

COILS

Clinical
Osteopathically
Integrated
Learning
Scenarios

Patient with **Postsurgical Ileus**

Prepared by: AACOM's Educational Council on Osteopathic Principles

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AMERICAN ASSOCIATION OF
COLLEGES OF OSTEOPATHIC MEDICINE

Part 6: Chapter 2

Surgery Clinical Osteopathically Integrated Learning Scenario:

Patient With Postsurgical Ileus



Description

This Clinical Osteopathically Integrated Learning Scenario (COILS) focuses primarily on the palpatory evaluation and supportive osteopathic manipulative treatment for a post-operative patient who has had abdominal surgery.

The COILS 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 applicable to the patient's homeostatic needs.

Section Two

The **Patient-Based Application Workshop** is the supervised application of manipulative treatment techniques for a patient with this diagnosis. This workshop is designed to evaluate the student's or 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. Ideally, however, Section One should be taught several days before Section Two to allow the student or physician to review and practice appropriate techniques. If an actual patient is not available for Section Two, a simulated patient may be used.

Section: Roundtable Discussion Workshop

I. Description

This section is a round-table type presentation and discussion on the osteopathic approach to the treatment of a patient who has just had abdominal surgery.

II. Cognitive Components

A. Case Presentation

A consult was called for a 58-year-old obese bricklayer who was previously found to have an “apple core” lesion 35 cm from the anal verge in the descending colon. The lesion was healed from a partial colon resection and an exploratory laparotomy. The patient underwent the surgery two days ago and did well. He did not require a colostomy. He is still NPO and is receiving IV hydromorphone to control the pain.

Physical Examination

- Vital signs:** Temperature, 99.4° F; Blood Pressure: 155/86; Respiratory Rate, 20; Pulse, 90
- General:** Appears in moderate distress; alert and oriented; pale; nauseated and belching
- Head:** Normocephalic; atraumatic; symmetrical with edema
- Eyes:** Pupils equal, round, reactive to light, and accommodation; extraocular movements intact
- Ears:** Tympanic membranes intact; no fluid
- Nose:** Turbinate pink; minimal mucus
- Throat:** Central subclavian line on the left side
- Cardiac:** Regular rate and rhythm
- Lungs:** Decreased breath sounds at the bases—bilaterally; no rales, rhonchi, or wheezing
- Abdomen:** Midline dressing, with some serosanguinous drainage; Penrose drain with 20 cc of blood-tinged fluid noted; abdomen distended; bowel sounds absent on auscultation; abdomen tender but without rebound; tympanic notes on percussion of abdomen
- Extremities:** Compression boots in place; +2 pretibial edema; arterial pulses in both legs strong

Diagnostics

- Chest x-ray: Subsegmental atelectasis
- Upright and supine abdomen portable x-ray: Dilated intestines with gas patterns

Osteopathic Structural Examination

- Cranial: Cranial rhythmic impulse 8; low vitality; low amplitude with sphenobasilar synchondrosis compression
- Cervical: OA junction extended bilaterally, with AC1 and P C2 Jones CS tender points
- Thoracic: T4 FRS left; T9 FRS left; anterior T4, anterior T9 Jones tender points; paravertebral spasm T6–T9; T12 ERS left
- Lumbar: L1–L3 NS left, R right; bilateral iliacus tender points; right Iliopsoas
- Sacrum: Bilateral extension
- Chapman’s reflexes: Positive for small bowel

B. Pathophysiology

1. Significant handling of the bowel and prolonged bed rest is a common cause of ileus. Bowel motion slows or even stops. GI function may not return to a functional level for several days. During this time, nutritional deficiencies can occur, and wound and body healing are slowed.
2. Atelectasis occurs if surfactant production is impaired. Deep breathing may help with the production of surfactant. Deep breathing may be diminished because of abdominal wall pain and distension.
3. Deep venous thrombosis (DVT) occurs with Virchow’s triad: hypercoagulability, venous stasis, and endothelial damage.
4. Urinary retention can occur from the medications (anesthetics or analgesics), catheterization, benign prostatic hypertrophy, and patient inactivity.

C. Functional Anatomy

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

1. Painful upper thoracic rib somatic dysfunctions and abdominal distension will decrease deep breathing. This situation facilitates atelectasis and the potential for peripheral edema.
2. Knowledge of the abdominal wall muscle insertions and fascial relationships are important for decreasing complications.
3. It is crucial to understand how the autonomic nervous system affects the gut.
4. Thoracic, abdominal, urological, or orthopedic surgery can result in a development of paralytic ileus from viscerosomatic reflexes.

