

Using Precision Neuromuscular Therapy Techniques for a Client with Parkinson's Disease: A Case History

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Introduction

Parkinson's disease (PD) is a progressive degenerative central nervous system disorder. PD affects about 1 in 1000 in the United States. The average age of onset is 60 years old, but it can occur at any age.

PD is a highly individualistic disease that every patient experiences differently. Common symptoms include tremor, slowness, stiffness, rigidity, difficulty initiating or controlling movement, balance problems, unpredictable movements, cramping, speech and swallowing problems, loss of the sense of smell, changes in pain and discomfort sensation, fatigue, achiness, cognitive problems and depression. Some people will have several symptoms, others only a few. Even the tremors, which most people associate with PD, affect about 75%.

There is no known cause or cure for PD. It is most commonly treated with pharmaceuticals; notably Levodopa and Carbidop or a combination of the two called Sinemet.

Those familiar with the benefits of massage therapy will read the description of common symptoms and recognize several that have massage applications. Baby Boomers are reaching retirement age. Complementary care is gaining more acceptance both with patients and medical professionals. This would seem to be a significant time to further investigate the benefits manual therapies have on people with PD, but the research and literature is scant on the subject.

The following is a case history of one of four PD clients I have seen in my practice.

Case description

In 2009, Jon (not his real name) is a 72-year old man with PD. He was officially diagnosed in 1996 but indicates he "knew" in 1994. Jon is active and highly educated. He plays golf during the summer and is still working. He is engaged in his treatment. He has a good support system of medical professionals, friends and family.

His symptoms of PD are slowness of general movement, micrographia and sleep disruption. His balance is greatly affected and he cannot stand still. When standing, he maintains a relatively wide stance while his torso perpetually rotates much like a pendulum. This causes his whole body to sway and rotate, with his weight shifting from the lateral sides of one foot to the other. His facial muscles have rigidity resulting in a stiff expression, referred to as a "mask of PD." He presents with a head-forward posture, moderate kyphosis and increased flexion of the elbows, hips and knees—a fairly typical PD posture. He tends to shuffle when he walks, takes small, slow steps and has little to no arm swing. He has very mild tremors. As time progresses, he is experiencing more "freezing" while walking.

His treatments include Sinemet and Requip. He also takes an Ayurvedic herb, *mucuna puriens*, which mimics the effects of Levodopa but without as many side effects.

When Jon first came to my office in April 2008 he was in a great deal of pain radiating from both hips down the back of his legs to his knees. He reported the right side was substantially more painful than his left. So at first, Jon was a “hip pain” client and wasn’t seeking massage therapy treatment for the PD; but the PD was a consideration from the beginning.

Jon reported that he had a history of osteoarthritis in his spine. He also had a history of pain **following long periods of sitting**. Both the OA and prolonged sitting would cause hip and leg pain as he was currently experiencing. However he didn’t think either of those was causing the current hip pain. The current pain was also worse than he’d previously experienced. He rated his presenting pain at an ‘8’ on a subjective pain scale. (1 being no pain and 10 being the worst pain imaginable.) He broke an ankle in 1991 from a fall on ice, but is unable to remember which ankle. He had taken several Advils that day for the pain.

Normally I’d do a standing postural analysis to check for pelvic obliquity, SI joint assessments, as well as other tests, as directed in Precision Neuromuscular Therapy (PNMT) manuals. Because of his unbalanced, rotational stance these were out of the question, plus he was in too much pain to stand for any length of time.

Additionally, positioning on the treatment table is often a problem with older clients. PD clients of any age often have trouble getting on and off the table and turning from one position to another is especially difficult. Medications prescribed for PD have a typical side effect of causing hypotension, another consideration when having a client turn on the table.

In forming a treatment plan, I decided it would be best to keep positioning to a minimum and perform the therapy with Jon prone throughout, thus eliminating the assessment tests that are performed supine. I needed to keep the session as short as possible. Sometimes it is necessary to do the massage equivalent of a Hail Mary pass so I chose to explore “the usual suspects.” I also was aware that without the assessment tests I had to be careful in case SI or disc problems were an issue. I chose to first examine the deep hip rotators and gluteal muscles.

