

The Fountain of Youth for the Lower Back

ACUTE AND CHRONIC CASE PRESENTATIONS

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This report presents case presentations of patients with acute and chronic low back pain (LBP) who participated in lumbar decompression therapy. These cases were collected from a privately owned multidisciplinary chiropractic facility. The patients received lumbar decompression therapy for low back pain that was sometimes accompanied by referred leg pain. The patients were compliant with their prescribed treatment including frequency and duration of treatment, as well as observation of physical restrictions outside of the clinical setting.

Materials and Methods

The patients' diagnoses were confirmed by imaging. The patients assessed their pain, mobility and self-perceived disability as it related to their back pain. The pain visual analogue scale (VAS) ran from no pain (0) to severe pain (10). The Oswestry Disability Index allowed the patients to project their perceived disability with an objective measure. The treatment schedule is presented, as well as the patients' history. The symptoms were recorded at the beginning and end of the treatment schedule. The patients' satisfaction with the treatment was quantified as: very dissatisfied, dissatisfied, somewhat satisfied, needs met, satisfied, and very satisfied.

Case Presentation: Acute LBP With Disc Herniation

A 58-year-old female with no history of low back pain reported after an acute onset of LBP. She presented with normal gait, moderate restriction in lumbar range of motion in the upright position, 4/5 weakness of the right EHL, 4+/5 weakness of the left EHL, 2+ symmetric quadriceps and Achilles reflexes. She complained of right-sided LBP with intermittent pain and numbness that radiated into her posterior hip, lateral thigh and occasionally into her calf. She described her pain as a constant, dull ache. She reported that prolonged standing, walking or lifting increased her low back and right leg pain. In July 2004, the patient reported a sudden onset of intractable LBP and right leg pain after lifting baggage while working as a flight attendant. She stated that she reported her injury to her employer and was referred by the company physician to an orthopedic specialist, who referred her for evaluation and treatment. She was evaluated and prescribed physical therapy. She participated in a short course of physical therapy with moderate progressions in strength and functional mobility, and decreased subjective pain complaints. She reported that she felt as though she had a 50 percent improvement with physical therapy.

Following the completion of physical therapy visits, she followed up with her orthopedic physician, who referred her for an MRI of her lumbar spine. The MRI showed a disc protrusion at L4-L5 midline and to the right. It also showed some moderate degenerative change, loss of disc height and facet hypertrophy leading to severe compression upon the right L5 nerve root. At L5-S1, she had a midline focal protrusion indenting the thecal sac, but with no significant stenosis. There was also mild facet hypertrophy at L3-L4. Treatment options were discussed, including returning to work to see how she

progressed, epidural steroid injections or continuing physical therapy. The patient proceeded with another brief course of physical therapy with limited progressions. At that point, indications as well as contraindications for vertebral axial decompression therapy were discussed with the patient.

The patient opted for lumbar decompression therapy. She completed 20 sessions with significant progressions. She had decreased pain and improved function, and her pain had centralized. Clinical examination showed motor strength in her bilateral lower extremities to be normal at 5/5 with no clinical evidence of radiculopathy. Her initial self-rated disability was 50 percent as measured by an Oswestry Disability Index. She reported moderate pain in her low back and right leg, and scored a 7/10 on the VAS.

*Intervention and Outcome:*The patient participated in lumbar decompression therapy daily over the course of four weeks. Her typical clinic treatment consisted of 45 minutes of lumbar decompression therapy, consisting of 15 cycles of distraction-relaxation, with each cycle lasting approximately 60 seconds. The patient also received moist heat in conjunction with electrical stimulation to her low back at the completion of each lumbar decompression therapy session.

The patient also participated in 20 sessions of a post-lumbar decompression work-conditioning program with a focus on core strengthening, trunk stabilization and overall conditioning. Following her completion of the program, the patient was released to return to work without restrictions. She was instructed to perform her exercises at home at least three times a week for continued strengthening and improved functional mobility.

