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EARLY AND DELAYED RESULTS OF LUMBAR DISC SURGERY IN 314 PATIENTS

MAHMOOD TABATABAIE, M.D.

From the Department of Neurosurgery, Shohada Medical Center, Shaheed Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran.

ABSTRACT

In a retrospective study the clinical presentations, neurological findings, contrast studies, operative findings, and the follow-up results of 314 patients with disc herniation were studied over a 10-year period. This disease was most frequent between the ages of 30 to 40 and mostly in males. Low back pain with or without radicular pain was the most frequent symptom, involving the left leg in the majority of patients and the average duration of pain was more than a year. In this study L4-L5 disc herniation had the highest frequency (50%). The most encouraging sign to perform myelography was motor deficit (57%). Postoperatively, our patients were followed for an average of 12 months with excellent to good results noted in 96% of them. Reherniation of a previously resected disc was noted only in two patients (0.6%). It is concluded that with precise selection we could have more than 90% good results in a conventional method of disc surgery and the chances of recurrence are negligible.

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Keywords: Disc, low back pain, discectomy, sciatica

INTRODUCTION

Low back pain is probably the most frequent cause of human suffering efter headache. Almost 80% of human beings will experience low back pain at one time during their life.[12,14] Low back pain may be the result of the erect position of man since it is less frequent in animals, which use their front and hind legs to support their body.[7,8] The erect position in man results in displacement of the center of gravity of the human body. The tremendous weight of the upper extremities, trunk, and head is placed upon the intervertebral discs, as shock absorbers, making them vulnerable to disc rupture and herniation.[4,7] The first record of signs and symptoms of ruptured intervertebral disc in the form of radicular pain was recorded by Soranus.[7] Walter Dandy was the first to operate on patients with bilateral sciatica. He noticed pieces of cartilage inside canal and called them enchondroma.[7] The correlation of sciatic pain to disc herniation was definitely proved by Mixter and Barr in 1934.[2,3,7,25] Since the introduction of myelography, CT scan, and MRI the diagnosis and treatment of disc herniation has become much easier. In this article we discuss the clinical presentations and surgical results of 314 cases of disc herniation with a specific reference to late results and the chances of reherniation.

MATERIAL AND METHODS

Almost 22.5% of all the 24,938 patients seen between 1979 to 1989 in this clinic had low back pain with or without sciatica. With conservative treatment over a 4-6 week period only a minority of these patinets, meaning 314 patients (5.6%), required disc surgery. 206 were male and 108 were female (male to female ratio 2:1).[15] 58% of the patients were 30 to 49 years old (range 16 to 73 years)

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(Table I).[4] More than 50% had symptoms of more than one year duration (Table II). Almost 98% of the patients had radicular pain, with or without back pain. The left leg was most frequently involved (44.5%, Table III). Positive SLR (straight leg raising test) was noticed in 233 (74%), sensorydeficit in 192 (61%), and motor deficit in 175 patients (67%). Abnormal deep tendon reflexes (DTR) was noticed in 151 (48%), and evidence of sphincter dysfunction in only seven patients (2%). The plain x-ray was abnormal in 35.3% and the most frequent abnormality was spondylosis (55 patients, 16.8%). In the remaining patients we could notice a variety of abnormalities (Table IV). In 157 (50%) of the patients the L4-L5 disc herniation was found on myelography and only a single level was involved in 256 patients. In 53 patients (17%) the operation was performed at two, and in five patients (1.5%) at three levels (Table V).

