

# Clinical Improvement after Spontaneous Partial or Complete Absorption of Herniated Lumbar Disc

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Spontaneous Partial or Complete Absorption of Herniated Lumbar Disc

## ABSTRACT

**Objective:** To assess the clinical improvement of herniated lumbar disc after spontaneous partial or complete absorption.

**Study Design:** Cross-sectional study

**Place and Duration of Study:** This study was conducted at the department of Orthopaedic surgery Mardan Medical Complex from December 2021 to December 2022.

**Materials and Methods:** By employing the visual analogue scale (VAS), the intensity of the sciatic pain was evaluated at first visit and again during the follow-up. At both the first appointment and the follow-up, the herniated disc size was measured in MRI images. Follow up of all the patients was done for a period of 12 months. All the data analysis was done by employing IBM SPSS version 24.

**Results:** In the current study, totally 40 patients were enrolled. There were 24 (60%) male participants while female participants were 16 (40%). On the first follow up after two weeks, improvement in sciatic pain was observed in 15 (37.5%) based on VAS. On second follow up after one month, improvement in sciatic pain was observed in 22 (55%) patients, after two months in 32 (80%) patients, after 4 months in 32 (80%) patients while after 6 months and after one it was improved in 38 (95%) patients. Based on disc absorption, Complete >80% disc absorption was observed in 20 (50%) patients, Partial 20-80% disc absorption was observed in 5 (12.5%) while no No change <20% disc absorption was observed in 15 (37.%) patients.

**Conclusion:** According to the findings of our investigation, spontaneous regression may occur in cases with herniated intervertebral discs. For at least two months, conservative therapy may be considered in all patients, including those with moderate neurologic impairments.

**Key Words:** Spontaneous partial; Complete absorption; Lumbar disc herniation

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## INTRODUCTION

Lumbar disc herniation (LDH) occurs when the fibrous annulus of an intervertebral disc ruptures, allowing the nucleus pulposus to herniate and pressure the spinal nerve and cauda equina, resulting in pain and inflammation. Clinical signs like pain and neurological impairment are present in the patient. The incidence of LDH has grown dramatically particularly among younger people as a result of modern work and lifestyle patterns; this condition, which has devastating effects on patients' physical and emotional well-being, has emerged as a major global health concern.

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Therefore, it is crucial to get a precise diagnosis of the illness in order to receive a customized course of therapy. Radiographic assessment, myelography, computed tomography and magnetic resonance imaging (MRI) are the primary procedures used to diagnose IDH. Currently, the best technique for imaging disc herniation diagnosis is MRI.

Currently, there are two main LDH therapy options: surgical procedure and conservative treatment. For the majority of individuals with a newly diagnosed LDH, conservative therapy is the initial option. The typical course of therapies lasts at least 6 weeks and mostly consists of bed rest, medication, physical activity, epidural injections, traditional Chinese medicine and lumbar traction.<sup>1-3</sup>. Most LDH symptoms are treatable with conservative measures. Additionally, the herniated portion of the intervertebral disc (IVD) in a few people reduced or even vanished during imaging tests like MRI and computed tomography (CT). Reabsorption is the medical term for the phenomena of spontaneous shrinking or elimination of a herniated lumbar IVD with no surgical intervention. Currently, it is a well-known clinical finding that LDH may spontaneously

reabsorb. Lumbar disc herniation (LDH), a condition that affects a growing number of people, causes low back discomfort, neurological problems, and radiating pain to the lower extremities.<sup>4</sup> LDH affects 5% of individuals annually, and the percentage is steadily rising.<sup>5</sup> But 60% to 90% of LDH patients make a full recovery with conservative measures.<sup>6</sup> With vigorous conservative therapy, even individuals with a significant herniated disc or obvious neurological impairments may be effectively managed.<sup>7</sup> A study published the first instance of lumbar disc resorption after conservative therapy. Comparable findings on LDH resorption have since been published by other researchers.<sup>8-10</sup> Ahn et al. observed that giant LDHs were the most susceptible to resorption when they examined the magnetic resonance (MR) images of 36 individuals with LDH in clinical settings.<sup>11</sup> In our setting, no such study has been carried out. This study was therefore carried out to assess the clinical improvement of herniated lumbar disc after spontaneous partial or complete absorption.

