

SOT chiropractic care of a 47 year-old female with left-sided sciatica caused by a 16mm left paracentral disc extrusion: A case report.

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Introduction:

Lumbar disc injuries to L5-S1 and the accompanying neurological radicular syndrome are one of the most common discogenic injuries to the spine. The common occurrence of this condition and its devastating effects on the health and well-being of the individual is staggering. In the United States the lifetime incidence of LBP has been reported to be 60-90% with an annual incidence of 5%. LBP affects men and women equally. Most people with LBP do not seek medical care, they do not have significant functional impairment, and they recover rapidly.

Despite this fact, LBP accounts for 14.3% of new patient visits to physicians each year¹. Nearly 2.5 million Americans are disabled by LBP, half of these chronically. In 1990, 400,000 industrial low back injuries resulted in disability in the United States². This value accounts for approximately 22% of all workplace injuries, yet LBP represents 31% of all compensation payments. The total cost estimates of LBP range from \$25-85 billion³. In one systematic review of low back pain estimates of the economic costs they found that but by any standards low back pain and ultimately must be considered a substantial burden on society⁴.

Back-related leg pain (BRLP) is a common variation of LBP^{5,6} is defined as the constellation of symptoms characterized by unilateral or bilateral radiating pain originating in the lumbar region and traveling into the proximal or distal lower extremity with or without neurological signs⁷ and with lifetime prevalence estimates as high as 40%⁶. In the U.S., half of those with back-related conditions seek complementary and alternative medicine (CAM) treatments, the most common of which is chiropractic care^{8,9}.

The most common reason patients pursue CAM treatments in the U.S. are for back pain conditions⁹. An estimated 20-30% of these patients seek care from chiropractors^{8,10}, making it the most frequently sought CAM treatment for back disorders^{8,9}. SMT is the most frequently used treatment modality in chiropractic practice¹¹, and chiropractors are the primary providers of SMT in North America¹². Several systematic reviews have evaluated SMT for LBP conditions¹³⁻⁶ and are in general agreement that SMT is one of several treatment options of modest effectiveness for LBP.

A randomized clinical trial by Santilli et al (n = 102) assessed chiropractic SMT versus sham manipulation for patients with acute sciatica and confirmed disc herniation¹⁷. Significant differences were observed between groups in both back and leg pain in favor of the active SMT group at the 6 month follow-up period. Importantly, no adverse events were observed. In a study investigating chiropractic care for chronic low back pain there was a positive, clinically important effect of the number of chiropractic treatments for

chronic low back pain on pain intensity and disability at 4 weeks. Relief was substantial for patients receiving care 3 to 4 times per week for 3 weeks ¹⁸.

A 2004 prospective, longitudinal, nonrandomized, practice-based, observational study by Haas et al evaluated reported pain and disability outcomes up to 4 years for chiropractic and medical patients with low back pain (LBP) and assessed the influence of doctor type and pain duration on clinical outcomes. Sixty chiropractic (DC) and 111 general practice (MD) physicians participated leading to a total of 2870 acute and chronic ambulatory patients with LBP of mechanical origin selected for this study ¹⁹.

Most improvement was seen by 3 months and sustained for 1 year; exacerbation was seen thereafter. Acute patients demonstrated greater relief at all time points. A clinically important advantage for chiropractic patients was seen in chronic patients in the short-term (>10 VAS points), and both acute and chronic chiropractic patients experienced somewhat greater relief up to 1 year ($P<.000$). The advantage for DC care was prominent for chronic patients with leg pain below the knee ($P<.001$). Ultimately this study's findings were consistent with prior systematic reviews of the efficacy of spinal manipulation for pain and disability in acute and chronic LBP ¹⁹.

While chiropractic care does offer at least modest benefit for LBP of significance in weighing risk benefit ratios of chiropractic interventions is their safety. Conservative chiropractic care is both safe, cost effective and may offer long-term resolution of LBP without the negative side effects or recurrence of the symptomatology found in traditional approaches ²⁰. While there is preliminary evidence suggesting chiropractic spinal manipulative therapy is beneficial for patients with LBP further studies are needed to evaluate its effectiveness ²¹.