After Jon was settled onto the table, I walked to his head and looked down his spine. It was immediately obvious that his hips were not even. His left buttock was about 15 degrees higher than his right, as measured with a goniometer. When I asked if he felt that he was lying evenly and flat, he thought he was. This disconnect between an actual position in space and the client’s perception of his position has been common to the PD patients I’ve worked with. I gently helped to straighten and center him on the table. His left buttock remained higher, although less so which made me suspect a hip rotation, possibly an anterior inclination of the right pelvis.

Treatment began superficially over the gluteal complex and gradually toward the deep hip rotators. Treatment tenderness was usually rated at a 3 to 4 on the pain scale. However palpation of the right piriformis elicited an “oh my!” and a rating of “at least a 7.” The piriformis on both left and right sides were highly hypertonic, with the right side being worse. The TFL and ITB both were more hypertonic on the right than the left.

The session lasted about 45 minutes. Jon walked out of the treatment room and reported that while he was still in pain it was much less, maybe 50% less, than when he arrived. His posture was more upright although the rotational movement was still pronounced. His gait was better with reduced shuffling. Following up the first session, Jon reported that the therapy continued to help after he left the office. He had no post treatment pain. He was able to sleep better than he had in a long time.

Jon had a total of 3 sessions in 5 days. The second and third lasting about 30 minutes. During the second session I was able to assess his pelvis while he was supine using unilateral, alternating vertical compression on the ASIS (what I call "cat's paws"). This did not elicit any pain and it seemed to reinforce my notion that his right ilium was anteriorly inclined. By the end of the third treatment, at the end of April 2008, his pain had diminished substantially and he was pleased with the work.

The presumed piriformis syndrome pain has not returned to date.

We discussed how massage therapy could help with his PD and from then on (to present) the focus of our sessions have been PD oriented. My recommendations were that because Parkinson's is a permanent condition, the treatments should be regular and ongoing, with one-hour weekly treatments. Treatments would target the forward posture and balance and for general relaxation for the sleep and fatigue.

Jon, however, has other preferences. He has chosen to keep the sessions to half-hour and to only work the lower extremities. Treatments are often once a week, but there are times that many weeks will go without a session.

The PD patients I've worked will all have a side they consider their worse side, their PD side. While Jon's treated hip pain presented worse on the right, his "PD side" is his left, so our ongoing treatments tend to emphasize the left.

Treatments began as either a prone session or a supine session, but gradually included Jon turning, with some difficulty but without causing muscle rigidity. All treatments include at least a cursory bilateral assessment of piriformis and the glutes. One goal of our treatment is to keep the hip pain from recurring.

Initially I continued to treat the anterior inclination of the right ilium. With repeated treatment the hips were evening up and the when performing "cat's paws" on his ASIS, the movement was more even, looser and normal. It never elicited any pain. To address the right pelvic tilt, the iliopsoas, rectus femoris, TFL and ITB were worked with PNMT methods.

Jon's peroneus longi were visibly hypertonic and palpated something akin to broomsticks. With further observation it was noted that when Jon walks, he not only flexes at the waist and takes small, shuffling steps, he also rotates his weight to the lateral portions of his legs. Because the steps are small, this rolling gait is subtle and was not initially noticed.

Passive range of motion movements were given to the ankle. A general foot massage and toe MFR by "individuating the toes" was added to the treatment.

In May 2008 Jon had surgery for an inguinal hernia. For about six weeks the cat's paws, iliopsoas and similar treatments were stopped. Sessions were performed supine only.

In August 2008, Jon had MRI studies performed on his low back and pelvis. The findings showed grossly normal SI joint, minor spurring within both hip joints and no fractures. However, there is diffuse degenerative disc disease from L1 to SI with multiple potential sites for neural compromise. Because of these findings, such techniques as the cat's paws to the ASIS were permanently stopped. Although they had produced noticeable benefits the risk seemed to outweigh their ongoing use.

Jon's overall muscle tone is weak, with a few exceptions such as the peroneous longus. His lateral leg muscles tend to be tighter than the medial muscles, both in the calves and thighs. But when I did a general adduction/abduction strength test, his adduction strength was **vastly** higher than his abduction. To perform the adduction test, the client is supine on the table with feet on the table and the knees bent. I place the palm of my hand on the medial side of one of his knees and my olecranon on the other. The client then squeezes his knees together, compressing my forearm. At times his adductors were so tight it was difficult even to get the knees apart to position my forearm to do the test.

