

Lumbar Degenerative Disease With Intervertebral Disk Herniation

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Introduction

Degenerative disease of the lumbar spine results from normal age-related changes to intervertebral disks as they lose hydration and elasticity (Genevay & Atlas, 2010; Hsu, Armon, & Levin, 2017; PubMed Health, 2017; Schoenfeld & Weiner, 2010; U.S. Department of Health and Human Services [USDHHS], 2014a). As this process progresses, the intervertebral disks become compromised and disk material can be pushed beyond the boundaries of the vertebral bodies (Genevay & Atlas, 2010; Hsu et al., 2017; PubMed Health, 2017; Schoenfeld & Weiner, 2010; USDHHS, 2014a). Depending upon the anatomy involved, this may result in back pain or radicular symptoms of the lower extremities. The latter, which involves compression and irritation of the spinal cord or nerve roots as they exit the canal, is the more treatable condition (Genevay & Atlas, 2010; Hsu et al., 2017; PubMed Health, 2017; Schoenfeld & Weiner, 2010; USDHHS, 2014a). Herniation of and in itself is estimated to affect more than 50% of the population, but many of these individuals will remain asymptomatic (Genevay & Atlas, 2010; Hsu et al., 2017; PubMed Health, 2017; Schoenfeld & Weiner, 2010; USDHHS, 2014a). Of those with chronic back pain, about a quarter will experience radicular symptoms in their lifetime (Genevay & Atlas, 2010; Hsu et al., 2017; Schoenfeld & Weiner, 2010; USDHHS, 2014a). The estimated financial burden of treatments of low back pain, with or without radicular symptoms, in the United States is estimated at more than a billion dollars, with nearly \$300 million dedicated to surgical procedures (Genevay & Atlas, 2010; USDHHS, 2014b).

Case Presentation

A 56-year-old woman presented with complaints of chronic, waxing and waning, low back pain, with 1 month of right leg pain. The back pains had been present for years, and she had been told that this was due to arthritis. She tried to do daily stretching and would use a heating pad on "bad days." She would also occasionally take ibuprofen for more persistent symptoms. These interventions were seemingly adequate for many years.

In the preceding month, she noted gradually worsening leg symptoms without any inciting incident or trauma. This progressed to a constant throbbing and burning sensation radiating from the buttock to her foot. The leg would also feel heavy toward the end of the day. Symptoms were aggravated with prolonged walking

as well as lying in the supine position. At the time of presentation, she noted being unable to walk more than a couple blocks without stopping to rest. She would find minimal relief by leaning forward when seated in a chair or a side-lying in a partial fetal position. The heating pad and ibuprofen did not provide her relief. She did not note any swelling or discoloration.

Upon presentation was an abdominally obese female, alert, oriented, and in no apparent distress. She ambulated with a coxalgic-type gait without the use of an assistive device. She postured with a forward lean, resting her elbows on knees when seated. There was no noted deformity, swelling, or discoloration about the back or leg. There was no step-off or pain in palpation of the spinous processes. There was diffuse tenderness to the right-sided paraspinal muscles. She also noted a feeling of "pressure" with palpation of the lower leg and foot. Lumbar range of motion was grossly symmetrical, with noted discomfort on right lateral bend and trunk rotation. Hip, knee, and ankle range of motion was equal, smooth, and painless. Her strength was grossly equal. She had normal deep tendon reflexes, negative clonus, and downgoing Babinski sign. She displayed a positive straight leg raise and slump test.

Radiographs obtained at the time of evaluation were significant for lumbar degenerative disease, most pronounced at L5-S1 (see Figure 1). Note the loss of intervertebral disk space and end plate osteophyte formation. There was no appreciable spondylolisthesis. A mild degenerative curve was also noted.

