

Osteopathic Approach to Headache

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Overview

- ◆ Who I am/what I do
- ◆ Discuss migraine
- ◆ Discuss occipital neuralgia
- ◆ Identify anatomical contributors to both types of headache
 - ◆ The basis of treatment with OMM
- ◆ Describe potential osteopathic treatments for both types of headache

Migraine

- ◇ ICHD-3 criteria
 - ◇ Headache attacks lasting 4-72 hr (untreated or unsuccessfully treated)
 - ◇ Headache has at least two of the following four characteristics:
 - ◇ unilateral location
 - ◇ pulsating quality
 - ◇ moderate or severe pain intensity
 - ◇ aggravation by or causing avoidance of routine physical activity (i.e. walking or climbing stairs)
 - ◇ During headache at least one of the following:
 - ◇ nausea and/or vomiting
 - ◇ photophobia and phonophobia

Migraine

- ◇ Phases
 - ◇ Prodrome (1-72 hours prior to head pain)
 - ◇ Main categories
 - ◇ Fatigue/cognitive change/mood change
 - ◇ Homeostatic alterations
 - ◇ Sensory
 - ◇ Often mistaken as trigger
 - ◇ Abnormal brain behavior prior to headache

Migraine

◆ Phases

◆ Aura (within 60 minutes of head pain)

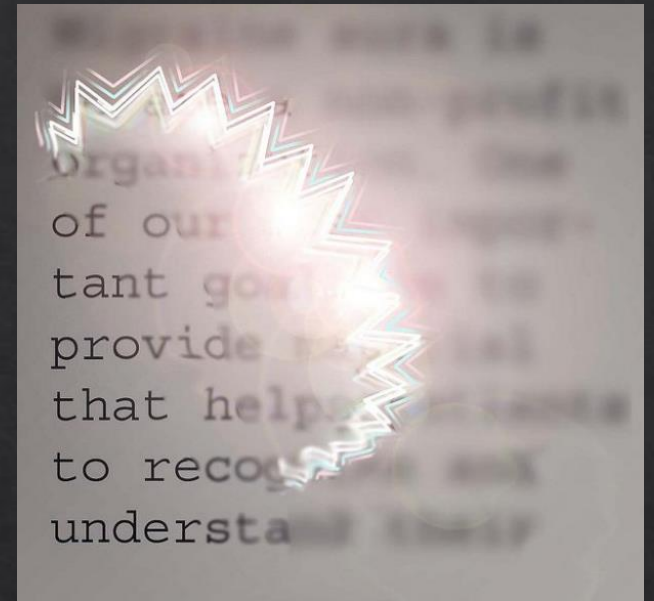
◆ Features

- ◆ Visual/retinal, sensory, speech/language, motor, brainstem
- ◆ One aura symptom spreads gradually over ≥ 5 minutes; two or more aura symptoms occur in succession
- ◆ Each individual aura symptom lasts 5-60 minutes

◆ Pathophysiology

- ◆ Uncoupling of normal relationship between brain activity and blood flow

◆ Headache



Migraine

- ◇ Phases

- ◇ Postdrome (from resolution of headache until back to normal)
 - ◇ Similar symptoms to prodrome

Aura of Migraine

**Cortical Spreading Depression
(CSD)**

TGVS

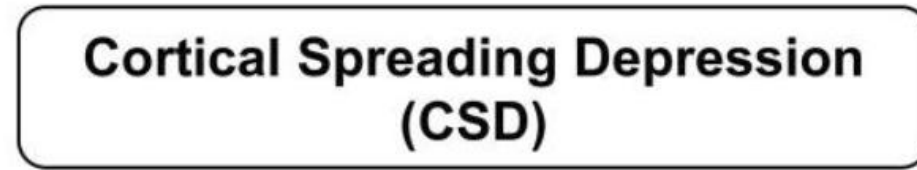
Inflammation

TNC

**Central
Sensitization**

Thalamus etc. pain centers

PAIN



Migraine

- ◇ Impact of migraine
 - ◇ Economic
 - ◇ Physical
 - ◇ Pain
 - ◇ Stroke
 - ◇ Psychological

Migraine

- ◇ Preventative treatments
 - ◇ Lifestyle modifications/trigger avoidance
 - ◇ Supplements
 - ◇ Antiepileptics, antidepressants, antihypertensives, muscle relaxers
 - ◇ Anti-CGRP
- ◇ Abortive
 - ◇ Triptans
 - ◇ NSAIDs
 - ◇ Antiemetics

Occipital Neuralgia

◇ ICHD-3 Criteria

- ◇ Pain in the distribution(s) of the greater (90%), lesser, and/or third occipital nerves
- ◇ Pain has at least two of the following three characteristics:
 - ◇ (1) recurring in paroxysmal attacks lasting from a few seconds to minutes (2) severe in intensity (3) shooting/stabbing/sharp in quality
- ◇ Pain is associated with both of the following:
 - ◇ dysaesthesia and/or allodynia
 - ◇ either or both of the following:
 - ◇ a) tenderness over the affected nerve branches
 - ◇ b) trigger points at the emergence of the greater occipital nerve or in the distribution of C2
- ◇ Pain is eased temporarily by local anesthetic block of the affected nerve(s)

