Regional Review of Musculoskeletal System:  
Lumbar Spine, Abdomen, and Pelvis  
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Pre-Chapter Case Study

Chapter 2: Sacroiliac, Sacrum, and Coccyx  
(15 minutes CEU Time)

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| A 26-year-old male (5’10” tall, weighing 170 pounds) presented via direct access for a flare-up of chronic low back pain. Approximately 3 months prior, he began a running and weight-lifting program to “get back in shape.” However, 4 to 6 weeks ago, he had to decrease the frequency and intensity of his workouts due to an increase in symptoms. The patient’s chief complaint was constant, bilateral ache at the lumbosacral junction region, with pain more intense on the right side as compared to the left. Of significant concern to the patient was a deep-bruise sensation, with an occasional deep, “sharp pinch” over the right lumbosacral junction region. Lastly, he reported experiencing infrequent “jolting” pain in the area of the right buttock.  

Aggravating activities: Increase in the chronic ache with prolonged sitting (greater than 60 to 90 minutes), driving (greater than 2 hours), and lying prone. The deep-bruise pain was exacerbated with running and by lifting objects, especially during weight-lifting workouts. The patient stated the sharp pinch on the right side was exacerbated when he performed a right “hip hike” maneuver in standing (which he demonstrated). He could not identify any particular position or activity that caused the right buttock pain.  

Ease: Wearing a lumbar corset helped “a little” and cessation of running and weight lifting also decreased the severity of his symptoms.  

Pain: Worst = 4/10; Best = 1-2/10  

The patient denied experiencing pain anywhere else in his body, weakness, numbness, or altered sensation in either of the lower extremities or any bowel/bladder dysfunction.  

History of Present Illness/Injury: An injury to his low back approximately 9 years ago (when patient was 17 years of age) while playing in a high school football practice session. The athletes ran a drill for approximately 30 minutes where the defensive secondary (the patient played in the defensive backfield) continually tackled larger players. The patient recalled attempting to make a tackle from the 3-point stance; he lunged forward to make the tackle and at the point of contact with his opponent, his lumbar spine was forced into hyperextension. He immediately felt severe low back pain. He reported that he continued to play for fear he would lose his position. Eventually, the pain increased so much that it made it impossible for him to run or jump, and he voluntarily discontinued the practice session. The patient saw a physician and had plain radiographs taken, but does not recall ever being told the results of the radiographs. The patient finished the football season with playing time significantly limited by low
back pain. The patient did not return to football the following season for fear of re-injury and rather chose to run cross-country. The patient reported that he performed a great deal of abdominal strengthening (primarily sit-ups), but very little strengthening for the spinal extensors during the cross-country season; he reported his season to be pain free.

The patient’s pain returned approximately 5 years later (4 years ago), while he was attending college. Pain occurred with prolonged sitting and standing, but did not keep him from performing usual activities, with the exception of lifting heavy objects.

Approximately 12 weeks ago, the patient initiated a running and weight-lifting program. He was able to perform the program without an increase in symptoms until 4 to 6 weeks ago. Over the past 4 to 6 weeks, his pain (deep-bruise and “sharp catch” sensations) prevented him from running or weight lifting on consecutive days without a marked increase in symptoms. In addition, the pain would awaken him at night when he was lying on his stomach. Lastly, due to increased sitting time associated with his college classes, the lumbosacral junction region ache was also interfering with his ability to sit for adequate periods of time. The patient reported using heat and ice inconsistently with little or no long-term relief.

Past Medical History: Uneventful; the patient denied a history of significant illnesses, recent surgeries or hospitalizations, and was not taking any medication at this time. He also denied any recent unexplained weight changes, fever, chills, sweats, nausea, or fatigue.

Goals: His goals were to resume running and strength training at the desired intensity, and to increase his sitting and driving tolerance to a functional level considering his student status.

What is your leading hypothesis? Why?

Objective

Observation (in standing): No lateral trunk shift

Palpation: Iliac crests, PSIS, ASIS = level and no apparent limb length discrepancy was noted. No perceived “step-off deformity” was noted while palpating along the tips of the lumbar spinous processes, nor was any pain or tenderness provoked with palpation of posterior trunk and pelvis bony or soft tissue landmarks, except palpation over the right lumbosacral joint region caused the patient to say, “That is where my pain is, but you’re not deep enough”

Lumbar Spine AROM:

  Extension (1 rep) = 5°, resulted in sharp local pain (the patient’s pinch pain complaint) deep at the right lumbosacral joint region
  Flexion = fingertips reached to the ankles with good accompanying hip rotation noted
Side bending left and right = symmetric AROM fingertips reaching 5 to 6 cm below knee joint lines; no change in symptoms
Alternate Position (“hands and knees” position) = when the patient rocked back to sit on his heels he experienced an increase in the sharp, right-sided catch in the lumbosacral area at end range

Palpation in prone:
Lumbar spine = increased muscle tone in the right mid to lower lumbar paraspinals and in the left lower lumbar paraspinals
Right lumbosacral joint region = patient reported, “That is where my chief complaint is. You are just not pushing hard enough [to provoke symptoms].”
• No tenderness or pain provocation over any other aspect of the posterior pelvic region

Joint play (PAs from T6-S1):
Spinous processes = slight hypomobility at S1 and L5; no change in symptoms
Transverse processes = decreased mobility at the right L5 vertebra; marked increase in the right-sided deep-bruise and deep-ache pain complaints (no sharp pain) with right unilateral pressures of L4 and L5 right transverse process. The patient stated, “That is where the sharp pain comes from,”
Sacrum = pain was produced on the left inferior lateral angle of the sacrum

Special Tests:
• Thomas test = the patient’s RLE rested in 20° of hip flexion, 30° of knee flexion, and 25° of right hip abduction. Muscle tightness was noted in the Thomas test position for the right leg.
• SLR test = 85° bilaterally; no change in symptoms
• Abdominal strength = Unable to maintain a “flat back” in supine, while alternately lifting his feet off the plinth. The lower abdominal muscles were weak
• SI joint = Gap test with patient supine & again in sidelying; no change in symptoms
• Hip joint = AROM plus passive overpressures; normal motion & no symptoms

Lower-Quarter Neurologic Screen: = negative regarding abnormal sensation, strength, and reflexes

What are you suspecting now? List the top diagnosis

What do you do at this point?
If you were to treat this patient via a home exercise program based off your suspected diagnosis:

What impairments and functional limitations should the HEP address?

What should be the overall goal of the HEP?

What type of intervention would you NOT give this patient?

What type of intervention would you give this patient?

Notes: