

Redundant Nerve Root in a Patient With Chronic Lumbar Degenerative Canal Stenosis

Federico E. Villafañe, DC,^a Allison Harvey, DC,^b and Norman Kettner, DC, DACBR^a

ABSTRACT

Objective: The purpose of this case report is to describe the diagnostic imaging features of redundant nerve roots caused by chronic lumbar degenerative canal stenosis (CLDCS).

Clinical Features: A 56-year-old male presented with severe low back pain. He experienced pain during minimal active lumbar range of motion. The patient demonstrated weakness of the right iliopsoas and hypoesthesia of the L-2 dermatome. A working diagnosis of CLDCS was established. The patient's worsening severe low back pain warranted magnetic resonance imaging of the lumbar spine, which was performed for further evaluation. Magnetic resonance imaging demonstrated disk protrusion and canal stenosis with tortuosity of the cauda equina consistent with redundant nerve root appearance.

Intervention and Outcome: The patient was treated with chiropractic flexion distraction, which was followed by a course of acupuncture and spinal manipulation. The patient self-discharged following clinical improvement.

Conclusions: This case demonstrated CLDCS with associated redundant nerve roots. Conservative treatment included chiropractic diversified lumbar spinal manipulation, acupuncture, and electrical stimulation. The patient self-discharged following clinical improvement in 3 months. (*J Chiropr Med* 2017;xx:1-6)

Key Indexing Terms: *Canal Stenosis; Lumbar Spine; Cauda Equina; Redundant Nerve Root*

INTRODUCTION

Redundant nerve root (RNR) is an engorged tortuous nerve caused by severe chronic lumbar degenerative canal stenosis (CLDCS).^{1,2} Redundant nerve root is a complication that arises as a result of continuous and chronic compressive forces on the nerve roots within the canal of a CLDCS. Chronic lumbar degenerative canal stenosis is the result of degenerative narrowing of the lumbar spinal canal caused by bulging of an intervertebral disk, osseous hypertrophy of the vertebral neural arch, apophyseal joint arthrosis, ligamentum flavum hypertrophy, and/or degenerative spondylolisthesis.³ Symptoms, which gradually progress and worsen,³ include pain in the low back, buttock, and lower extremity accompanied by numbness.^{3,4}

Neurogenic intermittent claudication signs include weakness while walking and relief with forward bending.³ In some cases, neurologic deficits, including bowel and bladder incontinence, lower extremity motor weakness, and sensory deficits as well as reduced or absent lower extremity deep tendon reflexes are experienced.³ There is, however, little correlation between clinical symptoms and dural cross-sectional area.^{4,5}

Myelography was first utilized in the diagnosis of RNR, but most recently, magnetic resonance imaging (MRI) has been employed.⁶ Although the pathophysiological mechanism of RNR formation remains unclear, mechanical trapping above or below the level of degenerative stenosis is assumed to cause its serpiginous appearance. The reported prevalence of RNR varies, with some observing it in 33.8% to 42% of patients with CLDCS.¹ There is no statistical gender difference for RNR.⁷

The purpose of this case study was to present the diagnostic imaging findings of a patient with CLDCS with associated redundant nerve roots.

^a Department of Radiology, Logan University, Chesterfield, Missouri.

^b Department of Chiropractic Health Centers, Logan University, Chesterfield, Missouri.

Corresponding author: Federico E. Villafañe, DC, 1851 Schoettler Road, Chesterfield, MO 63017. Tel.: +1 636 230 1831. (e-mail: Federico.villafane@logan.edu).

Paper submitted June 20, 2016; accepted February 1, 2017. 1556-3707

© 2017 National University of Health Sciences.

<http://dx.doi.org/10.1016/j.jcm.2017.02.001>

CASE REPORT

A 56-year-old male had an onset of severe low back pain after throwing trash into a dumpster. He immediately presented to the local emergency department (ED) complaining of severe low back pain, and a computed

tomography (CT) of the lumbar spine was performed. The CT findings indicated lumbar spine degeneration that was most advanced at L2 and L3. Disk herniation was not visible on this imaging study. He was treated with muscle relaxants and oral corticosteroid medication.

The patient presented to our chiropractic teaching clinic within 3 days of his ED visit, complaining of continuing severe, sharp low back pain that radiated into the right anterior thigh. He rated his pain as 10 on a numerical pain scale of 0 to 10, with 10 being the worst pain experienced. His vitals were normal. His physical examination included pain on minimal active lumbar ranges of motion. On the initial examination, all lower extremity myotomes were 5 out of 5, and heel walk and toe walk were negative. Iliopsoas motor evaluation produced 5 out of 5 strength bilaterally, and testing of the right iliopsoas reproduced the chief complaint. Straight leg raise (SLR), standing Kemp, and Yeoman tests reproduced his chief complaint on the right side, with no radiation past the right buttock. No neurologic deficits were identified initially. History, physical examination, and CT findings led to a working differential diagnosis of lumbar erector spinae myalgia, segmental dysfunction, degenerative joint disease, facet syndrome, and/or disk herniation of the lumbar spine.

The patient passed the flexion tolerance test and was treated with chiropractic flexion–distraction and responded well, as shown by pain reduction. He returned the next day, and while greeting the clinician, he immediately reported a 10 out of 10 score of pain. He was sweating and stated he could only find minor relief from lying supine with his knees bent. At this point, he was unable to undergo positioning for any chiropractic adjustment (manipulation) because of the severity of his pain. He was referred back to the ED for additional evaluation and treatment. Following

evaluation at the ED, a noncontrast lumbar spine MRI was performed.

The MRI showed circumferential disk bulge with a right lateral broad-based disk protrusion and right intervertebral foramen and canal stenosis at L2/L3. There was a circumferential disk bulge with bilateral foraminal encroachment, extraforaminal right disk herniation, and canal stenosis at L4/L5. In addition, there was a circumferential disk bulge at L3/L4, central focal protrusion at L5/S1, and multilevel discogenic spondylosis. Above the stenotic L2/L3 level, multiple loop-shaped nerves of the cauda equina were identified, which was consistent with the presence of RNR (Figs 1A, 1B, and 1C).

Following the second ED evaluation, clinical re-evaluation was performed at our clinic. The patient presented to the clinic with noticeable pain, left antalgic leaning position, and distress. The patient obtained relief from pain by lying recumbent on the floor of the waiting room. Eventually, he was placed onto a wheelchair and taken to the treatment room. Upon questioning, the patient reported no bowel, bladder, or sexual dysfunction. Increased pain upon coughing and defecation was reported. On examination, there was severe edema in the right lumbar region, with severe spasm of the erector spinae. Fasciculation of the right quadriceps muscle group was also noted. The patient's chief complaint was reproduced upon light palpation of the right side of sacrum. The patient demonstrated interval development of a sensorimotor deficit. This included weakness (4 out of 5) of the right iliopsoas and hypoesthesia of the L-2 dermatome. SLR was positive, reproducing pain into the right buttock. The new working diagnosis, therefore, was CLDCS.

This episode of treatment included a total of 5 acupuncture treatments. Acupuncture was performed on

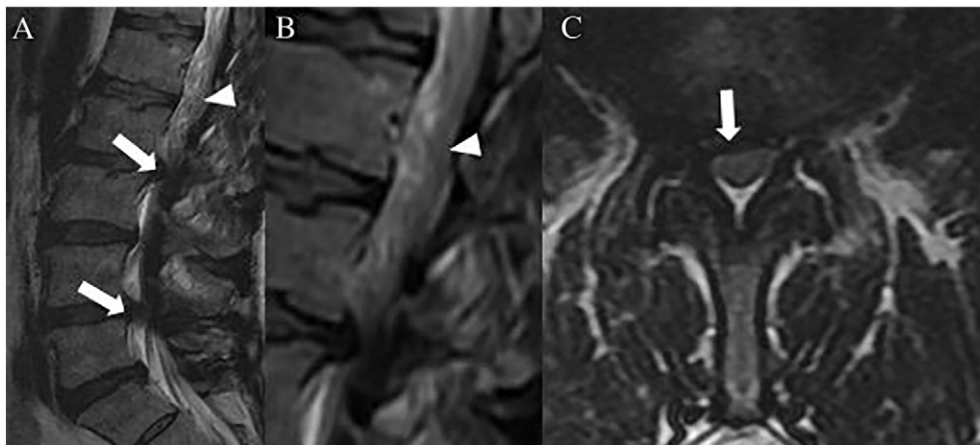


Fig 1. A, Sagittal T2-weighted magnetic resonance imaging (MRI) scan demonstrates degenerative changes of the lumbar spine with disk herniation and vertebral canal stenosis at L2/L3 and L4/L5 (arrows). Elongated and tortuous nerve roots of the cauda equina can be identified (arrowhead). B, Zoom demonstrating the redundant nerve roots (arrowhead). C, Axial T2-weighted MRI scan at the L2/L3 level demonstrating disk herniation with ventral thecal sac compression (arrow).

Download English Version:

<https://daneshyari.com/en/article/8559584>

Download Persian Version:

<https://daneshyari.com/article/8559584>

[Daneshyari.com](https://daneshyari.com)