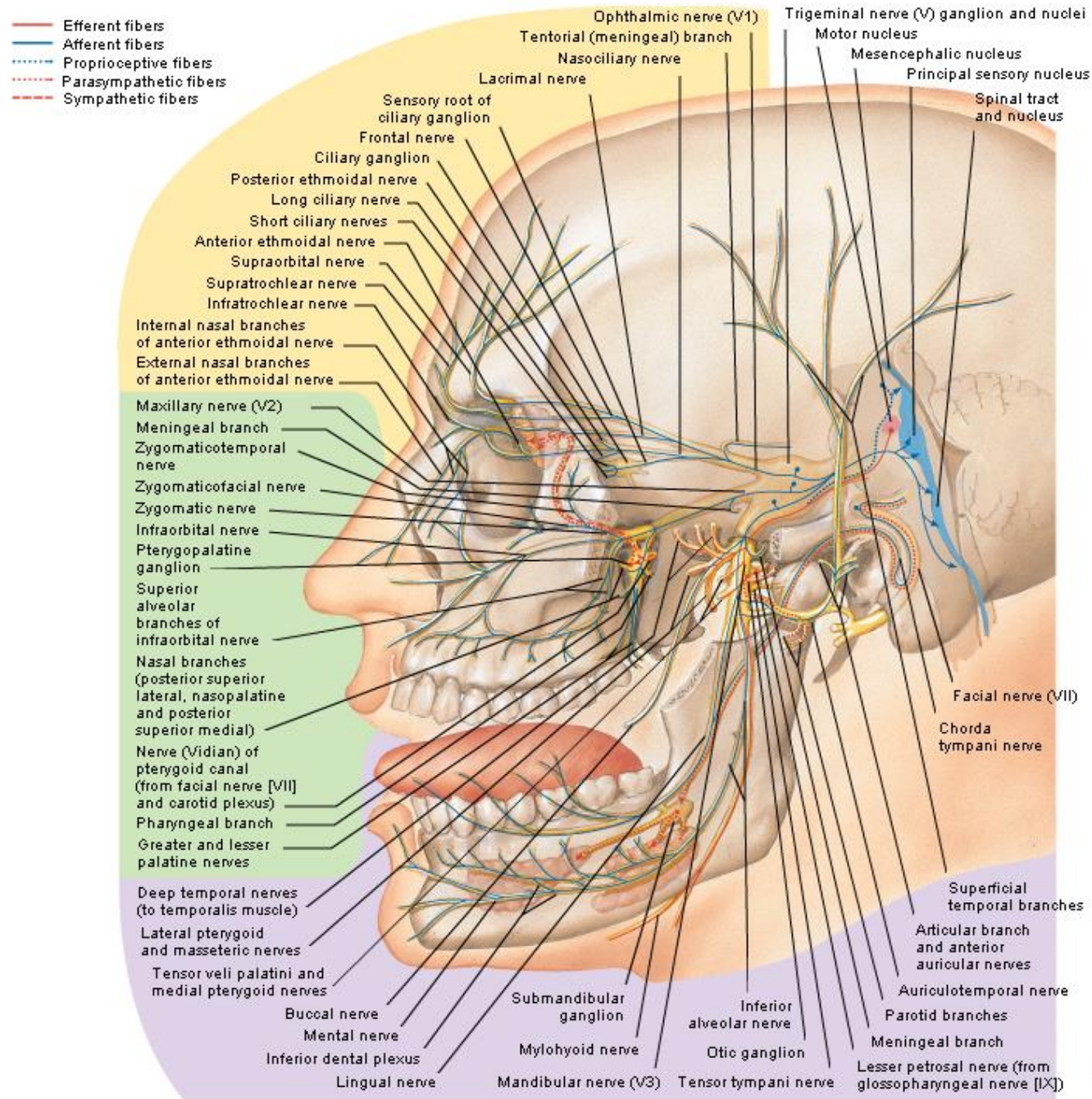
Occipital Neuralgia

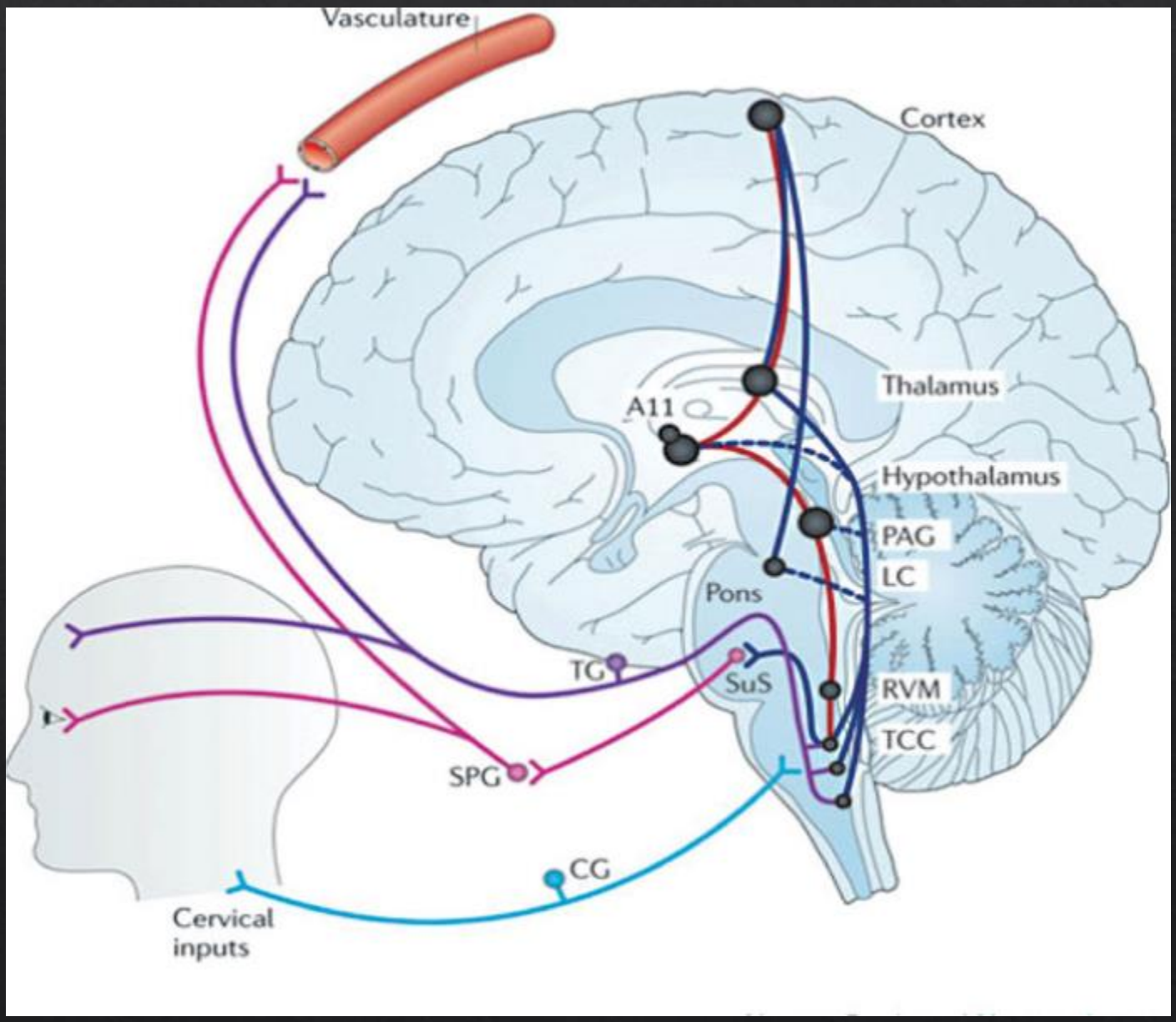
- ◇ Impact of Occipital neuralgia
 - ◇ Economic
 - ◇ Physical
 - ◇ Pain
 - ◇ Psychological

