



Differential Diagnosis for Lumbar Radiculopathy

presented at Tampa 2017 Cox® Honors Course by Dr. Portwood

His powerpoint slides' content follows.

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DIFFERENTIAL DIAGNOSIS	SYSTEMS ASSIGNMENT	DIFFERENTIAL CATEGORY
Acquisition of Data	Musculoskeletal	Vascular
Analysis of Positive Findings	Neurological	Infection
System Assignment	Genitourinary	Congenital
Differential Categories	Endocrine	Trauma
Testing Strategy	Cardiovascular	Arthritide
Diagnosis	Respiratory	Neoplasm
Treatment	Gastrointestinal	Endocrine
	Dermatological	

PATIENT HISTORY

25 y/o male cyber security forces member known to this office presents with acute LBP radiating into the left buttocks after performing 425 pound deadlifts at the gym 2 days ago. He reports hearing a "loud pop" in his low back followed by "a feeling of warmth" that traveled into the left buttocks, posterior thigh and leg, terminating in the plantar aspect of the left foot. This feeling subsided after several minutes and he continued to "work through the pain" for another 10min. His pain increased that evening from a dull left sided back ache to a "numb/burning" pain in the left low back and buttocks, "it was like someone is poking me with a hot iron." He presented to the emergency department where he was treated and released with a prescription for cyclobenzaprine after radiographs of the lumbar spine were unremarkable for fracture, dislocation or any boney abnormality. He reports minimal palliation with prescribed medication, rest, ice or heat. Pain increases with sitting and decreases with standing. He is antalgic to the right, leaning away from the side of pain. Flexion and extension increases his pain for 6/10 to 9/10. He denies paresis, paresthesia or radiation of pain in the BLE. No saddle paresthesia, no loss or change in b/bl control.



REVIEW OF SYSTEMS

- Systemic: Afebrile, A&Ox3, no fatigue, no malaise, no recent infection, no unexplained fevers, no immune suppression
- Head: no headache, no dizziness, no nausea, no head injury
- Neck: no neck pain, no swelling in the neck, no difficulty swallowing
- Eyes: no eye pain, no visual disturbances, no diplopia, no vertigo, no scintillation, no visual loss
- Otolaryngeal: no ear pain, no sore throat, no jaw pain, no decreased hearing, no ringing in the ears
- Cardiovascular: no chest pain or discomfort, no palpitations, no shortness of breath with activity
- Pulmonary: no shortness of breath, no dyspnea on exertion, no difficulty breathing, no wheezing, no painful breathing, no coughing blood or sputum
- Gastrointestinal: no abdominal pain, no fecal incontinence, no unexplained weight loss, no loss of bowel control, no change in appetite, no difficulty swallowing, no heartburn, no change in bowel habits, no constipation, no diarrhea, no rectal bleeding
- Genitourinary: no bladder incontinence, no loss of bladder control, no hematuria, no polyuria, no difficulty initiating urinary stream, no dribbling
- Endocrine: no polydipsia, no polyuria, no excessive sweating, no rapid weight gain or loss, no heat or cold intolerances
- Hematologic: no easy bruising, no easy bleeding, no anemia
- Musculoskeletal: no recent trauma, no osteoporosis, no redness of the joints, no swelling of the joints
- Neurological: No local neurological deficits, no saddle paresthesia or/ anesthesia, no dizziness, no fainting, no vertigo, no light-headedness or episodes of feeling faint, no weakness, no numbness, no tingling, no tremor, no difficulty with speech
- Psychological: no depression, no anxiety, no sleep disturbances, no difficulty concentrating
- Skin: no rashes, no lumps, no itching, no changes in color, no hair or nail changes
- Allergic and Immunologic: no known drug or food allergies

PHYSICAL EXAMINATION

- BP: 129/69 HR: 57 RR: 16 T: 97.1 F HT: 74in WT: 214lbs BMI: 27.48
- Oswestry: 32%
- A&Ox3, attentive with normal language, orientation and speech. No neglect of a body part, no tactile inattention, no motor apraxia. Gait and station are normal balanced and steady. Heel/Toe walk x7 without difficulty.
- Coordination/Cerebellum: No coordination/cerebellum abnormalities noted
- Sensory: No hyper/hypo or anesthesia noted to pinwheel BLE
- Motor: normal muscle tone and bulk, myotomes 5/5 and strong BLE
- Reflexes: LE DTR's 2+, brisk bilaterally, plantar response flexor, no clonus
- Abdomen: soft, non-tender, no organomegaly, no rebound tenderness, BSx4, no bruits



- L/S ROM: Flexion 30° - Extension 10° - RLF 25° - LLF 15° pain at end range
- Kemp's positive for LBP and left buttocks
- Yeoman's positive bilaterally for low back pain
- SLR produced low back pain, pain in left biceps femoris at 30°
- WLR reproduced LBP at 30°
- Tenderness over the left low back, upper gluteals, and left piriformis
- HIP ROM: Flexion 100o - Extension 30° - Abduction 40° - Adduction 15° - Internal Rotation 40° – External Rotation 30°
- Popliteal and dorsal pedis pulses normal bilaterally
- Additional imaging was deferred per clinical guidelines for treating LBP.

