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**IMPROVEMENT OF DISC HERNIA THROUGH KINESITHERAPEUTIC PROGRAM  
- CLINICAL CASE**

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**Abstract:** Disc hernias are usually the result of disc wear, especially in the exercise of heavy physical occupations, weight lifting, forced posture, overwork. The clinical case described is a 69-year-old patient, a journalist by profession. At the end of May, he went to the Mount Athos peninsula in Greece to visit and describe the Monasteries in Mount Athos. On 30<sup>th</sup> of May he made a long and difficult transition into the mountain with a heavy backpack. In the morning of the same day, he suffered sharp spontaneous motion pains. He hoped that the pain would subside and he would continue the journey. The day after, the inflammatory process encompassed the left buttocks with numbness on the outer surface of the left thigh and lower leg with a very limited movement. The patient was very worried about his health and how he would be transported to the nearest hospital. He was transported on a stretcher to Bulgaria and on 06.06. 2016r. to the hospital MHALNP "St. Naum" in Sofia for research and treatment. The Computer tomography was performed on 07.06.2018. upon acceptance of the patient, the results from it were: Disorders of the intervertebral discs in the lumbar spine and the other parts of the spine with radiculopathy at the level L4-L5 - left-side foramen disk hernia with compression of the left L4 nerve root in intra- and extraforaminal disc herniation.

This example shows that in case of problems with vertebrogenic etiology it should not be awaiting and the patient should take precautions in time to avoid complications.

**Keywords:** disc hernia, kinesitherapy, treatment, acupuncture, su jok

**INTRODUCTION**

Disk herniation is a spinal cord disease due to degenerative changes of the intervertebral / intervertebral discs of the spine with subsequent disk protrusions and prolapse. Typically, the degenerative process is age-related and involves a systemic physical load. An often provoking factor is a sharp physical or traumatic element, and the hereditary predisposition facilitates the process.

The structure of the intervertebral disk spaces consists of a fibrous ring and a pulp core. A strong longitudinal connection / ligament connects the vertebral columns of the spine. In the degenerative processes of the intervertebral discs and ligaments parts of the fibers of the fibrous ring are broken, its integrity is disturbed, allowing the pulp core to come out of its bed. [3,5,6] "Disc herniation" is a general term that includes three specific disc lesions: protrusion, prolapse, extrusion and sequestration, depending on whether a part of the pulp core passes only through the torn fibrous ring through the fibrous ring and the fibrous ligament; or is also reached the spinal-brain canal [1]

Any disc of the spine may have disc herniation, but not every disc hernia is subjected to subjective symptoms. In about 35% of cases, the disc herniation may be asymptomatic at all or until the time of its physical provocation. Disc herniation usually occurs in the cervical / cervical and lumbar / lumbar region, which is related to the overall mobility of the spine. Lumbar disc herniation is 15 times the incidence of cervical and is one of the most common causes of back pain, one or both of the lower limbs. Cervical disks are affected in 8% of cases, and the thoracic only in 1-2% [4,5,7].

A leading symptom in the clinical picture is a strong spontaneous paravertebral and rarely radiant root pain caused by the pressure of a spinal nerve coming out of the spine, often accompanied by local edema and aseptic inflammation. Sensitivity and motor function have been compromised. Untreated disc herniation can lead to demyelination and degeneration of the nerve fibers [9,10].

Disc hernias usually occur between 30 and 50 years of age. After 50 years of age, more likely causes of pain in the waist or leg are osteoarthritis and spinal stenosis based on pronounced disc herniation or spondylolisthesis [3,4,5,6].

Diagnostic tools for disc herniation are standard x-ray, computer and magnetic resonance tomography.

The therapeutic approach is complex, and it is advisable to undergo physiotherapy procedures, manual therapy, acupuncture and balneotherapy after medical and / or surgical treatment.