Migraine

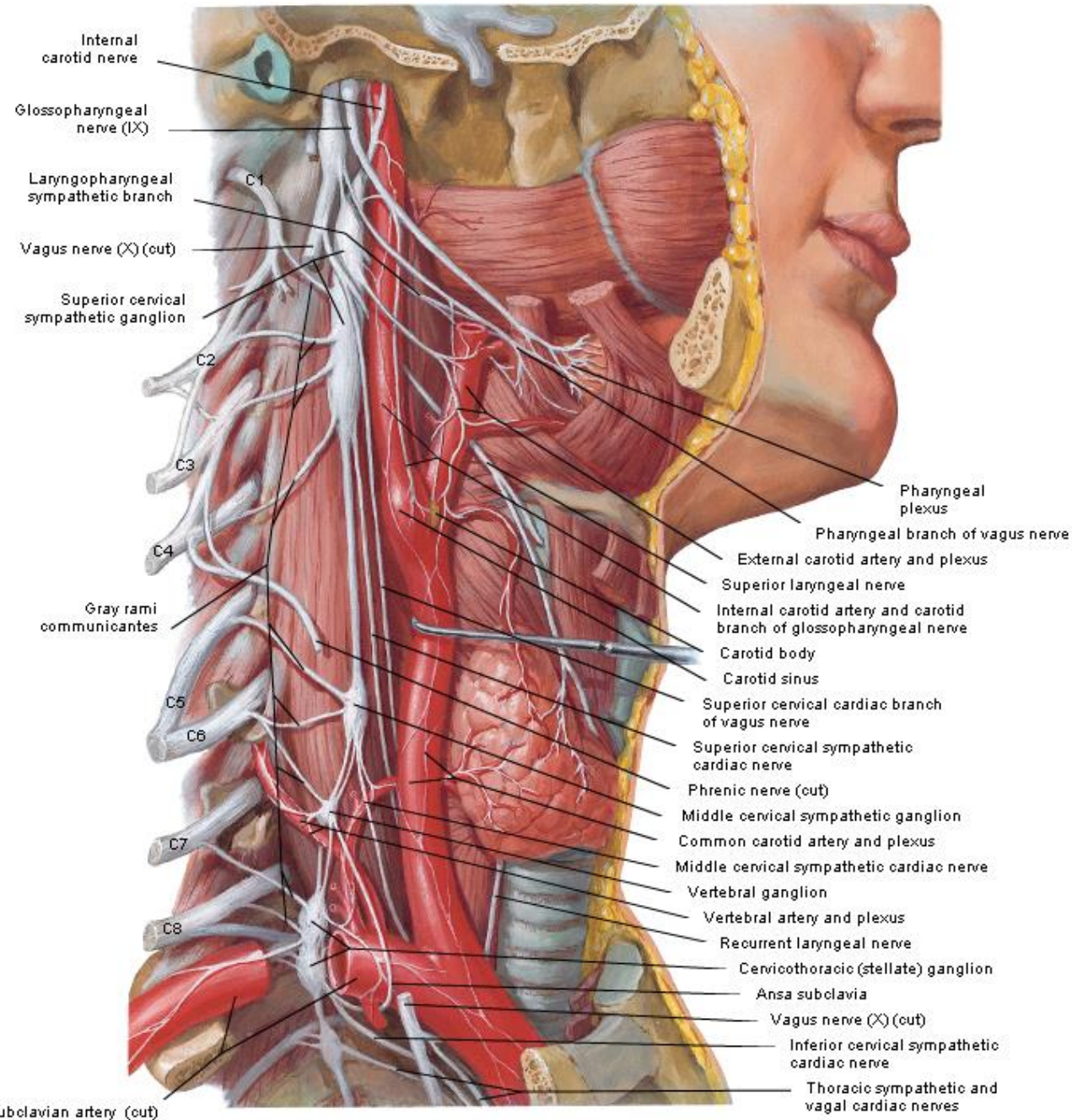
- ◇ Anatomy
 - ◇ Trigeminal nerve
 - ◇ Trigemino-cervical Complex (autonomics)
 - ◇ Thalamus
 - ◇ Sensory Cortex

