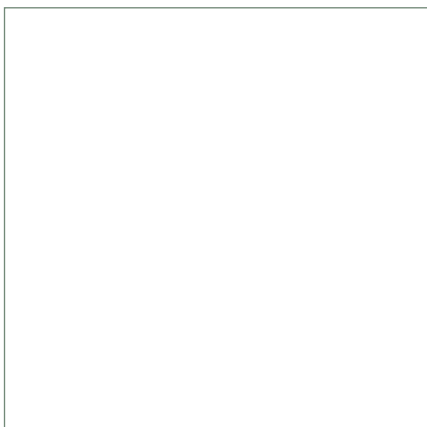


Clinical Osteopathically Integrated Learning Scenario

Patient with A Headache



Description of COIL

This Clinical Osteopathically Integrated Learning (COIL) scenario focuses primarily on the palpatory evaluation and supportive osteopathic manipulative treatment for a patient suffering from a severe headache.

The COIL is divided into two sections:

Section One:

The **Roundtable Discussion Workshop** includes a discussion and evaluation of the patient's case history, diagnosis, pathophysiology, osteopathic principles involved, functional anatomy, treatment options, contraindications and (if time permits) a demonstration of manipulative treatment techniques that are applicable for this patient.

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Section Two:

The **Patient-based Application Workshop** is the supervised application of manipulative treatment techniques for a patient with this diagnosis. It is designed to evaluate the student's/physician's diagnostic and psychomotor skills when providing an osteopathic manipulative treatment for an actual (or simulated) patient.

If time permits, the instructor may deliver this entire two-section program at one time. However, it is recommended that the program be divided into its two sections. Ideally, the sections should be separated by a number of days. This provides time for the student or physician to review and practice appropriate techniques before completing the second section. If an actual patient is not available for the second section, a simulated patient may be used and the psychomotor skills of the student or physician evaluated.

Section One: Roundtable Discussion Workshop

I. Description

This is a roundtable-type presentation and discussion on the osteopathic approach to the treatment of a patient with a headache.

II. Cognitive Components

A. Case Presentation

As the house officer, you are called at 1:00 am to the bedside of a 50-year-old post-menopausal female, who is complaining of a severe headache that is preventing her from sleeping. She was admitted to the ICU through the ER three days ago for an acute GI bleed. This was stabilized after an endoscopically guided cautery of a bleeding gastric ulcer and a transfusion of 4 units of packed RBCs. She was transferred earlier in the day to the general medical floor.

The headache has been steadily increasing all evening. It is described as a steady, dull pain that is punctuated by a fast, sharp and stabbing pain located at the base of the cranium and radiating to the right eye. The pain occasionally extends across the forehead. She denies that bright lights make the pain worse, and no nausea, vomiting or sinus congestion are present. She reports having had similar symptoms in the past, particularly at the end of a “stressful day.” She is employed as a telephone marketer. She denies regular use of alcohol, tobacco or caffeine.

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Physical Examination:

- Vital Signs:** Temperature: Afebrile, HR: 84, R: 18, BP: 124/78, No orthostatic blood pressure or pulse changes
- Eyes:** External ocular muscles intact; pupils equal, round, reactive to light and accommodation; funduscopic exam without hemorrhages or exudates only one
- Ears:** Tympanic membranes are pearly gray
- Nose:** Turbinates slightly engorged bilaterally, no nasal sinus drainage, positive nasal flaring with nasal horizontal crease noted
- Abdomen:** Normal bowel sounds, no hepatomegaly or splenomegaly, no rebound tenderness
- Cardiac:** Regular rhythm, no S3 or S4 sounds, no murmurs, no rubs
- Extremities:** Full range of motion, no swelling or tenderness, pulses full and symmetric
- General:**
- Lungs:**
- Neuro:** Cranial nerves II-XII intact, DTRs 2+/4+ and symmetric, muscle strength 5/5, no sensory deficits in both upper and lower extremities
- Oral:**

Diagnostics:

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Osteopathic Structural Examination:

- Tenderness, muscular tension and fullness in the suboccipital region (R>L).
- Occiput extended, sidebent right and rotated left in relation to C1.
- C2 extended, rotated and sidebent to the right in relation to C3.
- Deep palpation at the right C2-C3 facet joint radiates pain to the area of the right orbit.
- Palpation of the cranial vault demonstrates a right sidebending/rotation sphenobasilar strain pattern
- 5-cycle-per-minute cranial rhythmic impulse (CRI) with decreased amplitude and vitality.

