

Clinical Effect of Transforaminal Endoscopic Surgery in the Treatment of Lumbar Disc Herniation

Tianhui Liu, Jianmin Cui*

Shizhu People's Hospital, Chongqing 409100, China

Abstract: *Objective:* Objective to explore the curative effect of transforaminal endoscopic surgery in the treatment of lumbar disc herniation. *Methods:* From October 2018 to October 2020, 36 patients with lumbar disc herniation were randomly divided into group A and group B. the curative effect, pain, lumbar function and quality of life were analyzed. *Results:* The curative effect of group A was 94.44%, better than that of group B 61.11%, $P < 0.05$; The visual analogue scale (VAS) of group A was lower than that of group B on 3D, 5D and 7d after operation ($P < 0.05$); The KSS of group A was higher than that of group B ($P < 0.05$); The score of quality of life in group A was better than that in group B ($P < 0.05$). *Conclusion:* Lumbar disc herniation patients underwent transforaminal endoscopic surgery, the effect is good, can improve lumbar function, relieve pain, improve the quality of life of patients.

Keywords: Lumbar disc herniation; Spinal foraminal endoscopic surgery; Clinical effect

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***Corresponding author:** Jianmin Cui, 812741946@qq.com

Lumbar disc herniation is more common in bone surgery diseases. With the increasing pace of life, the incidence rate of these diseases is increasing year by year. After the occurrence of lumbar disc herniation, the typical symptoms are sciatica, waist pain, lower limb pain, etc., which seriously affect the normal life of patients. It can last for several months, or even several years. In severe cases, severe pain, incontinence and other symptoms can appear, which can reduce the quality of life of patients^[1]. At present, the conventional clinical treatment for

lumbar disc herniation is open surgery, in which the paravertebral muscles and soft tissues are stripped, which can damage the surrounding healthy tissues, and the risk of postoperative complications is high, such as nerve compression, which is not conducive to the prognosis^[2]. With the development of minimally invasive surgery technology, posterior spinal minimally invasive surgery in the treatment of patients with lumbar disc herniation, the effect is good, can achieve radical effect. In this paper, 36 cases of lumbar disc herniation patients as samples, analysis of the efficacy of spinal foraminal endoscopic surgery, the report is as follows.

1 Material and methods

1.1 Information

The study was carried out in October 2018 and terminated in October 2020. A total of 36 cases were randomly divided into two groups. In group A, there were 12 males and 6 females, aged 35-65 years, with an average age of (49.41 ± 2.18) years and a mean course of disease of (1.84 ± 0.45) years; In group B, there were 13 males and 5 females, aged 36-66 years, with an average age of (49.52 ± 2.23) years and a mean course of disease of (1.87 ± 0.47) years. The ethics committee approved the study. All patients with lumbar disc herniation were informed. Compared with 36 cases of sample data, $P > 0.05$.

1.2 Inclusion and exclusion

Selection criteria: All the 36 samples were examined by CT and MRI, which indicated lumbar disc herniation; All patients had relapse, and conservative treatment was ineffective; Patients were not treated with lumbar surgery before admission^[3].

Exclusion criteria: Those with cognitive impairment or communication impairment were excluded; The patients with mental history were excluded; Pregnant women were excluded; The patients with organ failure were excluded; Patients with coagulation disorders or immune disorders were excluded^[4].

1.3 Treatment

Group a underwent transforaminal endoscopic surgery: Under the guidance of supine position, Kirschner wire was used to find the diseased intervertebral disc space with the assistance of c-wall X-ray machine, and then disinfection was carried out. After local anesthesia, the intervertebral foramen was located and punctured, and the position was adjusted. According to the fluoroscopic situation, the contrast agent was injected, and then the local condition of the lesion was determined. The incision was made at the lesion, and the working sleeve was placed, and the nucleus pulposus of the intervertebral disc was identified under the foraminal microscope. After the nucleus pulposus tissue was taken out, the nerve root was relaxed, and whether the nucleus pulposus tissue was residual was determined. After confirming that there was no residual, the catheter was taken out, and then the incision was sutured.

Group B was treated with traditional operation. After general anesthesia, help the patient to take prone position, then prepare to disinfect and spread the towel, observe the lesion intervertebral space under c-wall X-ray machine, open a 3-4 cm incision on the affected side of the intervertebral disc, peel off the multifidus muscle and sacral spine muscle, fully expose the lamina space, pull open the paravertebral

muscle, use the lamina biting forceps to bite off the lesion position of the lamina, take out the nucleus pulposus tissue, detain the drainage tube, and suture the incision. The drainage tube was removed 24 hours after operation.

1.4 Observation indexes

The difference between the two groups was compared. The pain of lumbar vertebrae disappeared and the function of lumbar vertebrae recovered; Postoperative lumbar pain relief and normal lumbar function were considered effective; Postoperative lumbar pain unchanged, lumbar function did not improve as invalid^[5]. The higher the VAS score, the more severe the symptoms of lumbar pain. The KSS score was compared between the two groups to evaluate the lumbar mobility, stability and walking ability. The scores of quality of life were compared between the two groups and evaluated according to SF-36.

1.5 Statistical study

SPSS 33.0 was used to calculate the data of patients with lumbar disc herniation, %, ($\bar{x} \pm s$) were used to record the count and measurement indexes of patients after operation, and the difference test was carried out in the form of χ^2 and t. The difference was statistically significant ($P < 0.05$).

