Post Discectomy Physiotherapy Management of Lumbar Spine: A Case Study

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Abstract- *The case study presents the comprehensive post discectomy physiotherapy management of a female patient. A 40 years old female patient diagnosed with disc prolapse. Following a discectomy procedure to alleviate spinal cord and nerve root compression. She experienced persistent back pain, reduced mobility lower limb and sensory deficits. The aim of the case study was to describe the assessment findings goal setting, treatment interventions and outcomes of her physiotherapy interventions. The treatment approach included pain management techniques, range of motion exercises, strengthening exercises, sensory re-education, endurance training and patient education. Over the course of several weeks, She demonstrated remarkable improvements in pain reduction, lumbar spine mobility, lower limb strength sensory function and endurance .This case study emphasizes the importance of patient in post operative management of lumbar disc prolapse, highlighting its role in enhances functional recovery and improving the quality of life patients like her.*

Keywords- Lumbar disc prolapse, discectomy, physiotherapy, post operative management ,case study.

Aim of study- The aim of case study is to provide a detailed description of the post discectomy physiotherapy management of lumbar spine of a female patient with lumbar disc prolapse.

I. INTRODUCTION

One of the most common significant problems among people of working age is low back pain (LBP), which has a negative impact on people's daily lives in one way or another. [1] LBP is the second most prevalent cause of primary care consultation requests[2], and intervertebral disc herniation in the spinal canal is one of the most frequent causes of LBP.[3,4] One of the most frequent causes of sciatica is lumbar disc herniation (LDH), which is thought to play a significant role in the estimated 60%–80% lifetime frequency of LBP in the general population[5].[4]]About 10% of instances of LBP are accompanied by sciatica, which is also known as lumbar radicular pain[3] and has a lifetime incidence of 13% to 40%.[4] Dealing with sciatica symptoms can be challenging. Since relapses are prevalent, over 50% of persons suffering sciatica show a pattern of intermittent presentation.[3] It has been calculated that this pattern will triple the risk that people will seek further medical treatment and will raise the prevalence of long-term disability by 10%.[6]Research showing that the presence of sciatica is linked to a delayed recovery emphasizes the significance of finding appropriate therapies for sciatica, chronic disability, more costs and more people using the health care system.[6] To this point, a variety of surgical and non-surgical therapy modalities for LDH have been tested with variable degrees of effectiveness. Surgery, patient education, physical therapy, alternative medical practices, and drug therapy are frequently used as treatments.

One of the key components is physical therapy of non-surgical care. It is simple to find literature [7–9] describing the positive effects of physical therapy. LDH with radiculopathy (LDHR) treatment. Additionally, research shows that physical therapy techniques are superior to medicinal [10,11] or surgical [12] approaches in the management of individuals with LDHR when cauda equine syndrome is not present. Additionally, according to Weber [13], it takes three months to determine whether nonoperative therapy will yield positive outcomes.

If there was little to no progress during this time, surgery may be an option for the patient.[4] Additionally, because there are many different physical therapy strategies that have been utilized over time to manage LDHR, it is necessary to analyses the most recent research for the most successful interventions and to establish a foundation for additional studies in this area.field to aid in reducing the LDHR issue. As a result, this study assessed the most recent research in the field of physical therapy for the treatment of people with LDHR.

Clinical Signs-The symptoms of lateral and posterolateral herniation are on the side of the herniation. The symptoms of posterior herniation are bilateral. Symptoms include pain, cauda equina pressure, superficial sensory loss, paralysis, loss of strength in the lower leg, a reduction in deep tendon reflexes, and scoliosis with an opening on the side of the lesion.[2,3]

Evaluation of patients with lumbar disc herniation-

Subjective evaluation-Inspection (of tissue and retracting tissue bands), areas (showing paravertebral muscle spasm), bone deformities of vertebral column, atrophy evaluation of muscles such as Quadriceps Femoris in L3-4 level herniation, and gastrocnemius and soleus in L5-S1 level herniation), Palpation (Piriformis, Trochanter major, Paraspinal muscles, L3 - L4 -L5 spinal processes, pelvic asymmetry, sweating, heat change, atrophy are evaluated).[3,4]

