The Use of Manual Therapy in the Treatment of a Patient with Chronic Low Back Pain and Sciatica: A Case Report

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Background

- Low back pain (LBP) is the second most common cause of disability in adults with total costs estimated to be between $100 and $200 billion annually on the US economy.[1]
- The prevalence of chronic LBP rose significantly over a 14-year interval (1992 to 2006), from 3.9% to 10.2%.[1]
- Treatment of LBP may be conservative or surgical, with conservative being the mainstream initial treatment before a consideration of a surgical option.[2]
- A surgical option is usually recommended when there is evidence of worsening nerve damage.[3]
- In a physical therapy (PT) outpatient setting, chronic LBP is one of the most common conditions encountered.[4,5]
- Primary evidence-based treatment options include: exercise therapy and manual therapy. Both have been shown to benefit many patients.[6,7]

Case Description

- 60-year-old male with a 6-month history of LBP who presented to PT following referral by his primary care physician with a medical diagnosis of nerve root compression- left sciatica
- Left sided low back, buttock, and thigh pain, that radiated down the leg reaching the foot, following the L5 and S1 dermatomal distributions
- Consistent daily pattern of symptoms; stiffness & pain in the morning, improving as the day progressed, but returning at night, often preventing him from sleeping
- Provocative factors included sitting, pain was alleviated with standing and moving around
- The patient had not sought previous formal therapy, but was taking 600 mg naproxen a day, and performing self-taught stretches
- Active and independent lifestyle
- Primary goal of the patient was to eliminate pain in order to perform his job without interference and to be able to fall asleep

Purpose

- To report the effects of a short-course manual therapy intervention for a patient who presented with chronic LBP and sciatica

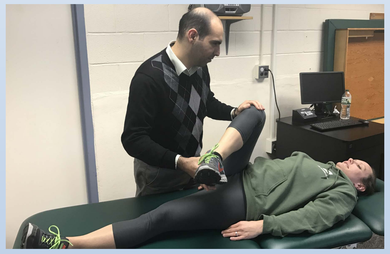
Examination and Outcomes

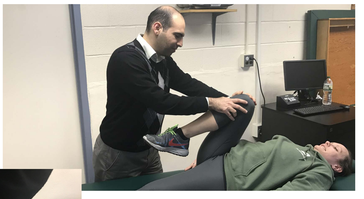
Test & Measure	Initial Evaluation Results	At Discharge
Lumbar Segment Mobility L3-L4 & L4-L5	Slightly Hypomobile (grade 2)	Slightly Hypomobile (grade 2)
Numeric Pain Rating Scale (NPRS)	5/10 pain rating at rest.	**0/10 pain rating at rest.**
Straight Leg Raise (SLR)	Positive on left- pain started at the lower back and radiated to below-knee on the posterior side of the leg with testing at 70°.	**Negative Bilaterally**.
Manual Muscle testing (MMTs)	Gross Muscle group Right Left Hip external rotators 4/5 3+/5 Hip Musculature 5/5 5/5 All Knee and Ankle 5/5 5/5	Gross Muscle group Right Left Hip external rotators 4/5 4/5 Hip Musculature 5/5 5/5 All Knee and Ankle 5/5 5/5
Active Range of Motion (AROM)	Lower extremity Lumbar 85° R HS Flexion*: 58° 70° L HS Extension: 32° All others WFL LF: R: 17° L:15° *Stiffness reported at end-range flexion	Lower extremity Lumbar 85° R HS Flexion*: 59° 82° L HS Extension: 32° All others WFL LF: R: 18° L:17° ***No stiffness** reported at end-range flexion
Oswestry Disability Index (ODI)	11.1% disability score	**2.2% disability score**
Tenderness to palpation	Left piriformis muscle belly & attachment Left greater sciatic notch	No Tenderness Reported

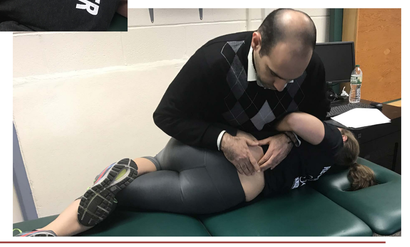
Interventions

A typical flow of each treatment session consisted of:

1. A subjective inquiry regarding patient's pain, functional change, and any reported subjective measures
2. A 30-second stretch to: Left and right hamstring muscles, left and right gluteal muscles, and left and right piriformis muscles
3. Soft tissue mobilization to the left piriformis insertion, and left piriformis muscle belly and bilateral lumbar paraspinals
4. A grade 2 Posterior-Anterior (PA) mobilization to lumbar segments L2-L5
5. Lumbar facets gapping (LFG) in side-lying position
6. Lumbar rotational facets gapping (LRFG) in side-lying position
7. Post treatment report of pain-level changes, and a review of HEP







Discussion

- It was hypothesized that the patient's pain was due to minor mobility restrictions in his lumbar spine in addition to muscular tightness and soft tissue restrictions
- Patient reported pain relief following the first session, which prompted the therapist to keep the course of treatment consistent
- Plan of care was established for a period of 8 weeks, however he was discharged by the end of week 6 due to rapid improvements
- No changes in lumbar joint mobility were observed at discharge, pain relief may be due to the neurophysiological effect of joint mobilizations
- Further researches is warranted to evaluate the effects of manual therapy in the treatment of patients with sciatica

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References

1.Freburger JK, Holmes GM, Agans RP, et al. The rising prevalence of chronic low back pain. Arch Intern Med. 2009;169(3):251-8.
2.Simpson AK, Cholewicki J, Grauer J. Chronic low back pain. Curr Pain Headache Rep. 2006;10(6):431-6.
3.Low Back Pain Fact Sheet. National Institute of Neurological Disorders and Stroke website. http://www.ninds.nih.gov/disorders/backpain/detail_backpain.htm. Updated November 3, 2015. Accessed September 18, 2016.
4.Freburger JK, Carey TS, Holmes GM. Physician referrals to physical therapists for the treatment of spine disorders. Spine J. 2005;5:530–541.
5.Jette AM, Davis KD. A comparison of hospital-based and private outpatient physical therapy practices. Phys Ther. 1991;71:366–375.http://ptjournal.apta.org/content/71/5/366. Accessed September 5, 2016.
6.Hayden JA, van Tulder MW, Malmivaara A, Koes BW: Exercise therapy for the treatment of non-specific low back pain. Cochrane Database Syst Rev. 2005;(3): CD000335.10.1002/14651858.CD000335.pub2.
7.Maher CG. Effective physical treatment for chronic low back pain. Orthop Clin North Am. 2004;35(1):57-64.

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