Treatment

With these initial clinical examination and radiographic findings, the patient was referred to physical therapy for core strengthening, pelvic stabilization, stretching, and pain relief via modalities. She was also prescribed methylprednisolone to be followed with course of diclofenac. After a month, she called to report that the initial relief from the methylprednisolone had worn off and the diclofenac was not providing her with significant relief. She also reported the physical therapy

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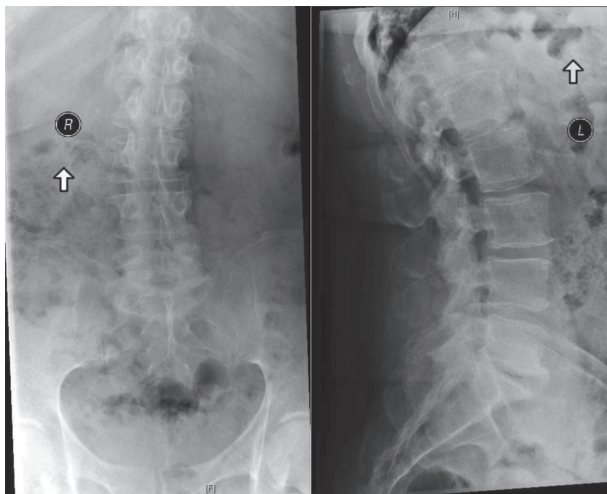


FIGURE 1. Anteroposterior and lateral views of the lumbar spine. Note narrowing and anterior osteophyte formation of L5–S1. Mild degenerative changes throughout the lumbar spine with right degenerative curve. Bowel contents noted throughout.

seemed to be helping with her back pains but not the leg symptoms.

Given these persistent symptoms, the patient was referred for magnetic resonance imaging of the lumbar spine. This was revealing for an L5–S1 intervertebral disk herniation causing mild to moderate compression of the spinal cord (see Figure 2). Given this finding, in the setting of diffuse degenerative disease, the patient was then referred to an orthopaedic spine specialist for further evaluation and management. She ultimately underwent a discectomy and fusion with complete relief of lower extremity symptoms. Her back pain, although persistent, was also relieved after surgery.

Discussion

Lumbar degenerative disease is the most common underlying etiology for those patients presenting with chronic low back pain (Genevay & Atlas, 2010; Hsu et al., 2017; PubMed Health, 2017; Schoenfeld & Weiner, 2010; USDHHS, 2014a). Considering incidence of 70% in the U.S. population, advanced practice providers are certain to see patients with back pain, with or without associated radicular symptoms, as a primary complaint (PubMed Health, 2017; USDHHS, 2014a, 2014b). Although imaging studies are valuable in confirming the diagnosis, as well as planning for procedures or long-term follow-up, one must be mindful of the fact that many in the population are living with asymptomatic disk herniation (Genevay & Atlas, 2010; Hsu et al., 2017; USDHHS, 2014a). This is a crucial point in ensuring to treat the patient, correlating clinical and diagnostic findings with their specific presenting symptoms, not merely the findings of any particular imaging study.

The advanced practice provider can provide reassurance to any patient presenting with acute symptoms

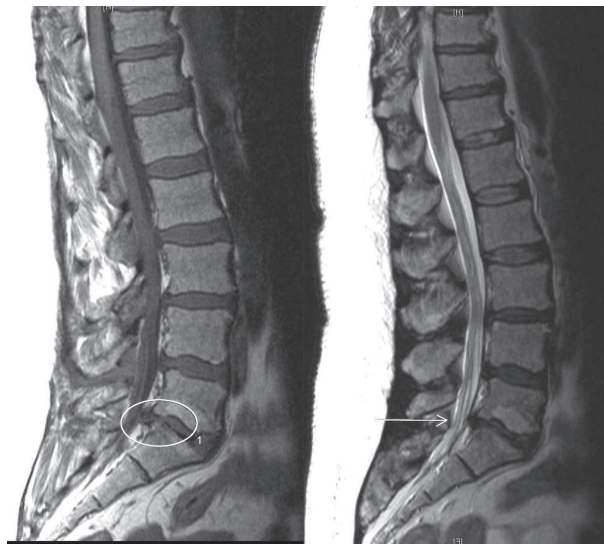


FIGURE 2. Sagittal T1- (ellipse) and T2- (arrow) weighted images showing L5–S1 disk herniation.

that the vast majority of cases are successfully treated with conservative management (Genevay & Atlas, 2010; Hsu et al., 2017; PubMed Health, 2017; Schoenfeld & Weiner, 2010; USDHHS, 2014a). With that said, it is of utmost importance for the advanced practice provider to be aware of concerning clinical findings involving progressive neurological deficit, such as muscle weakness, atrophy, or cauda equina syndrome, which warrant urgent referral and management by an orthopaedic or neuro spine specialist (Genevay & Atlas, 2010; Hsu et al., 2017; PubMed Health, 2017; Schoenfeld & Weiner, 2010; USDHHS, 2014a).

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