9th LUMEN International Scientific Conference Communicative Action &
Transdisciplinarity in the Ethical Society | CATES 2017 |
24-25 November 2017 | Targoviste, Romania

Communicative Action & Transdisciplinarity in the Ethical Society

Influence of Manual Therapies in Lumbar Disc Herniation– A Case Study

Leonard ACASANDREI, Alina HELGIU

<https://doi.org/10.18662/lumproc.01>

How to cite: Acasandrei, L., & Helgiu, A. (2018). Influence of Manual Therapies in Lumbar Disc Herniation– A Case Study. In T. Ciulei, G. Gorghiu (eds.), *Communicative Action & Transdisciplinarity in the Ethical Society* (pp. 1-8). Iasi, Romania: LUMEN Proceedings. <https://doi.org/10.18662/lumproc.01>

Influence of Manual Therapies in Lumbar Disc Herniation– A Case Study

Leonard ACASANDREI^{1*}, Alina HELGIU²

Abstract

Magnetic Resonance Imaging (MRI) has so far been the best way to diagnose disc herniation, the high resolution of images taken on various vertebral tissues allowing the observation, in different planes, of situations such as: the displacement of dural sac and nerve roots, the disc hydration status, which are important data for the diagnosis and prognosis of disc disease. Manual therapies mainly aim at restoring the lost joint mobility, but also the balance of muscular, skeletal and cranial systems. To this purpose, manipulation techniques are used for decompression of the nerve root affected by disc herniation, spinal hypomobility and normalisation of the muscles that are peripheral to the lesion. From the arsenal of therapeutic techniques used in disc herniation, joint manipulation is a physiotherapeutic technique recommended with some reluctance by specialist physicians, often due to the aura of mysticism surrounding it and the risk of adverse reactions during its application by therapists with little experience in this area. We believe that, by using Magnetic Resonance Imaging (MRI), we can have an efficient instrument to monitor the progression of herniated disc, which provides well-objectified individual profiles.

Keywords: *manual therapies, disc herniation, vertebral manipulation.*

1. Introduction

Low back pain is one of the most common causes of work-related disorders and is present in about 80-90% of the adult population at least once in a lifetime, but is generally recurrent. [1].

Quite often, pains in the lumbar spine are attributed to a disc-related disorder or, in other words, a “herniated disc” is identified, a situation that,

¹ National University of Physical Education and Sports, Bucharest, Romania, leonard.acasandrei@gmail.com

² Lucian Blaga University of Sibiu, Faculty of Medicine, Romania, alinahelgiu@yahoo.fr

<https://doi.org/10.18662/lumproc.01>

Corresponding Author: Leonard ACASANDREI

Selection and peer-review under responsibility of the Organizing Committee of the conference

in most cases, confuses the diagnosis and forces the physician to find a disc herniation (where this is not the case) starting from any morphological alteration detected on a MRI image or an analysis report accompanying it, when the reading is done by people with little experience in this regard.

The confusion of diagnosis or induced diagnosis has severe consequences, because it leads to erroneous treatments that, on principle, will not solve the patient's problems, and when surgical treatment is the only solution, new complications often arise, resulting in the deterioration of the spine integrity.

It is important to consider that there are other diseases whose clinical manifestation is pain and which can be confused with radiculopathies caused by a disc herniation: myelopathies, joint inflammatory processes, mechanical muscular alterations, including disc disorders which are not hernias, and in the lumbar spine: intra-pelvic diseases, sacroiliitis, hip arthritis (coxarthrosis) etc.

Lumbar disc herniation is the main cause of lumbar sciatica and is also present in the imaging study of asymptomatic individuals. The natural progression of the disease is favourable and, even if surgery is not performed, the pain decreases in around 87% of patients within about 3 months. Only in the case of chronic low back pain, the duration is longer than 3 months.

Manual therapies mainly aim at restoring the lost joint mobility, but also the balance of muscular, skeletal and cranial systems. To this purpose, manipulation techniques are used for decompression of the nerve root affected by disc herniation, spinal hypomobility and normalisation of the muscles that are peripheral to the lesion.

From the arsenal of therapeutic techniques used in disc herniation, joint manipulation is a physiotherapeutic technique recommended with some reluctance by specialist physicians, often due to the aura of mysticism surrounding it and the risk of adverse reactions during its application by therapists with little experience in this area.

Although the literature highlights a single type of joint manipulation, the rotational one, two main types can be distinguished [2]: rotational manipulation, when the therapist performs motions around the axis; translational manipulation, when the therapist performs rectilinear motions not round the axis, but in relation to vectorial direction planes in the form of traction (a motion that separates the joint surfaces perpendicular to the treatment plane) or sliding (the motion of a joint surface parallel with the treatment plane).