Other traditional approaches for LBP include: physical therapy, epidural steroid injections, NSAID's, intradiscal electrothermy (IDET), and surgery. While these modalities may offer palliative relief they are not usually focused on addressing the causative factors leading to the actual disc herniation, a recurrence of symptoms, and/or other compensatory symptomatology that may occur.

Chiropractic care has been found at least comparable to medication for back pain, risk benefit ratios might need to be recalculated due to the current concern (e.g., liver, kidney, cardiac, and gastrointestinal side effects) with the use of Cox 2 inhibitors, steroids, and even other non-steroidal anti-inflammatories, such as Aleve and Advil. In a 2003 study they attempted to assess the effectiveness of spinal manipulation, medication and acupuncture for chronic spine pain (LBP included). The overall results of the study showed that 47% of the chiropractic patients improved, while only 18% and 15% improved in the medication and acupuncture groups respectively ²².

Intradiscal electrothermy (IDET) is perhaps one of the newest and most innovative treatments aimed at chronic LBP resulting from IDD. Targeted thermal therapy with the IDET procedure is designed to modify annular collagen, thermocoagulate annular nociceptive nerve fibers, and cauterize ingrowth granulation tissue. These effects

promote collagen remodeling and changes in the annular integrity. However in the instance of disc protrusion and extrusion this procedure offers less promising results.

For those patients with chronic LBP that is unresponsive to nonsurgical management, lumbar fusion remains the surgical procedure of choice. Unfortunately, a significant proportion of patients obtain suboptimal clinical results. Lumbar disc arthroplasty has been developed as a potential means to improve the long-term outcome of these patients. Although these devices have had relatively good early clinical results, questions still remain about their long-term efficacy in the maintenance of motion and relief of pain, the life span of the devices, and the results of randomized comparative trials with fusion. Microsurgery is also another option but follow up studies have found that the removal of the entire or partial disc leaves the area more prone to further degenerative changes.

The chiropractic paradigm and treatment modalities, specifically Sacro Occipital Technique (SOT)²³ in this case, are purportedly designed to correct both the immediate pathophysiological state as well as address the underlying causes. In this manner not only is symptomatic relief obtained but spinal rehabilitation and correction is more apt to occur ideally leading to an increased threshold against future injury and limit any return of symptomatology.

SOT uses conservative as well as standard chiropractic adjusting protocols based on the specific patient need and evaluation outcome²³. Due to this fact SOT chiropractic care has been found clinically to be a safe and effective treatment for most disc related presentations including: degeneration, herniation, extrusion, bulging, prolapse and vertebrogenic causes²⁴⁻⁷. Once resolution of the symptoms has occurred and the patient reaches an acceptable functional level, continued SOT chiropractic care to sustain symmetry in structure and function is often helpful in preventing recurrence of the condition and preventing future injury²⁸.

The purpose of this paper is to demonstrate how conservative SOT chiropractic care safely, effectively, and efficiently helped a patient with sciatica believed caused by a 16mm left paracentral disc extrusion return to normal functional capabilities in a relatively short period of time with no negative side effects. The effective resolution of symptoms associated with sciatic radiculitis in the presence of lumbar degenerative changes, partial disc extrusion and impingement of the S1 nerve within the lateral recess of the of the 5th lumbar vertebrae was significant in this case particularly since the patients pain level was a 10 on a scale on 1-10 and her functional capability rating at the initiation of her treatment was 20%.

Case Study:

On February 12, 2010, a 47 year-old female, entered my office stating that 3 days ago she began to feel pain in her low back and left leg and has progressively gotten worse. The pain radiated from her low back into her left buttock and down her leg to the ankle. She

was barely able to walk, could not stand or sit for more than a few minutes, and while lying down was somewhat better she was unable to get very comfortable or sleep for more than an hour or so. She described the pain as a 9-10 on a pain 1-10 pain scale with 10 being most painful pain imaginable. Ms. Busny had been a patient in my office intermittently since 1999 therefore some baseline parameters were available and given the nature of her present condition SOT evaluation protocols and adjusting procedures were instituted immediately.²⁹.

