Congenital muscular torticollis (CMT) is postural asymmetry in the neck caused by a muscle imbalance, characterized by head tilting to one side and cervical rotation to the other. Plagiocephaly is a flattening on the side of the posterior skull caused by external forces. CMT and plagiocephaly are time-sensitive diagnoses, where outcomes are improved by early referral to physical therapy. Plagiocephaly may resolve with positioning therapy without additional intervention (i.e., helmeting).

ASSESSMENT
Perform a standard health history and physical exam, with special attention to:
• Postural asymmetry in neck/trunk
• Limited cervical range of motion (compare left/right sides)
• Craniofacial asymmetry
• Difficulty nursing or feeding on one side
• Hand preference (reaching with/placing one hand in mouth more frequently)
• Mass or tight muscle fibers in the SCM, scalenes, or upper trapezius musculature

Note: Flattening of the skull NOT corresponding to infant’s postural preference is a red flag for craniosynostosis (see also Craniosynostosis/Plagiocephaly practice tool).

MANAGEMENT/TREATMENT
Early intervention is key for successful outcomes for CMT and plagiocephaly. It is NOT advisable to ‘wait and see’ if an infant will outgrow postural preference or asymmetry.

Manage CMT conservatively with PT; focus is on stretching, strengthening, positioning, environmental adaptations and caregiver education and support.

Manage plagiocephaly conservatively with PT; focus is on positioning techniques, environmental modifications, and early caregiver education (skull is most deformable during first 2–4 weeks of life).

If conservative treatment for plagiocephaly is not sufficient, refer the patient to Cincinnati Children’s Plastic Surgery. An orthotist may recommend a cranial molding device—these devices are not recommended to patients <4 months of age or over 9 months. Younger infants lack sufficient head control to manage a helmet. Beyond 9 months of age, helmets are ineffective in improving head shape.

If you would like additional copies of this tool, or would like more information, please contact the Physician Outreach and Engagement team at Cincinnati Children’s.

If you have questions about a patient of any age with CMT and/or plagiocephaly, email OTPT@cchmc.org, or call the Physician Priority Link® at 513-636-7997.
Torticollis/Plagiocephaly

Patient Presents

Standard Workup/Red Flags

Personal/Family History
- Birth trauma
- First born
- Birth length >51.3cm
- Multiple birth
- Breech positioning
- Difficulty with breast feeding to one side
- History of NAS requiring medication

Physical Exam
- Flattening on one side of the head
- Cervical range of motion limited
- Presence of sternocleidomastoid mass
- Persistent head tilt to one side
- Preference to look to one side more than the other

Any Red Flags?

Yes

Evaluate for Torticollis and Plagiocephaly as follows

Neck exam (completed with infant resting in supine):
- Assess for head tilt or rotation preference
- Assess for asymmetry in neck creases (i.e., number, depth, redness)

Head tilt, rotation preference or asymmetrical neck crease noted?

Yes

Physical exam for neck movement
(completed with infant held in supine on exam table):
- Assess cervical rotation to left and to right: Hold infant’s shoulder flat against the exam table and rotate their head to the opposite side (i.e., nose over opposite shoulder)
- Assess cervical lateral flexion bilaterally: Stabilize the infant’s shoulder and place your hand on top of the infant’s head. Keeping their face forward, laterally flex the infant’s neck in the opposite direction (i.e. stabilize right shoulder while tilting left ear toward left shoulder, stabilize left shoulder while tilting right ear toward right shoulder)

No

No

Is cervical rotation or lateral flexion asymmetrical?

Yes

All ages: Refer to Physical Therapy immediately

No

No

Physical exam for head shape
(completed with infant held in supported sit):
- Observe from above the infant’s head, as well as from behind, at each side, and from the front for any flattening
- Assess symmetry of facial features

Flatness or asymmetries noted?

Yes

Ages 0–2 months: Refer to Physical Therapy
Ages 3–9 months: Refer to Physical Therapy AND Division of Plastic Surgery
Ages 10+ months: Refer to Physical Therapy

No

Continue with routine developmental assessment

For urgent issues, or to speak with the specialist on call 24/7, call the Physician Priority Link® at 1-888-987-7997.