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MANAGING LUMBAR SPINAL STENOSIS WITH LOGAN TECHNIQUE: A CASE REPORT

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ABSTRACT

Objective: To discuss chiropractic management of a patient with chronic lumbar spinal stenosis.

Clinical Features: A 32-year-old male had a 9-year history of low back pain along with radiating pain into both the right and left lower legs. In 2013, he had an MRI that confirmed the presence of spinal stenosis and an L5-S1 disc bulge. He had a laminectomy, which partially helped the symptoms until 2017, when an additional MRI showed spinal stenosis from L3-S1 resulting from disc bulges at L3-4 and L4-5 and a thickened ligamentum flavum. He had further laminectomies at L3-L5. In 2020, the pain returned. He started chiropractic care in 2021. His initial Back Bournemouth Questionnaire was 50/70.

Intervention: He was treated with Thompson drop care once a week for 4 weeks. He then received Active Release Technique on the psoas once a week for 2 weeks. Next, he received flexion distraction on L3-L5 for 2 visits, which worsened symptoms. After no improvements, we found a right sacroiliac joint fixation that we adjusted using Logan technique, with which he was treated 3 times a week for 6 weeks.

Outcome: His back pain was reduced after 1 visit following Logan technique. After the initial therapeutic phase, he is now getting adjusted once a week. His follow-up 6 weeks Back Bournemouth Questionnaire was 15/70.

Conclusion: Chiropractic care with the Logan technique may lead to improvement in patients with spinal stenosis. *(J Contemporary Chirpr 2024;7:62-65)*

Key Indexing Terms: Chiropractic; Lumbar Spine; Spinal Stenosis; Sacroiliac Joint

INTRODUCTION

Spinal stenosis is the narrowing of the spinal canal or foramina. It can be caused by hypertrophy of osseous structures or derangement of soft tissue structures surrounding the lumbar spinal canal. It is usually caused by degenerative changes. Magnetic resonance imaging (MRI) can confirm spinal stenosis. (1) It is usually associated with pain in the low back and lower extremities. Symptoms can include difficulty walking, leg paresthesia and weakness, and in severe cases, bowel and bladder disturbances. (2) Lumbar spinal stenosis affects more than 200,000 adults in the United States alone. It is the most common reason for surgery in adults over 65 years of age. (3)

There are several nonsurgical treatment options for patients with spinal stenosis that have been examined in the literature. A randomized clinical trial of 259 patients compared medical care, group exercise, and manual therapy/individualized exercise. The manual therapy group had a greater proportion of responders at 2 months, but no between-group differences were noted at 6 months. (4)

A systematic review of 8635 articles looked at nonoperative treatment options for spinal stenosis. The authors concluded that moderate and high-quality evidence for nonoperative treatment was lacking.

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The systematic review of non-surgical interventions included education and lifestyle changes along with home exercise and manual therapy or rehabilitation. (5)

Logan technique involves leveling the sacrum to set a solid foundation for the rest of the spine. Logan developed his technique in the mid-1920s, and 17% of chiropractors use it as a technique. (6) Logan technique emphasizes full-spine postural distortions as the basis of care with the sacrum and the pelvis to build a foundation for the rest of the spine. Logan technique involves 1 hand that applies corrective pressure against the sacral apex while the other attempts to correct slight displacement of the vertebrae. Logan technique specifically applies pressure to the sacral apex through holding a thumb contact on the stretched sacrotuberous ligament until the ligament begins to relax and lose its tension. This is causing the ligament to relax, which promotes the realignment of the sacrum until it releases. Logan technique has few contraindications because minimal force is applied. (6) The goal of this report is to describe the case of a patient with lumbar spinal stenosis who was treated with Logan technique.

CASE REPORT

History: In 2021, a 32-year-old male with a 9-year history of low back pain sought care. He had a history of low back pain that radiated down his posterior right leg. His symptoms first started in 2012 with low back pain but shortly after progressed to radiculopathy down the leg. His pain was so severe that while driving he would lean his seat back at red lights, as seated flexion was an aggravating factor.

