

# Tension Headache Management Using Osteopathic Manipulative Treatment by Targeting Brain Lymphatic Drainage

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## Background and Purpose

Tension-Type Headache (TTH) is commonly encountered in primary care settings, with its pathophysiology remaining unclear.<sup>1,2</sup> Two currently proposed mechanisms include pain originating either from the periphery, suggesting a muscular origin, or central nervous system (CNS), due to changes in central sensitization.<sup>3</sup> In addition, consequences such as the manifestation of cognitive deficits are associated with meningeal lymphatic dysfunction and their close correlation with impaired paravascular cerebrospinal fluid influx/interstitial fluid efflux of solutes in the brain through the glymphatic route.<sup>4</sup> Thus, the recent discovery of possible meningeal lymphatic vessels contributing to establishing fluid balance and CNS tolerance suggests the potential use of lymphatic drainage techniques in treating TTH.

Classification of TTH<sup>5</sup> is based on frequency, duration, and autonomic symptoms involvement but will include presentation of:

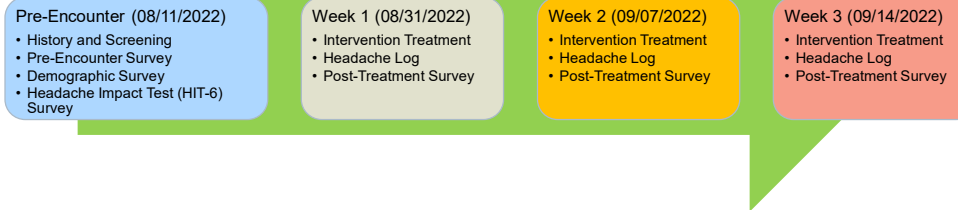
- at least 2 of the following:
  - Holocranial or bifrontal dull vice-like non-pulsating quality headache
  - Mild to Moderate Intensity
  - Bilateral
  - Exertion causes no increase in intensity
  - Not explained by other headaches
  - Episodic in nature Lasting ≥ 30 min
  - Pericranial tenderness

The purpose of this case report is to explore the potential health benefits of incorporating lymphatic drainage techniques in the osteopathic manipulative treatment (OMT) and management of tension-type headaches.

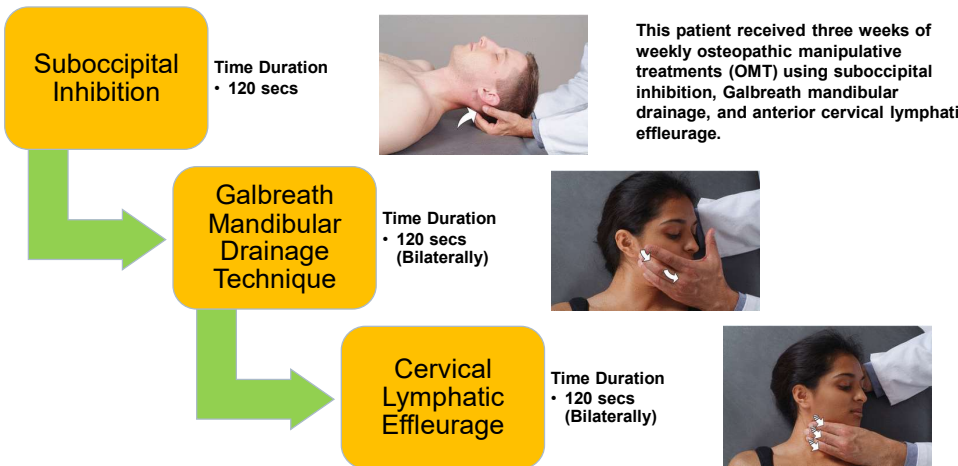
## Patient Presentation

- Middle-aged Caucasian female with a 20 year history of TTH presented to our clinical study for evaluation and treatment
- Symptoms began as bimonthly occurrences 20 years ago and have progressed to weekly, with self-reported worsening before/during:
  - menstruation
  - stress
  - eyestrain
  - cold temperature
  - dehydration
- Insufficient relief was found via lying down, self-massages of painful head regions, over-the-counter NSAID, and a cold pack on her head/neck
- Headache pain is ranked 6/10 and is located in the bifrontal area of the head, behind the eyes, and in the bregma area
- Headache is described as throbbing, pounding, sharp, pressure, heavy, splitting, piercing, and tender

## Timeline



## Interventions



Images source from Atlas of Osteopathic Techniques, 3e

## Data Collections Method

### Post-Treatment Survey

Administered and collected after every treatment session.

