

A case report: Class IV laser therapy treatment of multifactorial lumbar stenosis with low-back and leg pain

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Abstract

Objective: This case report is presented to offer a potential intervention strategy in the treatment of resistant chronic back and leg pain with multifactorial central and foraminal stenosis.

Clinical Features: A 77-year-old female with bilateral total knee replacement (TKR) and total hip replacement (THR) presented using a walker for gait assistance and in obvious distress. She reported constant pain levels of three to 10 out of 10, with sharp pain across the lower back, buttocks, and posterior hips.

The symptoms originally began nine months prior, following left THR. Five epidural steroid injections failed to significantly reduce pain levels. Oxycodone was minimally effective in reducing her pain. MRI revealed L4-5 grade 1 anterolisthesis, with moderate-to-severe right foramen stenosis, mild central stenosis, and L5-S1 disc protrusion abutting the thecal sac and right S1 nerve root, establishing multiple potential pain generators.

Intervention and Outcome: Initially, the only modality utilized was the K-laser 10d Class IV therapeutic laser. Dosage was set at nine to 10 W, continuous wave and pulsed at variable frequencies from two to 10,000 Hz, for each 6-to-10-minute treatment session. A 400-to-900-cm² area of the lower lumbar and gluteal regions received 1,600 to 3,300 J total per treatment for a 1.8 to 8.2 average J/cm².

Eleven treatments in a nine-week period resolved pain on the left side and reduced the pain scale report on the right side by 50 percent. Prone diversified-type manual manipulation of the bilateral SI restriction was performed on the fourth visit. Preadjustment pressure along the intended line of drive produced no pain referrals, and no extension of the lumbar spine was permitted. This treatment was reported as aggravating and discontinued at the patient's request.

No other interventions were employed, and the patient was asked to increase physical activity as tolerated. Progressive reductions in pain allowed her to be more active, improving range of motion and general conditioning through adding activities of daily living that had been previously intolerable.

Conclusion: Class IV laser therapy may be a treatment option in patients with chronic multifactorial low-back pain, possibly allowing for earlier active intervention and return to ADLs. Natural history influence on improvement cannot be excluded as a contributory factor in symptom reduction

in this case study. Since laser therapy was initiated nine months post-injury with ongoing symptoms, the amount of contribution is uncertain. More controlled studies with high-power laser therapy and significantly greater total doses than are possible with Class II and III lasers are necessary for a broader understanding of this emerging modality.

Key indexing terms: Laser therapy, low-back pain, intervertebral disc displacement, spinal stenosis

Introduction

Lumbar stenosis is present when neural elements are compromised in the central canal, lateral recess, and/or neural foramen. The prevalence of lumbar stenosis in the general population predilection is 1.7 percent to 8 percent; the condition usually develops in the fifth to sixth decades of life. This is typically due to degenerative changes of the disc, bulges, herniations, hypertrophic facets, ligamentum flavum overgrowth or buckling, and/or spondylolisthesis.

Other complicating factors can include scoliosis, kyphosis, infection, or pathological spaceoccupying lesions. The impairment of the nerve roots and cord is more common from decreased cerebrospinal fluid (CSF) flow, which is responsible for 60 percent of nutrition to these structures, not frank compression.

Decompression surgery is considered the gold standard of care.¹ Typical symptoms include pain, numbness, and paresthesias in the posterolateral thighs and legs, radiating distally in dermatomal distribution, along with leg heaviness. Prolonged walking or sitting are often aggravating, with pain relieved by sitting and bending forward. Soft-tissue and bony hypertrophy contribute to thecal sac compression, as can degenerative spondylolisthesis, which is most common at L4/5 and can encroach on the L5 nerve root.²

This condition is seen routinely in the chiropractic practice with aging baby boomers and can present significant clinical challenges. Many patients will have already received extensive medical care, including OTC medication, NSAIDs, pain-relief medications, physical therapy, epidural steroid injections (ESIs), and/or decompressive surgery. Spinal manipulative procedures, soft-tissue techniques, physical therapy modalities, acupuncture, nutritional supplements,

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