## CLINICAL CASE

### Anamnesis

The history has been taken from the patient's data. A patient of 69 years old, a retired, a family living in a good psycho-social microclimate. The family carries the necessary care and is very worried about their health. He has a 40 year old daughter with convex right spinal cord scoliosis and L5-S1 protreatment.

He first came to the treatment clinic. Five days ago, he had received a strong cut pain in the left seated area with numbness on the outer surface of the left thigh and lower leg. Such complaints had a lesser extent before 3-4 months and a few years ago. The pain was provoked by a difficult mountain transition with a heavy backpack. At the end of May, he went to the Mount Athos peninsula in Greece to visit and describe the Monasteries in Mount Athos. On May 30th made a long and difficult transition into the mountain with a heavy backpack. In the morning of May 31, he suffered sharp spontaneous motion pains. He hoped that the pain would subsist and continued the journey. After one day, the inflammatory process covered the left buttocks with numbness on the outer surface of the left thigh and the short leg unable to walk. The patient was worried about his health and how he would be moved to the nearest hospital. He was transported to the medical center in Kareya, where he was first aided and painless. The patient was returned on a stretcher in Bulgaria and on 06.06. 2016 entered MBAMN "St. Naum" hospital in Sofia for research and treatment.

### Research results

Accompanying diseases: Essential [primary] hypertension; Other forms of chronic ischemic heart disease AH II IBS. Impaired carbohydrate tolerance. Ulcer disease - in remission. Implemented treatment with: Betalok Zok tab. 50mg x2 in the morning, Prestarium tab. 5mg 1x1. Famotidine tab. 20mg 2x1.

### Mental status: apsiotic

*Neurological status:* CPD - missing. CMS - b.o. Active movements - severely restricted in the lumbar section. Muscle tone - unchanged. Language and Echo - b.o. CHN - weakened in lower limbs. Abnormal - not registered. Sensitivity - Dysesthesia S1 left Romberg (+). Gait - antalgic. TP - controls. VKF - b.o.

EMG - normal distal latency, amplitude of the M-response, and velocity of n. peroneus and n. tibialis bilaterally. Extended L wavelengths of n. peroneus and n. tibialis bilaterally. Conclusion: EMG data for double frontal injuries L5, S1. Peripheral nerves in lower limbs - motor fibers - within the norm.

Assigned Therapy: Mannitol inf. 15% 500ml x1 day i.v.-5 banks, Almiral amp. 75mg i.m. - if necessary, Neuritogen tab. 2x1, Oxylan tab. 10mg -2x1 if needed.

### Visual studies

Computer tomography performed on 07.06.2018. upon admission of the patient (Figures 1, 2, 3, 4).

LV of lumbar vertebrae: From reconstructions - left convex scoliosis. L3-L4 - light general-purpose disc protrusion, loop body in the upper subchondral plate of L4, degenerately altered facial joints without structural changes in the vertebral bodies. L4-L5 - in the background of a common disc protrusion, a left-hand foraminal disc herniation is seen, with compression of the left L4 nerve root inside and extraphoral, corpuscles in the upper subchondral plate of L5, arthroscopically changed phantom joints without structural changes in the vertebral bodies. L5-S1 - Medial Disc Protrusion, Degenerative Femoral Joints, without structural changes in the vertebral bodies.



Figure No 1

Figure No 2

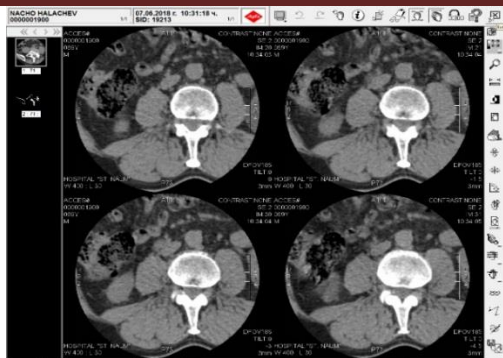


Figure № 3



Figure № 4

Objective patient's status in the first procedure on June 14, 2018:

- Sleeping mode
- Pain in motion and rest;
- Salivary soreness;
- Disturbed balance;

➤ **Positive symptom of Romberg, Lasseg and Neri.**

#### TREATMENT AND RECOVERY

The treatment course included three treatments per week, the first week, and two procedures over the rest.