D. Goals for Osteopathic Manipulative Management

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

1. The recommended treatment for a bed-ridden patient is paraspinal inhibition. With the patient positioned supine with the knees flexed or propped with pillows, apply treatment in a “slow on to maximum, hold until muscles relax and then slow off” manner. This results in long-lasting medullary inhibition in sympathetic outflow that is being produced by viscerovisceral reflexes to the GI tract. Check again in two hours if possible. Perform 2–3 times per day or until bowel sounds are auscultated. This position may be altered to apply a specific counterstrain technique to the lumbar segments.
2. For non-ambulating patients, rib raising and deep inhibition or extension of the thoracolumbar and thoracic area stimulates the gut. This procedure helps relax the thoracic cage and prepares the thoraco-abdominal region for abdominal redoming (if the dome of the diaphragm is flattened). This treatment improves the efficiency of lymphatic flow.
3. Early ambulation is beneficial in preventing or stimulating return of peristalsis of the gut.
4. The risk of DVT is minimized by ambulation. Prevention of DVT is practiced by gentle pedal pump, having the patient sit with the legs dangling and rhythmically dorsiflexing and relaxing the feet or ambulating, if possible. In addition, intermittent compressive stockings or equitant are suggested.

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E. Contraindications and Cautions Regarding Treatment

See contraindications to treatment, Foundations, pp. 1015–1024.

1. Do not disturb drainage tubes and IVs.
2. Do not put excessive pressure on the abdomen.
3. When performing paraspinal inhibition with supine patient, do not rapidly apply intermittently and release suddenly. Do have the patient’s knees flexed or support knees with pillows to take tension off the anterior abdominal musculature. Slowly apply the inhibition to the erector spinae muscle (ESM) to its maximum, hold until the musculature relaxes, and then release slowly.
4. Do not use forceful OMM/OMT. Use gentle indirect myofascial treatment to relax the thoraco-abdominal junction and to redome a flattened diaphragm.

F. Instructor's Notes

Personal clinical pearls and lessons learned from previous COILS presentations.

1. Sandra L. Sleszynski, DO, did a pilot study in post-cholecystectomy patients comparing the effectiveness of alleviating atelectasis by lymphatic pump OMM/OMT vs. incentive spirometry. Both treatments were equally effective in the first few days post-operatively. It is interesting that patients are rarely instructed in the importance of deep breathing. Instead, the respiratory technician visits three times a day to administer incentive spirometry.
2. A retrospective chart review study by R. E. Henshaw, DO, showed that treatment of the cervical somatic dysfunction prior to upper abdominal surgery reduced the incidence of post-operative atelectasis and other respiratory complications. Of 75 patients receiving OMM/OMT to C3–C5 somatic dysfunction, only 3 (5.3%) had pulmonary complaints or complications after abdominal surgery. Of 34 patients who had somatic dysfunction at C3–C5 and were not treated, 29 (85.3%) had pulmonary complaints or complications after abdominal surgery. It was hypothesized that this treatment was effective possibly due to its ability to normalize phrenic nerve innervation to the diaphragm.
3. A study by Edward Herrmann, DO, showed that paraspinal inhibition before surgery reduced the incidence of post-op ileus by 7.3%. It also showed that the inclusion of “ileus prevention manipulative treatment” (paraspinal inhibition) hastened the patient’s recovery from ileus once ileus had occurred. The treatment group had 317 patients, and the control group had only 92 patients. Dr. Herrmann was an orthopedic resident at the time, and once the attending physicians saw the positive results from paraspinal inhibition manipulative treatment, they insisted that their patients had to be a part of the treatment group.

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III. Psychomotor Components

If time permits, this part can be carried out on a simulated patient.

1. Practice palpatory diagnosis. (See techniques under Section D above.) Diagnoses procedures include cervical; upper thoracic and ribs; thoracic inlet; anterior chest wall; abdominal diaphragm; and forearm, wrist, and hand.
2. Demonstrate key treatment techniques in the body regions involved. These techniques include release for the upper thoracics, ribs, and diaphragm; OA myofascial release or indirect; cervical; myofascial and muscle energy; and counterstrain.
3. Evaluate the plan for treating the patient in the appropriate position, localization of gentle forces, and activation.

IV. References

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Radjeski JM, Lumley MA, Cantieri, MS. Effect of osteopathic manipulative treatment on length of stay for pancreatitis: a randomized pilot study. *J Am Osteopath Assoc.* 1998; 5:264-72.

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Sleszynski SL, Kelso AF. Comparison of thoracic manipulation with incentive spirometry in preventing postoperative atelectasis. *J Am Osteopath Assoc.* 1993 Aug;93(8):834-8, 843-5.

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V. Examination Questions

*These multiple-choice questions involve treatment for a post-abdominal surgery patient.
(* denotes answer)*

1. Which of the following structures is most likely to play a role in maintenance?

- 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

2. Most nonsteroidal anti-inflammatory medication would be contraindicated because of a higher 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 paraspinous region

3. Your attending has ordered rib raising. 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 intestinal tract.*
- 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.

4. The following morning you recheck the patient. He reports that he begun to pass some gas, and his abdominal pain has resolved. He was able to get some rest after your treatment. Which of the following best indicates follow-up care?

