Pain in the Neck

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Objectives

- Recognize the patient presentation consistent with a Muscle Tension Headache
- Understand a reasonable medical workup for new or worsening headaches
- Describe the general anatomy of the posterior neck, superficial to deep, as it relates to the clinical presentation.
- Discuss the osteopathic approach to Neck stiffness / Muscle Tension Headaches
- Identify physical therapy interventions beneficial for a patient with muscle tension headaches.
55 year old white male with complaints of his head hurting every day for the past three months. Nothing particular happened when this started and at first it was just like a normal headache. But it never really goes away. It gets better in the morning and Tylenol and Advil both help. But by the end of the day I just can’t function the pain is so bad. I have had headaches in the past. But only one or two a year and lasting a few hours.
The pain is like a band around my head and it just gets tighter as the day goes by. Feels like a constant pressure. Nothing in particular makes it worse. The headache is better in the morning so I guess sleep makes it better. I would rate the pain as 2/10 in the morning and 7/10 by the end of the day. My neck is always stiff, but the real pain is in my head.

Allergies: Hayfever in the fall (runny nose and itchy eyes), denies food or drug

Are there worrisome features (SNOOP)?

Systemic symptoms or illness (especially fever, change in mentation, anticoagulation, current or recent pregnancy, or cancer)

Neurologic symptoms or signs (papilledema, asymmetric cranial nerve or motor function, or abnormal cerebellar function)

Onset is recent or sudden

Onset after 40 years of age

Previous headache history is different or progressive

Medications: Ibuprofen 200mg 6-8 tabs at bedtime po
Tylenol 500mg 2 tabs every 4 hours PRN po

PROS: Gen-increased work stress for 3-4 months with several employees quitting unexpectedly but no fever or chills; HEENT – no photophobia, phonophobia, tinnitus; GI – No nausea or vomiting, no change in appetite; Musculoskeletal – some decreased ROM in neck and pain at the base of the skull; Neuro – no weakness, no slurred speech, no change in mental status noted

- **Pmed**: No history of Cancer
- **Psurg**: Wisdom teeth extracted when 16
- **Soc**: No smoking, EtOH, Illegal Drugs, Exercise is minimal and no stretching or flexibility work
- **Fam**: Mother 75, alive, migraines; Father deceased at 68, MI
- **Imaging** – what kind
- **Lab testing** – what
- **Referral** – patient willingness
- No Nausea, no aura, no photophobia, no phonophobia – not migraine
Vitals: BP 135/84, Pulse 78 and regular, Respirations 18, Weight 250, Height 69”, BMI – 36.9 kg/m²
Gen: Alert and Oriented x3, in mild distress but not ill appearing
HEENT: Eye: Funduscope with no papilledema; Ear: TM Clear with good cone of light, external auditory canal clear; Nose: pink moist mucus membranes without turbinate hypertrophy; Mouth: moist mucus membranes, Mallampati score 3; Thyroid: no enlargement or mass appreciated; Cervical: No cervical or supraclavicular lymph nodes.

- Ear and Nose – no allergies, not dehydrated, no sign of infection
- Mouth – teeth in good repair, no sign of infection
- Did we ask about snoring?

Heart: RRR, no S3, S4, no murmur, no extra heart sounds, no carotid bruit
Lungs: CTA bilaterally, no increased AP diameter
Neurologic: Patellar and biceps reflexes 2/4 and symmetric, grip 5/5 and symmetric, facial expressions symmetric
Osteopathic: Bilateral Suboccipital MS, SBS compression, OA SRRL

- Downgrade MI/Afib
- Downgrade Carotid Stenosis
- No COPD
- No Focal Neurologic signs
- Muscle spasm in the right place
Diagnosis – G44.52 Chronic Daily Headache

Differential to include:
- Stroke
- Intracranial mass effect
- Chronic Muscle Tension Headache
- Sleep Apnea
- Hepatitis C
- Anemia
- Autoimmune
- Obesity
- Somatic Dysfunction

Violates SNOOP – new onset, after age 40, worsening – imaging indicated, MRI vs CT

Blood work for basic check (CBC, CMP, +/- A1c, CRP, ESR)
The musculature, what muscles? Superficial to deep?