The chart of procedures and results have been recorded on Table 1.

A kinesitherapeutic program included:

1. Medical massage
2. Su Jok therapy - treatment of the spine and stomach areas of the hands and feet.
3. Acupressure
4. Breathing exercises
5. Generic exercises - by anatomic symptom
6. Specialized exercises from different starting positions, elements of chi-gung.

During the first week after leaving the hospital, the patient still had severe pains that increased during the night. His movements were very limited, occupying an antalgic position, he could not get out of bed. He was very worried and depressed. He did the exercises with fear of provoking pain. Each procedure started with a classic massage. The L1-S2 lower limb reflex area was processed, followed by a detailed massage of lower limbs and back. The feet and especially all the painful points on the inner edge of them were treated in details. The massage was combined with passive movements in the comfort zone and the mobilization of sacroiliac joints. After the massage, an acupressure was performed according to the attached scheme of Table 1 with pressure according to the patient's current condition. [2,7] The su jok zone was processed on spine (Fig.5) and Insect system (Fig. 6) , which are located on the dorsal surface of the hands and feet [8]. The procedure proceeded from a baseline bed with a kinesitherapeutic complex of isometric exercises for abdominal and buttock muscles, active exercises for upper and lower extremities combined with breathing exercises. The dosage was 3-4 replicates. The patient was individually trained to play the kinesitherapeutic complex.

After 18.06.18. the patient stopped medication because of problems with his ulcer, although he was taking Famotidin, so new acupuncture points and treatment of the stomach compliance zone were included. In the fifth procedure, the patient first reported sleeping calmly without pain. The kinesitherapeutic complex was held for the first time in a session, and exercises were included to raise the lower limbs against gravity. On a slope he was still in pain and was afraid to sit. The dosage was 6-8 times.

Upon verticalisation on 28.06.18 he had a slight pain of Grade 3 on the scale of 10 and was quickly tired.

The patient daily performed strictly all the exercises and played them in the morning and in the afternoon. After eliminating the pain of July 13, we gradually increased the number of exercises and the dosage to 8-10 times, including generic anatomical exercises, abdominal and back muscles exercises, chi-gung elements, combined with abdominal breathing, walking on stairs. The duration of the complex was between 35-40 minutes.

