

Facilitator's Guide

Section I: OMM Case Presentation. Prior to the next OMM session Residents should read the case below and be prepared to discuss the questions in Section II

Case Presentation

Chief Complaint: Low back pain

HPI: A 34 year old white female, 33 weeks 2 days pregnant, G2 P0101, presents to the clinic with a complaint of bilateral low back pain. She was last seen here 2 weeks ago. The pain began approximately 10 days prior to the clinic visit. She states that she woke up with the pain and does not remember doing anything that might have caused the pain. The pain has not gotten any better or worse over the last 10 days. She describes the pain as a "deep ache" and rates it as a "6-7" out of "10" on a 1-10 pain scale. She tried taking two Tylenol 325 mg at the onset without relief. She also tried a heating pad on Day 1 of the pain without relief. She has some radiation of pain from her back into her groin as well as posteriorly down her left leg but denies numbness or weakness in either leg. She has experienced mild back pain earlier in her pregnancy, but never of this severity. Incidentally she also describes a diffuse, "achy" pain in her left leg that has begun in the last several days.

PMH:

- 1) PROM, preterm delivery with first pregnancy
- 2) Type II Diabetes mellitus, controlled
- 3) Moderate chronic hypertension
- 4) Morbid obesity

OB/GYN Hx: G2 P0101 She has had one prior vaginal delivery, 2 years ago, at 34 weeks 6 days after a premature rupture of membranes. The delivery was complicated by fetal variable decelerations at the very end of delivery.

PSHx: She denies any surgical history.

PTraumaHx: She was the driver in a motor vehicle accident one year ago in which she was rear-ended by a car traveling 30 mph while she was stopped at a stop sign. She was restrained with a seatbelt and her airbag did deploy. She underwent physical therapy for neck pain for 3 months with fair resolution of symptoms. (how long ago?)

Current Medications: Humulin 70/30 40U q am and 30U q HS;

Allergies: NKDA

Family History: Mother is 60 years old and has Type II Diabetes Mellitus. Father is 65 years old and has HTN and CAD. Maternal Grandmother had Type II Diabetes Mellitus and is deceased at 67 years old. Paternal Grandfather is deceased at 75 years old due to lung cancer. Other family members are in good health, including a brother and sister, aged 31 years and 29 years respectively. Her daughter is age 2 and healthy.

Social History: She is unmarried and has a 2 year old daughter. She currently works as an office assistant. She maintains a sedentary lifestyle. She denies using alcohol, tobacco, or illicit drugs. She admits to drinking approximately 3-5 cups of caffeinated coffee per day.

Review of Systems

Constitutional: The patient denies any problems with her eyes, ears, nose, or throat. She experiences occasional pain in her neck with associated headaches. She has not had any prior problems with her heart or lungs. She has had no difficulty with her stomach or bowels. She had a urinary tract infection at 21 weeks gestation that was treated successfully with Nitrofurantoin. Currently, she denies any problems with her urinary tract or kidneys. She denies any current leakage of amniotic fluid, bleeding, or contractions. She denies any numbness or tingling in the extremities. She complains of low back pain and an achy and warm left leg. She has gained 44 lbs. so far during this pregnancy.

HEENT: Head is NCAT. Eyes are PERRLA without conjunctival injection or icterus. Tympanic membranes are clear and without discharge or inflammation. Nasal mucosa is pink and moist with inflammation. Oral mucosa is pink and moist without inflammation or exudate. Poor dentition throughout.

Neck: No masses or JVD.

Cardiovascular: RRR. S1 and S2 heard. No murmurs, clicks, or rubs.

Pulmonary: Clear to auscultation bilaterally in all fields. No wheezes or crackles.

GI: Soft, nondistended, nontender. Fundal height at 34 cm. Fetal head is low with fetal back felt along right side of abdomen.

GU: No bleeding or discharge.

Musculoskeletal: No clubbing or cyanosis. +2 pitting edema bilaterally in the lower extremities. Tenderness to compression and palpation along the left thigh. Increased warmth and erythema of left LE.

Vascular: Radial, femoral, posterior tibial pulses present and 2/4. Varicose veins along bilateral lower legs.