Headache distribution referring over superficial surface of occiput and temporal regions

• What dermatomes or cranial nerve may be involved?
Greater Occipital Nerve (C2)

Lesser Occipital Nerve (C2)

Suboccipital Nerve (C1)

Posterior Arch Atlas (C1)

SCM=Sternocleidomastoid
T=Trapezius
SP=Splenius Group
SC=Semispinalis Capitis
RPM=Rectus Capitis Post. Major
IO=Inferior Obliquus Capitis
SO=Superior Obliquus Capitis
SCM=Sternocleidomastoid
T=Trapezius
LS=Levator Scapulae
SP=Splenius Group
Dermatome/Myotome

**FIGURE 1.35.** Dermatomes and myotomes. Schematic representation of a dermatome (the unilateral area of skin) and myotome (the unilateral portion of skeletal muscle) receiving innervation from a single spinal nerve.

Pain Referred?

- Upper Cervical Cord
- Lower Cervical Cord

- Spinal Tract of CN V
- Spinal Nucleus of CN V
- Lissauer’s Tract (Dorsolateral)
- Substantia Gelatinosa
CT Scan with contrast read as normal

CT chosen because low risk patient. Contrast helps differentiate tumors.

Stroke is detectable after 48 hours with CT.
- No snoring, feels better in the morning
- Blood work within normal limits
- Referral to PT for treatment
- Consider rebound Headache
- Cyclobenzaprine 10mg at bed time po

- No sleep study scheduled
- Not DMT2, Hepatitis C, inflammatory markers (CBC, CRP, ESR) negative so unlikely autoimmune or new CA
- Daily use of pain medicines
- Muscle Relaxant to help reduce use of ibuprofen
OMM Considerations

Associate Professor,
OMM Department
Des Moines University
• Performing an **osteopathic structural examination (OSE)** can be quite useful

• **What are we looking for?**
  – *SDs that are causing or contributing to the clinical condition*

• **Neck pain from somatic dysfunction that is mechanical in origin not only involves the **cervical** region but also:**
  – *SDs in the: Head, Upper Thoracics, Upper Ribs, and Upper Extremitities*

• **(This patient:)**
  – *Bilateral Suboccipital muscle (tight/spasm),*
  – *SBS compression*
  – *OA SBr ROTI*
IMPORTANCE OF OMM FOR NECK PAIN

• What is causing the Muscle Spasm?
  – Often pain
  – Poor posture with standing or sitting
    • Pelvis tilt / short leg syndrome
    • Head and shoulder forward posture
  – Can be referred pain from other upper extremity/upper back muscles
    • Lower trap, Upper trap, splenius muscles

Pelvis tilt / short leg
Head forward posture
The therapeutic role of OMT is very significant in helping to treat neck pain and headaches

- MOST people with neck pain can benefit from OMT
  - Systematic reviews of randomized clinical trials have shown that manipulation plus exercise is beneficial for acute and chronic mechanical neck disorders with or without accompanying pain radiation to the head.

Recurrent nature of neck pain and/or headaches may be due to Unresolved Somatic Dysfunctions

- Becomes important to make an early and accurate diagnosis AND provide OMT
- As Osteopathic physicians, our treatment goals should be:
  - Decreasing symptoms, improving motion, and improving function
What can you DO?

• **DIAGNOSIS:**
  – Thorough evaluation with your *History* and *Physical*
  – Osteopathic structural exam
    • TART findings (Somatic Dysfunctions)

• **RECOMMENDATIONS:** (Determine):
  – Is the patient is appropriate for OMT- MOST OF THE TIME- YES!!
    • Important to consider the anatomy, physiology, and biomechanics of the region to understand the therapeutic role of OMM and to avoid complications
    • OMT of your choice: SCS, ME, HVLA, MFR, FPR, Still, ST, etc.
  – If there are **RED FLAG** concerns, that *in addition to OMT*, warrant further investigation:
    • Consider *imaging* (trauma, fracture, neurologic deficit)
      – Often not needed initially
    • Consider *referral* if appropriate (neurology, ortho, rheum, vascular, etc.)
• When do I consider referral to PT?
  – Chronic neck pain with suspected perpetuating factors that has not resolved with OMT, specific treatments, (w/wo) lifestyle modifications

• Consider Physical Therapy Referral:
  – **Postural stress** (shoulder/head forward posture) or
  – **Muscular Imbalance** of Upper trunk muscles
    • Stretch tight muscles, strengthen weak muscles
    • Strengthening (DCF, Scapular retraining)
    • Home exercise program
  – **Ergonomic issues** in the workplace
  – Trial of **cervical traction** device
  – Teaching of **Home Exercise Program**
SUMMARY: NECK PAIN & OMM

- VERY FEW patients will need cervical surgery or an epidural steroid injection... BUT

- MOST people with neck pain can benefit from OMT
Interventions For Tension Headache Case
Neck Pain: Clinical Practice Guidelines