Method/Intervention:

Besides the standard chiropractic, orthopedic and neurological tests performed on the patient SOT specific protocols were used to determine the appropriate treatment protocols³⁰. This analysis included a standing, prone and supine evaluation as well as specific indicators to determine the cause and extent of any neurological or musculoskeletal consequences. In this instance the patient exhibited an antalgic posture to the right with left sciatica, unilateral rib head fixation (guarding), and no sway in her posture upon standing. Prone analysis revealed a right short leg (pelvic torsion), extreme tenderness in the mid calf on the left leg upon palpation, weakness in both the gluteus maximus and hamstring on the left and positive reflex and contraction (R+C) factors (left rotation of the L5 spinous process)³¹. In the supine position a positive cervical compaction compression test was noted (positive Milgrams test on foramina compression) suggesting an ascending spinal related subluxation from the pelvis or lumbar region.

Upon incorporating the SOT evaluation findings and the patient's symptomatology the determination of an active category three discogenic radicular syndrome with lumbar vertebral involvement was determined. Given the probability of lumbar disc trauma SOT category three pelvic blocking procedures^{24,25} and orthopedic blocking (low force leverage adjusting using pelvic blocks in accordance with SOT indicators)^{26,27} was initiated. These procedures have a check and balance system inherent in their protocols to not only allow the chiropractor to monitor the patient's progress but also provide specific indicators to let the doctor know when the treatment is not effective or when slight changes in the protocols are necessary.

As stated earlier adjustments/treatment was initiated immediately using SOT category three protocols. These include placing pelvic blocks under the prone patient at specific angles to reduce the pressure on the involved intervertebral disc while at the same time creating a mild traction to the involved area decompressing the disc and corresponding nerve root^{24,25}. While in this position a Step Out Toe Out (SOTO) procedure^{32,33} was performed to determine if there was piriformis involvement as well. This test was negative so further application was not necessary. Once a comfortable corrective position for the patient was attained she was left on the blocks for approximately 10 minutes. After the 10 minutes manual traction was applied while the patient remained on the blocks to facilitate the decompression of the lumbar discs.

Once the patient reached an acceptable level of comfort (about 15 minutes) of 60% reduction of her pain level exploration of her resistance and contraction (R+C) factors was performed to determine any vertebrogenic involvement. The R+C factors revealed and L5 spinous process rotated to the left. To correct this subluxation orthopedic blocking protocols were used. This is a low force protocol that creates an input into the body's proprioceptive system, in this case the lumbar spine, facilitate the righting response in the involved vertebrae (L5 in this case) to allow it to be corrected to its normal position with a minimum of force or localized trauma³¹.

The patient was seen again on February 14, 15, and 16th and treated with the same protocols. When seen on February 19th her symptoms had begun to subside, her condition was responding positively and her neurological indicators were reducing. She was again seen on February 22 and 23rd using the same protocols. By February 24th her condition had improved so markedly and her SOT indicators had changed so that standard high velocity low amplitude (HVLA) adjusting protocols could be safely applied to her 5th lumbar subluxation to allow for further correction.

An MRI was performed on March 9, 2010 to confirm the diagnosis and determine future care. The significant findings of the MRI were: at L3-L4 there is disc bulge central disc protrusion and annular tear, at L4-L5 a listhesis and disc bulge resulted in mild lateral recess narrowing without significant central narrowing, disc and osteophyte results in inferior foraminal narrowing and effacement of fat around the exiting L4 nerve roots and at L5-S1 there was a 16mm left paracentral epidural mass suspicious for disc extrusion, that resulted in effacement of left lateral recess and impingement on the descending left S1 nerve within the lateral recess

Results:

After the initial two weeks of care the patient showed marked improvement in her symptomatology and functional ability. By the third week of care her condition was stabilizing significantly and the radicular pain was 90% reduced. By March 10, 2010 the patient's condition had improved so markedly that her treatment regime was significantly reduced to a once per week level.