Neurologic: CN II-XII grossly intact. Muscle strength 5/5 in lower extremities, except for 4/5 in left lower extremity for hip abduction. DTRs 2/4 bilaterally in lower extremities. Sensation in bilateral lower extremities intact. Gait shows her to favor her right leg.

Physical Exam

Vitals: BP 144/98, P 94, R 20.

General: Patient is alert and oriented x 3 and in mild distress. Body habitus gravid and morbidly obese with height 5'3" and weight 273 lbs.

Head: NCAT

Eyes: PERRLA without conjunctival injection or icterus

ENT: Tympanic membranes are clear and without discharge or inflammation. Nasal mucosa is pink and moist with inflammation. Oral mucosa is pink and moist without inflammation or exudate. Poor dentition throughout.

Chest Wall:

Cardiovascular: RRR. S1 and S2 heard. No murmurs, clicks, or rubs.

Respiratory: Clear to auscultation bilaterally in all fields. No wheezes or crackles.

Diaphragm:

GI: Soft, nondistended, nontender. Fundal height at 34 cm.

GU: No bleeding or discharge

Musculoskeletal: No clubbing or cyanosis. +2 pitting edema bilaterally in the lower extremities. Tenderness to compression and palpation along the left thigh. Increased warmth and erythema of left LE.

OMM Focused Structural Exam

Cervical spine exhibits tissue texture changes and hypertonicity suboccipitally and along C4-7. No pain with compression or traction of the cervical spine. The OA is extended, rotated right and sidebent left. C2-4 are extended, rotated and sidebent left. C6 and C7 are extended, rotated and sidebent right. The left 1st rib is inhaled. Significant paraspinal hypertonicity at T3-6. T4-6 are neutral, rotated right, and sidebent left. The thoracolumbar junction has tissue texture changes and hypertonicity with T11-T12 neutral, rotated left, and sidebent right. L3-5 are neutral, rotated right, and sidebent left. Her sacrum is rotated left on a right oblique axis. She has a left posteriorly rotated innominate. Her pubic bones are compressed and there is a right AL5 tenderpoint. Her left fibular head has a posteromedial glide preference.

Neurologic: CN II-XII grossly intact. Muscle strength 5/5 in lower extremities, except for 4/5 in left lower extremity for hip abduction. DTRs 2/4 bilaterally in lower extremities. Sensation in bilateral lower extremities intact. Gait shows her to favor her right leg.

Assessment*:

1. 33 weeks/2 days gestation with low back pain
2. Leg pain, edema
3. Possible DVT
4. Diabetes Mellitus II
5. Morbid Obesity
6. Moderate chronic HTN
7. Somatic Dysfunction of lower extremity, lumbar, pelvis, sacral, thoracic, cervical, head and rib regions

*Be prepared to discuss this at the OMM session. Indicate the primary Medical Diagnosis based upon the international Classification of Diseases (ICD-9). This justifies the Evaluation and Management (E&M) coding portion of the visit. List all secondary, co-morbid, and complicating factor diagnoses in order of importance. Itemize somatic dysfunction diagnosis for each body region treated using OMT. This justifies reimbursement for OMT. Be prepared to discuss management of typical comorbid and complicating factors associated with the patient's diagnosis and how management and treatment would be modified with each comorbid and complicating factor.

Section II: Focus of the Case (approximate time 20–30 minutes)

Discussion Questions

Teaching Points

<p>1. Propose an appropriate differential diagnosis / assessment</p>	<p>Differential Diagnoses/Assessment:</p> <p>Problem 1: Low Back Pain</p> <ol style="list-style-type: none"> 1. Lumbar strain 2. Postural decompensation 3. Lumbar DJD 4. Ruptured disc <p>Problem 2: Leg Pain, Edema:</p> <ol style="list-style-type: none"> 6. DVT 7. Edema secondary to pregnancy 8. Varicose veins, venous stasis <p>Problem 3: DM II</p> <p>Problem 4: Hypertension</p> <p>Problem 5: Somatic Dysfunction</p> <p>DVT can lead to PE and needs to be ruled out/treated as appropriate. DM II and HTN both have serious maternal and fetal sequelae if not controlled. (Guidelines for HTN in pregnancy allow for observation before pharmacotherapy unless severe.)</p>
<p>2. What is your final diagnosis?</p>	<ol style="list-style-type: none"> 1. Postural decompensation/lumbar strain 2. DVT <p>Secondary Diagnosis: Edema 2^o to pregnancy</p> <ol style="list-style-type: none"> 3. DM II 4. HTN 5. Obesity <ul style="list-style-type: none"> • Somatic dysfunction related to diagnosis: lower extremity, lumbar, pelvis, sacral, thoracic, cervical, head and rib regions

