



## Case Report

## The outcomes of a McKenzie-based approach combined with other interventions for a patient with low back pain and PIVD

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**ABSTRACT**

Low backache is the most common health condition among adults which leads to pain and disability. Radiculopathy is a impaired condition that causes low back pain that radiates to the lower extremity. The aim of this case study is to establish a comprehensive physical therapy plan for a patient who has chronic low back pain and PIVD. The patient was a 30-year-old female with a one month history of LBP. The pain further radiated to both legs. Further magnetic resonance imaging (MRI) was done, which indicated PIVD at the level of L4-L5. The patient's main concern about her condition was that she was unable to work, engage in her once-loved hobbies, and function without pain or discomfort, and pain has disrupted her sleep. After eight weeks the pain level on the Numerical Pain Rating Scale had reduced from 7/10 at worst to 2/10. The patient said that aggravating pain is reduced. Capacity to function has been restored and sleeping has also been improved. A detailed physical therapy program that included a patient with chronic low back pain and PIVD are McKenzie extension exercise, therapeutic exercise, electrical stimulation, individualized patient education, manual techniques, superficial heat and home exercise program.

**Keywords:** Lumber spine, Low back pain, PIVD, Radiculopathy, McKenzie

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**INTRODUCTION**

Some of the most common conditions found in physical therapy (PT) is low back pain (LBP). At some point of time, LBP is thought to affect about 80 per cent of the world's population, and it sometimes puts people out of jobs, impacts everyday living habits, and also decreases overall quality of life [1]. The lumbar spine is a complex series of joints that can be very susceptible to injury. Instability of the disease and the lumbar spine has the greatest prevalence of any other musculoskeletal disorder. Individuals from any age can have low back pain (LBP) and reports show that 70-85 percent of people have either experienced acute or chronic LBP. Many LBP cases typically include intervertebral disks [2]. Many positions and postures, such as decreased lumbar lordosis, can result in lumbar flexion, which may result in discogenic LBP. People with bulging disks or herniated nucleus pulposus (HNP) seem to have increased low back pain and lower extremity radiating pain (LE) and lumbar flexion movements such as driving, prolonged sitting, bending and raising [3]. Radiculopathy is caused by compression of specific nerve roots that originate from the lumbar spine. In comparison, lumbar extension

can help to decrease LBP and centralize the effects of radiation. Centralization refers to the concept of dissipating or moving proximally to the spine by radiating symptoms through the extremities caused by a spinal issue. The concept of centralization is a widespread finding that affects 65 per cent of LBP patients. Acute, sub-acute, or chronic back pain may result from several causes, such as long-term injury, poor posture, and muscle dysfunction, or simply age-induced degenerative disease [4].

Physical therapy is a non-invasive type of LBP treatment which focuses on exercise and pain relief methods. Many therapists may choose manual therapy, others choose exercising for the patient, and some may choose ultrasound, heat, or electrical stimulation. These are all standard treatment modes which have some evidence to support them, but there is no way to say which particular treatment mode is better [1][5].

**Case description**

The patient was a 30-year-old woman with an LBP history of one month. She initially hurt her back a month ago while working she was hit by the door lache, and she started to experience low back

pain that was slowly increased. The patient had LBP after fifteen days with pain radiating to both legs. The patient first visited the general practitioner who had given her medication that did not relieved pain. Subsequently, she consulted an orthopedist who recommended magnetic resonance imaging (MRI) which indicated PIVD at the level of L4-L5 which is shown in fig.1 and was further referred to physiotherapy. On the numerical pain rating scale (NPRS) she reported pain level of 7/10. The patient did not raise red flags, answering "no" to any recent injuries, operations, bladder / intestinal dysfunction. The patient's primary complaint about her condition was that she was unable to work, engage in her once-loved hobbies, and function without pain or discomfort, and pain has disrupted her sleep.

The patient described her LBP's nature as dull aching that aggravated on sitting, standing, forward bending (while doing activities) and relived on rest. Her lower-extremity pain was described as 'stabbing' and sporadic in nature. The patient noticed that she couldn't do her job properly because of her discomfort so then she visited the physiotherapy clinic for physiotherapy.

A system analysis was conducted which showed that the patient had unremarkable results for cardiovascular / pulmonary and integumentary systems. As far as the musculoskeletal findings of the patient were concerned, she presented with, palpation tenderness (TTP) and extreme pain. The patient was without communication and cognition impairment.

### Investigation

Magnetic resonance imaging (MRI) was done which indicated PIVD at the level of L4-L5 (which is shown in fig.1)

Figure 1:- MRI



### Tests and measures

Specific tests have been conducted on the patient, such as straight leg raising (SLR), which is a neurodynamic procedure most widely used in patients with potential disc injury. A SLR was performed bilaterally and showed positive SLR for low back and leg pain up to 25 degrees,

Slump test has also been positive for LBP and pain in the legs.

### Treatment

For 8 weeks, the patient attended physiotherapy sessions twice a week, amounting to 16 visits. McKenzie based exercises, strengthening, stretching, physical therapy, and electrical stimulation and home exercise regimen were part of these 45-minute to one-hour treatment sessions. It took time to thoroughly clarify the methods of diagnosis and recovery to produce those outcomes. A basic outline of the physiotherapy program includes: Sufficient rest from aggravating activities, advised for 10-14 days, initially hot pack was given for pain relief, McKenzie extension exercise.

