Operations for Symptomatic Herniated Intervertebral Disk: A Study of 45,048 Patients

ABSTRACT

Long-term results of operations for symptomatic cervical and lumbar disk herniation were analyzed in 45,048 patients.

Cervical disks: 6,000 patients were operated for cervical disk herniation and the results of operating anteriorly (anterior disectomy with/without fusion) were compared to the results of operating posteriorly (laminoforamenotomy/"keyhole" facetectomy). The anterior group (mean follow-up: 5.9 years) had 80% good/excellent results, while the posterior group (mean follow-up: 8.5 years) had 94% good/excellent results (p < 0.05). Perhaps the more complete decompression of the nerve root over time is the reason for the superior long-term outcome.

Lumbar disks: 39,048 patients were operated on for lumbar disk herniation. They were divided into three groups: microdiscectomy, endoscopic microdiscectomy and the classical operation (laminectomy/laminotomy with discectomy). Mean follow-ups were 4.1 years, 2.9 years, and 6.3 years. Good/excellent results were approximately 80% in all three groups. The same results in each group raises questions about the complete origins of the symptoms in 20% of patients.

Keywords: Long-term follow-up, Operations for cervical disk herniation, Operations for lumbar disk herniation.


Source of support: Nil

Conflict of interest: None

INTRODUCTION

For many decades, neurosurgeons have been operating on herniated intervertebral disks. Initially, most of these operations were in the lumbar region. Later on, those in the cervical region began to be operated on. Over the years, the studies first focused on initial outcome and then on follow-up over longer periods of time. However, the series of patients followed long-term were relatively small. Variations in technique, approach, and follow-up tended to bias what were mainly personal or institutional series. No truly large series with long-term follow-up has been analyzed. This study will do that.

CERVICAL DISKS

A series of 6,000 patients were analyzed from the world literature. These patients had herniated cervical disks with associated radiculopathy. They were operated on anteriorly or posteriorly and followed-up for a minimum of 2 years. The outcome was relative to whether the patients graded their status as good or excellent. Specifically, they were divided into two groups: those operated on anteriorly and those operated on posteriorly. Of the 6,000 patients analyzed, 2,888 were operated on anteriorly (discectomy with/without fusion) and 3,112 were operated on posteriorly (laminoforaminotomy or keyhole facetectomy). On initial follow-up, the patients did well; however, a difference was noted long-term.

Anterior Operation

Patients operated anteriorly had a mean follow-up of 5.9 years. Patients who had anterior operation had 80% good/excellent results. The results with or without fusion were the same.

Posterior Operation

Posterior operation was done on just over half of the patients and the mean follow-up was 8.5 years. Patients who had posterior operations had 94% good/excellent results.

CONCLUSION

The difference in long-term results between the two groups was significant (p < 0.05). The better long-term results (80% vs 94%) might be due to more complete neural decompression over the years because of greater opening of the foramen.

LUMBAR DISKS

A total of 39,048 patients were analyzed from the world literature. These patients were operated upon for lumbar radiculopathy and followed-up for a minimum of 2 years. Grading of outcome was done using patients’ assessments; good/excellent outcomes were tabulated. Patients were divided into three groups: microdiscectomy, endoscopic microdiscectomy and the classical operation (laminectomy/laminotomy with discectomy).
Microdiscectomy
The operation was performed on 3,400 patients and they were followed for a mean of 4.1 years. 84% had good/excellent results.

Endoscopic Microdiscectomy
A total of 1,101 patients had the endoscopic microdiscectomy procedure and had a mean follow-up of 2.9 years. Good/excellent results were obtained in 79.5% of patients.

Classical Operation
The classical operation (laminectomy/laminotomy with discectomy) was performed on the reminder of patients (34,547) and mean follow-up was 6.3 years; 78.3% of patients had good/excellent results.

CONCLUSION
The three types of operations for herniated lumbar disks with radiculopathy all had similar long-term outcomes of approximately 80%. There was no statistically significant difference between the three groups. If operations to decompress/untether the lumbar nerve root gave the same results, what is being missed and treated in this disease. Certainly it is not a sampling problem as the number of patients is large (over 39,000) and there is not a problem with only a single surgeon or surgical technique.

SUMMARY
This is the largest study in the world literature focusing on the long-term follow-up of patients having had operation for cervical disk herniation and for lumbar disk herniation.

Long-term follow-up of operations to treat cervical disk herniation demonstrated better long-term results in operation done posteriorly (p<0.05).

All operation, as described, to treat lumbar nerve roots compressed/tethered by herniated lumbar disks showed the same long-term results regardless of the operation used.

REFERENCES