Trigeminal Nerve (V): Schema





Autonomic Nerves in Neck

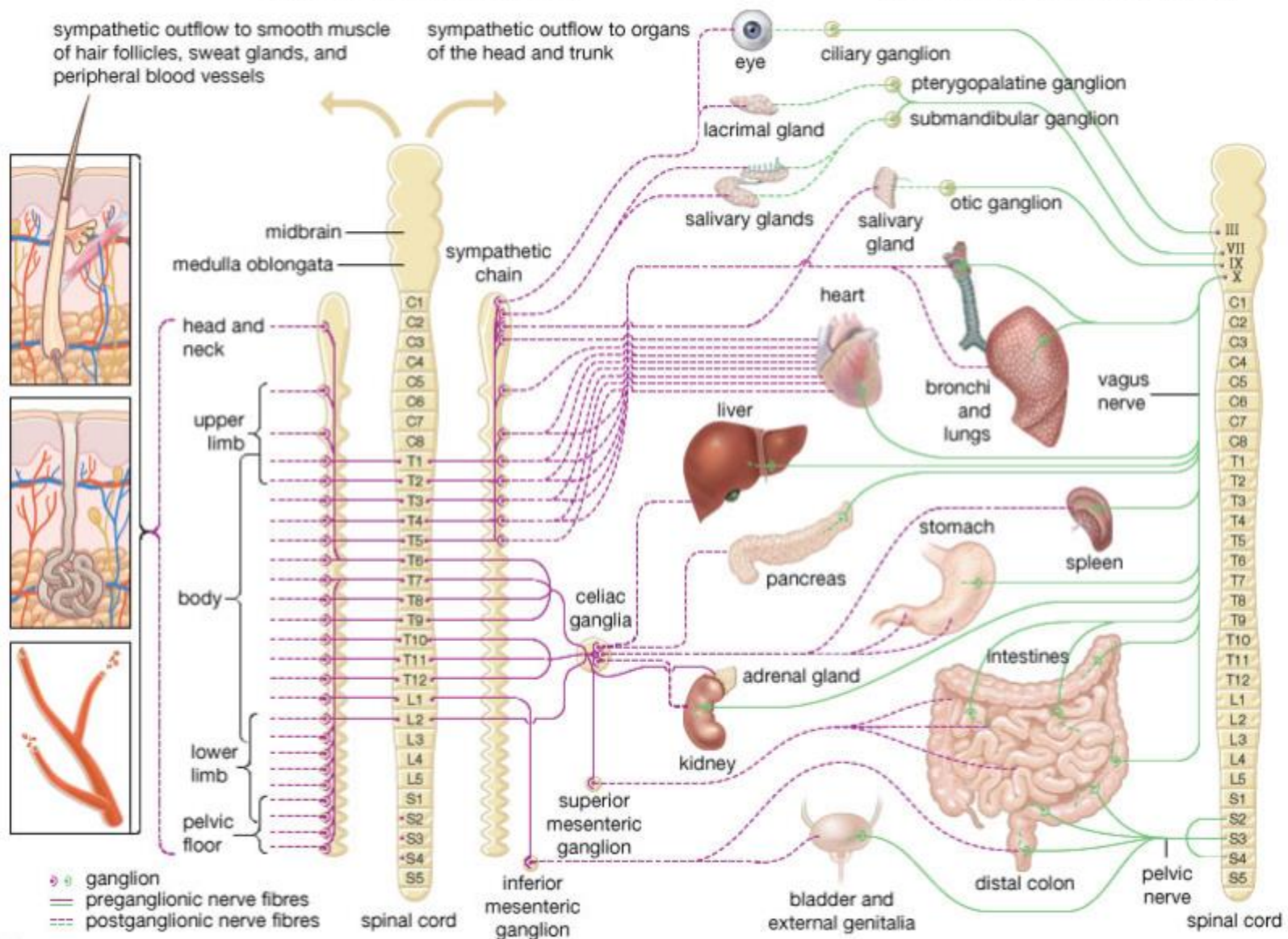


Sympathetic nervous system

Parasympathetic nervous system

