

# Congenital Muscular Torticollis: Importance of Differential Diagnosis A Case Report

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## Introduction



**Figure 1:** Infant with left congenital muscular torticollis. (Used with permission from Taylor JL, Norton ES. Developmental muscular torticollis: outcomes in young children treated by physical therapy. *Pediatr Phys Ther.* 1997;9(4):173–178).

Torticollis, also known as “wry neck” and “twisted neck,” comes from the Latin roots torus meaning twisted and collum meaning neck

Torticollis is defined as unilateral shortening of the sternocleidomastoid (SCM)

- Produces lateral flexion of the cervical spine to the ipsilateral side and rotation to the contralateral side

Congenital muscular torticollis (CMT) has been reported in .3% to 2% of all newborns:

- Third most common congenital anomaly in infants

CMT can be broken down into three categories: postural torticollis, muscular torticollis, and SCM mass.

### Comorbidities

#### Developmental Delay:

- According to Tomczak and Rosman (2012) and Schertz, Zuk, and Green (2016), up to 44% of children who had CMT experienced or are experiencing long-term developmental delays.
- These delays included:
  - Autism
  - Developmental coordination disorder (DCD)
  - Language pathologies.
  - Developmental delay has been noted as young as four months and as old as nine years.

#### Musculoskeletal Comorbidities:

- Cranial deformation (DP), hip dysplasia, brachial plexus injuries, and distal extremity deformation (Kaplan, Coulter, & Fetters, 2013; Tecklin, 2015; Tomczak & Rosman, 2012).
  - Tomczak and Rosman (2012) report that cranial deformities occur in 80% of children with CMT (35% SCM mass, 37% muscular, and 28% postural).
- Deformational plagiocephaly (flattening of the skull) has been correlated with limited or asymmetrical exploration and develops secondary to persistent asymmetry for positioning the head.

Example for Right SCM torticollis: cervical lateral flexion (right), cervical rotation (left), frontal flattening (right), occipital flattening (left), jaw retraction (right), and pseudo-facial drop (left) (Tecklin, 2015)

#### Differential Diagnosis:

According to Tecklin, “Almost 20% of cases of torticollis involve a more serious underlying condition, so it is important to consider an expanded differential diagnosis.”

These diagnosis include:

- Atlantoaxial Rotation Instability
- Hemivertebrae
- Cervical Subluxation
- Posterior Fossa Tumor
- Chiari Malformations
- Ocular and Vestibular Abnormalities
- Grisel Syndrome



**Figure 2:** Infant wearing a STARband cranial orthosis to correct plagiocephaly (Tecklin, 2008).

## Purpose Statement

The purpose of this case reports it to depict the importance of differential diagnosis and need for constant assessment during treatment sessions to determine whether appropriate referral is necessary. By reading this case report, it will allow for individuals to see how the clinical practice guidelines were used to determine when physical therapy treatment needed to be discontinued due to lack of progress being made and abnormal findings.

## Case Description

The patient was a seven month and twenty-three day old girl who presented at a pediatric outpatient facility with a diagnosis of torticollis. Her mother reports that she was born full term via a cesarean section, but the pregnancy was complicated due to a motor vehicle accident (MVA) in her first trimester, which resulted in the death of the patient’s twin. The patient was positioned in utero laying towards the right side with her head tilted to the left. At birth, the patient demonstrated torticollis with her head laterally flexed to the left, with flattening of the posterior head. At that time, the patient received physical therapy at another institution from five months of age to seven months of age, but her mother was dissatisfied was the initial quality of care and sought out secondary services through the outpatient pediatric specialty clinic.

## Clinical Impression 1

**SIGNS AND SYMPTOMS:** Left lateral head tilt, right cervical rotation, craniofacial asymmetries

**INCREASED RISK FACTORS:** Complications during pregnancy, decreased womb space due to multiples, and asymmetrical positioning throughout pregnancy.

**CLINICAL NOTES:** Further assessment was required to determine the severity of CMT and whether there was any developmental delay caused by improper motor planning.

## Examination

APTA Guidelines on examination includes the following components:

- Posture and tolerance to positioning
- Bilateral passive cervical rotation and lateral flexion
- Bilateral active cervical rotation and lateral flexion
- PROM and AROM of the upper and lower extremities
- Pain or discomfort at rest
- Skin integrity
- Symmetry of neck and hip skin folds
- Presence and location of SCM mass
- Size, shape and elasticity of the SCM muscle and secondary muscles, and craniofacial asymmetries and head/skull shape

**Table 1:** Evaluation findings for case study patient discussing posture, active and passive range of motion, and problem list found.

		Examination Findings			
Postural Abnormalities		Left lateral head tilt with right cervical rotation; plagiocephaly; craniofacial asymmetries (posterolateral flattening on right, right ear anterior and inferior)			
		Active		Passive	
Range of motion		R	L	R	L
Neck Flexion		Partial Movement Against Gravity			
Neck Extension		AROM in prone 45 degrees			
Lateral Neck Flexion			20 deg	45 deg	
Rotation		60 deg	45 deg	75 deg	50 deg
Problem List		Delayed gross motor development, Impaired balance/equilibrium, Impaired ROM, Impaired strength, Postural Abnormalities, Soft tissue restriction			

**Table 2:** Information on the Baylee Infant Neurodevelopmental Screener (BINS) provided in Tecklin 2012

BINS Assessment	
Appropriate Age	3 to 4 months
Test-Retest Reliability	.71 to .84
Interrater Reliability	.79 to .96
SN and SP	75% and 86%

During the initial evaluation, the case patient also demonstrated decreased range of motion that was consistent with the congenital muscular torticollis diagnosis (Table 1). The case patient demonstrated skills on the BINS assessment tool that scored her at an age equivalent of 20 days old, which placed her at a 91% delay (Table 2); however, the mother reported that she was able to perform more than what was observed.