Due to increased pain, MRI was performed early in the year of 2013. He was diagnosed with a disc bulge at L5-S1 causing spinal stenosis. In June 2013, a laminectomy was performed at L5-S1 resulting in partial relief of both low back pain and lower leg pain. In 2017, symptoms of low back pain with radiculopathy down the right leg again appeared, and another MRI was performed, this time showing stenosis at L3-S1 resulting from disc bulges in L3-4, L4-5 and thickening of the ligamentum flavum. In November 2018, he underwent his second surgery, where additional laminectomies were performed at L3-L5. Following the second surgery, he was symptom free for 2 years.

In 2020, the pain returned across his lower back this time with radiculopathy to both left and right legs. With pain progressively worsening, in March 2021, he began chiropractic care. Using an 11-point numeric pain rating scale (NPRS), with 0 being no pain at all and 10 being the worst pain imaginable, he reported an 8 during rest and a 9 during activity. A clinical outcome assessment tool, the Back Bournemouth Questionnaire, was used and scored at 50/70. He was unable to perform regular activities of daily living such as playing basketball, which was a favorite hobby of his.

Physical Examination: The patient was in no acute distress and his vitals were all within normal limits. He was 69 inches tall and weighed 205 pounds. He had a slight right antalgic lean.

During examination, there was a significant decrease in range of motion in all 6 directions, with pain in the left lower back at the L4-L5 region. Neurological testing showed muscle strength at a 4/5 grade on the left for L4, L5, and S1, and decreased sensitivity on the left side at the L5 and S1 dermatomes. All deep tendon reflexes were graded +2.

Orthopedic testing resulted in a positive Minor's' sign, as well as positive Straight Leg Raise for radiculopathy at 35 degrees on the right and Well Leg Raise tests on the left. Yeoman's test was positive with left sacroiliac joint pain. Palpation produced pain at L4, L5, and the left SI joint.

Myofascial trigger points were present in the quadratus lumborum and the iliopsoas on the left. He also had bilateral muscle hypertonicity in the paralumbar, quadratus lumborum, and iliopsoas muscles.

Chiropractic Examination: The patient had hypertonicity of the paraspinals in the lumbar area and the sacroiliac region. He had decreased motion from L3-L5 as well. He also had decreased SI fluid motion on the right and a positive Derifield leg check on the right. The L5 spinous process was rotating away from the sacrum on the side of fixation. Sacral rotation was found through seated and standing and prone palpation. The right 5th lumbar was fixed as well as the right sacroiliac joint.

Management: Initial care consisted of high-velocity, low-amplitude (HVLA) manipulative adjustments with a drop table. A right sacroiliac adjustment was administered with a drop table technique. There were no improvements with this adjustment. He then was referred to the rehabilitation department to help manage the pain and stiffness. Two visits of Proprioceptive Neuromuscular Facilitation (PNF) and Active Release Technique (ART) on the bilateral psoas muscles with hip extension were performed. HE did not improve, so flexion distraction was added to his care

plan. With 2 visits of flexion distraction at the levels of L3, L4, and L5, his pain significantly increased, and he even collapsed when leaving the clinic due to pain. The Logan technique was introduced and administered to the patient after previously trying HVLA drops, rehab exercises, and flexion distraction. The Logan technique was administered to the fourth lumbar and the right sacroiliac joint.. After 1 visit of the Logan technique, his pain significantly decreased (especially at rest) with the VAS of 3 going to a VAS of 0. After 2 months of care, he was able to resume playing basketball.

Outcome: At 5 months, his Back Bournemouth Questionnaire score went from a 50/70 to a score of 15/70. He continued his care plan of once a week for 8 weeks (about 2 months); however, he was without care for the month of June and his symptoms and pain returned to how he felt prior to the Logan care without being seen for a month. When he resumed care, after 1 appointment using the Logan technique, he was back to baseline and feeling how he did prior to stopping care. Since coming back to the clinic, he has even experienced several days of completely no pain. Although future surgeries may be needed to manage his recurrence of spinal stenosis, he is glad to have found that the Logan technique helps keep his symptoms at minimum and allows him to perform activities of daily living on his own.

