RETURN OF DISABLED WORKER TO THE WORKFORCE

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ABSTRACT

Objective: To see if chiropractic manipulative therapy and/ or a targeted stabilization training program can help a patient for whom several other treatment methods had failed.

Clinical Features: The 52-year-old male patient had been unable to stand for prolonged periods and was progressively getting worse for a year under various treatment protocols prior to seeking chiropractic care. His pain had progressed from foot pain to bilateral sciatica, and he was also experiencing thoracic pain and cervicalgia with headaches. He had identifiable muscle weakness, loss of range of motion and paresthesia. He had been unemployed for over a year.

Intervention and Outcome: The patient underwent an 8-week period of comprehensive chiropractic manipulative therapy followed by an 8-week period of targeted low back stability training designed to address identified muscular weakness with no chiropractic therapy. At the end of each 8-week period, the patient reported significant improvement. At the end of treatment, the patient returned to the workforce.

Conclusion: The use of chiropractic manipulative therapy and a targeted stabilization program appear to be 2 effective treatment protocols for sciatica and paresthesia. The outcome of this study suggests that combining the 2 protocols may result in quicker, more effective recovery. Further investigation as to the effectiveness of a combined treatment program is suggested. It was also noted that chiropractic manipulative therapy was effective treatment for cervicogenic headaches. (*J Chiropr Med* 2004;3:20–24)

KEY WORDS: Health Care, Chiropractic, Rehabilitation, Holistic Health, Sciatica, Headache

INTRODUCTION

The high cost of long-term disability is well documented. In his book, *Rehabilitation of the Spine*, Lieben-son states that the 7.4% of patients who are out of work

for 6 months accounts for 75.6% of the total cost of the more than \$60 billion spent on low back disability in the U.S. per year (1). The effectiveness of both chiropractic and physical therapy has been well documented; however, there is very little documentation about the emerging field of rehabilitative chiropractic. This is a case study in which a 52-year-old male patient who was on disability for over a year was treated with a course of chiropractic manipulation followed by a course of targeted physical strengthening exercises and was returned to the workforce.

CASE REPORT

Previous Health History

Eight years earlier, the patient had had a head-on motor vehicle accident in which he impacted the steering wheel and knocked out teeth, broke cartilage between the ribs and had a concussion from impact with the windshield. He had no treatment intervention for that injury other than hospitalization. He reported a couple of previous episodes of back pain but reported no significant frequency or severity. He had a 1½ pack a day cigarette habit since the age of 11 years and denied consumption of alcohol. He reported an ulcer that was being treated by Prilosec™. In his family history, his mother had diabetes and his father died from liver failure; he also had heart disease.

Case History

Prior to his entry into this program, the patient had seen a general practice MD, a podiatrist, a neurologist, an orthopedist, and had been treated for more than 3 months with a physical therapist. He had been treated with foot taping, Advil™, Indin™, Lortab™, Amyl-tryptaline, Neurontin™, Valium™, Relafin™, Ultram™ and epidurals. During this time, the patient's condition had progressed from "sharp, burning, dull, sore, throbbing, pins and needles" pain in both feet to low back pain with numbness and tingling extending down both legs, tingling across the tops of both shoulders extending from the base of the skull to just below the shoulder blades and occasionally extending into both hands and severe, debilitating headaches. The neck and shoulder

problem was of 3 months duration and the low back problem was over a year in duration. The problem was activity related and was made worse by standing on his feet. He had not worked in 15 months.

He worked in a lumber yard and was unable to stand on his feet for any length of time. He denied any known trauma.

Initial Examination

Initial exam included range of motion using an Ace Hardware inclinometer specially modified to allow it to be zeroed, reflex testing, manual muscle testing and pinwheel exam. Outcome assessment tools included a pain drawing, Visual Analog Scale (VAS) (2,7), Oswestry Neck Pain Disability Index Questionnaire (3,7), Oswestry Low Back Pain Disability Index Questionnaire (4,7), Headache Disability Index (5), and Rand 36 Item Health Survey 1.0 (6,9).

Physical exam showed a 5'7½" 146-pound male with normal blood pressure and a pulse of 60. Range of motion was performed as per the charts. Muscle strength testing was normal except that it was noted that he could support his left gluteus medius against gravity, but not against downward pressure, and when a suboccipital strength test was performed, he demonstrated chin jut. Pinwheel exam was performed and a hypesthesia was noted bilaterally across the crests of each ilium, laterally down both proximal legs with the right extending into the lower medial gluteal fold, across the lateral knees, down the posterior distal legs, across the dorsum of the foot to the great toe of each foot. The right lateral plantar surface also experienced some sensation loss. Multiple fixations extending from the cervical spine to the lumbar spine were noted using motion palpation.

X-Ray

X-rays of the lumbosacral spine, blood work and EMG records were ordered. X-rays revealed a grade I spondylolesthesis with bilateral pars defect of L5 on S1. MRI confirmed bilateral L5 spondylolysis with a very moderate grade I spondylolesthesis, which produced moderate bilateral foraminal stenosis and a broad based posterior disc bulge with no central canal stenosis.