Her discharge follow-up disability (self-rated) reduced from 50 percent to 20 percent, while her VAS decreased to 2/10. At this time, the patient had normal gait, no restrictions in lumbar range of motion in the upright position, 5/5 strength of the right EHL, 5/5 strength of the left EHL, 2+ symmetric quadriceps and Achilles reflexes.

MRI Comparison Findings: Both MRI studies consisted of axial and sagittal T1- and T2-weighted sequences. In both studies, T12-L1 and L2-3 were unremarkable. At L3-4, there was minimal narrowing of the interspace, with some dislocation having developed in the updated study. There was an increase in the diffuse annular bulge from approximately 2 mm to 2-3 mm in the updated study. Mild facet arthropathy and thickening of the ligamentum flavum with small facet joint effusions were similar in both studies at L3-4. At L4-5, there was moderate desiccation and narrowing of the interspace with diffuse endplate degenerative changes progressing mildly. There was a 3-4 mm diffuse annular bulge at L4-5 on both studies. At L5-S1, there was mild desiccation and minimal posterior narrowing of the interspace on both studies, with progression of the degenerative endplate marrow changes on the updated study. The previous study showed a 4-5 mm, fairly broad posterior central focal-disc protrusion indenting the anterior thecal midline. The updated study only showed a 3-4 mm diffuse annular bulge at L5-S1. Mild to moderate bilateral facet arthropathy was unchanged between the studies.

In summary, updated MRI results indicated apparent regression of a posterior central focal disc herniation/protrusion at L5-S1 to a diffuse annular bulge. The updated MRI also showed mild progression of some spondylotic degenerative changes. The MRI findings were significant as they correlated with objective clinical findings and subjective reports by the patient.

Case Presentation: Chronic Lumbar Disc Herniation With Foot Drop

A 42-year-old female with a history of disc herniation at L5-S1 reported a problem with her right lower extremity. She had clinical signs of right foot drop, with 0/5 muscle strength during dorsiflexion and eversion. Her EHL was absent. There was diminished sensation in the L5 dermatome on the right and at S1. In August 2001, the patient had a sudden onset of intractable LBP and right leg pain. She sought treatment at the emergency room, where she was evaluated and treated. According to the patient, she was given an injection. At that time, she had an extreme onset of numbness. She then had a MRI performed. The MRI showed a disc herniation at L5-S1.

The patient declined surgical intervention. She reported the right foot drop upon being discharged from the hospital. The patient initially sought follow-up care that consisted of consulting with numerous physicians, whom she could not accurately recall at the time of her evaluation approximately four years later. She reported that she did consult with a neurologist, who recommended she see a neurosurgeon. However, she did not pursue this recommendation. She appeared somewhat apprehensive regarding surgical intervention. She recently consulted with a podiatrist who recommended a foot brace. She did not want to wear a brace, so she did not follow this recommendation. She presented interested in any options to regain improved function of her right lower extremity. She was referred for a lumbar spine MRI and for consultation with a neurosurgeon.

The patient was prescribed physical therapy to work on improved function of her right lower extremity. Her physical therapy routine consisted of ambulatory exercises to modify her gait, ankle and foot range-of-motion exercises with therapist assistance, and strengthening exercises for the right calf and gluteal regions.

The lumbar spine MRI report concluded L4-L5 and L5-S1 disc herniations with spinal canal compromise and foraminal narrowing. She consulted with a board-certified neurosurgeon, who felt that her neurological deficit was virtually permanent. He reviewed MRI films and performed a thorough clinical examination. His examination findings were that the patient had no ability to dorsiflex the big toe or dorsiflex the right foot, and that no eversion or inversion of the foot was possible. She could plantar flex the foot with essentially normal strength. She was able to both flex and extend her knee with normal strength. His assessment was that no treatment, whether surgical intervention, nerve blocks or manipulation therapy, would likely be effective in improving her foot drop. He referred the patient for a needle electromyography and nerve-conduction velocity testing of her right lower extremity. Although the patient was referred for an EMG, she opted to forego this test, as she was apprehensive about the procedure.