**MATERIALS AND METHODS**

The current cross-sectional study was carried out at the department of Orthopaedic surgery Mardan Medical Complex. The study duration was one year from December 2021 to December 2022. The study approval was given by the institution ethical and research review board. Based on WHO sample size calculator, totally 40 patients were enrolled in our study. The inclusion criteria for our study were all the patients of both the gender and age range of 18-60 years, diagnosed with lumbar herniated disc and willing to take part in the current study. The criteria for exclusion were all the patients with symptom of “cauda equina syndrome, spondylolysis, multiple significant herniated discs, spondylolesthesis” and patients who visited the hospital with surgery as a first line treatment. The first visit included a thorough history review, a neurologic examination, and a radiologic assessment to get some basic information. The back and legs were examined as part of the neurologic examination. For all instances, a simple X-ray was taken. MRI was requested of patients who arrived with just a CT scan of their lumbar spine. Employing the visual analogue scale (VAS), the intensity of the sciatic pain was evaluated at first visit and again during the follow-up. At both the first appointment and the follow-up, the herniated disc size was measured in MRI images. Patient’s classification based on change in size herniated disc table 1. After making the diagnosis, the patient was informed about the disease’s pathology and clinical features. All patients received medical care, which included a tapering course of steroids, anti-inflammatory therapy, skeletal muscle relaxants, back heat fomentation for individuals with apparent back pain, and an activity modification program. Only individuals with motor

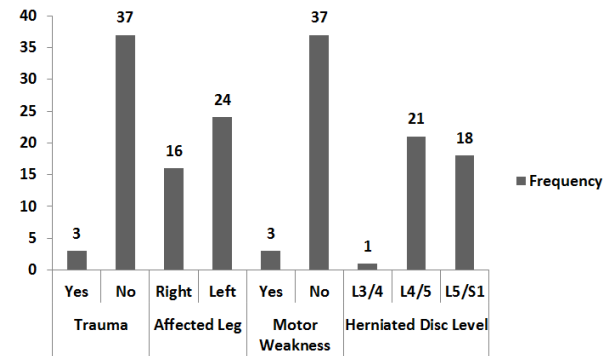
weakness or those who were still in pain after two weeks were encouraged to seek physiotherapy. Follow up of all the patients was done for a period of 12 months. During the subsequent visit, a visual analogue scale was employed for leg pain and also neurologic examination was carried out. The initial follow-up MRI was requested three months after the disease state started in patients who were exhibiting improvement, and then it was done every three months until the conclusion of the follow-up period. All the data analysis was done by employing IBM SPSS version 24. Frequency and percentages were determined for variables such as gender whereas mean and standard deviation was calculated for variables like age.

**Table No. 1: Patient’s classification based on change in size herniated disc**

Classification based on absorption	Change in the herniated disc size
No	Less than 20% size reduction
Partial	20-80% size reduction
Complete	More than 80% size reduction

**RESULTS**

In the current study, totally 40 patients were enrolled. There were 24 (60%) male participants while female participants were 16 (40%). The mean age (SD) of the patients in the current research was 41 (3.11) years. Based on clinical history, trauma was observed in 3 (7.5%) patients. Based on affected leg, right leg was affected in 16 (40%) patients while left leg was affected in 24 (60%) patients.



**Figure No. 1: Clinical parameters of the patients enrolled in our study**

Motor weakness was observed in 3 (7.5%) patients. Based on Herniated Disc Level, L3/4 was observed in 1 (2.5%), L4/5 in 21 (52.5%) patients while L5/S1 was observed in 18 (45%) patients. (Figure 1) On the first follow up after two weeks, improvement in sciatic pain was observed in 15 (37.5%) based on VAS. On second follow up after one month, improvement in sciatic pain was observed in 22 (55%) patients, after two month in 32 (80%) patients, after 4 months in 32 (80%) patients while after 6 months and after one it was improved in

38 (95%) patients. Only in two patients (5%) no improvement was observed. (Figure 2) Based on disc absorption, Complete >80% disc absorption was observed in 20 (50%) patients, Partial 20-80% disc absorption was observed in 5 (12.5%) while no No change<20% disc absorption was observed in 15 (37.%) patients. (Figure 3)

