УДК: 616.721.1-007.43-08
DOI https://doi.org/10.37336/2707-0700-2020-1-6

Clinical case: conservative treatment of sequestered disc herniation

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20 % of the adult population of the world suffers from periodic back pain (duration – 3 or more days) [1, 20] and more than 21 million people per year apply to medical institutions with these complaints. Pain in the lumbosacral spine is one of the 3 main reasons for medical assistance, hospitalization and, as a result, disability of people under 50 years [2, 7]. In terms of prevalence, degenerative-dystrophic diseases of the spine are in line with vascular and oncological pathologies [8, 13]. Intervertebral disc hernia is the final stage of osteochondrosis. The following stages of the intervertebral disc hernia development are distinguished: prolapse, protrusion (or degeneration), extrusion and sequestration [6, 9, 16].

Hernia sequestration of the intervertebral disc is the separation of the pulpous nucleus area, which breaks through the fibrous ring and the posterior longitudinal ligament, from its main part with a displacement into the spinal canal [11, 12]. Sequestered intervertebral hernia in 80 % of cases leads to disability [21, 25]. Clinically, this pathology is often manifested by discogenic radiculopathy – painful, motor, sensory and vegetative disturbance caused by the spinal cord roots' damage due to their compression [23, 24]. As with an extrusion, sequestration can also cause an immune response to the material of the pulpous nucleus, causing inflammation in this area, and ultimately aseptic meningitis [15].

Lumbar disc hernias remain one of the most common reasons for visiting a surgeon. In the United States more than 200 thousand, and in Germany 20 thousand of neurosurgical interventions for herniated discs removal are performed annually [3, 23, 27]. However, the number of patients with postoperative recurrences increased from 10 % to 50 % of the number of operated patients [9, 14, 18]. The studies demonstrate the hernia recurrence rate of 5.5 %, when the hernial sequestra is removed, and 4 % with "radical" removal of the entire pulp nucleus [17, 19]. Some authors report the same hernias' disc recurrence rate when removing the entire pulpous nucleus and when removing the only hernial sequestration [1, 4, 17].

At present, the tactics of managing patients with sequestered hernia has changed: doctors prefer a complex conservative treatment of this pathology (drug therapy and kinesitherapy).

Magnetic resonance imaging (MRI) is the main diagnostic and crucial method in obtaining an accurate diagnosis at conservative treatment [5, 16].

The purpose of the article is to describe the diagnostics and variant of the treatment algorithm of L4-L5 disc herniation, sequestered L5-S1 hernia on the example of representative clinical observation.

Patient H., born in 1978.

Initial visit to a vertebrologist – 11.04.2018 Complaints: pain in the lumbar spine, aggravated when bending forward or deflection backward, painful irradiation in the right buttock.

Anamnesis. Pain syndrome in the lumbar region began to bother the patient about 2 years ago. Periodically (up to 2-4 times a year), exacerbations were noted, which could be stopped by nonsteroidal anti-inflammatory drugs. Currently, the patient associates this exacerbation with driving for a long time. Oral and parenteral administration of nonsteroidal anti-inflammatory drugs and muscle relaxants did not have a significant effect.

Orthopedic status: The head is straight. The shoulder girdle, chest and pelvis are of regular shape, symmetrical. Passive movements in the joints are not limited. Ribs and intercostal

spaces palpation is painless. Motor test: restriction of the lumbar vertebrae movement (spastic reaction from the spine muscles) when tilting back and forth, painful contracture. Palpation: acute pain and spastic reaction from the spine muscles at palpation in the projection L4-L5, L5-S1, paravertebral muscle hypertonicity in the lumbosacral region.

Neurological status: hypesthesia and paresthesia (in the form of tingling sensations) along the posterior-lateral surface of the right thigh. The strength in the upper and lower extremities is sufficient. Tendon reflexes of the upper extremities are symmetrical, live; abdominal reflexes are symmetrical, live; knee reflexes S=D; Achilles and plantar reflexes S>D. Positive Laseg symptom on the right (40°). The function of the pelvic organs is preserved.