This was very puzzling and went against everything else I was assessing and palpating in Jon's legs—which is that there is more tone in the lateral muscles and that abduction should be stronger. Yet the test was done several times over several sessions and each time adduction was much stronger than abduction. For weeks this incongruity frustrated me.

I talked to Jon about his "freezing." He only notices this when walking—one minute he is walking and the next he is stuck. I asked him if he noticed freezing at other times with other motions. He did not but also said he would not necessarily recognize it if it did happen elsewhere. I asked him if the clamped together knees of the adduction test could be a form of freezing. It could, but if it is he has no sensation of it. For now that is what I'm assuming this anomaly is—PD freezing and not actual stronger adduction. Since noting this, I've recognized other passive movements generated by me resulting in his temporary muscle rigidity. Most notably, if I lift his foot to flex his leg at the knee while he is prone, there can be a transient but strong muscle resistance to the movement making it very difficult to move the leg.

The results of these sessions are good. Jon walks out of each session better than when he walked in. Often his gait is near normal. He lifts his feet when he walks and is able to go down steps without stopping on each one. His posture is more erect but the rotational movement isn't much changed. He is often able to catch a few snips of sleep on the table. Because of the chronic, degenerative nature of PD, Jon is better directly after a session with the benefits waning until the next treatment but in the long term he shows improvement. He generally arrives at the office walking better than he had months ago. His muscle tone has improved. He often reports that he gets a better night's rest after the treatment. There has been no recurrence of the hip pain. He is happy with the therapy sessions and has often said how beneficial they are. His wife, too, has commented on his results and wishes (along with his MT) that he'd start adding time for the upper body!

Discussion

There is very little literature discussing massage for people with PD. The few studies are small, interesting starting points. *Clinical Massage Therapy* by Rattray and Ludwig has an excellent chapter on PD.

The methods and critical thinking skills of PNMT along with my training in working with people with cancer, a certification in geriatric massage and lymphedema therapy are the primary treatment tools I've used with Jon and my other PD clients. Even without the benefit of some of the most useful PNMT assessment tests I was still able to use other portions of the clinical reasoning skills to construct an effective treatment protocol—first with addressing Jon's hip pain and later with more specific PD anomalies. Without the tests I could still ask pertinent questions to assess, use the pain scale and observe the client's body positioning to make assumptions I could later test with palpation.

Since PD generally occurs in people over 60, it is likely that most clients will present with a varied health history—not “just” PD, and all of those factors have to be considered when deciding how (or if) to treat.

Conclusion

Whenever MTs work with clients with special needs, the caveat “first do no harm” needs to be at the fore. The therapist should research as much as possible about the disease, its processes and treatments. Because of the variability in PD’s individual expression, it is important that the therapist be creative and exercise critical thinking—cookbook approaches are not going to be as useful. PNMT has been very effective and well received by my clients. An in-depth, controlled study with a significant number of participants would be an excellent next step.

References

Brandabur M. Complementary and alternative medicine and Parkinson Disease. *National Parkinson Foundation*. ©2004. www.parkinson.org

Cutler N. The benefits of Massage Therapy on Parkinson’s Disease. *Institute for Integrative Healthcare Studies*. ©2007 www.integrative-healthcare.org.

Hernandez-Reif M, Field T, Lergie S, et al. Massage reduces symptoms of Parkinson’s Disease. *J Bodywork and Movement Therapies*. Jul 2002. Vol 6 No 2.

Living with Parkinson’s. The Michael J.Fox Foundation for Parkinson’s Research. ©2009. www.michaeljfox.org.

Nelson D. *Form and Function structural analysis and functional assessment*. Precision Neuromuscular Therapy. ©2005.

Nelson D. *Lower Extremity from the SI joint to the foot*. Precision Neuromuscular Therapy. ©2005.

Parkinson’s Disease. www.nlm.nih.gov/medlineplus/parkinsonsdisease.html ©2009.

Parkinson’s Disease Information. www.Parkinsons.org. © 2002-2009.

Rattray F, Ludwig L. Parkinsons. *Clinical Massage Therapy Understanding, assessing and treating over 70 conditions*. Talus Inc. Toronto. ©2000.

Werner R, Parkinsonism. *Massage Today*. Mar 2005.