TREATMENT

The patient was initially treated with Cox® FD. Tension testing at L5 reproduced pain in the low back and paresthesia in the left S1 dermatome. Tension testing at L4 was palliative and treatment was continued utilizing protocol I. The patient noted some palliation and was placed on ice and IF current for 15min. He rated his pain as 6/10 after the first treatment but noted no radicular s/sx and increased mobility with decreased pain. He was prescribed diffuse hip abductor stretches and profiled from running, lifting greater than 20lbs, repeated flexion/extension at the waist and prescribed relative rest with ice at home 20 minutes on/off between visits.

He was treated with Cox® FD with heat and IF daily for 3 days and after his 4th visit reported an average daily pain of 3/10 and was able to work without difficulty. His treatment plan was modified, and the frequency of care was decreased to twice weekly. He was prescribed gluteal bridges with single leg extension exercises.

CLINICAL REASONING

Patient was treatment with Cox® FD protocol II and continued to improve marked by decreased pain to 1/10, FTG L/S ROM without pain, increased ADL without pain, and no paresis, paresthesia or radiation of pain in the LE.

Two weeks after the initial onset the patient presented to the clinic with minimal back pain, paresthesia in the left posterior thigh and calf, 3/5 paresis of plantar flexion in the left foot, and paresthesia in the S1 dermatome on the left. He reported exacerbation after ignoring his profile and returning to the gym where he tried jogging on the treadmill but could not jog longer than 3min due to numbness in his left foot.

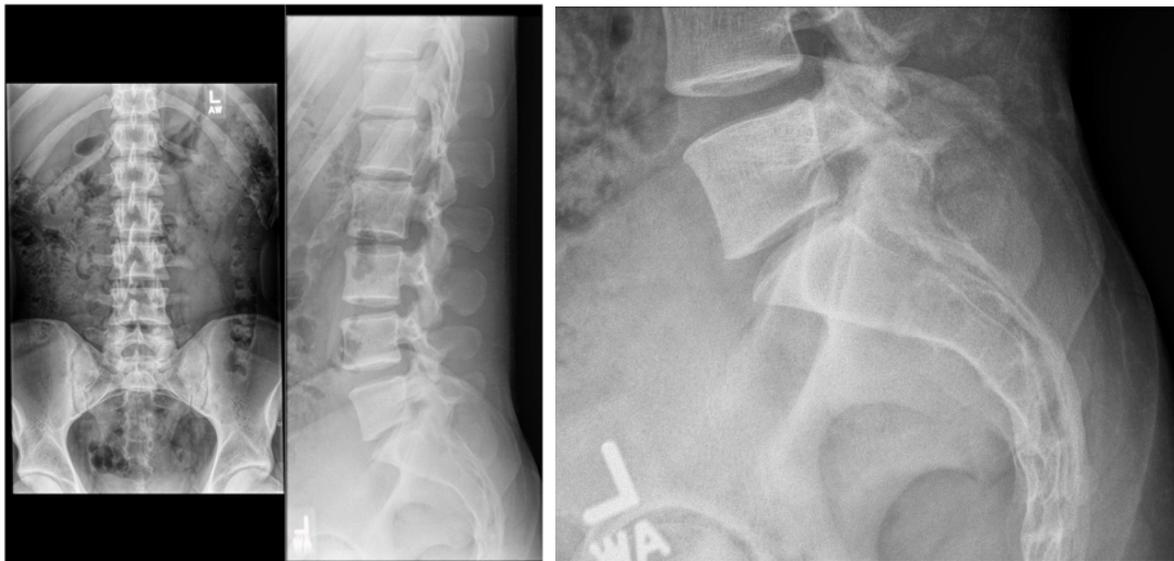
The patient was able to tolerate Cox® FD protocol II treatment but s/p treatment there was no objective change in his left LE paresis.