Surgical Exploration

Surgical exploration was judged as the best method to relieve the dural and radicular compression. In 100 patients (31.8%) only fenestration was performed, while laminectomy and hemilaminectomy was done in 54.2% of patients. Interlaminar approach and the Cloward technique of fenestration were used in only 13%.[4]

RESULTS

The most frequent complication after surgery was superficial soft tissue infection which was noted in 12 patients (3.8%). Discitis, vascular injury, CSF leakage, and bilateral foot drop were each noted in one patient, and unilateral foot drop was present in two patients. Therefore, the total percentage of complications was 5.7%.[16]

All the patients were followed for at least one year and the results of the operation were as follows: complete disappearance of pain in 264 (84%), good result in 38 (12%), and fair and poor result in 12 (4%). During the follow up, two patients had reherniation which was again managed surgically.[6,16,17]

DISCUSSION

Almost 20% of the patients seen in our clinic suffered from low back pain with or without sciatica, and among these only 5% ended up having surgical exploration. The surgical and conservative treatment of disc herniation or sciatica remains an enigma. This is probably due to the fact that low back pain can result from irritation or destruction of the various pain-producing structures of the back and the trunk, meaning the musculoskeletal, vascular, and soft tissue structures of the lower back region.[2,3,4,7,9] Over the years since the surgical exploration of Mixter and Barr,[7] there has been a tendency for less aggressive treatment of disc herniation.[4] The old laminectomies were replaced by laminotomies, fenestrations, and microsurgical exploration of the disc space.[2,3,9] Recently, more conservative approach have been applied using the percutaneous nucleotome. We tried to be as conservative as possible; i.e., the patient with low back and radicular pain was treated with medication and rest for at least four to six weeks before a decision was made for surgical exploration.[3,8,9,12] Undoubtedly, clinical course and the presence of neurological deficit were taken into consideration. When surgical treatment was decided, we considered the psychologic situation, clinical presentation, physical exam, and myelographic findings. It was not surprising that almost an overwhelming majority of

Table I. Age distribution in 314 cases of disc herniation who were explored

Age	10-19	20-29	30-39	40-49	50-59	60-69	70-79
No.	3(0.9)	58(18)	96(30)	90(28)	55(17)	9(2)	3(0.9)

Figures in parentheses represent percentage

Table II. Duration of symptoms in 314 patients with herniation who were operated

Symptom Duration	Number	Percent
less than one month	16	5
1-3 months	29	9.2
3-6 months	31	9.8
6-12 months	71	22.6
less than one year	147	46.8
more than one year	165	52.2
undetermined	2	0.6
total	413	100.0

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Table III. Distribtution of pain in 314 patients with disc herniation who underwent exploration

Pain distribtution	Number	Percent
L.B.P. with radiation to left leg	140	44.5
L.B.P. with radiation to right leg	112	35.6
L.B.P. with radiation to both legs	39	12.4
left sided sciatica only	12	3.8
right sided sciatica only	3	0.9
bilateral sciatica only	1	0.3
L.B.P. only	5	1.5
without any pain	2	0.6

Table IV. Plain radiography in 314 patients with disc surgery who came to exploration

X-ray findings	Number	Percent
spondylosis	55	16.8
sacralization	20	6.3
lumbarization	2	0.6
L4-L5 collapse	8	2.5
L5-S1 collapse	20	6.3
lysis and olisthesis	6	1.9
scoliosis	6	1.9
abnormal x-ray	111	53.3
normal x-ray	203	64.6

Table V. Disc herniation in 314 patients according to the pathologic level

Level	Number	Percent
L1-L2	2	0.6
L2-L3	8	2.5
L3-L4	18	5.7
L4-L5	157	50.0
L5-S1	75	23.8
L1-L2 and L2-L3	1	0.3
L2-L3 and L3-L4	2	0.6
L3-L4 and L4-L5	16	5
L4-L5 and L5-S1	31	9.8
L3-L4, L4-L5 and L5-S1	3	0.9
total	314	100.0

patients had radicular pain. L4-L5 disc herniation seems more frequent in this country. In some reports, such as that of Fennison,[4] the incidence is more frequent in L5-S1 interspace. Morshed has studied more than 4000 patients and according to his experience also, the frequency of L4-L5 disc herniation is higher in Iran. The success rate of more than 95% is probably due to the diligent patient selection. The recurrence, which occurred in two patients, is compatible with that of the literature. In conclusion, if patients are selected carefully based on the clinical presentation, phychology, neurological exam, and myelographic findings, the sucess rate is more than 95% and also the recurrence rate of disc herniation is negligible.

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