B. Pathophysiology

1. Physical or emotional stress increases sympathetic tone and can increased muscle tension.
2. Postural imbalance, especially in the sagittal plane (such as the presence of a dowager's hump), can result in the cranium positioned forward of the weight-bearing line. This can result in the presence of increased tone of the posterior cervical muscles. Somato-somatic reflexes in the cervical and occipitoatlantal regions resulting from compensatory postural changes from a short leg syndrome can result in, or contribute to a headache.
3. The pain from a migraine can be due to cerebral vasodilation. In migraine patients, local vasodilations of cerebral vessels are produced when platelets line up in a portion of a cerebral artery and release humoral vasodilating substances. The vasodilatation may be humoral.
4. Holding the neck in an awkward position (poor ergonomics) or having visual strain from looking at a computer screen may produce neck and back tension that precipitates a muscle tension headache.
5. Improper refracted bifocals or half-frame glasses can contribute to headaches.

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C. Functional Anatomy

Includes knowledge of structure and physiology necessary to properly carry out the osteopathic manipulative treatment support.

1. Effective treatment includes addressing the underlying cause that is resulting in somatic dysfunction.
2. Upper thoracic and rib dysfunction are typically present. An extended upper thoracic somatic dysfunction is characteristically acutely painful. This increases strain on the muscles of the cranium, suboccipital and cervical, resulting in restricted motion.
3. Somatic dysfunction of the sphenoid, temporal and occiput also may be involved in trigeminal dysfunctions and headaches. The trigeminal ganglion provides sensory nerves from the forehead, upper and lower jaw.
4. According to Magoun, proper movement of the temporals is critical, especially in a migraine patient. It is difficult to treat a patient during an acute migraine attack. During an acute migraine attack, medication is the immediate recommended treatment. OMT reduces the severity and frequency of acute migraine attacks.

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D. Goals for Osteopathic Manipulative Management

Includes a review of treatment pearls, a general plan for manipulative treatment of this patient and a discussion of treatment options, contraindications and plans for follow-up evaluation and treatment.

1. Identify and diagnose significant somatic component.
2. Treat the upper thoracics and ribs first. Treatment should begin with paraspinal inhibition.
3. Monitor anterior and posterior cervical muscle tension and dysfunction throughout treatment.
4. It is essential to evaluate the cranial mechanism.

E. Contraindications and Cautions Regarding Treatment

See contraindications to treatment, *Foundations*, pp. 1015-1024.

1. 1. An acute neurologic event such as a cerebrovascular accident due to a ruptured berry aneurysm or arteriovenous malformation should be ruled out prior to treatment.
2. A headaches that wakes a patient from sleep need to be fully evaluated before manipulation can be safely preformed.
3. A patient with a cardiac disease should not be given Imitrex (Sumatriptan) or Zomig (Zolmitriptan).

F. Instructor's Notes

Personal clinical pearls and lessons learned from previous COIL presentations.

1. Robert Kappler, DO and fellow educators have observed that in students who have developed migraines associated with stress, OMT, specifically aimed at the upper thoracics, is a beneficial treatment. This is likely due to the decreases autonomic influence.
2. Sympathetic innervation to the cranium and cervical is from T1-4. Increased sympathetic tone intensifications muscle irritability.
3. It is common to find suboccipital dysfunction related to upper thoracic and rib somatic dysfunction. Treatment with counterstrain or myofascial release techniques to these areas improves tissue texture abnormality.
4. Vasodilation of cranial vessels during a classic migraine is a local phenomenon. A patient with common migraine or mixed tension-type headaches often has upper thoracic somatic dysfunction associated with (autonomic) dysfunction to the cranium and cervical.

III. Psychomotor Components

If time permits, this is carried out on a simulated patient model.

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1. Practice palpatory diagnosis. See techniques under Section D above. Diagnostic procedures include cervical, upper thoracic region and ribs, thoracic inlet, anterior chest wall, forearm, wrist and hand.
2. Demonstrate key treatment techniques in the body regions involved. This includes release techniques for the upper thoracics and ribs, OA myofascial release/indirect techniques, cervical techniques, counterstrain, myofascial and muscle energy techniques for the forearm.
3. Evaluate the plan for treating the patient in the appropriate positions, localization of gentleforces and activation.

