Cervicogenic Headache

Diagnosis/Condition:	Cervicogenic Headache
Discipline:	Integrated
ICD-10 Codes:	G44.86
Origination Date:	2011
Review/Revised Date:	10/2025
Next Review Date:	10/2027

Headaches are a common symptom reported in the population. According to the Global Burden of Disease (GBD) study, headache disorders are among the most prevalent and disabling conditions worldwide. The study estimated an active headache disorder of any type was present in 52.0% of the populations studied (males 44.4%, females 57.8%).[1] The most common form of headache is tension-type headache with a global prevalence of 38%, whereas migraine has a prevalence of 10%, chronic daily headache 3%, and Cervicogenic headache (CGH) 2.5–4.1%.[2] CGH include musculoskeletal elements of the head and neck and is the focus of this Clinical Pathway. A 2025 study found the frequency of CGH to be 3.1% amongst the adult outpatient population, with women representing 80.8%. Headache is the second leading cause of years lived with disability with more disability-adjusted life-years attributed to this than all other neurologic conditions combined.[3] Headache is a frequent reason patients seek out complementary and Integrative Health (IH) providers[4] and US National data suggests that adults with severe headaches used IH more frequently than those without (50% *vs.* 34%).[5]

The International Classification of Headache Disorders, 3rd edition (ICHD), classifies headaches broadly in 3 categories.

Primary headache disorders include:

- Migraine
- Tension-type headache (TTH)
- Trigeminal autonomic cephalalgias (TACs)
- Other primary headache disorders.

Secondary headache disorders include:

- Headache attributed to trauma or injury to the head and/or neck.
- Headache attributed to cranial or cervical vascular disorder.
- Headache attributed to non-vascular intracranial disorder.
- Headache attributed to a substance or its withdrawal.
- Headache attributed to infection.
- Headache attributed to disorder of homoeostasis.
- Headache attributed to psychiatric disorder.
- Headache or facial pain attributed to disorders of the cranium, neck, eyes, ears, nose, sinuses, teeth, mouth or other facial or cervical structures, which include musculoskeletal elements of the head and neck (i.e., **Cervicogenic Headache**).

Part III: Neuropathies & Facial Pains and other headaches:

- Painful lesions of the cranial nerves and other facial pain.
- Other headache disorders.

Clinicians have described headaches related to neck problems for over 100 years. Sjaastad. et al, first offered a hypothesis for "cervicogenic headache" (CGH) in 1983.[6] Initially controversial, the evidence now supports the view, that the neck is a commonly encountered source of headache.[7] A cervicogenic headache presents as unilateral pain that starts in the neck (vertebral or soft tissues) and is often accompanied by reduced range of motion. It is often mistaken for other primary headache conditions such as migraine or tension-type headache.[8] A more descriptive classification defines it as a "chronic headache that arises from the atlanto-occipital and upper cervical joints and perceived in one or more regions of the head and/or face." and often involved referred pain to the neck.[9,10]

To confound the clinical picture, neck pain is also common in "primary" headaches such as migraine, making it difficult to determine which came first, neck pain or head pain.

Both the International Headache Society (IHS)[11] and the Cervicogenic Headache International Study Group (CHISG)[12] have put forward criteria for defining types of headaches. The IHS defines CGH as a headache attributed to a disorder of the neck with evidence of causation demonstrated by at least two of the following with or without imaging evidence:

1. Headache has developed in temporal relation to the onset of the cervical disorder or appearance of the lesion.
2. Headache has significantly improved or resolved in parallel with improvement in or resolution of the cervical disorder or lesion.
3. Cervical range of motion is reduced, and the headache is made significantly worse by provocative maneuvers.
4. Headache is abolished following diagnostic blockade of a cervical structure or its nerve supply.

Prognosis

Often, patients report a milder, self-limited course, while others experience chronic symptoms associated with degenerative changes of the cervical spine that may require multiple or repeated treatment option.[13] Several factors have been associated with enhanced outcomes: advanced age and increased intensity of headache with movement. Additional predictors of poor prognosis in chronic headache:[14]

- Depression.
- Anxiety
- Poor sleep
- Stress
- Medication overuse
- Poor self-efficacy for managing headaches

Subjective Findings and History

- May or may not have a history of head/neck trauma.
- The headache is often described as originating in the upper thoracic or cervical spine with radiation to the head.
- A steady, non-throbbing pain at the back and base of the skull, sometimes extending down to the neck and between the shoulder blades.
- The pain can also be located in the supraorbital or frontal region.
- Pain can start after a neck movement or sustained posture.
- Other symptoms can include those usually associated with primary headache including: nausea, vomiting, dizziness, blurred vision, sensitivity to light or sounds and feeling pain down one or both arms.[15]