3. How do you explain the current structural findings in the context of this case?
- Are any relevant structural findings missing?
 - What would you do differently?
 - Why?

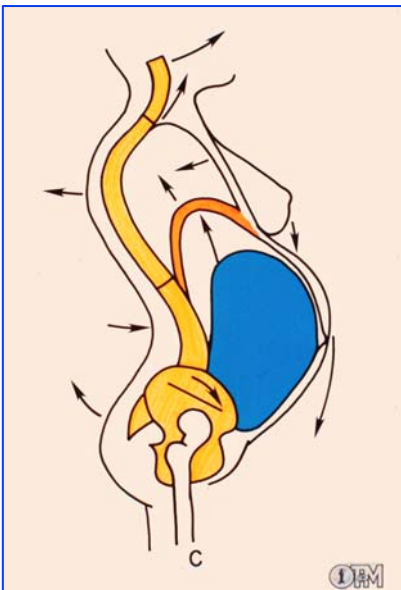
Increased sympathetic activity from the T11 region causing a facilitated segment and increased muscle spasm via somatic nerves; irritated SI joint from parasympathetic input via pelvic splanchnics.
 Sympathetics – from the uterine body and fundus to iliac plexus to aortic plexus then to T11-L1. Related to contractions and pain sensation.
 Parasympathetics – from low back via the sacrum – S2, 3, 4 – relate to cervix.

Mechanical Stresses in Pregnancy

- Anterior – posterior curves
- Lumbar lordosis increases in 85%
- Sacral base anterior
- Increased innominate tilt
- Thoracic spine increases its kyphotic posture
- Fascia and viscera must adjust

Mechanical Changes of Pregnancy

- All AP curves of the spine increase
- Increased lumbar lordosis
- Increased thoracic kyphosis
- Increased pelvic tilt
- Result in visceral and myofascial changes

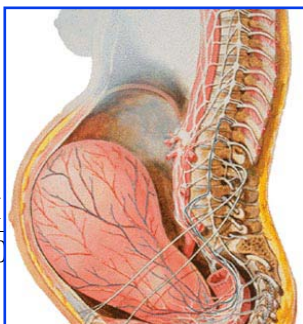


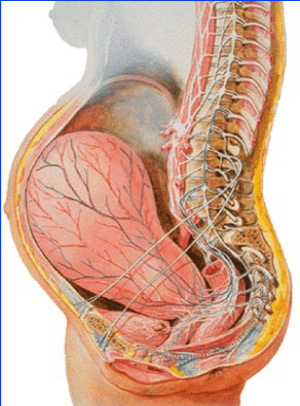
Compensatory Lordosis

- Increased Lordosis occurs in 85% of pregnant women
- Results in anterior shift of the center of gravity, increased vertebral facet loading, increased shear across intervertebral discs, shortened segmental muscles, over stretched abdominals and psoas muscles.
- Enhanced somatovisceral, somatosomatic reflex activity due to mechanical and nociceptive effects of nucleus pulposus
- Altered bowel function an associated somatovisceral reflex phenomena

Piriform edema resulting from leaky microcirculation alters muscle physiology and further limits mobility.

