Integrating Osteopathic Care In A Rural Family Medicine Residency

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October 3, 2013
Disclaimer

- I have no financial relationships or conflicts of interest to disclose
Objectives

- Tensegrity
- Sequencing
- Treating the Area of Greatest Restriction
- Case presentations and OMT
  - Lateral Epicondylitis
  - URI/Asthma
  - LBP
- Other Correlations in Disease Processes with Aid of OMT
Osteopathy

- A system of medicine based on the belief that the body is a vital mechanical organism whose structural and functional integrity are coordinated and interdependent, and that disturbances in the musculoskeletal system can therefore cause disorders elsewhere in the body.

- Tensegrity = [ Tension + Integrity ]
What is Tensegrity?

Engineering concept Donald E. Ingber, MD, PhD as applied to living tissues. He has postulated that the 206 bones and myo-fascial tissues of the body represent a tensegrity system.

Basic components are

1. Self-supporting and self-correcting mechanical system
2. Does not require any internal vertical or horizontal supporting structures
3. Contains isolated, non-touching compression struts plus a continuous tension system
Paradigm as taught by Edward G. Stiles, D.O., FAAO

- Host + Disease = Illness

- The human body functions as a tensegrity system so long as the somatic dysfunction in the body is not at a level to negate the tensegrity phenomenon.

- The goal of a D.O. is to alleviate any somatic dysfunction and therefore enable the tensegrity potential to re-emerge
Sequencing

- Respect the Uniqueness of Each Patient

- Appreciate How Each Patient Will Be Different At Each Visit.
  - Findings Will Localize As You “Peel the Onion”.... “Uncover” Old Injuries

- Analogy:
  - Each Patient is Like A Rubic Cube or a Multi # Combination Lock
Sequencing: Interpretation

Sequencing Enables Clinician To:

- “Make the body an offer it CAN’T REFUSE
- Removing “The Virus” from the software program
Screen of column and sacroiliac area find area(s) of greater restriction

Determine upper or lower region and follow chart to determine area or segment to treat

Treat first area of greatest restriction

Rescreen and treat second, third, fourth, areas of greatest restriction

Continue until areas of greatest restriction resist correction or tissue response slows

SEQUENCING FLOW CHART
When the professional logger sees a log jam, he climbs a tall tree and locates a key log, has that log blown up and lets the stream do the rest.

An amateur would start at the edge of the jam and move all the logs, eventually moving the key log.

Both methods get the logs moving, but the pro does the work more quickly and effectively.
A. T. Still states:

“Sequencing adds order to our application of knowledge.”

“Adds intelligence and skill to our assessment of the sick.”
Area of Greatest Restriction (AGR) or The Key Lesion

- Screening the patient’s spine from the upper cervical region to the lumbosacral region including the SI joints feeling for:
  - TART (Tissue texture changes, Asymmetry, Restriction, Tenderness)
  - Paravertebral muscle fullness/spasm
  - Lack of motion and “normal” spring over the facets
TART

**Acute**
- Edematous
- Erythematous
- Boggy
- Hypertonic muscles
- Pain usually severe/sharp

**Chronic**
- Decreased or no Edema
- No erythema
- Cool dry skin
- Decreased muscle tone (flaccid, ropy, fibrotic)
- Pain is usually dull/achy/burning
As osteopaths, we need to think holistically about our patient’s presentation.
AGR

- Joint restriction may contribute to:
  - facilitation
  - changes in SNS or PNS tone
  - changes in vasomotor tone
  - rib mechanics which affects pumps for ventilation, lymphatic and venous circulation
  - nerve entrapment and neuropathy

- The bony frame is the anchor of our myofascial structures (tension system of tensegrity)
Challenges Of Treating Patients In A Rural Population

- Education level of patients
- Cost of health care
- Disbelief
- Transportation issues
- Large “disabled” population- resistance to getting better
Challenges Of Integrating OMT Into Routine Care In A Residency Setting