Objective Findings

- Restricted cervical range of motion and increased sensitivity to pressure algometry.[16,,17]
- Upper cervical spine tenderness or palpable pain.
- Active trigger points in the spine with referral to the head.
- A discriminant function analysis revealed that collectively, restricted movement, in association with palpable upper cervical joint dysfunction and impairment in the cranio-cervical flexion test (CCFT), had 100% sensitivity and 94% specificity to identify cervicogenic headache.[18]
- Dysfunction of trapezius muscle was most responsible for CEH etiology,[19] as well as the levator scapulae, scales, and suboccipital extensors.
- Cervical, upper thoracic, and costovertebral dysfunctions/subluxations.
- Positive cervical flexion/rotation test (CFRT)
    - (highest reliability and the strongest diagnostic accuracy for the diagnosis of CGH.[20,21]
- Anesthetic blockade of the lateral atlanto-axial joint, the C2-3 zygapophyseal joint, and/or the C3-4 zygapophyseal joint can be used to confirm the diagnosis of cervicogenic headache. This is a limitation that adds to the difficulty of confirming the diagnosis. Imaging-guided blockade (using fluoroscopy, CT, or ultrasound) is necessary to assure accurate and specific localization of the pain source.[22,23]

Assessment

Most clinical guidelines stress the lack of objective means for testing and diagnosing cervicogenic headache. They rely instead on an experienced clinician to perform accurate and comprehensive physical exam and patient history to differentiate between primary and secondary forms of headache.

- **Rule out "red flags".** Patients with one or more red flags should be referred for immediate consultation and further investigation. The mnemonic "SNOOP" can be helpful to remember some of these "red flag" elements:
    - **S:** Systemic sign of symptoms - headache associated with fever, meningismus (e.g., nuchal rigidity or neck stiffness), skin rash, and with a history of cancer, HIV, or other systemic illness.

- **N:** Neurologic signs or symptoms - headache associated with focal neurologic signs other than typical aura, e.g., hemiparesis, hemisensory loss, diplopia, dysarthria.
- **O:** Onset - sudden onset of a new severe headache "worst headache of life" that reaches peak intensity in seconds to minutes (e.g., "thunderclap headache").
- **O:** Older Age – new onset headache >40 years of age.
- **P:** Progression of existing headache disorder - a worsening pattern or progression of a pre-existing headache in the absence of obvious predisposing factors.
- **Other red flags include** papilledema with focal signs (e.g., blind spots), persistent headache precipitated by a Valsalva maneuver, evidence of hypertension with the headache, unexplained weight loss, new headache during or following pregnancy.[24,25]

In 2013, The American Headache Society (AHS) joined a campaign called "Choosing Wisely", to try to limit tests and procedures associated with low-value care in headache medicine. They focus on migraines but also address all headache disorders. The five recommendations approved by the AHS Board of Directors were:

(1) Don't perform neuroimaging studies in patients with stable headaches that meet criteria for migraine.
(2) Don't perform computed tomography imaging for headache when magnetic resonance imaging is available, except in emergency settings.
(3) Don't recommend surgical deactivation of migraine trigger points outside of a clinical trial.
(4) Don't prescribe opioid- or butalbital-containing medications as a first-line treatment for recurrent headache disorders; and
(5) Don't recommend prolonged or frequent use of over-the-counter pain medications for headache.[26]

Plan

Manual Adjustments/Manipulation[27,28,29]

- A 2016 trial (N=110) compared the effects of upper cervical and upper thoracic manipulation to mobilization and exercise in individuals with CGH.
  - The results demonstrated that patients with CGH who received cervical and thoracic manipulation experienced significantly greater reductions in headache intensity, disability, headache frequency, headache duration, and medication intake as compared to the group that received mobilization and exercise; furthermore, the effects were maintained at 3 months follow-up.[30]
- An RCT (N=200) suggests a 6 week treatment of SMT combined with specific exercises (e.g., deep neck flexor exercises) had significantly reduced headache frequency and intensity, and the neck pain and effects were maintained for all at the 12 month follow up.[31,32]
- A 2018 RCT (N=256) found that the highest and most effective dose of 18 SMT treatments reduced CGH by half.[33]
- Consider treating temporomandibular joint adjunctively.[34]
- A 2023 RCT indicated spinal mobilization and postural correction exercises are effective in the management of cervicogenic headache.[35]

Physical Modalities (Western)

- A 2016 systematic review and meta-analysis found that physical therapy led to a statistically significant benefit for reduced pain, frequency, and duration of cervicogenic headache.[36]

Mind-Body Therapies

- Stress reduction.[37]
- Biofeedback.

Movement and Exercise

- Specific Exercises.[38]
- Postural changes as needed.