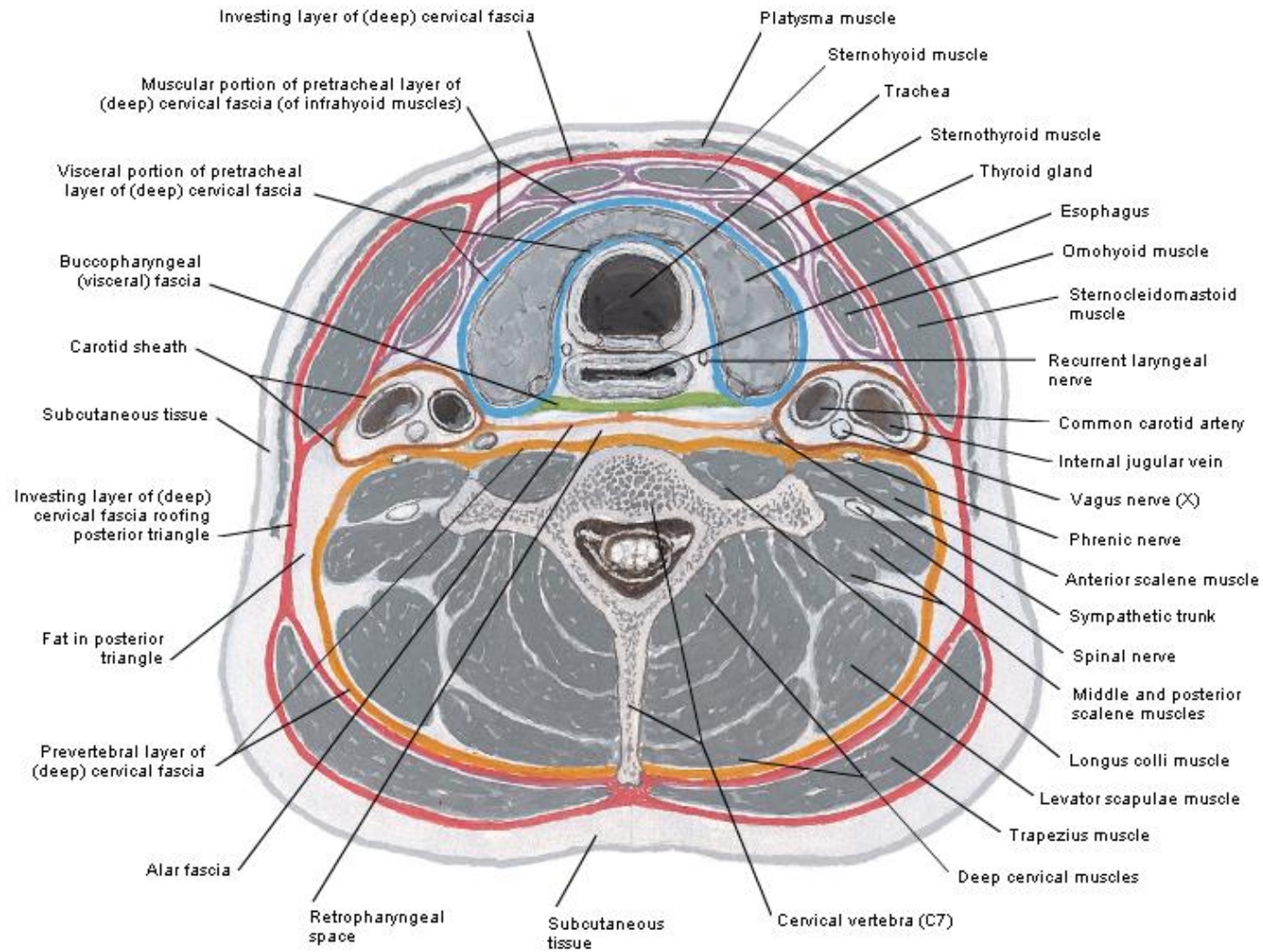
sympathetic outflow to smooth muscle of hair follicles, sweat glands, and peripheral blood vessels