Treatment Plan

Phase One

After review of the entire case history and physical exam, the findings were discussed with the patient and it was decided to enter a 2-part treatment program.

The first part would consist of chiropractic manipulative therapy (supplemented by hot packs prior to adjusting), and the second part would consist of a stabilization program with no manipulation. The manipulative therapy portion would consist of manual adjusting of all subluxations found using motion palpation and osseous adjusting techniques. These included A-P and P-A thoracic adjusting, side posture and long axis adjusting moves in the lumbar and pelvic areas and modified diversified rotary adjustive techniques in the neck.

The patient was seen 3 times a week from November 4 until November 17. He missed his November 19 appointment because he felt so good that he went for a 7-hour walk and forgot his appointment. On his November 22 appointment, the patient remarked, "I can't believe how much better I feel." The excruciating pain in his shoulders was gone, as was his low back pain. I decided to reduce treatment frequency to once a week if he could tolerate it, but he was unable to maintain the extended interval until December 23. At this time, he complained of stiffness and soreness, but at a level "he could live with." He continued his weekly visits until January. He had a total of 15 visits between November 4 and January 6.

First Review

On January 6, he was reexamined. He stated he had not had a headache in a month. It was determined at this point that the headaches were cervicogenic in nature. The low back pain now only radiated from the iliac crest on up to the shoulders, but was more like "muscle pain now" instead of the excruciating pain. There was no pain down the legs. Muscle strength testing showed equal strength in the gluteus medii against light downward pressure, and range of motion was as charted. Suboccipital muscle strength showed chin jut with shaking. Pinwheel exam revealed complete recovery of sensation in the left leg with diminished sensation in the right leg extending from mid gluteus maximus down the lateral leg to the ankle.

Phase Two

On January 17, the patient was entered into the stability portion of his treatment. (He had "no-showed" at his 2 prior scheduled appointments because he was "doing great"). It was noted that in single-leg balance testing, he could left-leg stand 7 seconds with fair stability, and

right-leg stand for 15 seconds with poor stability. His left shoulder was elevated when compared to the right. He had left thoracic translation with gait. He demonstrated right scapular winging and weak abdominals with hypertonicity noted in the upper traps and Supraspinatus bilaterally. With prone leg extension, it was noted that the right erector spinae activated prior to the right gluteus maximus and left erector spinae activation prior to activation of the right gluteus maximus. Thomas' Test showed a bilateral tight psoas and tight quadriceps femoris. This was performed by bringing the right knee to the chest while seated on the end of a bench. The patient then rolled back onto his back while still holding the knee to his chest. A tight left psoas was indicated by a 10-degree elevation of his left quadriceps from horizontal, and a tight quadriceps was indicated by the 72 degrees of flexion of the lower leg. The left Thomas' test showed an 11-degree elevation of the right quadriceps and 62-degree flexion of lower leg. A Supine Cervical Flexion Test was performed by having the supine patient hold his head in position after supporting it with the doctor's hands just off the table and then removing the hands. The patient's chin jutted approximately 1 inch, indicating weak deep neck flexors being compensated for by overactive sternocleidomastoid and suboccipital muscles. The patient was unable to hold his feet four inches from the table when supine, indicating weak abdominals and weak quadratus lumborum.

Initial exercises addressed the weak abdominals and gluteus medius and tight quadratus femoris (QF) and psoas muscles. He was instructed on Hurdler's Stretches and Lunges for the QF and psoas and using a therapy ball to do crunches and gluteus medius strengthening exercises by holding a therapy ball against the wall with his hip and rolling it from a depressed level to level pelvis while single-leg standing on the outside leg. These exercises were to be continued at home, 5 minutes each, 3 times a day.

Three days later, the patient was put on the "dead bug track." He was instructed to lay supine on the floor, hollow out his abdomen and force his low back to the floor then alternately raise his feet 6 inches from the floor. This was repeated until he could no longer maintain low back contact with the floor, (failure point). He was also instructed to do "seated to bridge" work in which he was to sit erect on a therapy ball then walk his feet out until his low back contacted the ball. He was then to lean back on the ball and continue walking out keeping his torso parallel to the floor until his shoulders came in contact with the ball. The third track was the "quadruped track" in which the patient was instructed

to get on all fours (hands and knees) and extend the contralateral arm and leg while maintaining a "flat back." Failure point was determined to be when he could not maintain body position.

Progress was monitored and on January 28, the "dead bug track" was modified to doing pelvic tilts with marching. In this exercise the supine patient hollows the abdomen, then tilts the pelvis and raises it until he has his legs and pelvis in a straight line. He then holds this position and alternately lifts one foot slightly off the floor as if he were marching. Failure point is exhibited when the pelvis cannot be held level when marching. The patient then became sick with the flu and only kept one appointment in February, but continued to exercise as best he could.

