

## ***Facilitator's Guide***

### **Case Presentation**

**Chief Complaint:** Left sided pain, greatest in lower extremity.

**Patient History:** Osteopathic Manual Medicine outpatient clinic is consulted by Neurology service regarding a 67-year-old right handed female with a complaint of left sided pain that is greatest in the lower extremity. The pain is rated at a 7, on a 0-10 pain scale. She describes the pain as slowly increasing in intensity over the last year. It is alleviated with pain medications and is exacerbated with walking and standing. She also reports left lower extremity swelling which has been unrelieved with diuretics and compression dressing. Per patient, Venous Doppler for deep venous thrombosis was negative in left lower extremity. Patient reports falling approximately one month ago in the middle of the night, and since that time she has been leaning to the right. Upon further questioning, she admits to falling at least once a week. She denies striking her head or loss of consciousness when falling, but states that she usually "catches" her foot, which causes the fall

**Meds:** Neurontin (gabapentin), Zoloft (sertraline), Amitriptyline, Lyrica (pregabalin), Oxycontin, OxyContin immediate release, Lasix (furosemide)

**PMH:** Multiple Sclerosis (MS) diagnosed 11 years ago no recent exacerbations. Chronic constipation and incontinence related to MS, Cervical cancer, and right short leg for which she wears a 11mm shoe lift.

**PSH:** Hysterectomy in 1989, bladder tack, denies any fractures. Patient does admit to occasional falls at home. Upon further questioning, she has been falling a couple of times per month due to right-sided weakness

### **Review of Systems**

**Constitutional:** Fatigue.

**Skin:** Denies.

**Blood/Lymph/ Endocrine:** Swelling & cold in extremities.

**ENT:** Tinnitus.

**Eyes:** Wears corrective lenses.

**Cardiovascular:** Denies

**Pulmonary:** Denies.

**GI:** Constipation.

**GU:** Urinary incontinence.

**Musculoskeletal:** Frequent arthralgias in neck and hands.

**Neurologic:** Cramping, numbness & tingling in hands & feet, and difficulty walking.

**Psychiatric:** Denies anxiety, depression.

### **OMM Focused Structural Exam**

**Posture:** Head tilted left, increased thoracic kyphosis, internal rotation at the shoulder girdle, anterior head carriage, listing to right with standing & sitting.

- Right sidebending at waist increases when patient ambulates or closes eyes. When patient is placed in a standing upright position, she feels off balance & "crooked", immediately resuming right sidebending. OA ESrLI, C3 ERSr, C7 FRSr, T1-2 FRSr, T6-9 NRISr,
- Right anterior innominate rotation, Left anterior fibular head, bilateral sacral restriction, bilateral paraspinal musculature tightness of the cervical, thoracic and lumbar spine.
- Rib 9 on the right was exhaled; Ribs 2,4,7 were exhaled on the left with restricted motion of the left lower rib cage, bilateral tight hamstrings, iliopsoas and a left piriformis tender point.

**Physical Exam:**

**Vital signs:** : BP 98/60, HR 84, Resp 20, Ht 5'4", Wt 127, BMI 22.

**General:** Thin, elderly appearing female in no acute distress, good hygiene.

**HEENT:** Pupils equal, round & reactive to light and accommodation, extraocular muscles intact. Nares patent with pink mucosa, oral cavity moist without exudate or lesions noted, no lymphadenopathy palpated, tympanic membranes clear.

**Cardio/Pulm:** Regular rate & rhythm, pulses strong in all 4 extremities, left lower extremity with generalized non-pitting edema distally to mid-thigh, negative Hoffmann's sign.

**Abd:** Soft, non-tender, no masses or hepatosplenomegaly palpated, normal active bowel sounds

**Lower Extremity:** Ambulates with single point cane held in right hand for ambulatory assistance, narrow based stance with mild-moderate scissoring, head flexed, looking at floor, increased sidebending at the waist causing listing to right.

**Neuro:** Alert & oriented x 3, normal affect, cranial nerves II-XII intact, nystagmus on upgaze, deep tendon reflexes 3+/4+ in left upper and bilateral lower extremities, 2+/4+ right upper extremity. Hoffmann's sign positive at the left hand, Sensory decreased to light touch on the left arm & leg, allodynia of both arms. Mild spasticity of both lower extremities.

**Osteopathic Structural Exam:**

**Posture:** Head tilted left, increased thoracic kyphosis, internal rotation at the shoulder girdle, anterior head carriage, listing to right with standing & sitting.

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**Assessment:**

*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 comorbid 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.*

- Leg pain/edema: venous thrombosis, venous varicosities, and lymphatic obstruction in groin/pelvic region on left by space occupying mass, occult hip/leg fracture.

**Postural abnormality:** CVA in cerebellum, fall, worsening spasticity due to multiple sclerosis, visual disturbance, canalithiasis (dislodged otolith), occult hip fracture. Weak hip extensors, tight hip flexors.