<p>4. What pathophysiology & functional anatomy knowledge is pertinent for diagnosing/treating this patient</p>	<p><u>Pathophysiology</u>— Progesterone promotes fluid retention of local (periuterine) and distant (peripheral) edema.</p> <p>Relaxin in pregnancy:</p> <ul style="list-style-type: none"> ▪ Protein hormone mw~ 6000 ▪ Secreted by corpus luteum and decidua ▪ Level continue throughout pregnancy ▪ Myometrial relaxation (hypothesized) ▪ Promotes cervical effacement ▪ Other (soft tissue remodeling, pubic symphysis mobility) <p>Sources of back related pain in pregnancy:</p> <ul style="list-style-type: none"> ▪ Thoracic increased kyphosis ▪ Lumbar hyperlordosis ▪ LumboThoracic junction (crossover) ▪ Radicular pain incidence is not increased ▪ Sciatica, “Parietal neuralgia of pregnancy” ▪ Referred pain from the sacroiliac joint ▪ Referral from myofascial trigger points ▪ Delayed stagnant hypoxia – nocturnal ▪ Somatic dysfunction ▪ Back pain severely limits mobility ▪ Reflexly affects bowels (manifesting as constipation) or bladder (manifesting as urinary retention) or uterus (manifesting as uterine irritability or pre term contractions) ▪ Is at additional risk due to previous C-Section and enhanced risk of uterine rupture or hypertension increases risk of uterine abruption <p>B. <u>Functional Anatomy</u>-</p> <ul style="list-style-type: none"> • Motion of the spine, sacrum and innominates; need to know common musculoskeletal compensation patterns in pregnancy (articular, muscle changes). The hormones of pregnancy affect collagen and smooth muscle tone around larger channels. The Valveless Central Nervous System allows for the path of least resistance for venous return. The mechanical effects of posture impede return flow. Fascial tensions create impediments to lymphatic drainage.
<p>5. What will be your highest yield regions?</p>	<p>Lumbar, pelvis, sacrum, lower extremity, thoracic, OA</p>
<p>6. How does previous trauma influence these regions?</p>	<p>Her car accident may play a role through axial compensations and fascial restrictions</p>



<p>7. Which 1 or 2 of the aspects below has the greatest influence on the patient complaint?</p> <ul style="list-style-type: none"> • Pain • Fluid congestion • Hyper-sympathetic influence • Parasympathetic influence 	<p>Pain - Viscerosomatic:</p>  <p>Principally 11th and 12th thoracic roots transmit pain from the uterus. Sacral nerves 2-4 from the cervix. Birth canal via the pudendal and perineal nerves. Pain – Somatic / Biomechanical:</p>
<p>8. What are the acute or chronic aspects?</p>	<p>Acute: Pain from postural decompensation, viscerosomatic pain from pregnancy. Weight gain with pregnancy. Edema from poor lymphatic return.</p> <p>Chronic: Pregnancy (relatively long health condition) Obesity with attendant joint/mechanical stress</p>
<p>9. Devise an appropriate treatment plan based on musculoskeletal components involved in the patient complaint</p>	<p>Goals for osteopathic manipulative management—includes: The structural examination during pregnancy can present challenges related to altered physiology, visceral influences, and altered biomechanics. Thoughtful modifications allow for a straightforward and simple examination. Be aware of patient comfort, especially during the last trimester or stages. Avoid prone positioning. Minimize the possibility of the supine compression syndrome by raising the back of the table to 20 degrees. Standing: monitor gait, accentuation of lordosis, kyphosis and those patients with scoliosis, structural anomalies, trauma or back surgeries. Seated: palpate for areas of strain, altered tissue texture, restriction and tenderness. Supine: refine diagnosis of segmental and regional dysfunction for six arenas of somatic dysfunction. Treat T11, inhibition, rib raising for UTI, treat sacrum and innominate for SI and parasympathetic muscle energy to thoracics and innominates;</p> <p>The treatment plan could include: Indirect and fascial techniques are often techniques of choice. Localize well if HVLA techniques are chosen for all areas, especially the lumbar spine. If the operator is not skilled at lumbar localization, a more skilled practitioner should perform these techniques or less aggressive techniques should be used. Avoid supine techniques for patients with supine compression syndrome. Empower patients with self help strategies such as exercise, diet, prenatal classes, select web sites. Individualize treatments for each patient. Techniques focus on: fascial dysfunction, vasodilation, mass effect of the enlarging uterus, mechanical compression of pelvic veins and lymphatics by the presenting part, limited diaphragm excursion, leaky microcirculation, pain, spinal cord facilitation. Leg tug or SI articulation.</p>

