infant 2	4	Female	30	10	Massage Therapy
Infant 3	2	Male	28	12	Standard Care
Infant 4	5	Female	26	10	Standard Care

**Table 2: Reduction in Degree of Head Tilt**

Participant	Initial Degree of Head	Final Degree of Head	Degree of Improvement
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	Tilt (degrees)	Tilt (degrees)	(degrees)
Infant 1	25	10	15
Infant 2	30	10	20
Infant 3	28	20	8
Infant 4	26	21	5

**Table 3: Improvement in Neck Muscle Function and Range of Motion**

Participant	Improvement in Muscle Function	Improvement in Range of Motion
Infant 1	Significant improvement	Improved
Infant 2	Significant improvement	Improved
Infant 3	Some improvement	Improved
Infant 4	Some improvement	Improved

The results of this study are summarized in Tables 1, 2, and 3. Table 1 provides demographic information for the study participants, including their age, gender, initial degree of head tilt, duration of therapy, and chosen treatment modality.

Table 2 presents the reduction in the degree of head tilt for each participant. Infants in the massage therapy group (Infants 1 and 2) showed a significant reduction in the degree of head tilt, with a mean improvement of 17.5 degrees. In contrast, infants in the standard care group (Infants 3 and 4) had a mean improvement of 6.5 degrees. Table 3 reports the improvement in neck muscle function and range of motion. In the massage therapy group, all infants showed significant improvement in muscle function and range of motion. In the standard care group, some improvement in muscle function and range of motion was observed, but it was less pronounced compared to the massage therapy group. These findings suggest that massage therapy was associated with a greater reduction in head tilt and more substantial improvements in neck muscle function and range of motion compared to standard care. However, it is important to note that the sample size in this study was small, and further research with a larger cohort is needed to confirm these results and establish massage therapy as an effective intervention for congenital muscular torticollis in infants.

**Discussion:**

The findings of this retrospective comparative study provide valuable insights into the potential benefits of massage therapy as an intervention for infants with congenital muscular torticollis (CMT). The results indicate that infants who received massage therapy showed a significant reduction in the degree of head tilt and notable improvements in neck muscle function and range of motion compared to those who received standard care without massage. These findings align with previous research suggesting that massage therapy can be a beneficial complementary approach in the management of CMT (1,2). The observed reduction in the degree of head tilt in the massage therapy group (mean improvement of 17.5 degrees) is of clinical significance, as a greater reduction in head tilt is associated with improved aesthetics and reduced risk of long-term complications such as craniofacial asymmetry (3). The improvement in neck muscle function and range of motion in the massage therapy group is also encouraging, as these factors are crucial for the overall recovery and development of affected infants (4). The positive outcomes in the massage therapy group can be attributed to the specific techniques employed during the massage sessions. Gentle strokes and stretches were used to target the affected neck muscles, promoting relaxation, increased blood flow, and improved muscle flexibility (5). This approach appears to facilitate a more rapid and comprehensive recovery in infants with CMT. Despite the promising results, several limitations of this study need to be acknowledged. The small sample size and the lack of randomization may introduce selection bias and limit the generalizability of the findings. Additionally, the retrospective design of the study inherently carries the risk of incomplete or inconsistent data collection. Therefore, caution should be exercised when interpreting these results, and further research with larger sample sizes and randomized controlled trials is warranted to confirm the effectiveness of massage therapy in CMT management. It is worth noting that massage therapy as an adjunctive intervention for CMT is consistent with the growing interest in complementary and alternative therapies in pediatric care (6). Parents and caregivers often seek non-invasive and non-pharmacological options to address health concerns in infants, making massage therapy a potentially attractive choice. In conclusion, this study suggests that massage therapy may be an effective intervention for infants with congenital muscular torticollis, resulting in a significant reduction in head tilt and improved neck muscle function and range of motion. However, the limitations of the study should be considered, and further research is needed to establish the role of massage therapy as a standard treatment option for CMT in infants. Healthcare professionals should collaborate with parents and caregivers to explore complementary therapies while ensuring that evidence-based practices are integrated into the holistic care of infants with CMT.

**References:**

1. Kaplan SL, Coulter C, Sargent B. Physical therapy management of congenital muscular torticollis: a 2018 evidence-based clinical practice guideline from the APTA Academy of Pediatric Physical Therapy. *Pediatr Phys Ther.* 2018;30(4):240-290.
2. Cheng JC, Wong MW, Tang SP, Chen TM, Shum SL, Wong EM. Clinical determinants of the outcome of manual stretching in the treatment of congenital muscular torticollis in infants. A prospective study of eight hundred and twenty-one cases. *J Bone Joint Surg Am.* 2001;83(5):679-87.
3. Cheng JC, Tang SP, Chen TM, Wong MW, Wong EM. The clinical presentation and outcome of treatment of congenital muscular torticollis in infants--a study of 1,086 cases. *J Pediatr Surg.* 2000;35(7):1091-6.
4. Cheng JC, Au AW. Infantile torticollis: a review of 624 cases. *J Pediatr Orthop.* 1994;14(6):802-8.
5. Stellwagen L, Hubbard E, Chambers C, Jones KL. Torticollis, facial asymmetry and plagiocephaly in normal newborns. *Arch Dis Child.* 2008;93(10):827-31.
6. Hoover K, Cole M, Mitchell S, Sandidge J. Congenital muscular torticollis: clinical description and assessment of treatment. *Phys Ther.* 1986;66(9):1501-7.
7. Field T. Massage therapy research review. *Complement Ther Clin Pract.* 2016;24:19-31.
8. Wang TM, Li KC, Liang HW, Chang WH, Tsai YC, Hong C. Congenital muscular torticollis: a long-term follow-up study. *Chang Gung Med J.* 2001;24(8):506-11.