2 Results

2.1 Curative effect analysis of lumbar disc herniation

The curative effect of group A was 94.44%; The curative effect of group B was 61.11%, $P < 0.05$. See Table 1.

Table 1. Curative effect analysis of patients with lumbar disc herniation (n,%)

Group	Remarkable effect	Effective	Invalid	Total effective rate
Group A (n = 18)	9(50.00)	8(44.44)	1(5.56)	94.44
Group B (n = 18)	6(33.33)	5(27.78)	7(38.89)	61.11
χ^2	-	-	-	5.7857
P	-	-	-	<0.05

2.2 Difference analysis of VAS score between groups

The VAS score of group A was significantly lower

than that of group B on 3D, 5D and 7d after operation ($P < 0.05$); Preoperative VAS score difference, $P > 0.05$. As shown in Table 2.

Table 2. Analysis of VAS score of patients with lumbar disc herniation (points, $\bar{x} \pm s$)

Group	Before operation	3 days after operation	5 days after operation	7 days after operation
Group A (n = 18)	6.71±1.45	3.38±0.74	1.84±0.43	0.72±0.28
Group B (n = 18)	6.73±1.43	4.71±0.62	2.79±0.55	1.42±0.36
<i>t</i>	0.0417	5.8449	5.7732	6.5118
<i>P</i>	>0.05	<0.05	<0.05	<0.05

2.3 Difference analysis of KSS score between groups

function score were significantly improved in group A, compared with group B, $P<0.05$. As shown in Table 3.

The activity score, stability score and walking

Table 3. Analysis of VAS score of patients with lumbar disc herniation (points, $\bar{x} \pm s$)

Group	Activity score	Stability score	Walking function score
Group A (n = 18)	16.89±3.17	19.76±3.24	21.96±3.58
Group B (n = 18)	12.94±2.64	15.41±2.33	17.45±2.42
<i>t</i>	4.0623	4.6245	4.4280
<i>P</i>	<0.05	<0.05	<0.05

2.4 The difference of quality of life between the two groups was compared

improved, and the scores were better than those in group B, the difference was statistically significant ($P<0.05$). As shown in Table 4.

The quality of life in group A was significantly

Table 4. Quality of life analysis of patients with lumbar disc herniation (points, $\bar{x} \pm s$)

Group	Psychological function	Somatic function	social function	material life
Group A (n = 18)	91.47±3.85	90.68±3.91	89.67±3.64	87.78±3.57
Group B (n = 18)	82.54±2.96	81.47±2.74	77.45±2.57	76.49±2.48
<i>t</i>	7.8015	8.1841	11.6353	11.0193
<i>P</i>	<0.05	<0.05	<0.05	<0.05

3 Discussion

The etiology of patients with lumbar disc herniation is complex, and it is mostly related to degenerative lesions of nucleus pulposus and lumbar disc fibers, such as incorrect sitting posture, weight-bearing walking and other factors, which can lead to lumbar disc prolapse. If not diagnosed and treated in time, it can affect the defecation function of patients and reduce their quality of life^[6]. At present, the clinical treatment of lumbar disc herniation, more conservative drug treatment or surgical treatment, the effect is good. Although the traditional surgical treatment can control the disease and relieve the spinal canal protrusion and compression, the surgical wound is large, which can lead to intraoperative muscle traction induced traumatic reaction, and can also be complicated with adhesion and other serious diseases after operation, which can prolong the recovery time of patients, increase the pain of patients, and limit the clinical application to a certain extent^[7]. In recent years, spinal transforaminal endoscopic surgery has been gradually applied in

clinic. Under the visible state, the use of surgical instruments to directly remove the nucleus pulposus tissue of lumbar disc herniation can improve the problem of spinal stenosis at the same time. It can clear the operation field and enlarge the local pathological tissue after the transforaminal endoscope is placed, which is helpful for the attending doctors to identify the anatomical structure. The operation is simple, can reduce the nerve root canal compression, and has high safety; Transforaminal endoscopic surgery can control the degree of expansion of paravertebral muscles during the operation, reduce the damage to the ligamentum flavum during the process of articular process bone grinding, preserve the spinal structure and maintain the stability of the spine; Local anesthesia for transforaminal endoscopic surgery can prevent iatrogenic nerve injury, reduce intraoperative blood loss, and help patients recover^[8]. Combined with the analysis of this study, a group of patients with lumbar disc herniation underwent spinal foraminal endoscopic surgery, the curative effect was 94.44% better than that of B group 61.11%;

The VAS scores of group A were lower than those of group B at 3, 5 and 7 days after operation; The scores of activity, stability and walking function in group A were better than those in group B; The scores of quality of life in group A were higher than those in group B ($P < 0.05$). It is suggested that the effect of transforaminal endoscopic surgery is better, which can effectively relieve pain, improve lumbar function, and is conducive to postoperative recovery of patients. However, the sample of this study is limited, the study time is short, and the long-term efficacy of patients with spinal disc herniation is not analyzed. It is necessary to increase the number of samples in the follow-up to further explore the application value of vertebral foraminal endoscopic surgery, in order to provide a reliable basis for clinical treatment.

In conclusion, patients with lumbar disc herniation underwent transforaminal endoscopic surgery, postoperative lumbar function significantly improved, lumbar pain relief. Compared with traditional surgery, transforaminal endoscopic surgery is more valuable.

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