**Assessment:**  
Leg pain/edema: venous thrombosis, venous varicosities, and lymphatic obstruction in groin/pelvic region on left by space occupying mass, occult hip/leg fracture.  
**Postural abnormality:** CVA in cerebellum, fall, worsening spasticity due to multiple sclerosis, visual disturbance, canalithiasis (dislodged otolith), occult hip fracture. Weak hip extensors, tight hip flexors.

## Section II: Mini-Lecture/Discussion (approximate time 20–30 minutes)

### Discussion Questions

### Teaching Points

<p>1. Propose an appropriate differential diagnosis / assessment</p>	<p><b>Differential Diagnoses:</b></p> <ol style="list-style-type: none"> <li>Differential diagnoses: Leg pain/edema: venous thrombosis, venous varicosities, and lymphatic obstruction in groin/pelvic region on left by space occupying mass, occult hip/leg fracture.</li> <li>Postural abnormality: CVA in cerebellum, fall, worsening spasticity due to multiple sclerosis, visual disturbance, canalithiasis (dislodged otolith), occult hip fracture. Weak hip extensors, tight hip flexors</li> </ol>
<p>2. How do you explain the current structural findings in the context of this case?</p> <ul style="list-style-type: none"> <li>Are any relevant structural findings missing?</li> <li>What would you do differently? Why?</li> </ul>	<p>Most of the patients structural examination findings are compensatory, to maintain her in an upright position, over a center of gravity that was deviated to the right. Her tight paraspinal muscles maintained her in a coronal plane, attempting to compensate for the rotation and side-bending somatic dysfunction palpated in the spinal column.</p>
<p>3. What pathophysiology &amp; functional anatomy knowledge is pertinent for diagnosing/treating this patient</p>	<ul style="list-style-type: none"> <li>Postural imbalance &amp; gait instability are particular issues with geriatric patients.</li> <li>Peripheral sensory input significantly provides for the maintenance of upright posture.</li> <li>Aging is associated with a decrease in postural balance that increases the risk of falling. When a patient falls, they tend to fall to the side, fracturing a hip. As the person ages, visual, labyrinthine &amp; somatosensory inputs change their contribution to the dynamic maintenance of standing posture.</li> <li>Upper thoracic flexion &amp; decreased cervico-occipital extension affect head position, lowering the visual field from the horizon &amp; shifting the neutral position of the vestibular apparatus.</li> <li>The head-flexed position significantly increases postural instability. The loss of muscle mass &amp; strength associated with aging impairs compensation. The patient's history of multiple sclerosis greatly impacts her strength, balance, proprioception and visual acuity. This places her at a higher risk of falling and fracturing a hip or sustaining a closed head injury.</li> <li>Urinary incontinence also places the patient at a greater risk of falling.</li> </ul>
<p>4. Which 1 or 2 of the aspects below has the greatest influence on the patient complaint?</p> <ul style="list-style-type: none"> <li>Pain</li> <li>Fluid congestion</li> <li>Hyper-sympathetic influence</li> <li>Parasympathetic influence</li> </ul>	<p>Pain and fluid congestion of the left lower extremity is what brought her to our clinic, but both are due to postural abnormalities.</p> <p>Normally parasympathetics could be a cause of urinary incontinence and constipation, but with the patient's history of Multiple Sclerosis, her bowel and bladder issues are central in nature. A hysterectomy may also cause incontinence, but not in this patient's case.</p>

<p>5. Devise an appropriate treatment plan based on musculoskeletal components involved in the patient complaint</p>	<p><b>Goals for osteopathic manipulative management—includes:</b> Lengthen hamstrings, iliopsoas muscles, strengthen hip extensors, and improve proprioception and balance. Recheck postural type. Radiologic studies to re-evaluate right short leg to ensure proper lift height. Caution should be used, not to fatigue, or over heat the patient, both of which can worsen weakness associated with multiple sclerosis.</p> <p><b>The treatment plan could include:</b></p> <p>1. Indirect Myofascial release to the truncal musculature, balanced ligamentous tension applied to innominate, fibula and sacrum. Articular techniques or facilitated positional release to the cervical spine, ribs and tight muscle groups.</p> <ul style="list-style-type: none"> <li>• Also instruct patient to check self frequently in mirror to encourage upright posture.</li> </ul>
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**Section III: Workshop/Lab (approximate time 60–70 minutes)**

1. Participants divide into groups at the tables.
2. At each table, discuss and practice the appropriate palpatory diagnosis for this patient.
3. Facilitator demonstrates the key treatment techniques.
  - **Indirect Myofascial release**
  - **Articular techniques or facilitated positional release**
4. Participants should practice the techniques on each other.
5. At each table, while the techniques are being practiced:
  - Identify and practice good body mechanics for the physician and patient in treatment.
  - Discuss the treatment plan.
  - Discuss what palpatory findings should change on the patient after OMM treatment.
6. Documentation

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

**Section IV: Final Wrap-up and Questions/Answers**