- Posture / Ergonomics
- Flexion-Rotation Test
- Range of Motion
- Cervical Segmental Mobility
- Strength/Endurance

Neck Pain With Headache (Cervicogenic)*

<table>
<thead>
<tr>
<th>Common symptoms*</th>
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<tbody>
<tr>
<td>• Noncontinuous, unilateral neck pain and associated (referred) headache</td>
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<tr>
<td>• Headache is precipitated or aggravated by neck movements or sustained positions/postures</td>
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Expected exam findings
- Positive cervical flexion-rotation test
- Headache reproduced with provocation of the involved upper cervical segments
- Limited cervical ROM
- Restricted upper cervical segmental mobility
- Strength, endurance, and coordination deficits of the neck muscles
Physical Therapy

Neck Pain: Clinical Practice Guidelines

- Posture / Ergonomics
- Flexion-Rotation Test
- Range of Motion
- Cervical Segmental Mobility
- Strength/Endurance

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Neck Pain With Headache (Cervicogenic)

Common symptoms
- Headache is precipitated or aggravated by neck movements or sustained positions/postures

Chronic
- Cervical manipulation
- Cervical and thoracic manipulation
- Exercise for cervical and scapulothoracic region: strengthening and endurance exercise with neuromuscular training, including motor control and biofeedback elements
- Combined manual therapy (mobilization or manipulation) plus exercise (stretching, strengthening, and endurance training elements)
“Worse by the end of the day”

- Slight forward-head posture
  - Accentuated with demonstration of posture while sitting at work

Castin R. et al. The working mechanism of manual therapy in participants with chronic tension-type headache. JOSPT. 2014.
Ergonomics

https://www.upliftdesk.com/ergonomic-calculator/
Range of Motion

- **Range of Motion**
- **Flexion-Rotation Test**
- **Upper Cervical Flexion**
- **Upper Cervical Extension**

Pictures taken with subjects permission
- **Range of Motion**

  - Limited Flexion and Rotation bilaterally.

  - Limited ROM/ c/o tightness in suboccipital region

- **Upper Cervical Flexion**
PALPATION

Impairments:
- Suboccipital Extensor Muscles
- Upper Traps

MUSCLE LENGTH
ROM Exercises

Neck Stretches

https://earthyyogastudio.co.za/general/desk-yoga-in-your-office
Stretches for desk jockeys | TheSpec.com
http://www.infinitelabs.com/relieve-stress/
Sub-Occipital Mobility
Muscle Performance

- Deep Neck Flexors
- Scapulothoracic Muscles
Mindfulness

https://www.bing.com/images/
The patient will be able to complete a full work day without developing a headache.

- Adjust his work station to promote ideal posture.
- Improve neck range of motion and flexibility to reduce feeling of neck stiffness.
- Improve muscle performance for postural endurance.
- Identify tension held in muscles and manage through mindfulness and exercise.
IHS – Infrequent Episodic Tension-type Headache

Description: Infrequent episodes of headache, typically bilateral, pressing or tightening in quality and of mild to moderate intensity, lasting minutes to days. The pain does not worsen with routine physical activity and is not associated with nausea, although photophobia or phonophobia may be present.

Diagnostic criteria:

A. At least 10 episodes of headache occurring on <1 day/month on average (<12 days/year) and fulfilling criteria B–D
B. Lasting from 30 minutes to seven days
C. At least two of the following four characteristics:
   A. bilateral location
   B. pressing or tightening (non-pulsating) quality
   C. mild or moderate intensity
   D. not aggravated by routine physical activity such as walking or climbing stairs
D. Both of the following:
   A. no nausea or vomiting
   B. no more than one of photophobia or phonophobia
E. Not better accounted for by another ICHD-3 diagnosis.

Description: A disorder evolving from frequent episodic tension-type headache, with daily or very frequent episodes of headache, typically bilateral, pressing or tightening in quality and of mild to moderate intensity, lasting hours to days, or unremitting. The pain does not worsen with routine physical activity, but may be associated with mild nausea, photophobia or phonophobia.

Diagnostic criteria:
A. Headache occurring on 15 days/month on average for >3 months (180 days/year), fulfilling criteria B–D
B. Lasting hours to days, or unremitting
C. At least two of the following four characteristics:
   A. bilateral location
   B. pressing or tightening (non-pulsating) quality
   C. mild or moderate intensity
   D. not aggravated by routine physical activity such as walking or climbing stairs
D. Both of the following:
   A. no more than one of photophobia, phonophobia or mild nausea
   B. neither moderate or severe nausea nor vomiting
E. Not better accounted for by another ICHD-3 diagnosis.