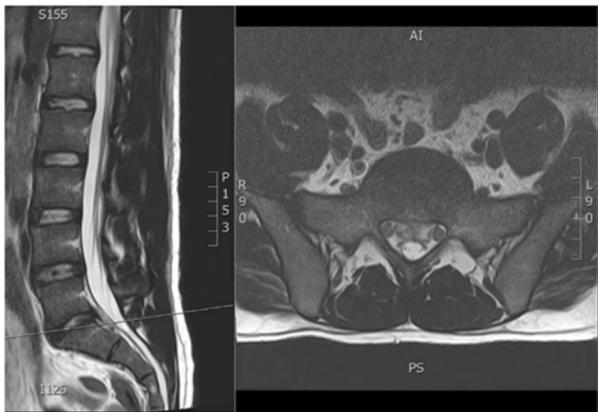
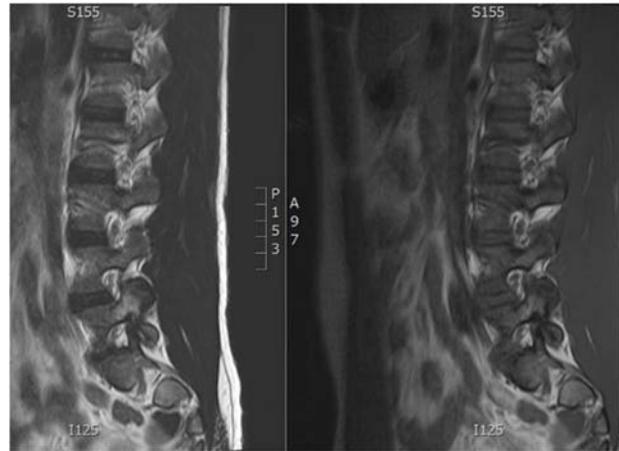
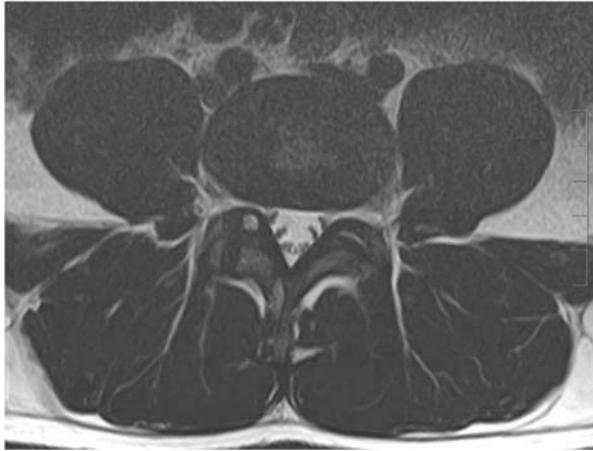
An MRI of the lumbar spine was obtained.

ADVANCED IMAGING

Radiologist reported L4-5: There is a circumferentially bulging disc without nerve root impingement or spinal stenosis. An oval lesion at the right inferior facet of L4 is hyperintense on T1 and T2-weighted pulse sequences. There is mild facet hypertrophy. *L5-S1:* There is mild disc bulging without nerve root impingement or spinal stenosis. There is a 5mm round hyperintense lesion in the right superior facet of L5. This is T1 and T2-hyperintense, but it cannot be seen on the STIR pulse sequence. There is mild facet hypertrophy. The differential diagnosis is intraosseous hemangiomas, versus atypical appearing synovial cysts.

On direct view, not noted on the radiographic report, I appreciate extruded disc material from the L5/S1 disc that migrates caudally along the posterior border of the S1 segment that effaces the left S1 nerve root. There is marrow edema noted on the T1 and T2-weighted sagittal and axial images over the region of the right pars interarticularis.





TREATMENT & OUTCOME

Diagnosis and Progress



Left S1 radiculopathy secondary to an L5-S1 extruded disc associated with an active contralateral spondylolysis and facet synovial cysts

In the presence of progressive neurological deficits, a referral was placed for a neurosurgical consultation. The patient scheduled evaluation in 4 weeks.

The patient continued treatment with Cox® FD twice a week for the next 3 weeks. His continued to improvement marked complete resolution of low back pain and paresthesia in the S1 dermatome. On re-examination the patient was ortho/neuro negative and with grade 5/5 strength in the LE.

At 8 weeks (10 treatments) the patient returned to playing basketball and light jogging without exacerbation. The neurosurgeon declined consultation with the patient based upon his remarkable recovery.

DISCUSSION

Early treatment of lumbosacral radiculopathy secondary to extruded lumbar disc with Cox® FD is an effective treatment in young adults. In the absence of cauda equina syndrome, loss of bowel or bladder control, saddle anesthesia/paresthesia, and progressive neurological deficits, early conservative intervention utilizing Cox® FD and a Cox® certified physician should be considered. Treating physician direct review of all advanced imaging studies is necessary for doctors who frequently treat patients with radiculopathy. Clinical correlation of advanced imaging findings is critical to proper interpretation and management.

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