Low Back Pain in a Collegiate Rower

By: John Ahern SPT
University of Delaware
Case Rounds
Oct. 9, 2009

Initial Evaluation: Subjective

- 18 y/o college freshman
- Member University of Delaware Women's Crew team
- Script: Spondylosis/Lumbar Dysfunction
- MOI: overloaded squat bar while lifting weights 2 yrs ago, collapsed under weight of bar

Question 1:

- According to the MOI, which of the following muscles could be involved?
  - A. Quadratus Lumborum
  - B. Lumbar Paraspinals
  - C. Multifidi
  - D. All of the Above

We've got all we need to know right? …… What else should we ask?

Subjective Continued:

- Imaging:
  - CT scan,healing stress fx's at L4-5
- Chief Complaint:
  - LBP with erging and prolonged forward flexion
  - denies radicular sxs
- Pain:
  - 0/10 currently
  - 0/10 best lying supine 90°/90°
  - 9/10 worst erging and forward flexion with L>R
- Current Meds:
  - NSAIDS (Etodolac 500mg) PRN
- Previous Tx:
  - PT at another facility, heat, ice, stim, stretching
  - Minimal improvement in sxs
- Boat Position:
  - Front port side (oar L)
- Goals:
  - return to training with her team:weight training, erging, rowing
  - first competition is 9/29 (IE 9/07)

Question 2:

With an L4-5 disc involvement, which of the following nerve roots would you expect to be affected?

- A. L3 Nerve Root
- B. L4 Nerve Root
- C. L5 Nerve Root
- D. Both L4 and L5 Nerve Roots

Alright, now we put those ortho skills to work…..

What other information might you need to collect? WHY?

Initial Evaluation: Objective

- Lumbo-Pelvic Screen:
  - (-) Forward Flexion in Standing
  - (-) Seated PSIS
  - (-) Prone Knee Flexion
  - (+) Supine to Sit
  - L ASIS > R ASIS in standing, Iliac Crest height equal
  - L lateral shift
- Max Opening:
  - painful B with L>R
- Max Closing:
  - painful B with L>R
- Lumbar ROM:
  - flexion full and painful, fulcrum at L1/2
    - (+) aberrant movement
  - extension full and painful
  - R SB/L SB limited B 25% and painful
    - excessive thoracic spine contribution
  - R Rot/ L Rot limited by 25% and painful with L>R

Objective continued:

- Leg Length:
  - R 88cm
  - L 87.5 cm
- Spring Testing:
  - L3-5 hypermobile
  - T10-L2 Normal
  - Sacrum Normal
- Soft Tissue:
  - L thoracic paraspinal hypertrophy
- ODQ/FABQ-PA
  - 18%, minimal disability
  - 20/24
- Special Tests:
  - Thomas Test:
    - (+) B with L>R
    - (+)ITB tightnes
  - Obers Test:
    - (+) B with L>R
  - SLR:
    - R 78°
    - L 75°
  - Abdominal Strength:
    - ASIS movement with SLR @60°
  - Prone Instability Test:
    - (+)L4-5

Question 3:

- The Oswestry Disability Questionnaire can be used to determine which of the following?
  - A. Patient's mechanism of injury
  - B. Patient's history of medication use
  - C. Patient's current activity level
  - D. Both A and C

Now what?....... Does this patient fit a classification scheme? What is your PT diagnosis?

Classification Scheme: CPR for Lumbar Stabilization

Prediction of Success	Prediction of Failure
Positive Prone Instability Test	Negative Prone Instability Test
Abberant Movement Present	Abberant Movement Absent
Average SLR >91°	FABQ-PA <9
Age <40 y/o	No hypermobility with lumbar spring testing

CPR for Predicting Success with Lumbar Stabilization

Number of Variables Present	Sensitivity	Specificity	+ LR	- LR
At least 1 (+) finding	0.28	0.94	1.3	0.20
At least 2 (+) findings	0.83	0.56	1.9	0.30
At least 3 (+) findings	0.56	0.86	4.0	0.52

Now what? What is you Plan of Care for this patient?

PT Diagnosis:

- Diagnosis
  - Lumbar segmental hypermobility/instability
  - Muscle hypertropy/increased tone
  - Decreased muscle length
  - Restricted and painful SB and Rot
  - PAIN
- Treatment
  - ?
  - ?
  - ?
  - ?
  - ?
  - ?