sympathetic outflow to organs of the head and trunk



Fascial Layers of Neck

Cross Section



Occipital Neuralgia

◇ Anatomy

◇ Greater occipital nerve

- ◇ Arises between C1/C2

- ◇ Runs under inferior oblique and suboccipital triangle (Rectus capitis posterior, Obliquus capitis superior, Obliquus capitis inferior)

- ◇ Pierces semispinalis, splenius capitis, and trapezius

◇ Lesser occipital nerve

- ◇ Arises between C2/C3

- ◇ Ascends along border of SCM

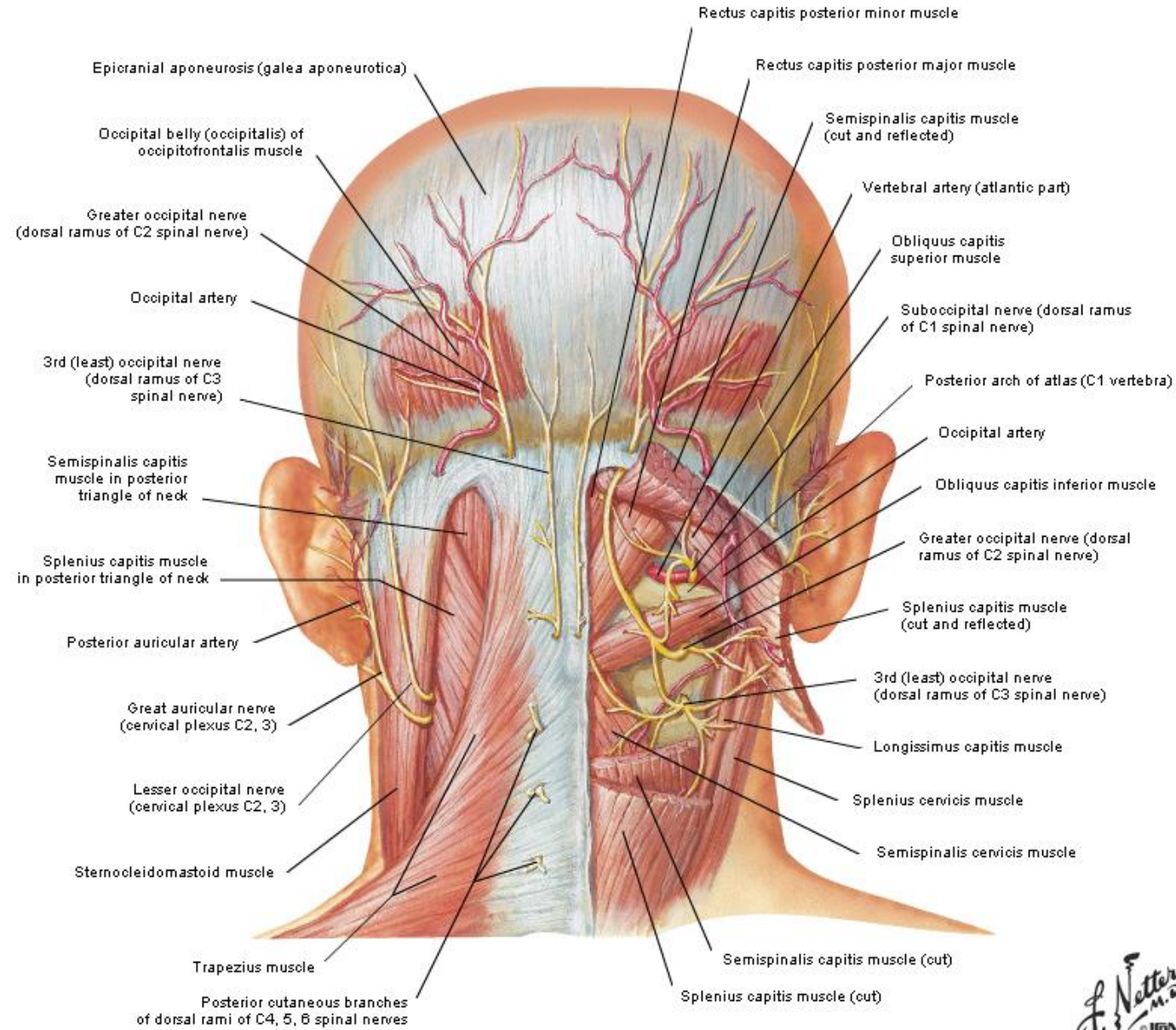
- ◇ Gives off auricular nerve

◇ Third occipital nerve

- ◇ Arises from C3

- ◇ Pierces trapezius

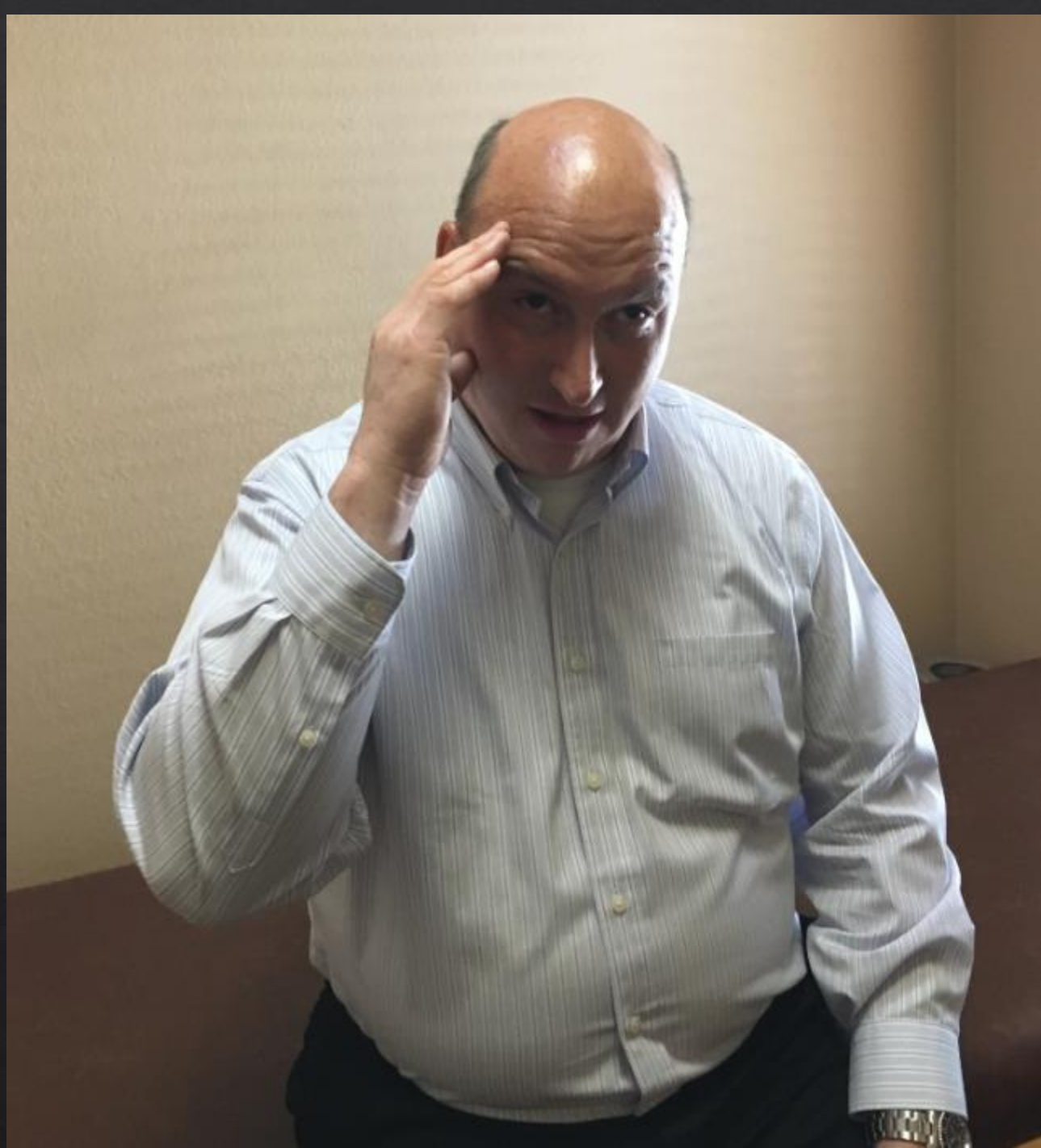
Suboccipital Triangle



F. Netter
M.D.
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Potential OMM Treatments

- ◇ Migraine
- ◇ Occipital neuralgia
- ◇ During a migraine



Posterior Cervical Fascia Release



◇ Fingertips at C7

Posterior Cervical Fascia Release



- ◇ Fingertips at C7
- ◇ Push anteriorly

Posterior Cervical Fascia Release



- ◇ Fingertips at C7
- ◇ Push anteriorly
- ◇ Pull superiorly

Posterior Cervical Fascia Release



- ◇ Fingertips at C7
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- ◇ Pull superiorly
- ◇ Fascia will unwind in a serpentine-like fashion

Posterior Cervical Fascia Release



- ◇ Fingertips at C7
- ◇ Push anteriorly
- ◇ Pull superiorly
- ◇ Fascia will unwind in a serpentine-like fashion
- ◇ Drops you off in the suboccipital area (convenient for the next technique!)