The patient participated in five sessions of physical therapy with some central improvement around the distal margin of the right lower extremity. She returned for a follow-up office visit, where vertebral axial decompression therapy was recommended after review of her updated MRI. Her MRI showed a disc herniation at L4-L5 and L5-S1 with a smaller herniation noted at L3-L4. There was anterior and bilateral/lateral thecal sac effacement at L4-L5, with bilateral/lateral recess stenosis.

The patient opted to proceed with lumbar decompression therapy. She completed 30 sessions with significant progressions in motor function, particularly in her dorsiflexors. She also demonstrated improved sensation in her right lateral foot. Clinical examination showed motor strength in her dorsiflexors, inverters and everters to be between grade 2 and grade 3. Neurologically, she had improved sensation in her distal right lower extremity, predominantly along the anterior and the dorsum of the lateral surface of her foot. She was able to plantar flex and heel-and-toe walk without assistance. She was able to heel-up with the assistance of her uninvolved foot. Subjectively, the patient

reported increased strength and improved ability to walk without a heavy foot drop.

Her initial self-rated disability was 60 percent, as measured by an Oswestry Disability Index. She did not report any pain in her leg, and scored a 0/10 on VAS. Visual inspection revealed significant atrophy of the right gastrocnemius and tibialis anterior; however, calf girth measurements were not obtained.

Intervention and Outcome: The patient participated in lumbar decompression therapy daily over the course of six weeks. Her typical clinic treatment consisted of 45 minutes of lumbar decompression therapy, consisting of 15 cycles of distraction-relaxation, with each cycle lasting approximately 60 seconds. The patient also received moist heat in conjunction with electrical stimulation to her low back at the completion of each lumbar decompression therapy session.

Aside from her lumbar decompression treatment, the patient also participated in three sessions of postlumbar decompression physical therapy with a focus on right lower extremity strength and transitioning to a home exercise program. She was instructed to perform her exercises at home at least three times a week for continued strengthening and improved functional mobility.

Her discharge follow-up self-rated disability reduced from 60 percent to 20 percent, while her VAS remained at 0/10. At this time, the patient was able to move her right foot into dorsiflexion and plantarflexion. Muscle strength during dorsiflexion, eversion and inversion improved to a 3/5.

MRI Comparison Findings: Both MRI studies consisted of axial and sagittal T1 and T2 weighted sequences. In both studies, T12-L1 and L2-3 were unremarkable. On L3-4, there was mild narrowing and desiccation of the disc with degenerative endplate marrow changes of similar degree. There was also a 2-3 mm diffuse annular bulge of similar degree on both studies. There were moderate desiccation and narrowing of the interspace with degenerative endplate marrow changes. There was a 2-3 mm diffuse annular bulge just encroaching the inferior neural foramina further laterally, which was similar on both studies. At L4-5, there was moderate desiccation and mild narrowing of the interspace with degenerative endplate marrow changes. There was also a 3-4 mm diffuse annular bulge flattening the anterior thecal sac margin encroaching the inferior neural foramina laterally, slightly more so on the left side. At L5-S1, the earlier study showed a 4-5 mm right posterolateral focal-disc protrusion/herniation displacing the proximal right S1 nerve root with a superimposed 2-3 mm annular bulge. A focal herniation was no longer identified on the later study.

In summary, the updated MRI results indicated apparent regression of a right posterolateral focal-disc herniation. The earlier study showed a 4-5 mm right posterolateral focal disc protrusion/herniation displacing the proximal right S1 nerve root. This was superimposed on an approximately 2-3 mm diffuse annular bulge. The focal herniation was no longer apparent on the updated study.

Discussion

In the arena of managing back pain, lumbar decompression therapy is a proven tool that completes the cycle we define for conservative care for the patient with lower back pain. Lumbar decompression therapy seems to be the fountain of youth that allows us to treat patients who are not candidates for mechanical therapy and convert them to a patient who may be treated mechanically.

Resources

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