PT Diagnosis:

- Diagnosis
  - Lumbar segmental hypermobility/instability
  - Muscle hypertropy/increased tone
  - Decreased muscle length
  - Restricted and painful SB and Rot
  - PAIN
- Treatment
  - Core stabilization
  - NMES to Lumbar Spine
  - STM
  - Stretching
  - Joint Mobs/Traction?
  - Pt Education

So that's it ……. Not so fast!

- Pt is remaining status quo despite being consistent with her treatment and HEP
- Pt had consult with team physician for TLSO after 1 month in PT (16 visits)
- Pt wore brace for 4 weeks, no change in sxs. Then diagnosed with Mono after 2 months in PT (25 visits)
- Pt still complaining of large flare in low back sxs with return to rowing activity, weight training, and erging (30 visits)
- ODQ remains 18% (MDC – 10% points)

Question 4:

- With the current lack of progress at 30 visits, which of the following is the most appropriate action to take with this patient?
  - A. D/C to an HEP reached maximal benefit
  - B. D/C to the athletic training room to play through the pain
  - C. Refer to another discipline/specialist
  - D. Continue with current POC

Now What???

Consultation with Pain Management Specialist

- Consult with pain management MD (32 visits)
- MRI demonstrated mild lumbar levoscoliosis (left curvature), but no other abnormalities
- MD diagnoses patient with lumbar facet syndrome
- Recommends more PT, and clears pt to participate in all activities, but advises her to back off if symptomatic

Revisions to Plan of Care:

- Original Treatment Plan:
  - Core stabilization
  - STM
  - Stretching
  - Joint Mobs/Traction?
  - NMES to Lumbar Paraspinals
- New Treatment Plan:
  - Core Stabilization – progressing difficulty
  - STM
  - Stretching
  - Joint Mobs
  - NMES to Lumbar Paraspinals
  - Sport Specific activities
  - Running Progression

Question 5:

- You decide you want to use ultrasound as a heating modality in the clinic for a superficial structure on this patients back, which of the following would be the most appropriate/efficient parameters?
  - A. 1 MHz at 0.5 w/cm2
  - B. 1 MHz at 3.0 w/cm2
  - C. 3 MHz at 1.0 w/cm2
  - D. 3 MHz at 0.5 w/cm2

Pheeeewww, now she's getting better, or is she?

Updated Measurements:

- Current Subjective Measures:
  - Riding elliptical trainer, running, and weight training with coaches' alternate workout
  - pain increases to 3-4/10 within 5 minutes of activity
  - Pt now taking NSAIDs, muscle relaxers, and acetaminophen daily
  - Has tried accupuncture, and yoga, with no change in sxs
- Current Objective Measures:
  - SLR:
    - R 85°
    - L 84°
  - Decreased lumbar segmental mobility
  - Lumbar extension ROM limited by 25% with fulcrum at L5/S1
  - flexion full and pain free
  - SB equal B
  - L PSIS lower than R; L ASIS higher than R
  - ODQ: 14%

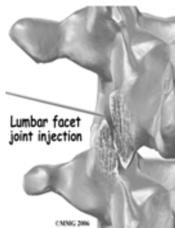
Now What??????

Consultation with Orthopedic and Sports Clinical Specialist

- Determined location of pt's pain to be at L L4-5 and L5-S1
- when pain is worst L5 across entire low back
- Observation of significant L paraspinal hypertrophy from T8-L5
- Seek and Destroy to L paraspinal over pillows and flexed to L opening position recreates pt's pain
- Tx with STM in L opening position and contract/relax stretching
- Recommendation to continue with Seek and Destroy, STM and Contract/Relax stretching if pt has (+) response to tx, otherwise consult with pain management MD for possible facet injection
- Now at visit 46

Results:

- Remained status quo for additional 12 visits
- Receives facet injection
- After facet injection pt reports immediate 65% improvement in global ratings scale, with return to rowing, lifting and running
- Pt has decreased TTP over L paraspinals and L4-5/L5-S1 spring testing
- Pt pain level at 1/10 "dull ache" at worst
- ODQ 4%
- D/C to HEP (58 visits) with plans to medically redshirt for fall crew season
- Follow Up:
  - Pt's sxs return during fall season
  - Pt quits crew team, and returns home to Pittsburgh
  - Was something else going on with this pt??



Closing Discussion:

- Low back pain that appeared to fit comfortably into CPR for lumbar stabilization
- Conservative management with PT was not able to drastically improve pt complaint of pain and functional activity level
- Frequent consultations between disciplines and clinical specialists to maximize pt outcome and return to sport
- Importance of being autonomous practitioner, but not working in a bubble…. Know when to refer!!!
- You **CAN NOT** make everyone better

QUESTIONS/COMMENTS?

Thank You !