Suboccipital Release



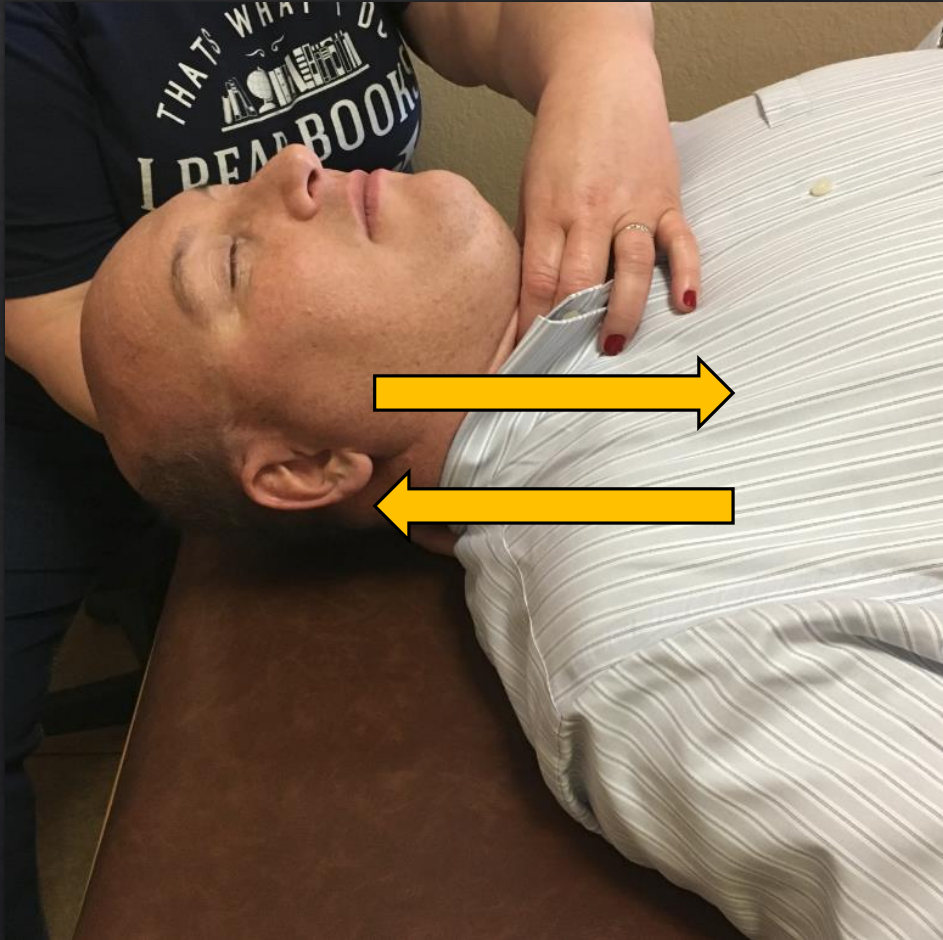
- ◇ Place fingertips in center of head, just caudal to the occipital bone
- ◇ Push anteriorly and laterally
- ◇ Continue to release all suboccipital muscles

Cervical Fascia Balance



- ◇ Place one hand (C-shaped) along back of neck (prevertebral fascia)
- ◇ Place other hand on top of neck (pretracheal fascia)

Cervical Fascia Balance



- ◇ Place one hand (C-shaped) along back of neck (prevertebral fascia)
- ◇ Place other hand on top of neck (pretracheal fascia)
- ◇ Motion test for slippage

Cervical Fascia Balance



- ◇ Place one hand (C-shaped) along back of neck (prevertebral fascia)
- ◇ Place other hand on top of neck (pretracheal fascia)
- ◇ Motion test for slippage
- ◇ Hold indirectly/directly +/- compression/traction until release

Acute Migraine Treatment



- ◇ Place hands on occiput (keeping fingers behind ears; thumbs just resting)
- ◇ GENTLY start a lateral rocking motion
- ◇ Keep rocking until frequency and amplitude slow/decrease then stop
- ◇ Hold still point until CRI returns



Resources

- ◇ Silberstein, S. D., Goadsby, P. J., & Lipton, R. B. (2003). *Headache in clinical practice*. London: Martin Dunitz.
- ◇ Goadsby, P. J. (2018). Headache. *Continuum*. 2018 August; 24 (4).
- ◇ "Migraine." *Lancet*. 2018 Mar 6. pii: S0140-6736(18)30478-1. Netter, F. H. (2003). *Atlas of human anatomy*. Philadelphia, PA: Elsevier.
- ◇ "Greater Occipital Nerve Block for Acute Treatment of Migraine Headache: A Large Retrospective Cohort Study." *J Am Board Fam Med*. 2018 Mar-Apr;31(2):211-218 "The big CGRP flood - sources, sinks and signaling sites in the trigeminovascular system." *J Headache Pain*. 2018 Mar 12;19(1):22.
- ◇ Blumenfeld, A. and Siavoshi, S. (2018). The Challenges of Cervicogenic Headache. *Current Pain and Headache Reports*, 22(7).