Evaluation on March 10, 2010 showed resolution of the SOT category three, orthopedic and neurological indicators. Category one protocols were then initiated to address both the meningeal aspects of her condition and the sacral base anteriority. The patient continued to make excellent progress and continued to resume normal activities of daily living without pain or discomfort, by June of 2010 was able to play golf.

Ms. Busny continued her chiropractic corrective care and as of December 2010 the patient has been seen at this office for chiropractic adjustments approximately once per month. There has been no return of her symptomatology or category three indicators since March 2010. Currently the patient is at full functional capability and pain free. Continued chiropractic care has been effective in this case in resolving the presenting

symptoms, stabilizing the patient's spine, correcting the underlying cause of the problem, returning the patient to normal function and preventing the recurrence of the condition.

Discussion

De Jarnette introduced the pelvic blocks or wedges in the development of the Sacro Occipital Technique and their use is indicated by identifying specific criteria, with the positional placement under the pelvis directed by identifying pelvic torsion and pain reduction³⁴. Cooperstein suggests that pelvic blocks can be used for orthopedic testing, and that the blocks may be used to place the pelvic joints under "stress or potentially de-stressed positions, noting the symptomatological changes and drawing appropriate clinical conclusions³⁵."

SOT has a specific categorization process of analysis and treatment for spinal and cranial subluxation patterns including lumbosacral discopathy. Within the SOT paradigm is a system of monitoring progress independent of the patient's level of pain^{23-7,34-41}. Pelvic block treatment for lumbar discopathy is only beginning to be found in the literature even though this method of care is broadly used clinically by chiropractors.^{24-27,42}

SOT specifically affords the practitioner both a neurological indicator system to differentiate the myriad causes of low back pain and sciatica as well as several treatment options to deal with the different causes and presentations^{34, 43}.

SOT has a specific group of examination, diagnostic, and treatment procedures called category three, that were used in this case. The parameters of a category three include: damage to the intervertebral discs, spinal and meningeal distortion patterns to the degree that they cause either a compression or tractioning of the nerve root as it exits the intervertebral foramina, creating radicular syndromes with accompanying histological changes in the involved spinal joint. These histological changes can include degenerative disc disease, disc protrusion, prolapse, rupture or herniation, osteophyte formation, hypermobility due to loss of ligamentous integrity, and chronic muscle guarding leading to avascularization and degeneration of the vertebral motor unit. This category is usually the end result of years of spinal trauma and abuse^{34, 43}.

In this instance SOT chiropractic evaluation and adjusting protocols were used to determine and administer proper patient care. In the SOT paradigm the patient is classified into three distinct and definable subluxation/distortion patterns. They are: Category I – dealing with the dural/meningeal system and its relationship to sacral nutation and occipital reciprocal distortion patterns, Category II – dealing with hypermobility and ligament laxity of one or both sacroiliac joints and well as the structural compensatory patterns that occur with this instability and Category III – dealing with the effects (barring specific injury) of uncorrected underlying subluxation patterns resulting in disc injury, nerve root tractioning or vertebrogenic subluxation leading to radicular syndromes; most common sciatica^{34, 43}.

While reductions in disc herniation have been found to occur over time⁴⁴⁻⁷ Ms. Busny's clinical symptoms and ability to function had improved considerably even though her MRI findings were quite significant. This case particularly is interesting because of the positive clinical response to a severe presentation involving exquisite levels of pain, antalgic positioning, and marked limitations of function. Her response to care following SOT category three evaluation protocols and treatment followed a step-by-step analysis and treatment that corresponded with anticipated patient response to the improved SOT indicators.

Conclusion:

As with any case report it is difficult to generalize finding of one patient's encounter to the population at large. Issues such as the placebo effect, regression to the mean, and ideomotor effect suggests that is difficult to draw conclusions without a larger sample. With a larger group of similar patients it would be important to utilize a control group, sham procedures, and if possible randomization. Even with the limitations of this study the significance of the patient's reduction of pain and improved function, while still having a L5-S1 16mm left paracentral epidural mass suggests that the care rendered is worthy of further investigation and research.

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