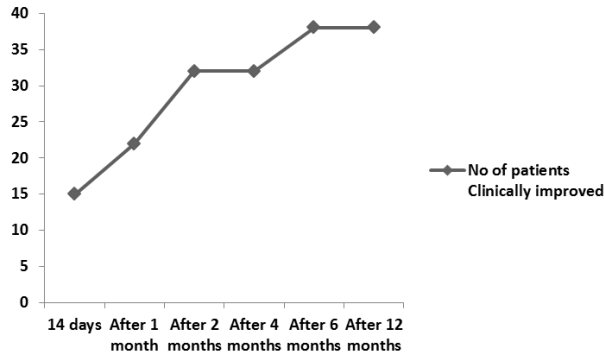


Figure No. 2: Frequency of patients improved clinically after last follow up

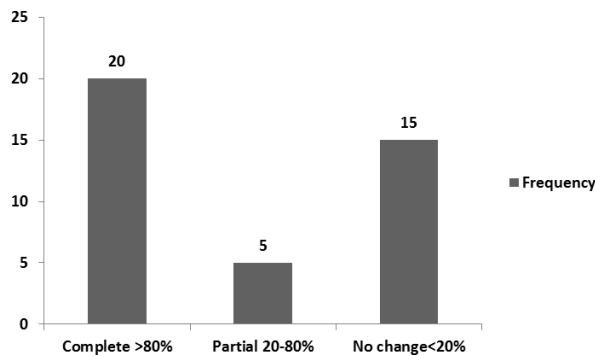


Figure No. 3: Frequency of patients with respect to change in the herniated disc size

## DISCUSSION

Various clinical manifestations and degrees of herniated disc regression have been documented.<sup>12,13</sup> A number of studies have shown that herniated intervertebral discs may naturally vanish or gradually regress without the need for surgery. When the patient's clinical circumstances improved in 1994, Fager used myelography to show the reduction of the extradural defect and attributed the reduction to the ruptured lumbar disc's natural tendency to heal itself. A herniated nucleus pulposus may be directly shown to be regressing using CT scanning.<sup>9</sup> Disc herniation and its natural history have been increasingly well-known with the development of MRI. The largest disc herniations may exhibit the greatest size reduction over time, according to many lumbar MRI studies. According to reports, the avascular sequestered disc fragment's rim enhancement on MR images is caused by a buildup of contrast material in the vascularized granulation tissue around it.<sup>14</sup> According to a theory, the ruptured

intervertebral disc behaves strangely in the epidural space. The immune system tries to eliminate the invasive disc tissue, as shown by a number of immunohistologic investigations. In the current study, totally 40 patients were enrolled. There were 24 (60%) male participants while female participants were 16 (40%). The mean age (SD) of the patients in the current research was 41 (3.11) years. Based on clinical history, trauma was observed in 3 (7.5%) patients. Based on affected leg, right leg was affected in 16 (40%) patients while left leg was affected in 24 (60%) patients. Motor weakness was observed in 3 (7.5%) patients. Based on Herniated Disc Level, L3/4 was observed in 1 (2.5%), L4/5 in 21 (52.5%) patients while L5/S1 was observed in 18 (45%) patients. On the first follow up after two weeks, improvement in sciatic pain was observed in 15 (37.5%) based on VAS. On second follow up after one month, improvement in sciatic pain was observed in 22 (55%) patients, after two month in 32 (80%) patients, after 4 months in 32 (80%) patients while after 6 months and after one it was improved in 38 (95%) patients. On in two patients (5%) no improvement was observed. Based on disc absorption, Complete >80% disc absorption was observed in 20 (50%) patients, Partial 20-80% disc absorption was observed in 5 (12.5%) while no No change<20% disc absorption was observed in 15 (37.%) patients. A previous study carried out by AbdElraouf A et al. reported comparable results to our study. They reported only 10% individuals (with a history of trauma) had a disc herniation prior to their diagnosis. 68% patients were reported having left sciatica, whereas 32% had right. Only five individuals (10%) were reported to have motor weakness. The most frequently affected disc, L4-5, was found to be herniated in 52% of the patients. Without surgery, 88% of the patients exhibited improvement, whereas only 12% of the patients had surgery.<sup>15</sup> Even in cases with discogenic myelopathy, reports demonstrating the improvement of neurologic symptoms using conservative treatments and physical therapy have been described in the literature.<sup>16</sup> If bladder symptoms or a motor deficit that worsens over time are evident, surgery may be performed immediately. Acute sciatica caused by a protruding lumbar disc may be treated without surgery in 75–90% of cases when these symptoms are absent. 2 months following the onset of the condition, Autio et al. found reduced herniated disc size in 42% of the observed patients. In other investigations, 35 and 63% of herniated lumbar discs spontaneously regressed over the course of 6 months to 12 months.