- Duration of headaches-please indicate with a checkmark  
Headaches usually last (with medication/supplements): \_\_\_ Minutes \_\_\_ Hours \_\_\_ Days  
Headaches usually last (without medication/supplements): \_\_\_ Minutes \_\_\_ Hours \_\_\_ Days
- Intensity of headaches-how bad are your headaches? Please indicate with a checkmark.  
With medication: \_\_\_ Mild \_\_\_ Moderate \_\_\_ Severe \_\_\_ Unbearable  
Without medication: \_\_\_ Mild \_\_\_ Moderate \_\_\_ Severe \_\_\_ Unbearable
- Frequency of headaches-on average, how often do you have headaches?  
They occur \_\_\_ times each \_\_\_ day \_\_\_ week \_\_\_ month
- Would you say that after treatment, you have noticed a decrease in the frequency of your headaches?  
\_\_\_ Yes \_\_\_ Somewhat \_\_\_ No
- Would you say that after treatment, you have noticed a decrease in the duration of your headaches?  
\_\_\_ Yes \_\_\_ Somewhat \_\_\_ No
- Would you say that after treatment, you have noticed a decrease in the intensity of your headaches?  
\_\_\_ Yes \_\_\_ Somewhat \_\_\_ No

### Headache Log

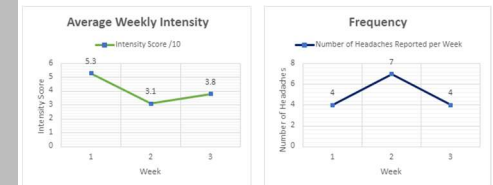
Administered and collected after every treatment session.

Date	Time (Morning, Afternoon, Evening)	Duration (minutes)	Intensity (0-10)	Medication used for relief (and dosage)
Wed. 9/14	Afternoon	1. Vertigo (~20 mins) 2. Headache frontal (2-3 hrs)	1. 7 for about 5min then 2-3 2. dull pain 3	none
Thurs. 9/15	Late afternoon	Headache, frontal/temples (td)	2-3	none
Fri. 9/16	Afternoon	Dull ache, pressure, fog	Started today 3	none
Sat. 9/17	All day	Continued ache & fog	Internalized to level 4-5 & decreased back to 3 in the afternoon	none
Sun. 9/18	All day	Continued ache & fog + pressure in the afternoon	About 2-3	none
Mon. 9/19	All day	Just fog & pressure today	About 2-3	none
Tue. 9/20	All day	Just fog today	About 2-3	none

## Outcomes

Post-Treatment Survey Results	Week 1	Week 2	Week 3
Duration w/ medication	Not Reported	Not Reported	Not Reported
Duration w/out medication	Hours	Days	Days
Intensity w/ medication	Moderate	Not Reported	Not Reported
Intensity w/out medication	Moderate	Mild	Moderate-Severe
Frequency of headaches on average	2/week	2-4/week	2/week
Decrease Post-treatment frequency of headache	Somewhat	Somewhat	Somewhat
Decrease Post-treatment Duration of headache	Somewhat	Somewhat	Somewhat
Decrease Post-treatment Intensity of headache	Yes	Yes	Yes

### Headache Log Results



## Discussion

### Results Interpretation:

- This case report reported mild resolution of the patient's symptoms' intensity but not frequency or duration during the three-week treatment period.
- The post-treatment survey shows an outlier increase in the reported intensity of the patient's headache in the third week.
- The daily headache logs of the third week showed an average decrease in intensity for that week, indicating mild resolution with the proposed OMT on TTH management despite the post-treatment survey outlier result.

### Limitations:

- Limited literature evidence of lymphatic OMT efficacy on TTH
- Limited quantification of intensity, duration, and frequency due to formatted surveys
- Treatment sessions are limited to only three weeks

### Conclusion:

- The mild decrease in headache intensity from this case report suggests that the OMM management of TTH should consider incorporating lymphatic OMT.
- Further research with a significant increase in the number of participants and better quantifiable surveys are necessary to appropriately investigate the efficacy of this treatment method on future patients.

## Acknowledgements & References

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