10. How soon would you see the patient for OMM follow-up?	Weekly or biweekly treatments Increase frequency of treatments. If confident there is no DVT, focus on enhanced lymphatic drainage to reduce lower extremity edema, decrease pain and hypersympathetic influence. Release of myofascial diaphragms without concerted lymph pumps if still suspicious of DVT. Patient tolerance may be limited due to obesity.
11. What are the outpatient, inpatient, and emergency room considerations?	Outpatient visits until delivery time then treatment inpatient. Keep a close watch on BP and Glucose levels considering pt comorbidities
12. How are you going to talk to your patient about their complaint and your treatment?	Explain enhanced risks for compromise of infant, maternal morbidity and mortality
13. How will you communicate your findings, diagnosis, and rationale for OMM treatment to your preceptor?	In a confident tone, well organized, with a strong differential and plan.
14. What coding and billing information for evaluation and management and procedural services will you generate?	<ul style="list-style-type: none"> • The diagnosis of somatic dysfunction in the assessment justifies the use of OMT • Somatic dysfunction diagnosis must be present in order to bill for the OMT that was performed. OMT is considered a procedure. • Documentation must reflect that the decision to perform OMT was made on that visit based on the physical findings and OMT was used for somatic dysfunction(s) identified • The procedure (OMT) and the E/M visit may both be billed with the same diagnosis code and during the same encounter if the decision to perform the procedure was made at the time of the encounter. Modifier -25 is used with the E/M code <p><u>You must have a non-somatic dysfunction diagnosis included for this case</u></p>
15. How would you record your encounter and OMT on your patient care logs?	Enter patient data, diagnosis date, and any special comments.

Procedure Services:	
Osteopathic Manipulative Treatment	
Code	Description
98925	Manipulation, 1-2 areas
98926	Manipulation, 3-4 areas
98927	Manipulation, 5-6 areas
98928	Manipulation, 7-8 areas
98929	Manipulation, 9-10 areas
CPT Diagnostic Codes: Rank in order of Importance	
Diagnosis	Somatic Dysfunction

Code	Description	Code	Description	Code	Description
		739.0	Head	739.5	Hip/Pelvis
		739.1	Cervical	739.6	Lower Extremity
		739.2	Thoracic	739.7	Upper Extremity
		739.3	Lumbar	739.8	Rib
		739.4	Sacrum/Sacroiliac	739.9	Abdomen

16. What is the Evidence Base?

Evidence-Based Medicine (EBM) is the integration of best research evidence with clinical expertise and patient values, consistent with the legacy of Andrew Taylor Still “To improve the practice of medicine by understanding the true nature of the human patient” (Robert C. Davies, 2001). Evidence is found after appropriate search and a critical appraisal of the clinical and research evidence. The patient is educated about the evidence for the management chosen, but ultimately the physician will affirm the course of treatment based on clinical experience, patient’s values and evidence available.

Search for the best evidence references:

An appraisal of the osteopathic literature is critical to ensure the osteopathic paradigm is foremost in the philosophical application of information to patient care. Search of relevant and associated data from the osteopathic literature:

OstMed-Dr (<http://www.ostmed-dr.com:8080/vital/access/manager/Index>)

Other literature bases (systems or synopsis engines):

- Poems (www.info poems.com)
- Family Practice Inquiry Network (www.fpin.org)
- PubMed
- Ovid
- Google Scholar

Section III: Workshop/Lab (approximate time 60 minutes)

Facilitator demonstrates the key treatment techniques.

1. Participants divide into groups at the table
2. At each table, discuss and practice the appropriate palpatory diagnosis for this patient
3. Facilitator demonstrates the key treatment techniques:
4. Participants should practice the following techniques on each other:
 - Indirect and fascial techniques
 - HVLA techniques for all areas. especially lumbar spine
5. At each table, while the techniques are being practiced:

- a. Identify and practice good body mechanics for the physician and patient in treatment
- b. Discuss the treatment plan
- c. Discuss what palpatory findings should change on the patient after OMM treatment

6. Documentation

Residents demonstrate an appropriate documentation of this case including findings and treatment here...

Section IV: Final Wrap-up and Questions/Answers