On March 14, the patient came in for evaluation. He stated that he felt "approximately 90% of knowing the way he should feel" and explained that as a result of his progress, he had accepted a job in construction and was moving out of the area. Range-of-motion tests were performed and the results were recorded. He demonstrated strong bilateral gluteus medius strength under firm downward pressure. The only decreased sensation to pinwheel exam was a small silver dollar-sized loss of sensation at the medial malleolus of the right ankle. It was decided to give the patient a last chiropractic adjustment treatment and he remarked that he felt "200% better" after that treatment. The patient then filled out a Chiropractic Satisfaction Questionnaire (8) with a score of 96.43 and was discharged.

DISCUSSION

In this case, a man who had been unable to work had been treated using separate courses of chiropractic manipulation and stability training specifically designed to address muscular and postural deficiencies. Using this protocol, he was able to return to work after being unable to work for 15 months. He was seen a total of 22 times out of 31 scheduled visits. Progress was measured using outcomes assessment questionnaires and measurement tools established to be reliable and effective. (Tables 1-3)

Of all the treatment protocols tried on this patient, the introduction of chiropractic manipulative therapy was the first treatment protocol which had a beneficial effect on this patient. Although the patient had done physical therapy earlier, the use of targeted exercises designed to stretch shortened muscles and to strengthen specific weak and inhibited postural muscles was a unique in-

TABLE 1
RANGE OF MOTION

TEST/DATE	NOVEMBER 4	JANUARY 6	MARCH 14
L C FLEXION	27 DEGREES	32 DEGREES	34 DEGREES
R C FLEXION	36 DEGREES	32 DEGREES	37 DEGREES
L C ROTATION	12 DEGREES	86 DEGREES	NOT MEASURED
R C ROTATION	20 DEGREES	88 DEGREES	NOT MEASURED
C FLEXION	46 DEGREES	52 DEGREES	43 DEGREES
C EXTENSION	47 DEGREES	65 DEGREES	62 DEGREES
L LUMBAR BEND	1 1/2" ABOVE KNEE	1 1/2" ABOVE KNEE	1 1/2" BELOW KNEE
R LUMBAR BEND	1" ABOVE KNEE	1" ABOVE KNEE	2" BELOW KNEE
LUMBAR FLEXION	TO TOES	TO TOES	TO TOES
L HIP FLEXION	84 DEGREES	103 DEGREES	120 DEGREES
R HIP FLEXION	98 DEGREES	94 DEGREES	108 DEGREES

TABLE 2
RAND 36-ITEM HEALTH SURVEY 1.0

SCALE	RAND-36 ITEM MEAN	NOVEMBER 4, 1999	JANUARY 6, 2000	MARCH 14, 2000
PHYSICAL FUNCTIONING	70.61	*0	*55	90
ROLE LIMITS-PHYSICAL HEALTH	52.97	*0	*0	100
ROLE LIMITS-EMOTIONAL	65.78	*0	*0	100
ENERGY/FATIGUE	52.15	*0	*40	85
EMOTIONAL WELL BEING	70.38	*20	*48	96
SOCIAL FUNCTIONAL	78.77	*0	*62.5	100
PAIN	70.77	*0	*32.5	87.5
GENERAL HEALTH	56.99	*40	*45	80

* DENOTES SCORE BELOW THE MEAN

TABLE 3
DISABILITY QUESTIONNAIRES

TEST/DATE	NOVEMBER 4, 1999	JANUARY 6, 2000	MARCH 14, 2000
OSWESTRY LOW BACK	80	44	14
OSWESTRY NECK	72	28	22
HEADACHE DISABILITY	98	90	32

OSWESTRY RATINGS: 0%–20% = MINIMAL, 20%–40% = MODERATE, 40%–60% = SEVERE, 60%–80% = CRIPPLED 80%–100% = BED-BOUND OR EXAGGERATING (3)

tervention. As can be seen in comparing the Rand 36-Item Questionnaire (Table 2) and Range of Motion studies, (Table 1) the return of range of motion alone did not completely restore health perception. Restoration of range of motion and restoration of function were both important in the rehabilitation of this patient.

Both treatment protocols showed value in returning this patient to work and should be considered in any rehabilitation plan. The choice to treat by either method is the practitioner's choice; however, it is my belief that concurrent targeted rehabilitation and manual adjustive techniques would have shortened the patient's recovery and returned him to work sooner, thus better benefiting the patient.

It should be noted that this patient was very compliant and willing to work this fairly aggressive treatment plan.

CONCLUSION

The use of chiropractic manipulative therapy and a targeted stabilization program appear to be 2 effective treatment protocols for sciatica and progressive paresthesia. The targeted exercises that are part of the chiropractic rehabilitation training program appear to have had a different effect over the physical therapy program this patient tried earlier. This study suggests that combining the 2 protocols of spinal manipulation and targeted exercises may result in quicker, more effective recovery. Further investigation as to the effectiveness of a combined treatment program is suggested. It should also be noted that chiropractic manipulative therapy was effective treatment for cervicogenic headaches (10,11).

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