DISCUSSION

Spinal stenosis is a common ailment seen in a chiropractor's office. A literature review discussing chiropractic care for spinal stenosis revealed that there were only 6 articles on 70 patients that discussed chiropractic as a treatment option. The treatments included spinal manipulation and flexion-distraction manipulation. The article concluded that the evidence suggests that chiropractic care can be helpful in treating spinal stenosis, but the evidence is limited. (7) There is a need for more evidence supporting chiropractic as a conservative treatment approach for spinal stenosis. (5) Furthermore, to our knowledge, there has not been any research published on Logan basic technique for the treatment of spinal stenosis, and if it could be a beneficial tool in helping patients it should be investigated further.

Since the previous literature review was published, a randomized clinical trial on the effectiveness of nonsurgical treatment methods of patients with lumbar spinal stenosis was published. The study had 259 patients randomized into a medical care group, a group exercise group, or a manual therapy/individual exercise group. All groups had increased function at 2 months and 6 months and the manual therapy group had a greater response to treatment at 2 months. At 6 months, however, there were no between-group differences. (4) This suggests that further research be done to see if a specific type of manual therapy may help increase the odds of improvement. Our study is a case report that shows potential benefits of the Logan basic technique for treatment of spinal stenosis.

A multidisciplinary team of experts developed clinical practice guidelines with recommendations to help patients with spinal stenosis. The recommendations were based on randomized controlled trials and professional consensus. They suggest multimodal care options that include manual therapy, education, lifestyle changes, and rehabilitation as methods to help that have moderate-quality evidence. (8) Logan basic technique can be a method of manual therapy which could be useful in treating patients with spinal stenosis.

Some studies have demonstrated that manual therapy is a helpful conservative management strategy for patients with spinal stenosis. (4,5,7,8) In this case report, the Logan basic technique appeared to be the most helpful tool for patient management. The Logan basic technique is a conservative form of manual therapy which may explain why this patient responded better to Logan basic than to high-velocity low amplitude drops, flexion distraction, and rehabilitation muscle work.

Techniques such as Active Release Technique and flexion distraction did not improve the pain. The flexion distraction technique even exacerbated the pain. This may be because the issue is caused by a spinal or pelvic misalignment which is not allowing the nerve pain to lessen. The specific misalignment may be exacerbated from the flexion distraction considering the soft tissue is not the source of the patient's pain. Furthermore, he could have a directional preference for extension, thus flexion distraction could have made the pain worse. (9)

The HVLA drops may not have helped his symptoms because he may have needed a lower-force manual therapy technique. Logan is a lower force technique that may have lead to an improvement in his pain levels when other higher force techniques did not help. This method should be examined further to further explore its usefulness in helping patients with spinal stenosis.

we decided to perform HVLA thrusts at the beginning of the treatment plan because of the minimal evidence in the literature which stated that manual therapy could potentially help patients with spinal stenosis. (4,5,7,8)

In accordance with the literature the next phase of his treatment involved rehabilitation muscle work and flexion distraction, which unfortunately did not help either. After Logan basic technique was incorporated into the treatment plan, the patient had remarkable improvements with pain levels back to zero and had a dramatically lower Back Bournemouth Questionnaire score. His quality of life improved. Logan basic technique may be a beneficial tool in helping patients with spinal stenosis.

Limitations

This is a case study that examines 1 patient only, thus the study findings cannot be generalized to the general public. Additionally, there are few studies on Logan basic technique and its impact on spinal stenosis in the literature to support our claims. Further research should be performed to examine the impact of this treatment technique on other patient populations.

CONCLUSION

This case report describes the management of a patient with lumbar spinal stenosis. Logan basic technique helped improve the patient's quality of life and pain levels. It may be considered a beneficial treatment approach to patients with spinal stenosis, but further research is still needed.

CONSENT

The patient provided written informed consent.

COMPETING INTERESTS

The authors declare no competing interests.

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