## Clinical Impression 2

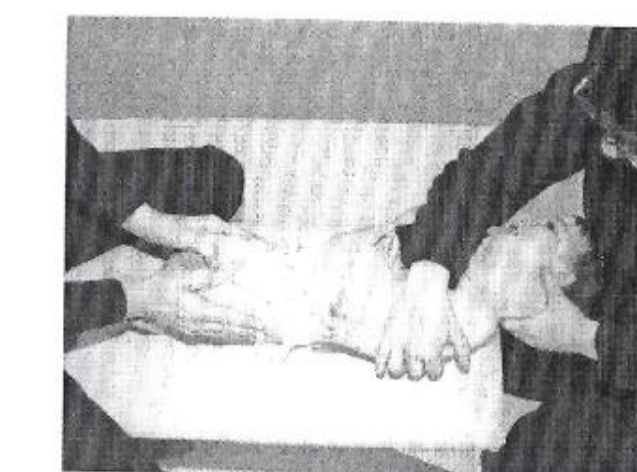
#### FINDINGS:

- Shortening of the left SCM causing left lateral head tilt and right cervical rotation
- Decreased volition to perform functional movements
- inability to perform age appropriate motor skills leading to the conclusion that there was developmental and gross motor delay.

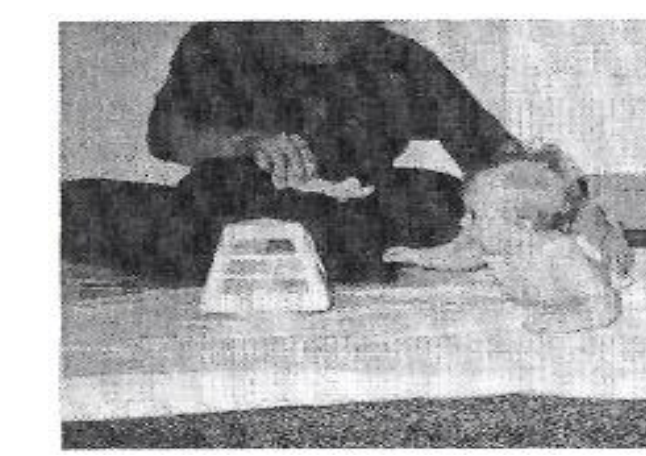
**PROBLEM LIST:** Delayed gross motor development; impaired balance/equilibrium; impaired range of motion; impaired strength; postural abnormalities; and soft tissue restrictions.

**RECOMMENDATIONS:** 2x weekly for 30 minutes with a plan of care set at six months for increased range of motion, strengthening, and midline head position to increase development of age appropriate gross motor skills.

## Interventions Performed



**Figure 3:** Two person passive range of motion stretch to the left sternocleidomastoid and upper trapezius. Picture found in “Torticollis” by Karen Karmel-Ross(1997)



**Figure 4:** Five month old working on weight shifting to the affected side to promote lateral trunk flexion, head righting, and reaching with the unaffected arm. Picture found in “Torticollis” by Karen Karmel-Ross(1997)



**Figure 5:** Working on trunk flexion and lateral cervical flexion on the unaffected side to increase strength. Picture found in “Torticollis” by Karen Karmel-Ross(1997)



**Figure 6:** Reaching to the affected side with active range of motion into cervical rotation. Picture found in “Torticollis” by Karen Karmel-Ross(1997)

## Clinical Impression 3

#### FINDINGS:

- Patient continued to demonstrate decreased passive and active range of motion, shortened SCM, and elevated right scapular bony prominences near the superior angle with limited progress and abnormal findings
- Decreased tolerance to handling and increased concern about lack of progress, a letter was sent to the referring physician about possible osseous abnormalities.

**PROGRESS:** Increased ability to perform rolling tasks, transition from prone to sit, and crawling on hands and knees with no increase in cervical range of motion noted.

**TREATMENT CHANGES:** Passive range of motion was discontinued during treatment and active range of motion was performed to increase independence with developmental milestones.

## Outcome

Due to the primary care physician being in agreement with the physical therapist to discontinue treatment, the BINS assessment was not re-administered at time of discharge; however, the physical therapist reported that discharge was appropriate due to the patient demonstrating age appropriate gross motor skills.

## Discussion

This case study displays the importance of understanding the clinical practice guidelines and use of differential diagnosis while assessing a patient. By understanding when appropriate referral is necessary, it allows for physical therapy as a profession to utilize the differential diagnosis tools that promotes why we are a doctoring profession.

Further research is required to develop an outcome measure for CMT to ensure that the patients are receiving the be most appropriate care.

## References: See Handout with Reference List