Soft Tissue Therapies

- Trigger point therapy and injections.[39,40]
- Myofascial release.[41]
- Graston technique.[42]

Herbal Medicine (Western)

- Botanical medicines: Nervines, Humulus, Valerian, Scutellaria, Piscidia, Passiflora, Primula, Lemon balm, Filipendula, ginger, Usnea, Peppermint, Monarda, white willow, Feverfew; lavender, rosemary, Piper methysticum, Stachys betulina, Anti-spasmodic: Cimicifuga, Viburnum, CBD oil preparations with Arnica, Ginger, Curcumin; Dioscorea, Curcumin.[43]

Supplements and Nutrients

- Magnesium.
- Mag phos, Calc fluor cell salts.

Injection Therapies

- Anesthetic injections of the lateral atlanto-axial joint, the C2-3 zygapophyseal joint (and the overlying third occipital nerve), and/or the C3-4 zygapophyseal joint can temporarily reduce or relieve pain and may allow greater participation in physical treatments.[44,45]
- Cervical plexus block.[46]
- Neurostimulation (occipital nerve).[47]
- Corticosteroid injection.[48,49,50]
- Botulinum toxin injection.

Pharmaceuticals (OTC)

- Analgesics: The ICSI guidelines (2011) caution “Drug treatment of acute headache should generally not exceed more than two days per week on a regular basis. More frequent treatment other than this may result in medication-overuse chronic daily headaches.”[51]

Pharmaceuticals (Prescription)

- Pharmacologic treatments including: Pregabalin[52] and tricyclic antidepressants, gabapentin.

Homeopathy

- Appropriate homeopathic remedy based on symptom analysis.

Acupuncture

- A 2024 meta-analysis (n=17; 1,995 participants) suggests benefit of acupuncture for compared to various controls (e.g. usual care, massage, PT, mobilization)[53]
    - "Total Effective Rate" favors acupuncture [OR: 5.0; 95% CI: 3.7 - 6.8; P<0.00001 (I^2: 30%)]
    - Caution warranted; majority of trials (15/17) were of low quality
- Ashi Acupuncture & Dry needling suggests benefit: See below for more on this subject**
    - An RCT (N=142) suggests electro-acupuncture + upper cervical/ thoracic spinal manipulation was shown to be more effective than non-thrust mobilization and exercise.[54]
    - Three small pilot trials (n<30) suggest that a single 'dry needling' treatment may provide relief of CGH-related symptoms.[55,56,57]

Outcomes Assessment

- Visual analog pain scale (VAS).https://www.physio-pedia.com/Visual_Analogue_Scale
- Headache diary. https://headaches.org/resources/headache-diary/
- Headache disability index (HDI). https://www.physio-pedia.com/Headache_Disability_Index
- Patient Specific Functional Scale. https://www.physio-pedia.com/Patient_Specific_Functional_Scale
- Measure Yourself Medical Outcome Profile (MYMOP). https://www.physio-pedia.com/MYMOP_-_Measure_Yourself_Medical_Outcome_Profile

Referral Criteria

- "Red Flags" require immediate referral (see above).
- Failure to respond to 3-6 weeks of treatment, referral to appropriate medical specialist, e.g. neurologist.
- Surgery consultation may be an option for those with cervical stenosis or compression.[58]

Resources for Clinicians

StatPearls: Cervicogenic Headache (www.ncbi.nlm.nih.gov/books/NBK507862/)

Bryans R, Decina P, Descarreaux M, et al. Clinical Practice Guideline for the Management of Headache Disorders in Adults. Guidelines Development Committee under the auspices of the Canadian Chiropractic Association and Canadian Federation of Chiropractic Regulatory and Education Accrediting Boards, *Clinical Practice Guidelines Project.* January 2012. Available at https://www.jmptonline.org/article/S0161-4754(11)00068-6/fulltext

Lai J, Harrison RA, Plecash A, Field TS. A Narrative Review of Persistent Post-Stroke Headache - A New Entry in the International Classification of Headache Disorders, 3rd Edition. Headache. 2018;58(9):1442-1453. Available at: https://ichd-3.org/wp-content/uploads/2018/01/The-International-Classification-of-Headache-Disorders-3rd-Edition-2018.pdf

Resources for Patients

American Headache Society Committee for Headache Education (ACHE) –http://www.achenet.org/ – Search for "Headache Diaries"

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**Heraya Health agrees with the evidence supporting the notion that the modern technique referred to as 'dry needling' (DN), is rooted in the clinical practice of acupuncture.[59,60] Despite the debates regarding its historical context, many states include DN within the scope of practice of non-acupuncture providers (DPT, DC, ND, etc.). Evidence is mounting to suggest that DN is safe and effective for some musculoskeletal conditions, when provided by trained professionals.[61,62,63,64] For more on this topic see our white paper titled, Honoring the Roots: Dry Needling & Acupuncture.

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