## CONCLUSION

According to the findings of our investigation, spontaneous regression may occur in cases with herniated intervertebral discs. Improved clinical outcomes are the primary sign of illness remission, and

subsequent imaging techniques may show that the herniated disc has regressed in morphology. For at least two months, conservative therapy may be considered in all patients, including those with moderate neurologic impairments. Only individuals with significant neurologic impairments or those with chronic, intractable sciatica should have surgical therapy.

#### Author's Contribution:

Concept & Design of Study: Zahir Khan  
 Drafting: Haziq, Aimon Zia  
 Data Analysis: Gohar Ali  
 Revisiting Critically: Zahir Khan, Haziq  
 Final Approval of version: Zahir Khan

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

## REFERENCES

- Schoenfeld AJ, Weiner BK. Treatment of lumbar disc herniation: Evidence-based practice. *Int J Gen Med* 2010;209-14.
- Buy X, Gangi A, Guth S, Guermazi A. Percutaneous treatment of intervertebral disc herniation. Imaging in percutaneous musculoskeletal interventions 2009;93-118.
- Sun K, Huang F, Qi B, Yin H, Tang B, Yang B, et al. A systematic review and meta-analysis for Chinese herbal medicine Duhuo Jisheng decoction in treatment of lumbar disc herniation: a protocol for a systematic review. *Medicine* 2020;99(9).
- Kreiner DS, Hwang SW, Easa JE, Resnick DK, Baisden JL, Bess S, et al. An evidence-based clinical guideline for the diagnosis and treatment of lumbar disc herniation with radiculopathy. *The Spine J* 2014;14(1):180-91.
- Han L, Zhao P, Guo W, Wei J, Wang F, Fan Y, et al. Short-term study on risk-benefit outcomes of two spinal manipulative therapies in the treatment of acute radiculopathy caused by lumbar disc herniation: study protocol for a randomized controlled trial. *Trials* 2015;16:1-9.
- Chiu CC, Chuang TY, Chang KH, Wu CH, Lin PW, Hsu WY. The probability of spontaneous regression of lumbar herniated disc: a systematic review. *Clin Rehabil* 2015;29(2):184-95.
- Cowperthwaite MC, van den Hout WB, Webb KM. The impact of early recovery on long-term outcomes in a cohort of patients undergoing prolonged nonoperative treatment for lumbar disc herniation. *J Neurosurg Spine* 2013;19(3):301-6.
- Martinez-Quinones J, Aso-Escario J, Consolini F, Arregui-Calvo R. Spontaneous regression from intervertebral disc herniation. Propos of a series of 37 cases. *Neurocirugia (Astur)* 2010;21(2):108-17.
- Apfel CC, Cakmakkaya OS, Martin W, Richmond C, Macario A, George E, et al. Restoration of disk height through non-surgical spinal decompression is associated with decreased discogenic low back pain: a retrospective cohort study. *BMC Musculoskelet Disord* 2010;11(1):1-6.
- Cho EH, Lee MY, Hur MH. The effects of aromatherapy on intensive care unit patients' stress and sleep quality: a nonrandomised controlled trial. *Evid Based Complement Alternat Med* 2017.
- Ahn S-H, Ahn M-W, Byun W-M. Effect of the transligamentous extension of lumbar disc herniations on their regression and the clinical outcome of sciatica. *Spine (Phila Pa 1976)*. 2000;25(4):475-80.
- Sabuncuoğlu H, Özdoğan S, Timurkaynak E. Spontaneous regression of extruded lumbar disc herniation: report of two illustrative case and review of the literature. 2008.
- Slavin KV, Raja A, Thornton J, Wagner Jr FC. Spontaneous regression of a large lumbar disc herniation:: Report of an illustrative case. *Surg Neurol* 2001;56(5):333-6.
- Sakai T, Tsuji T, Asazuma T, Yato Y, Matsubara O, Nemoto K. Spontaneous resorption in recurrent intradural lumbar disc herniation: Case report. *J Neurosurg Spine* 2007;6(6):574-8.
- Abdelraouf A, Yehya A, Eshra M. Clinical Improvement After Spontaneous Partial or Complete Absorption Of Herniated Lumbar Disc. *Egypt Spine J* 2012;4(1):49-55.
- Autio RA, Karppinen J, Niinimäki J, Ojala R, Kurunlahti M, Haapea M, et al. Determinants of spontaneous resorption of intervertebral disc herniations. *Spine (Phila Pa 1976)*. 2006;31(11):1247-52.