Pathology of other organs and systems is not found.

Diagnosis during initial treatment: vertebrogenic lumbar ischialgia, subacute radiculitis (ICD X M54.5.).

MRI of the lumbar region *(04/10/2018):* L4-L5 paramedial extrusion of a intervertebral disc 5.5 mm, with severe compression of the central and parasagital parts of the dural sac and the right radicular funnel channel. L5-S1 medial extrusion of 9×10×10 (anterior-posterior measurement/ height/width), with migration in the caudal direction (sequestered hernia), combined with medial-paramedial protrusion up to 6-7 mm with severe compression of the dural sac and both radicular funnels' channels (Fig. 1).

Final diagnosis: L4-L5 disc herniation, sequestered hernia L5-S1 (ICD X M51.8.).

Fig. 1. *MRI before treatment.*

Conservative treatment. ***Neurologist***: non-steroid anti-inflammatory drugs (meloxicam), central action muscle relaxant (tolperisone hydrochloride i/m), capillary-stabilizing drug (L-lysine escinate i/m), vitamins complex of B group (neurorubin) – 14 days. ***Vertebrologist*** (rehabilitation): kinesitherapy in combination with chondroprotectors. Physical exercises at the Yevminov's Dispensary 3-4 times a day at an angle of 10-15° along the hernial complex with phased intensification of the static-dynamic load at home and outpatient conditions.

Kinesitherapy at the Evminov's Dispensary:

1st week: symmetric exercises with static stress (relaxation), 3 exercises.

2nd week: plus 2 exercises in dynamic mode. Glucosamine sulfate 1.5 g orally once per day, 40 days.

3rd week: plus one exercise to the symmetric complex with the Evminov's dispensary.

4th week: the patient had a stable remission: an increase in amplitude at leaning forward, lack of muscles' spasticity, lack of irradiation of the pain syndrome in the right buttock, slight pain at bending back. The complex treatment was supplemented with 3 strength exercises added to the symmetric complex (angle of 20-40°) and chondroprotector (chondroitin sulfate) i/v 2 ml every other day No. 20 (chondroprotectors have to be repeated in six months).

Repeated appointment 09/20/2018. Clinical condition: Sustained remission. Motor test: free tilt back and forth, the range of motion is preserved, sides bends without restrictions.

Orthopedic status: A lack of spastic reaction from the spine muscles in the region of L4-l5, L5-S1 is observed at palpation. Paravertebral hypertonicity of the spinal muscles.

Repeated MRI (09/17/2018): reduction of L4-l5 hernia to 4 mm (from 5.5 mm), moderate compression of the dural sac and the right channel of the radicular funnel. L5-S1 – unchanged.

Treatment: against the background of kinesitherapy with the Evminov's Dispensary, a course of 10 massage sessions was added to treatment. Caripazimotherapy (electrophoresis with neocaripazim-400) – 20 procedures. Repeat after 30 days – 30 procedures, then after 30 days – 25 procedures.

Appointement 05/12/19. The patient's condition is satisfactory, the absence of clinical symptoms, stable remission. The pathology from the neurological and orthopedic status was not detected.

Repeated MRI (05/07/2019): L4-L5 protrusion up to 4 mm (compared with 2018 data) without negative dynamics. Positive dynamics in the form of a decrease in the L5-S1 caudal sequestration to the base of a symmetrical circular protrusion of 5 mm (hollow capsule effect) was noted (Fig. 2).

It was recommended to continue the course of kinesitherapy at the Evminov's Dispensary according to an individual program and to repeat the reception of chondroprotectors.

Discussion

The literature reports on many studies regarding a conservative approach in the treatment of the intervertebral disc sequestered herniation of the lumbar, when patients independently refuse surgical intervention, as in the above case. These were small episodes from one or more cases. The complex of therapeutic measures included: bed rest, oral anti-inflammatory and analgesic drugs, spinal anesthesia blocks and/or physiotherapy [19, 22, 26].