The goal of the McKenzie-based exercises was to improve the posture of the patient and to minimize pain. As she responded to repeated extension with more movement and less pain, McKenzie extension exercises were performed for the clinic, a McKenzie-based lumbar extension regimen has a typical progression routine. First, by lying prone on the table, she started sessions. After one or two minutes, she was advised to put herself on her elbows for two minutes. She was eventually told to perform 3 sets of prone press-ups x 10 repeats. This allowed the patient to place their hands until their arms were completely extended at chest height and push-up from the table. Until the next repetition was done, the patient kept the press-up at the top for 5-10 seconds and returned to initial prone position. There was more advancement in activities dependent on the potential of the patient. Such advancement involves sustained extension, standing extension, pelvic bridging, pelvic tilting exercises.

### Modalities

For the purposes of pain control and patient comfort, Interferential current (IFC) therapy combined with moist heat was provided to the low back. The IFC was determined in a study of patients with low back pain to provide substantially greater subjective and objective pain relief.

### Manual therapy

Manual therapy has been used to treat pain and to relax muscles. In the lower back and gluteal zone, manual therapy incorporated myofascial release / trigger point care for pain areas and underlying tissues. It helps to decrease discomfort and to improve mobility.

### Strengthening and stretching exercises

Strengthening and stretching began after five weeks. Gentle stretching and mobility activities were included. To increase strength and enhance posture, strengthening exercises were conducted. Strengthening exercises were administered to strengthen the hip and core strength of the patient. Stretching workout sessions enhances functionality. Stretching exercises have been carried out to improve the mobility of the patient and alleviate discomfort, such as hip stretching and cat camel stretching. When symptoms were under control, commenced low impact exercise for fitness and to prevent further pain

in future. By incorporating resistance, such as a TheraBand, further exercises were advanced.

### Home exercise program

In addition to the forms of treatment given at physiotherapy sessions, the patient was also taught exercises to start a home exercise program (HEP) by applying heat at home. The importance of the home exercise program, especially the McKenzie extension exercises, in managing pain and making progress was explained to her. As she did not practice the exercises as much as they were recommended, the patient partially did not cooperate fully with her home exercise program, but then followed it as it was successful. On each visit, the home exercise routine was reviewed and any new exercises were implemented to ensure accuracy.

### Outcome of treatment

Throughout the treatment episode, the patient reported remarkable improvement and symptom reduction. The pain level on the Numerical Pain Rating Scale had reduced from 7/10 at worst to 2/10 at the end of the session. The patient said that aggravating pain is reduced. Capacity to function has been restored and sleeping has also been improved.

### DISCUSSION

LBP is a widespread disease which often affects the quality of life of patients. This case study explains how a patient is treated with McKenzie extension exercise, therapeutic exercise, modalities and home exercise program. Treatment appeared effective because the patient had reduced pain, increased strength and symptom centralization [1]. We do need more studies to assess the long-term benefits for patients. The findings of this case were in line with current research on directional preference studies and repetitive motions. The patient reacted favorably to McKenzie-based therapy as it tended to centralize her symptoms and gradually alleviate discomfort by conducting repeated extension exercises with a combination of other treatments. Compliance with the home exercise regimen also appeared to be a contributing factor to the success of this patient's recovery, as she was able to self-manage and alleviate her symptoms at home. There is evidence suggesting that prescribing exercises from McKenzie will help recover their normal function. Despite the promising findings in this case study, further research on the effectiveness of McKenzie therapy seems to need to be done [2].

### CONCLUSION

The intensive PT treatment of a patient with low back pain and PIVD was outlined in this case report. A detailed physical therapy program that included are therapeutic exercise, electrical stimulation, individualized patient education, manual techniques, superficial heat and McKenzie extension exercise and home exercise program which brought the pain level on the Numerical Pain Rating Scale from 7/10 to 2/10 by the end of the 8<sup>th</sup> week. Also the patient's aggravating pain

is reduced. Capacity to function has been restored and sleeping has also been improved. As a whole, the patient reacted well to the approach to care of McKenzie. An significant aspect of the McKenzie program is instructing a patient to teach them self-management techniques in a home exercise regimen.

It seems fair to believe that McKenzie intervention has some potential in the treatment with a combination of other treatments. The findings of the supplementary study of the patients who completed the full intervention confirm this inference.

### REFERENCES

1. Al-horani RA, Batainah AS, Shamroukh N, Abumoh'd MF, 2020. "Mckenzie-type exercises improve the functional abilities of a patient with recurrent herniated discs: A Case Report". TOSSJ. 13(1), 49–53.
2. Olawale O, Agudzeamegah C, 2014. "The efficacy of interferential therapy and exercise therapy in the treatment of low back pain". Niger J Exp Clin Biosci. 2(1), 10.
3. Machado LA, Maher CG, Herbert RD, Clare H, McAuley J, 2005. "The mckenzie method for the management of acute non-specific low back pain: design of a randomized controlled trial". BMC Musculo skelet Disorder. 6(1), 50.
4. Arguisuelas MD, Lisón JF, Sánchez-Zuriaga D, Martínez-Hurtado I, Doménech-Fernández J, 2017. "Effects of myofascial release in nonspecific chronic low back pain: a randomized clinical Trial". SPINE. 42(9), 627–34.
5. Hurley DA, McDonough SM, Dempster M, Moore AP, Baxter GD, 2004. "A randomized clinical trial of manipulative therapy and interferential therapy for acute low back pain: Spine. 29(20), 2207–16.

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