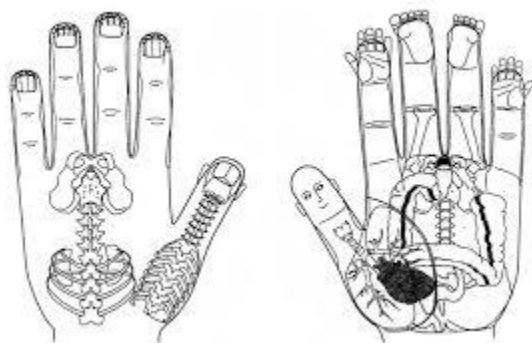


Figure №5 Basic Compliance System

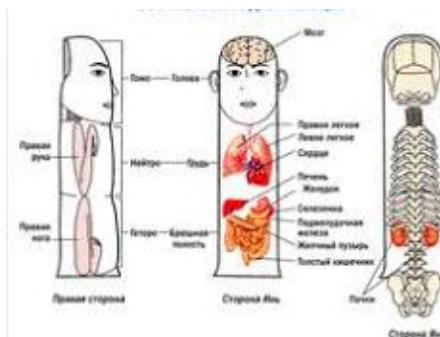


Figure №6 Insect System

Table 1. Schedule and scheme of Procedures

№	Date	Pain Degree	Acupuncture Points	Su Jok Systems	Exercises
1.	12.06.18	9m 4r 5n	E36, R1, VB30, V40, V57, T4, RP6	Basic spinal column	isometric for abdominal and seatable musculature
2.	15.06.18	9m 4r 4n	E36, R1, VB29 VB30, V40, V57, T4, T5, RP6	Basic spinal column, "insect system"	isometric active breathing
3	19.06.18	8m 4r 3n	E36, E 42, E44, VB29 VB30, V57, T4, T5, RP6, R1	Basic spinal column, "insect system", "stomach"	isometric active breathing
4	22.06.18	8m 4r 3n	E36, E 42, E44, VB30, V57, T4, T5 RP6 R1,	Basic spinal column, "insect system", "stomach"	isometric active breathing
5	25.06.18	5m 3r	E36, E 42, E44, , VB30, VB31, T4, T5 RP6,	Basic spinal column, "insect system", "stomach"	active legs for leg against G from sitting, standing breathing
6	28.06.18	4m 2r	E36, E 42, VB30, VB31, T4, T5, RP6,	Basic spinal column, "insect system", "stomach"	sitting, standing, active exercises
7	01.07.18	3m	E36, E42, VB30, VB31, T4, T5, T11 RP6,	Basic spinal column, "insect system", "stomach"	standing, active exercises
8	04.07.18	2m	E36, E42, VB30, VB31, T4, T5, T11 RP6,	Basic spinal column, "insect system", "stomach"	Stage, walking on stairs, slopes and curves

9	10.07.18	2m	E36, E42, VB30, VB31, T4,T5,T11 RP6,	Basic spinal column, "insect system", system "stomach"	Stage, walking on stairs, slopes and curves
10	13.07.18	without pain	E36, E42, VB30, VB31, T4,V25q RP6,	"insect system"	Stage, walking on stairs, slopes and curves
11	16.07.18	without pain	E36, E42, VB30, VB31, T4,	"insect system"	Descent from the 4th floor to the yard
12	19.07.18	without pain	E36, E42, VB30, VB31, T4,V25, RP6,	,"insect system"	Walk in the Park
13	23.07.18	without pain	E36, E42, VB30, VB31, T4, V25, RP6,	,"insect system"	Running supporting complex
14	29.07.18	without pain	E36, VB31, V25, T4 RP6,	,"insect system"	Running supporting complex

Legend: (m) - movement; : (r) rest; : (n) - night pain

## RESULTS

The complex kinesitherapeutic program has improved the patient's subjective condition.

After the ninth procedure, the patient was able to perform the entire kinesitherapeutic complex without pain (Diagram 1).

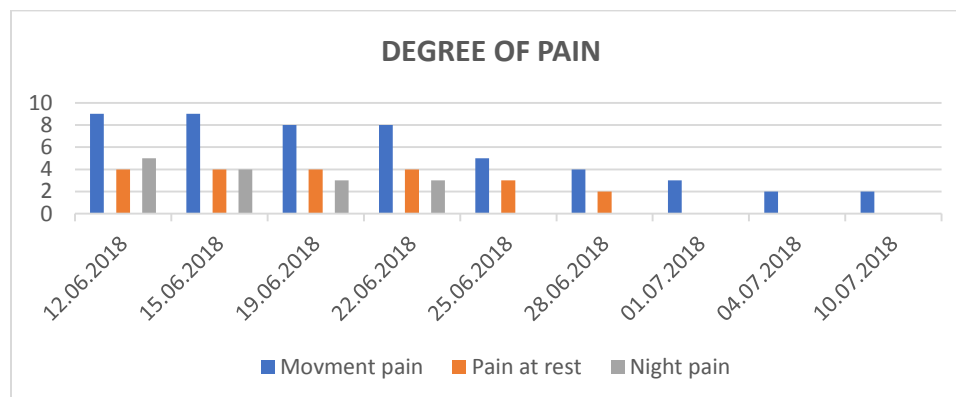


Diagram №1.

The recovery of full motor activity was achieved in fourteen procedures. Bending condition was to touches his toes with his hands.