- A. Because symptoms have resolved, no follow-up is necessary.
- B. Re-evaluate the patient to determine if further intervention is necessary.*
- C. Repeat the same treatment twice more to ensure adequate resolution of somatic dysfunction.
- D. Refer to physical therapy for initiating heat/cold (contrast) therapy.
- E. Consult neurology services.

Section Two: Patient-based Application Workshop

I. Description:

This section includes the practical application of osteopathic treatment techniques to support the patient who has just had abdominal surgery.

II. Psychomotor Components

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

1. Examination of the patient using TART, including postural screen, palpation, segmental motion testing and diagnosis of somatic dysfunction
2. Application of the osteopathic philosophy and at least one 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.

Physician: _____ Date: _____

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

**Critical Actions Evaluation Checklist of Osteopathic Principals
 Applicable to a Patient With Postsurgical Ileus**

CRITICAL ACTION	COMPLETED		COMMENTS
	Yes	No	
Become familiar with the patient's history 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.			

Trainer: _____

Osteopathic Musculoskeletal Examination

EXAMINER _____ SIGNATURE _____ DATE OF EXAMINATION _____

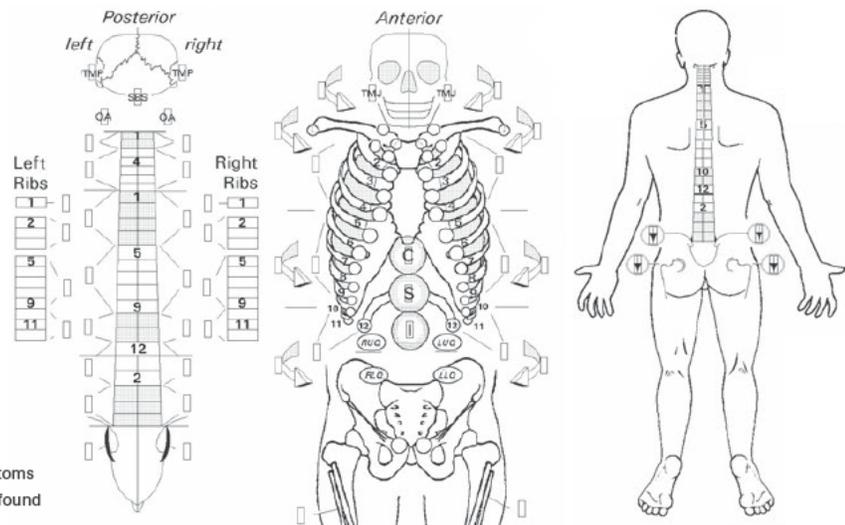
EXAMINER _____ SIGNATURE _____ DATE OF EXAMINATION _____

CHIEF COMPLAINT _____

<p>Required</p> <p>Ant. Post. Spinal Curves:</p> <p>Cervical Lordosis <input type="checkbox"/> Increased <input type="checkbox"/> Normal <input type="checkbox"/> Decreased</p> <p>Thoracic Kyphosis <input type="checkbox"/> Increased <input type="checkbox"/> Normal <input type="checkbox"/> Decreased</p> <p>Lumbar Lordosis <input type="checkbox"/> Increased <input type="checkbox"/> Normal <input type="checkbox"/> Decreased</p>	<p>Scoliosis (Lateral Spine Curves) <input type="checkbox"/> None <input type="checkbox"/> Functional <input type="checkbox"/> Mild <input type="checkbox"/> Moderate <input type="checkbox"/> Severe</p> <p>Assessment Tools</p> <p><input type="checkbox"/> T = Tenderness</p> <p><input type="checkbox"/> A = Asymmetry</p> <p><input type="checkbox"/> R = Restricted Motion <input type="checkbox"/> Active <input type="checkbox"/> Passive</p> <p><input type="checkbox"/> T = Tissue Texture Change</p>	<p style="text-align: center; font-size: small;">For coding purposes only</p>
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Abbreviation Key

- OA Occipito-Atlantal joint
- Sympathetic Ganglia:**
- C Cellac
- S Superior Mesenteric
- I Inferior Mesenteric
- TMJ Temporomandibular joint
- TMP Temporal Bone
- SBS Sphenobasilar symphysis



Severity Key

- 0 No SD or background (BG) levels
- 1 Minor TART more than BG levels
- 2 TART obvious (R&T esp) +/- symptoms
- 3 Symptomatic, R and T very easily found "key lesion"

Region Evaluated	Severity				Specific Major Somatic Dysfunctions
	0	1	2	3	
Head	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Neck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Thoracic T1-4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T5-9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T10-12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lumbar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pelvis/Sacrum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pelvis/Innominate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extremity Lower R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
L	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extremity Upper R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
L	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ribs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other/Abdomen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Major Correlations with:

- Traumatic Orthopedic Neurological Viscerosomatic Primary Musculoskeletal Activities of Daily Living
- Rheumatological EENT Cardiovascular Pulmonary Cardiovascular Gastrointestinal Genitourinary Other

Other: _____