Three clinical observations of successful conservative treatment of sequestered lumbar hernia have been described. All patients, after the therapy with the technology of underwater semi-vertical extension, mud therapy, had clinical recovery in 3-5 months and a significant improvement in the quality of life [1].

Initial treatment of patients with sequestered herniation of the intervertebral disc, according to the researchers' opinion, may be conservative [27].

According to the results of [29], it was stated that the degree of spontaneous regression is 96 % for disk sequestration, 70 % – for disk extrusion, 41 % – for disk protrusion. The degree of complete resolution of disc herniation was 43 % for sequestered discs and 15 % – for extruded discs, when researchers applied conservative therapy methods.

Clinicians [10] analyzed 36 symptomatic hernias of the lumbar discs over time and demonstrated that 25 of them decreased in size, and the most common types of hernias that decreased in size were sequestered hernias (average decrease of 17 %, 48 %, and 82 % for subligamentous, transligamentous and sequestered groups of hernias, respectively). In the study [28], all cases of sequestered discs at conservative treatment were completely resolved after 9 months.

Fig. 2. *MRI after treatment.*

Conclusion

The presented methodology for personalized treatment of the patient with sequestered hernia of the lumbar spine allowed to determine an individual approach to treatment and to apply the following treatment algorithm: 2 ml i/v chondroprotector every other day No. 20 (the chondroprotector course should be repeated after six months). Kinesitherapy at the Evminov's Dispensary; the course of treatment was 10 days. Caripazimotherapy – No 20. Repeat after 30 days – 30 procedures, then after 30 days – 25 procedures for each patient.

The authors declare no conflict of interest.

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CLINICAL CASE: CONSERVATIVE TREATMENT OF SEQUESTERED DISC HERNIATION

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The literature has a lot of descriptions of the spontaneous disappearance of herniated discs. This article presents a clinical case of conservative treatment of sequestered disc herniation applying a complex of drug treatment and kinesitherapy. After 5 months a positive trend was observed against the background of conservative treatment. A year later, there was a lack of clinical symptoms and, according to MRI, and positive dynamics in the form of a decrease in the caudal sequestration of L5-S1 to symmetrical circular protrusion (hollow capsule effect).

Key Words: sequestered disc herniation, drug treatment, kinesitherapy, MRI.

КЛІНІЧНИЙ ВИПАДОК: КОНСЕРВАТИВНЕ ЛІКУВАННЯ СЕКВЕСТРОВАНОЇ КИЛИ ДИСКА

І.А. Афанасьева, І.В. Андрущенко, Т.В. Безгодов

У літературі досить багато описів мимовільного зникнення кил дисків. У даній статті наведено клінічний випадок консервативного лікування секвестрованої кили диска з використанням комплексу медикаментозного лікування і кінезітерапії. Вже через 5 місяців мала місце позитивна динаміка на тлі консервативного лікування. Через рік було відзначено відсутність клінічної симптоматики та, за даними МРТ, позитивна динаміка у вигляді зменшення каудального секвестру L5-S1 до симметрического циркулярного випинання (ефект порожнистої капсули).

Ключові слова: секвестрована кила диска, медикаментозне лікування, кінезітерапія, МРТ.

КЛИНИЧЕСКИЙ СЛУЧАЙ: КОНСЕРВАТИВНОЕ ЛЕЧЕНИЕ СЕКВЕСТРИРОВАННОЙ ГРЫЖИ ДИСКА

И.А. Афанасьева, И.В. Андрущенко, Т.В. Безгодов

В литературе достаточно много описаний самопроизвольного исчезновения грыж дисков. В данной статье приводится клинический случай консервативного лечения секвестрированной грыжи диска с использованием комплекса медикаментозного лечения и кинезитерапии. Уже через 5 месяцев имела место положительная динамика на фоне консервативного лечения. Через год было отмечено отсутствие клинической симптоматики и, по данным МРТ, положительная динамика в виде уменьшения каудального секвестра L5-S1 до симметрического циркулярного выпячивания (эффект полой капсулы).

Ключевые слова: секвестрированная грыжа диска, медикаментозное лечение, кинезитерапия, МРТ.