Translational (traction or sliding) motions provide optimal results in the recovery of joint mobility and minimize the risk of overloading the intra-articular structures. Thus, if the diagnosis is joint hypomobility with a firm

terminal sensation, the therapist should apply translational manipulations, which reduce the risk of adverse reactions during treatment.

Joint manipulation should not be used as a technique that improves the patient's symptoms, but as a way to correct the anatomical restriction. We have to remember that the therapist is the only person who is involved and can control manipulation, and the patient cannot react during the procedure.

2. Purpose and hypothesis

This research aims to objectify, by studying the MRI image, the effectiveness of a recovery programme using manual therapies (Shiatsu, Yumeiho, reflexology) in a patient with lumbar disc herniation at the L4-L5 level(Grade 4/4), for whom the specialist physician recommends neurosurgical intervention.

We assume that by using manual therapies, more specifically vertebral manipulations performed at the level of spinal segments, an improvement in the lumbar disc herniation can occur, which could reduce the degree of disc herniation and prevent neurosurgical intervention, issues that can be objectified through MRI.

3. Material and method

The research methods used were: theoretical documentation method, experimental method, case study method, comparative analysis method, graphical method.

The subject of the study was a 42-year-old male patient(R.C.) working in the construction sector, who presented at the neurosurgical consultation complaining of lumbar pain with irradiation on the right lower limb to the toes, accompanied by a decrease in muscle strength. The onset of symptoms had occurred about one year before.

On 11 July 2016, the patient took a MRI at the "Pozimed" Medical Diagnostic Imaging Centre in Bucharest and was diagnosed with lumbar disc herniation at the L4-L5 level (Grade 4/4) and a 22 mm annular tear (High grade). He was recommended for neurosurgery, but the recommendation was refused, the patient opting for complementary treatment through manual therapies.

Between 15 July 2016 and 15 August 2016, the patient was administered treatment based on manual therapies with a frequency of 2

sessions per week. Following the treatment by vertebral manipulation, the previous symptoms faded and the patient took a new MRI on 6 September 2016 to see if neurosurgical intervention was still needed.

We shall present below the main manipulations of the recovery programme through manual therapies (Shiatsu, Yumeiho, reflexology) [3], [4], [5]:

A. Manipulation of the back area

- **Massage of the back area:** with the patient lying face down (prone position), the therapist massages his back area through a combined friction-kneading manipulation. Duration: 5-7 minutes.

- **Shiatsu:** the therapist exerts pressure with his thumb, from the lumbar to the cervical areas, on some points corresponding to the bladder meridian, which are located on the inner and outer edges of the paravertebral muscles. Pressure is exerted for 2-3 seconds on each point, while the patient is exhaling.

- **Handling the upper chest area:** with the patient lying face down, the therapist presses with the anterior hand the patient's chest area on both sides of the paravertebral muscles, and when the maximum tension point is reached, he induces the manipulative impulse in order to align the upper thoracic vertebrae.

- **Handling the middle chest area:** the patient adopts the kneeling position, with palms on his neck and fingers together. The therapist will place his hands under the patient's armpits and will grasp his forearms as close as possible to the wrists. Then, he performs a traction motion towards himself concomitantly with a lifting one, regains the straight position, pushes the patient's back with his chest, and when the maximum tension point is reached, he induces the manipulative impulse in order to align the middle thoracic vertebrae.

- **Handling the lower chest and upper lumbar areas:** the patient adopts the kneeling position, with his head bent forward. The therapist adopts the standing-on-tiptoe position, with knees perpendicular to the patient's paravertebral muscles, at the level of low angles of the shoulder blades, and performs an anterior grasp on the thorax, under the armpits, stabilising the patient's head with his forehead. The patient's thorax is suddenly pulled backwards simultaneously with the maximal flexion of his head. This manipulation can be done in 3-4 support points.

B. Manipulation of cervical and shoulder girdle areas

- **Massage of the trapezius muscle and cervical area:** with the patient in the kneeling position, the therapist massages the trapezius muscle

and cervical area through a combined friction-kneading manipulation. Duration: 5-7 minutes.

- ***Shiatsu***: the therapist exerts pressure with his fingers on some points corresponding to the bladder meridian, which are located on the inner and outer edges of the paravertebral muscles in the cervical area, and also on some pressopuncture points in the trapezius muscle area.

- ***Shoulder girdle alignment***: the therapist performs a specific grasp with his palms to align the patient's shoulder girdle.

- ***Cervical spine elongation***: the therapist grasps the patient's chin with the left hand and his occipital area with the right hand, flexes the patient's head to 10-15 degrees and performs axial traction on his cervical spine in order to release tension in the cervical vertebrae.