- TIME
- Hesitancy to do OMT
  - Confidence in skills
  - Efficiency
  - Decreases volume of patients can see
Challenges Of Integrating OMT Into Routine Care In A Residency Setting

- How do Pikeville Medical Center’s Family Medicine and Integrated Family Medicine Residencies face these challenges?
  - Develop an efficient osteopathic structural exam
    - Learn how to incorporate it into the physical exam
    - All family medicine residents do a 1 month OMT rotation
      - Work very closely with the Integrated and Plus One residents as well as the attending physicians
      - Monthly OMT didactic lectures
  - Discussion of osteopathic considerations with any pertinent patient case when presenting to an attending physician.
    - Have two 30 minute time slots blocked to schedule patient for OMT
Key Concepts

- Doing a good OSE to find the AGR/key lesion

- Treating 1-2 things can have a tremendous impact on recovery time from the disease process or injury

- Limited time with patient (~10-15 minutes)
  - Schedule back in 2-3 days for re-assessment and to treat any remaining somatic dysfunction with OMT

- HOST + DISEASE = ILLNESS
Case 1
Lateral Epicondylitis

- A 43 y/o female presents to your office complaining of right elbow pain that started about 1 month ago and is getting worse. Denies any specific injury to it

- She states that the pain is now so bad that it is keeping her up at night
  - Frequently drops things
Case 1
Lateral Epicondylitis

Upon further questioning:

- She works at the local hospital’s cafeteria.
- Her main job is cooking but she also does a lot of lifting on heavy pans as well as washes a lot of dishes.
- She states that the pain is worst on the lateral side of her elbow
- Occasionally will get numbness and tingling radiating down her forearm and into her last 3 fingers
Case 1
Lateral Epicondylitis

**Physical exam:**

- Normal DTR’s
- Normal sensation
- Normal muscle strength in both upper extremities but has pain with testing the right UE
- Point tenderness over the right radial head with a small area of fullness to the area
- Pain worsened with both active and passive ROM with pronation and supination of the right forearm
Case 1
Lateral Epicondylitis

**Osteopathetic Structural Exam (OSE):**

- Boggy tissues along the medial border of the right scapula
- Hard “end feel” with decreased spring along the articular column of T1-6 on the right
- Restricted ROM of right radial head with acute tenderness to the area
- Intra-osseous strain of the right forearm
Case 1
Lateral Epicondylitis

- Screening for AGR
  - ROM/spring of spine
    - As noted earlier- boggy paraspinal tissues located at the medial border of the scapula on right at the level of T1-6
      - Sympathetic innervation to UE T2-8
    - Good ROM of A/C, S/C, and shoulder girdle
    - Restricted ROM with pronation and very restricted supination of the right radial head with worsening of pain with movement.
    - Intra-osseous strain of right forearm with decreased motion to spring but still able to induce movement
  - AGR = Right radial head
Case 1
Lateral Epicondylitis

Treatment:
- Recommend NSAID treatment for 1-2 weeks
- Tennis elbow strap
- OMT (After treatment pain went from an 8/10 down to a 2-3/10 and able to move forearm and wrist much easier)
- Re-evaluate in 2-3 weeks
Case 2
URI/Asthma Exacerbation

A 23 y/o female presents to the office with a 3 day history of cough, shortness of air, fatigue, and wheezing especially at night

- Has had nasal congestion x 2 weeks
- Had a sore throat about 1 week ago but now throat only hurts if coughing a lot
- No fever or chills
- Has a history of asthma but has not had any issues nor any medicines to treat it since she was 12
- Cannot sleep due to coughing and has thrown up due to not being able to stop coughing
Physical Exam Findings:

- Voice is hoarse and sounds nasal
- Throat with moderate post nasal drainage
- Mild tachypnea with respiratory rate 22 but no use of accessory muscles
- Moderate bronchial wheezing bilaterally as well as expiratory wheezes in lung bases.
- Chest is very tight sounding with diminished breath sounds on auscultation
Case 2
URI/Asthma Exacerbation