Objective assessment-Pain assessment-It is appropriate to gather comprehensive data regarding the frequency, kind, and extent of pain in these patients. Analysis of posture-Antalgic scoliosis and antalgic posture can coexist when the lumbar lordosis is lost. Hyper lordosis, spondylolisthesis, weakening in the muscles of the anterior abdominal wall, or hip flexion deformity can all be seen in the presence of these conditions. The lumbar lordosis is flattened, there is a posterior pelvic tilt, and there is pes planus, especially in L4-5 level herniation. As a result, it is important to carefully assess the posture of patients from the anterior, posterior, and lateral perspectives. Normative Joint Movement Evaluation: The flexion movement is where the pain and restriction in lumbar spine movements are most noticeable in lumbar disc herniation. In addition, it's important to monitor the hip joint's motions in three planes, knee flexion and extension, ankle dorsi-plantar flexion, and goniometer movements.

Muscle evaluation: Depending on the degree of disc herniation, different muscles need to be assessed. Tibialis Anterior and Extensor Hallucis Longus at L4-L5 level, as well as a herniated quadriceps femoris at L3-L4 level; At the L5-S1 level, the gastro soleus and tibialis posterior become weak. In addition to the manual muscle test, computer-added tools for evaluating muscle strength include the tensiometer, back dynamometer, and maximal repetition.[5,6] All muscle groups may be affected by lumbar disc herniation in people with postural impairment; therefore, the length of the lumbar extensors, hip flexors, hip adductors, hamstrings, M. quadriceps femoris, M. gastro soleus, M. pectoralis major-minor, shoulder adductor, and internal rotator muscles are measured.

Specific evaluation tests-Femoral nerve tension test- results are favorable in cases of L3–4 herniations.**Jugular compression test**: It is positive in herniations at the L3–4, L4–5, and L5–S1 levels. **Straight Leg Raise-**Positive in L4- 5 and L5- S1 level herniations **.Laseque test**: It is positive in lesions at the L4–5, L5–S1 levels. Orthosis evaluation, professional evaluation (capacity for work, job analysis, workplace environment, etc.), daily life activity evaluation (Lawton, Barthel, etc.), and functional evaluation (Oswestry, Quebec, and Roland-Morris low back pain surveys, Roland-Morris Low Back Pain Questionnaire, etc.) It must be completed.[3–5]

Physiotherapy and rehabilitation applications in lumbar disc herniations-

Patient education: It's critical to let patients know that when they have a lumbar disc herniation, they should be at the right weight. Short-term bed rest and waist training have been proven to be effective treatments for people with acute low back pain. Strong evidence indicates that exercise, together with the advice to "stay active," is most successful in reducing chronic low back pain sufferers' pain, function, and impairment.

Bed Cure-For those who have lumbar disc herniation in the acute stage, bed rest is advised. Axial loading on the degenerative disc is known to be decreased by bed rest. Despite the decreased intradiscal pressure It is higher in the sitting posture than it is in the supine position.

Heat Applications: A few examples of superficial heat treatment techniques include hydrotherapy, hot packs, and infrared. Deep heat techniques, including microwave, shortwave, and ultrasound diathermy. Cold works by lowering pain, swelling, and inflammation. The use of cold packs, ice massages, and other superficial cold treatment techniques.

TENS: TENS treatments can be used to relieve pain in both acute and chronic situations. Applications of TENS have been proven to be efficient. in patients who have a herniated lumbar disc.

Interferentialcurrent: -One can improve circulation and lessen discomfort. Typically, the treatment lasts 20 to 30 minutes. Traditional Massage It has been determined that the classical massage application in literature will be useful in treating acute, subacute, and chronic low back pain, especially exercise and patient education, since it enhances blood circulation, removes metabolic wastes generating pain, and lowers muscle spasm.[7,]

[8]**Manipulation:** Because it helps to relieve muscular spasm, lessen pain, and increase mobility, manipulation techniques are beneficial in the treatment of lumbar disc herniation.

Traction-Application of traction is a technique that disorients the lumbar vertebrae and lowers disc pressure.

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