CASE SCENARIO: PELVIS & SI JOINT

The patient is a 21-year-old female collegiate runner referred by her primary care practitioner for "right low back and hip pain." She reports a 2 month history of intermittent right-sided low back pain, nearly constant moderate intensity right hip/groin pain, and occasional deep thigh pain that rarely goes away completely. She notes a progressive worsening of the thigh pain in the last few weeks which seems to correlate with increases in her mileage during cross country training. Her symptoms are significantly but not fully relieved when lying down. She reports that she is afebrile, and has a history of inflammatory bowel disease. She has taken corticosteroids for her bowel disorder off/on for the last 2 to 3 years. Her weight oscillates between 100 lbs to 115 lbs because she sometimes has trouble holding food down during bowel flare ups. She had a standing anterior-posterior radiograph performed 3 weeks after symptom onset, which was negative for pathology.

Key positive findings of examination

Mild diffuse hip discomfort was reported near the groin and thigh on the right side with single leg stance on the right. A positive Fortin finger test is present on the right. She demonstrates frontal plane instability during gait, which worsens during running. Manual muscle testing reveals 4+/5 bilateral hip strength throughout. Mild vague discomfort deep in the groin and proximal thigh is present when testing hip abductors, rectus abdominis, and most notably the hip adductors on the symptomatic side. Palpation through the hip abductors, rectus abdominis, and hip adductors reveal increased resting tension and slight tenderness. Stretching of the hip abductors and adductors reveals minimal discomfort in the soft tissue being stretched. Gapping test provokes typical groin pain and diffuse thigh pain on the right side. The flexion, adduction, internal rotation (FADIR) test is mildly positive for groin pain but also provokes the thigh symptoms vaguely. Central posterior-anterior pressure from L1-5 recreates local discomfort, but not familiar symptoms. She has difficulty consciously recruiting her transverse abdominis and pelvic floor.

Key negative findings of examination

The neurological screen is negative. She has a negative sign of the buttock, active straight legraise, Gaenslen's and compression test. Repeated lumbar flexion and extension motion testing reveals no peripheralization or centralization, but does reveal some mild increases in lumbar pain. Hip range of motion is full in all planes. Femoral and sciatic nerve testing are unremarkable.

1. What is the most likely pathoanatomic hypothesis from the list below?
    a. cancer.
    b. low back pain with radiating lower extremity symptoms.
    c. hip osteoarthritis.
    d. stress fracture of the pelvic girdle.

2. Which radiological test would be of most diagnostic value at this time?
    a. computed tomography.

b. magnetic resonance imaging.
c. plain films.
d. scintigraphy.

3. You refer the patient back to the referring physician who refers the patient to a physiatrist. Standing anterior-posterior and frog leg views of the hip reveal no abnormalities. The physiatrist performed a single sacroiliac joint anesthetic injection under fluoroscopic guidance and referred the patient back to you. She noted a 50% reduction in the lower back, pubic, and thigh pain for 4 hours after the injection, but she noted the same pattern of discomfort returned by the next morning. Based on this additional information, which of the following diagnoses should be highest on your differential list?
   a. femoroacetabular impingement.
   b. adductor strain.
   c. lumbar zygapophyseal (facet) pain.
   d. sacroiliitis.

4. Which treatment is MOST appropriate at this point from the list below?
   a. grade IV or V coxa femoral mobilization.
   b. lumbar movements/postures to attempt to centralize her symptoms.
   c. femoral nerve flossing mobilization.
   d. transverse abdominis and pelvic floor training.

ANSWERS

1. The correct answer is **d. stress fracture of the pelvic girdle**. She has clear risk factors for insufficiency fracture with corticosteroid use, female sex, variable dietary intake, increase in running mileage, and the diffuse nature of her symptoms. Additionally, she has symptoms that diffuse, aggravated with unilateral weight bearing, active contraction of muscles that attach to the pelvis, and manual forces through the pelvis. While the lumbar spine appears to be involved, her typical symptoms are not reproduced with lumbar assessment, and there is no evidence to support a radiating pain presentation. The patient is young, has a mechanical presentation, relief with bed rest, afebrile, and her fluctuations in weight have an explanation; therefore, cancer is not likely. She does not fit the clinical prediction rule for hip osteoarthritis.
2. The correct answer is **b. magnetic resonance imaging**. Magnetic resonance imaging (MRI) has the most varied application to rule in/out all potential pathologies at this time. MRI has the most value for detecting stress fractures as it can detect early changes. All items listed have the potential to detect stress fractures, but MRI can detect changes with more specificity than a bone scan. It takes time for the stress reaction to be detectable on x-ray or CT scan. As stated previously, MRI has the most sensitivity for detecting clinically significant changes of the sacroiliac joint that present with sacroiliitis. An MRI is also sensitive to detect soft tissue involvement of the lumbar spine (disc, cauda equina, space occupying lesions) that may cause lower extremity symptoms which are present in this case. An MRI also shows hip joint changes (labrum, articular cartilage).
3. The correct answer is **d. sacroiliitis**. She has a positive a positive injection response, albeit temporary. Although this may not be the only pain generator, it is the best one from the list given. The anterior-posterior radiograph of the pelvis and frog leg views will likely not show subtle signs of intraarticular soft tissue pathology. While the FADIR recreated mild symptoms, typical symptoms were not provoked, and hip ROM was otherwise normal and pain-free making impingement less likely. The mechanism of symptoms is not consistent with a muscle strain. Stretching and palpation of the adductors did not recreate typical symptoms, making a muscle strain unlikely. Lumbar accessory joint motion and active range of motion created local discomfort but not the concordant sign of groin and thigh pain, making a facet problem unlikely to be the primary problem.
4. The correct answer is **d. transverse abdominis and pelvic floor training**. The patient had signs and symptoms appearing consistent with sacroiliac spine pain. She had impaired muscle performance of the abdominal musculature and a positive response to a local injection. Addressing local impairments, namely the abdominal recruitment would be the most appropriate. Hip range of motion was assessed to be normal, making hip joint mobilization less relevant. The patient did not have a directional preference or peripheralization on examination, making attempts to centralize symptoms less relevant. Despite the pain in the groin and thigh, neurodynamic testing was negative. The lack of impairment in neurodynamic mobility makes nerve flossing less appropriate.