OSE:
- Diffuse bilateral muscle tension in paraspinal muscles of cervical region most prominent at C4-C6
- Diffuse thoracic muscle tension with restriction to T4-8 with motion testing over the articular column on right which gets worse and more localized as you spring out laterally over ribs 5-7 on the right
- Right A/C joint with diminished spring compared to the left
- Tenderness over the diaphragm bilaterally to light palpation
Case 2
URI/Asthma Exacerbation

Treatment:
- DuoNeb treatment in office
- OMT (After treatment was able to breathe much deeper and easier with minimal expiratory wheezes noted on auscultation)
- Prescribe albuterol inhaler
- Evaluate need to treat with steroid taper and/or an inhaled corticosteroid
Case 2
URI/Asthma Exacerbation

- Screening for AGR
- Based on the OSE the most restricted region appears to be the ribcage as springing laterally on right side of ribs posteriorly at 5-10 on right
  
  - Do a full screen of ribcage
Case 2
URI/Asthma Exacerbation

- **Find the most restricted rib/group**
  - Common Somatic Dysfunction Patterns
    - Left ribs inhaled
    - Right ribs exhaled
  - Remember that with ribs if find an “Out of Pattern” rib dysfunction treat that first
Case 3
Low Back Pain

A 32 year old male present to the clinic with complaint of right sided low back pain that radiates down into right buttock and down back of his right leg to just above the back of his knee

- Started 3 days ago after moving a TV
- Pain is 7/10 and has been constant
- Gets some relief with lying on left side
- Has been taking Tylenol and using heating pad without any benefit
Case 3
Low Back Pain

Physical Exam Findings:

- Limited active and passive sidebending and rotation bilaterally due to pain
- Normal +2/4 DTR’s bilateral lower extremities
- Normal muscle strength bilaterally
- Negative lasegue and bragard tests bilaterally however exam limited to do guarding from the patient
- Analtalgic gait- limping and bearing more weight to left side
Case 3
Low Back Pain

OSE:
- Right sided lumbar paravertebral muscle fullness
- Tissues very warm and boggy
- Patient is rocking back and forth in chair as cannot find position of ease
- Unilateral band of tightness at T8-10 on right that is worse when spring out laterally
- L4 has a very hard with sidebending and rotation to the right that is worse in extension
Case 3
Low Back Pain

- **Treatment:**
  - NSAID
  - Muscle relaxant
  - Consider short course of steroids if indicated
  - OMT (After treatment low back felt much looser and “lighter” making it easier to move and the pain was not near as intense and now 4/10)
Case 3
Low Back Pain

Screening for AGR:

Many possibilities but common areas to expect are:
- Specific lumbar segment dysfunction
- Ribcage dysfunction
- Sacral dysfunction
- Thoracic dysfunction
- Cranial dysfunction
Other Disease Processes and Possible Somatic Dysfunction Correlations

- **UTI**
  - Thoracic and Lumbar Dysfunction (sympathetic innervation T10-L2)
  - Rib/Thoracic Inlets/Diaphragm Dysfunction (lymphatics)
  - Upper Cervical/Cranial dysfunction (parasympathetic innervation from CN X)
  - Sacral Dysfunction (parasympathetic innervation from S2-S4 with pelvic splanchnic nerves)
Other Disease Processes and Possible Somatic Dysfunction Correlations

- **Abdominal Pain**
  - Thoracic and Lumbar Dysfunction (T5-L2 sympathetic innervation for upper and lower GI)
  - Rib/Diaphragm Dysfunction (Intercostal and abdominal muscles, lymphatic congestion)
  - Upper Cervical/Cranial dysfunction (parasympathetic innervation from CN X)
  - Sacral Dysfunction (parasympathetic innervation from S2-S4 with pelvic splanchnic nerves)
Other Disease Processes and Possible Somatic Dysfunction Correlations

**Headaches/Migraines**

- Cranial (dural and vascular mechanisms, parasympathetic innervation via CN’s)
- Upper Cervical- OA and AA (CN X)
- Cervical (muscle attachments)
- Thoracic (sympathetic innervation head and neck T1-4)
- Rib/Thoracic Inlets/diaphragm (Lymphatic)
- Lumbar (dural attachments)
- Sacrum (primary respiratory mechanism)
A. T. Still Perspective

“A fixed point, a lever, a twist, or a screw power, can be and are used by all operators. The choice of methods is a matter to be decided by each operator and depends on his own skill and judgment”
Screen of column and sacroiliac area find area(s) of greater restriction

Determine upper or lower region and follow chart to determine area or segment to treat

Treat first area of greatest restriction

Rescreen and treat second, third, fourth, areas of greatest restriction

Continue until areas of greatest restriction resist correction or tissue response slows
Case 1
Lateral Epicondylitis

**OMT Treatment of Radial Head Dysfunction**

- Patient is seated
- Stand facing the patient
- Take the dysfunctional distal forearm with one hand while supporting the elbow with the other hand monitor the radial head with your thumb
- Place forearm at 90 degrees and “fine tune” to feel some of the tension leave
  - Purpose of placing elbow at 90 degrees is to lock out the shoulder motion and eliminating any anterior or posterior gliding
Case 1
Lateral Epicondylitis

OMT Treatment of Radial Head Dysfunction

- Supinate and pronate the patient’s forearms while supporting the distal radius and ulna - *always important to compare both sides*
  - Pronation of forearm glides the radial head posteriorly
  - Supination of the forearm glides the radial head anteriorly

- Give a gentle spring at the physiologic barrier
  - An absence of spring or hard “end-feel” is indicative of a somatic dysfunction
  - Always name the dysfunction for what it CAN DO
Case 1
Lateral Epicondylitis

OMT Treatment of Radial Head Dysfunction

- Treat with muscle energy
  - Place the radius via the forearm at the feather edge of the restrictive barrier
  - Establish an unyielding counterforce at the forearm
  - Have patient turn forearm (very gently) against your counterforce for 3-5 seconds
  - Make sure patient completely relaxes forearm and reposition further into the barrier
  - Repeat 2-3 times or until no further change in made in the joint
  - Confirm effectiveness by re-evaluating
Case 1
Lateral Epicondylitis

Treating a pronated (posterior) radial head with muscle energy

Treating a supinated (anterior) radial head with muscle energy
Case 2
URI/Asthma Exacerbation

- Treatment of Rib dysfunction with Muscle Energy (MET)
  - Inhalation dysfunction
    - Have patient take little breath while resisting inhalation
    - Long breath out while following the tissues to exaggerate the rib motion
      - Intercostal muscles
Case 2
URI/Asthma Exacerbation

- Treatment of Rib dysfunction with Muscle Energy (MET)
  - Exhalation dysfunction
  - Have patient take long breath in hold breath while exerting a force from appropriate muscle group
    - Rib 1 = Anterior and Middle Scalenes
    - Rib 2 = Posterior Scalenes
    - Ribs 3-5 = Pectoralis Minor
    - Ribs 6-10 = Serratus Anterior
    - Ribs 11-12 = Quadratus Lumborum
Case 2
URI/Asthma Exacerbation

- Treatment of Rib Dysfunction with Balanced Ligamentous Tension (BLT)
  - Place hands on anterior and posterior aspects of key rib
  - Assess tension within the ligaments in a directions of motion
  - Find point in motion of the rib where the tension is poised between the increased tension felt as the extremes of ROM are approached
    - Balance tension between both ends of the rib
  - Hold the BLT position while the activating forces within the body resolve the strain
Case 2
URI/Asthma Exacerbation

Treating key rib 10 with balanced ligamentous tension

Treating key rib 3 with balanced ligamentous tension
Case 3
Low Back Pain

Positioning for L4 FRSl with muscle energy

Fine tuning position using the head into ERSr (restrictive barrier)
References

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