Neurological status: CPD - missing. CMS - b.o. Active motions-b.o. Muscle tone - unchanged. Language and Echo - b.o. CHP-b.o. Abnormal - not registered. Romberg

(-), Lasseg (-), Neri (-) Grip - b.o. TP - controls. VKF - b.o.

Control computer tomography results performed on 01.08.2018. after completion of the procedures (Figures 1, 2, 3, 4):

KT find:

L3-L4 - a light general joint protrusion, a loop in the upper sub-plate of L4. Degenerative facial joints, rupture osteophytes.

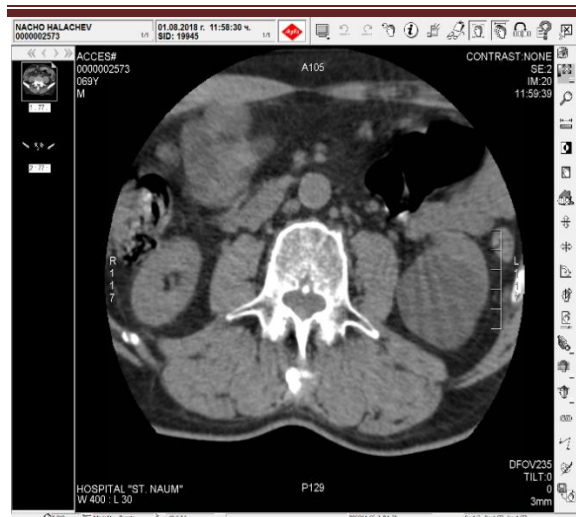


Figure № 7

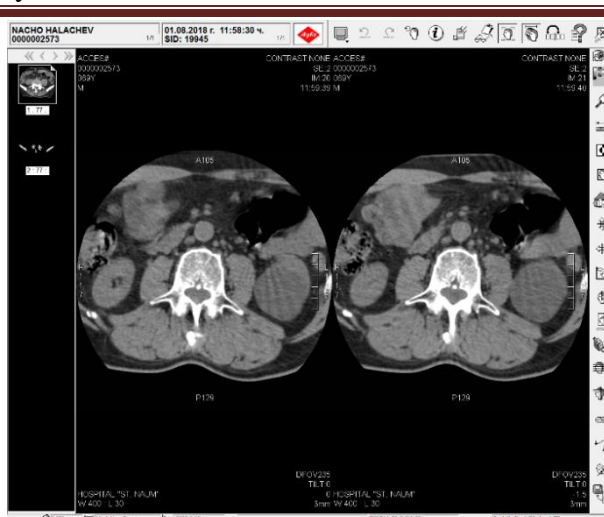


Figure № 8

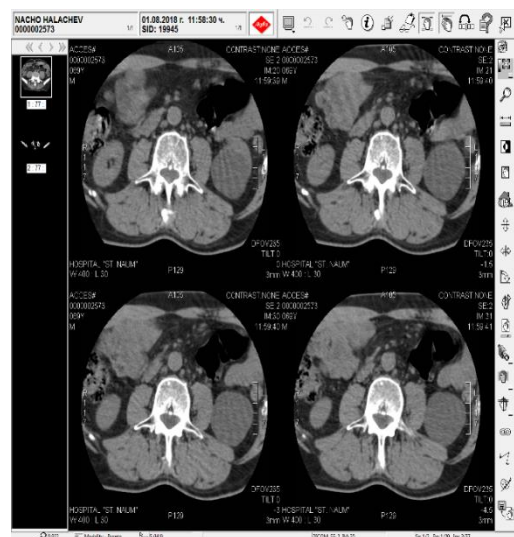


Figure №9

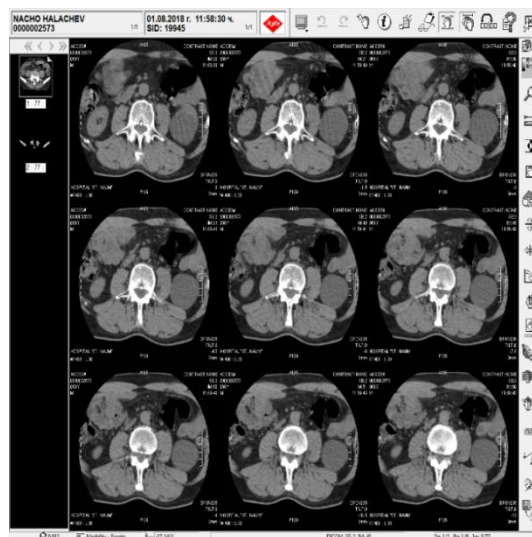


Figure № 10

L4-L5 - broad disc-wide protrusion on a broad base, truncated corpuscles in the upper subchondral plate of L5 degenerately altered facet joints without structural changes in the vertebral bodies.

L4-L5 - in the background of a common disc protrusion, a left-hand foraminal disc herniation is seen, with the compression of the left L4 nerve root inside and extraphoral, the corpuscles in the upper subchondral plate

Result from 07.06.2018:

L5-S1 - mediated paramedial left disc protrusion, degenerately altered facial joints without structural changes in the vertebral bodies.

The figurative studies were carried out at "St. Naum" University Hospital in Sofia and read by the radiologist Assoc. Prof. N. Topalov

Psychic status towards the last kinesitherapeutic procedure. There were scored stabilization and improvement of the emotional state that correlated with the inner confidence for complete recovery of disturbed motor volume of movement and restoration of normal rhythm of life. Adequate sleep, allowing rest at night.

Confidence in the ability to cope with everyday activities.

The results have shown that the application of a complex treatment consisting of kinesitherapy, massage, manual therapy, acupuncture and su jok have a good therapeutic effect.

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**DISCUSSION**

A publication of the International Association for the Study of Pain (IASP) defines pain as an unpleasant sensual and emotional experience associated with actual or potential tissue damage. Chronic pain is difficult to heal, so it is desirable to find methods to prevent it. For prolonged pain the patient is subjected to stress and symptoms of over-excitement occurring with vegetative component, protected muscle guard, rapid breathing, pallor, cold sweat, pupil enlargement.