- ***Handling the cervical spine***: the therapist performs passive mobilisations – left-right rotations, left-right lateral bending, flexion and extension of the cervical area, and when the maximum tension point is reached, he induces the manipulative impulse in order to release tension at this level.

C. Manipulation of lumbar and pelvic girdle areas

- ***Massage of the gluteal and supratrochanteric regions***: with the patient lying face down, the therapist massages the left gluteal region with his left hand, elbow in extension, through perpendicular pressure exerted simultaneously with a slight lateral move. The therapist's right hand stabilises the pelvis. Massaging the supratrochanteric region can be done with both thumbs perpendicular to each other, performing friction with kneading through longitudinal motions, by gently going up along the gluteal muscles. Duration: 5-7 minutes.

- ***Shiatsu***: the therapist exerts pressure with his thumb on the points in the lumbar, sacral, posterior-superior iliac crest and gluteal areas.

- ***Decoaptation of the left coxofemoral joint***: the patient lies on the right side, with his left lower limb extended and right limb bent. The therapist is in the sitting position at the patient's feet, on the longitudinal axis; with his legs, he stabilises the patient's right lower limb at the ankle and knee, while with his hands, he grasps the patient's left lower limb –on the distal third of the calf. Slight rotations of the thigh with knee bending are performed to relax the muscles, and then axial traction is done, followed by tensioning and a manipulative impulse.

- ***Plantar reflexology***: the therapist performs reflexogenic massage at the foot level. He stimulates the inner edges of the feet, which corresponds to the spinal reflexogenic area.

4. Findings

Results of the initial and final evaluation

Patient evaluation sheet

Full name (Initials): R.C.

Age: 42 years

Diagnosis: lumbar disc herniation at the L4-L5 level (Grade 4/4) and 22 cm annular tear (High grade)

Medical history: lumbar pain with irradiation on the right lower limb to the toes, decrease in muscle strength and nocturnal pain

Application of the recovery programme through manual therapies with a frequency of 2 sessions per week: 15 July 2016 - 15 August 2016

Evaluation methods: MRI (Magnetic Resonance Imaging) at the "Pozimed" Medical Diagnostic Imaging Centre – Military Hospital in Bucharest

Initial evaluation: 11 July 2016

Final evaluation: 6 September 2016

Objective data obtained through MRI were analysed by the comparison method.

Figure 1 shows the initial MRI evaluation on 11 July 2016, before applying the recovery programme through manual therapies.

Figure 1.Initial MRI evaluation (11 July 2016)

Figure 2 shows the final MRI evaluation on 6 September 2016, after applying the recovery programme through manual therapies with a frequency of 2 sessions per week.

Figure 2. Final MRI evaluation (6 September 2016)

5. Discussions

The comparative analysis of the initial MRI evaluation on 11 July 2016, before applying the recovery programme through manual therapies, and the final MRI evaluation on 6 September 2016, after applying the recovery programme through manual therapies, shows an improvement in the lumbar disc herniation from 4/4 (High grade) to 2/4 (Low grade).

The analysis of objective data obtained through MRI proves the effectiveness of vertebral manipulations in lumbar disc herniation and the fact that neurosurgical intervention has been prevented in this case.

6. Conclusions

Following the analysis of objective data obtained through MRI at the initial and final evaluation, we can state that the recovery programme through manual therapies is an effective way of recovery in the prophylaxis and improvement of lumbar disc herniation.

We believe that, by using Magnetic Resonance Imaging (MRI), we can have an efficient instrument to monitor the progression of herniated disc, which provides well-objectified individual profiles.

Vertebral manipulations performed at the level of spinal segments can reduce considerably the degree of disc herniation and prevent neurosurgical intervention, thus confirming the hypothesis formulated at the beginning of this paper.

References

- [1] LaDou, J. Diagnóstico y tratamiento en medicina laboral y ambiental. 2a ed. Editorial: Manual modern. Mexico. 1999
- [2] Hidalgo García, C., Tricás Moreno, J. M. Manipulación cervical: Aproximación anatómico-biomecánica frente a los posibles riesgos e implicaciones prácticas. España: Published by Elsevier S.L. 2007. 29(6). pp. 298-303
- [3] Oxenford, R. Reflexología -técnicas sencillas para aliviar el estrés y estimular la mente. Barcelona: Parramòn. 1998. pp. 7-9
- [4] Saionji, M. Miracolul secolului XX – Yumeiho. Timisoara: Eurobit. 1994. pp. 27-33
- [5] Shigeru, O. Libro completo de Shiatsu: Teoria, practica, diagnostico y tratamientos. Madrid: Gaia. 1998. p. 16