IV. References

Bogduk N. The anatomical basis for cervicogenic cephalgia. *J. Manipulative Physiol Ther*, 1992;15:67-70.

Kuchera ML, Kuchera WA, *Osteopathic Considerations in Systemic Dysfunction*. 2nd Ed. Revised. Columbus, OH: Greyden Press:1994;1-19.

Lord SM, et al., Chronic cervical zygapophyseal joint pain after whiplash. *Spine*, 1996; 21:1737-45.

Magoun HI. *Osteopathy in the Cranial Field*. 3rd Ed. Kirksville, MO: The Journal Printing Company; 1976: 282-3.

Ward RC, Ed. *Foundations for Osteopathic Medicine*. Baltimore, MD: Williams & Wilkins; 1997:403-408, 531-40.

V. Examination Questions

This involves answering multiple choice questions regarding treatment for a patient with a headache.

(denotes answer)*

1. Which of the following structures is most likely to result in a muscle-referral pain pattern consistent with the case?
 - A. Levator scapula
 - B. Cervical facet joint *
 - C. Trapezius
 - D. Temporal bone
 - E. Sternocleidomastoid

2. Which of the following structures is most likely to play a role in the maintenance of this headache?
 - A. Facial and trochlear nerve
 - B. Spinal accessory and trochlear nerve
 - C. Vagus nerve and superior cervical chain ganglia *
 - D. Vestibulocochlear and vagus nerve
 - E. Superior cervical chain ganglia and vestibulocochlear nerve

3. Current treatment for headache often includes use of anti-inflammatory medication. Most medication from this class would be contraindicated in this case because of a risk of
 - A. Diplopia
 - B. Gastric bleeding and melena *
 - C. Ringing in the ears
 - D. Tenderness and fullness in the subxiphoid space
 - E. Tissue texture changes in the mid-thoracic paraspinal region

4. Your attending has ordered rib raising for this patient. What is the rationale for this treatment?
 - A. It will improve VQ function
 - B. It will reduce cardiac output
 - C. It will reduce sympathetic hypertonicity to the cranial vasculature *
 - D. It will stimulate the diaphragm and improve lymphatic flow
 - E. It should not have been ordered because it is contraindicated in a person with an acute GI bleed

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5. The following morning you recheck this patient. She reports that her headache has resolved and she was able to get some rest after your treatment. Which of the following best indicates follow-up care?
- A. Since symptoms have resolved, no follow-up is necessary
 - B. Re-evaluate your patient and determine if further intervention is necessary *
 - C. Repeat the same treatment two more times to insure adequate resolution of somatic dysfunction
 - D. Refer to physical therapy for initiating heat/cold (contrast) therapy
 - E. Consult neurology service

Section Two: Patient-Based Application Workshop

I. Description

This is the practical application of osteopathic treatment techniques to support the pediatric patient with a headach

II. Psychomotor Components

(Refer to Section One for regions of the body that are involved.)

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1. Examination of the patient using TART, including postural screen, palpation, segmental motion testing and diagnosis of somatic dysfunction.
2. Application of philosophy and treatment technique.
3. Re-evaluation of the patient after treatment is completed to assess result. If a simulated patient is used, then the student/physician should verbalize length of treatment and future treatment goals.

III. Cognitive Components

1. Documentation in the medical record.
2. Post-treatment discussion.

Note: It is recommended to use the standardized outpatient form included in each of these chapters for documentation.

21.8

Physician: _____ Date: _____

Title: Resident (Specialty) _____
 Intern OMS III OMS IV

Critical Actions Evaluation Checklist of Osteopathic Principals Applicable to a Patient with Asthma			
CRITICAL ACTION	COMPLETED		COMMENTS
	Yes	No	
Become familiar with the patient's history and physical examination findings, laboratory and other diagnostic findings.			
Perform an osteopathic structural examination.			
Determine significant areas of somatic dysfunction.			
Determine body region(s) to be treated with OMT.			
Apply OMT to at least the body region determined to be the most in need of treatment at present time.			
Treat other significant somatic dysfunctions if feasible.			
Document treatment and immediately observable effects.			

21.9

Trainer: _____

21.10