During the first restorative phase (1 and 2 weeks), emphasis was placed on the reduction of pain. This was achieved with light maneuvering massage, treating su jok zones of compliance. To enhance the analgesic effect, they were combined with the zonotherapy and acupuncture points given on Table 1. Special attention was paid to the patient's mental state in order to help overcome the fear that some inadvertent movements can again cause acute cutting pain. The applied kinesitherapeutic exercises had a small dosage for the distal parts combined with breathing.

During the second restorative phase of the third week of pain relief, the dosage and volume of movement increased, including new exercises. The patient was verticizing and freely doing a lot of day-to-day activities. Slopes were included in the complex.

Sarah Kee (2010) has noted that fingertip exercises should start earlier, so the backbone will get used to the bends.

Home treatment requires longer terms. In sanatorium terms, the recovery period of such a case will be cut off because home appliances cannot be used for a number of appliances and underwater gymnastics.

In conclusion, the active involvement of the patient, the strict performance of the kinesitherapeutic complex and the therapist's instructions are of particular importance for the successful treatment of the disco hernia.

**RECOMMENDATIONS**

A supportive kinesitherapeutic program was prepared for the patient.

Everyday purposeful physical activities protect patients from future recurrences.

Patients in day-to-day and work-based care should be careful when handling or using weights.

They should not allow overweight.

They should not allow physical and mental exhaustion.

In the above-mentioned case, the patient daily performs a supportive kinesitherapeutic program, walks in the park and the mountain, eats balancedly and is not overweight. Prophylactically every third week he is treated with healing massage, acupressure and su jok. The kinesitherapeutic complex was administered for the determination of its dosage.

The patient has given informed consent to publish the case.

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