

WIDE VERSUS SELECTIVE DECOMPRESSION IN THE OPERATIVE TREATMENT OF LUMBAR SPINAL STENOSIS

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ABSTRACT

The early post-operative results of wide versus selective decompression in a group of 64 patients with lumbar spinal stenosis were studied with the aim of ascertaining whether a more limited approach gives comparable results to the more traditional method of wide decompression. Wide decompression involved complete removal of a vertebral lamina at the stenotic level. Selective decompression refers to removal of the lower part of the superior lamina and the upper part of the inferior lamina at the stenotic level together with limited facetectomies. Patients were compared with respect to post-operative relief of back pain and sciatica/claudeication as well as the ability to return to their pre-morbid level of functional activity. Follow up ranged from 4 months to 26 months. Results showed that both wide and selective decompression were able to achieve complete or considerable relief of symptoms and return to pre-morbid level of activity in 74% to 84% of patients. The results in the 2 groups were not statistically different.

It appears that within the first 2 years of surgery, the vast majority of our post-decompression patients had good results regardless of whether wide or selective decompression was used.

Keywords: Early post-operative results, Vertebral lamina, Facet joints

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INTRODUCTION

The extent of decompression necessary to achieve adequate decompression of the stenotic lumbar spine without adversely affecting spinal stability remains an unresolved issue⁽¹⁾. Some surgeons make extensive laminectomies and facetectomies⁽²⁻⁴⁾ while others favour a more limited resection in order to avoid post-operative problems due to spinal instability⁽⁵⁻⁷⁾. These problems include post-operative spondylolisthesis, disc rupture or herniation, intractable back pain and persistent sciatica⁽⁸⁾.

Our study reviews the early post-operative results of wide versus selective decompression in a group of 64 patients with the aim of ascertaining whether a more limited approach gives comparable results to the more traditional method of wide decompression.

MATERIALS AND METHODS

Sixty-four patients were treated surgically for lumbar spinal stenosis in the Department of Orthopaedic 'C' of the Singapore General Hospital from October 1988 to December 1990.

The clinical diagnosis of spinal stenosis was confirmed in every case by myelography and/or computed tomography or magnetic resonance imaging⁽⁹⁾.

The indications for operation included severe symptoms at presentation and/or failure to respond to conservative treatment consisting of bed rest, analgesics and physiotherapy⁽⁹⁾.

The choice of wide or selective decompression depended upon the personal preference of each surgeon in the Department.

Wide decompression refers to complete removal of a verte-

bral lamina at the stenotic level.

Selective decompression refers to removal of the lower part of the superior lamina and the upper part of the inferior lamina at the stenotic level together with limited facetectomies.

Forty-two of our patients were females and twenty-two were males. Their ages ranged from 25 years to 83 years. Seventy-eight percent of the patients were in the age group 41 to 70 years. Follow-up ranged from 4 months to 26 months with 47% of the patients having at least a one year follow-up.

RESULTS

Thirty-five patients underwent wide decompression and twenty-nine had selective decompression.

The results of surgery were assessed with respect to (1) relief of back pain (2) relief of sciatica/claudeication and (3) the ability to return to pre-morbid functional status.

1 Backpain

Backpain was much better or completely relieved in about 78.6% of the patients who underwent wide decompression as compared to 84% of the patients who had selective decompression. These figures were not statistically different (Table 1).

Table 1 - Comparing wide and selective decompression in the relief of backpain

Relief of backpain	Wide Decompression	Selective Decompression
Complete/Much Relief	22 (78.6%)	21 (84%)
Some/No Relief	6	4
No Backpain Pre-Op	7	4

Note: Patients without backpain pre-operatively were not included in the statistical and percentage calculations.

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2 Sciatica/Claudication

There was much improvement or complete relief in 80% of patients who had wide decompression which was again not statistically different from the 82.8% in the patients who underwent selective decompression (Table II).

3 Return to Pre-morbid Functional Status

About 74.3% of patients who underwent wide decompression were able to return to their original level of activity prior to onset of symptoms. About 82.8% of patients who had the selective procedure were able to return to their pre-morbid functional status. Again there was no statistical difference in the results (Table III).

Table II - Comparing wide and selective decompression in the relief of sciatica/clauidation

Relief of sciatica/clauidation	Wide Decompression	Selective Decompression
Complete/Much Relief	28 (80%)	24 (82.8%)
Some/No Relief	7	5

Table III - Return to pre-morbid functional status following wide and selective decompression

Return to Pre-Morbid functional Status	Wide Decompression	Selective Decompression
Return to original Status	26 (74.3%)	24 (82.8%)
Return To Less Than Original Status	9	5

EFFECT OF SPINAL FUSION ON OVERALL RESULTS

Spinal fusion following decompression for spinal stenosis has been recommended in patients with (1) spondylolisthesis (2) isolated disc resorption and (3) degenerative scoliosis^(10,11).

In our series, 10 patients with spondylolisthesis, 4 patients with isolated disc resorption, 2 patients with discectomy and one patient with spondylolysis had spinal fusion in addition to their decompression procedure. Fifteen of these patients were in the wide decompression group while 2 were in the group that underwent selective decompression. In these patients 92.3% were much improved or completely relieved of their backache, 86.7% had much improved or complete relief of sciatica/clauidation and 82.4% were able to return to their pre-morbid functional status.

As such, in patients with the abovementioned indications, spinal fusion was associated with results comparable to the results of the study as a whole. We believe that the former results would have been worse if spinal fusion had not been performed in the presence of the abovementioned indications.

DISCUSSION

The optimal surgical treatment for lumbar spinal stenosis with its various causes is still not well defined or standardized.

One of the ongoing controversies concerns the extent of

posterior vertebral resection necessary to achieve adequate decompression of the stenotic lumbar spine.

This study attempted to address this controversy by assessing the early post-surgical outcome in patients who were subjected to spinal decompression by either the more traditional complete laminectomy or a more limited "partial" laminectomy which also allowed the preservation of a substantial portion of the facet joints.

By removing less of the posterior elements of the vertebrae, it is hoped that the problem of post-operative spinal instability can be avoided or significantly minimised.

In our study of 64 patients who were mainly followed up for less than 2 years, the post-surgical results in terms of backpain relief, relief of leg pain and ability to return to pre-morbid activity level were not significantly influenced by the extent of laminectomy. However, we believe that longer follow-up is likely to reveal more instability problems in the group who underwent wide decompression, particularly in the patients in whom concomitant fusion of the decompressed levels was not performed.

Since selective decompression does not give rise to worse results than wide decompression in the early post-operative period (up to 2 years post-surgery) and it may potentially result in a decreased incidence of late instability problems, we would like to recommend that selective rather than wide decompression be performed for lumbar spinal stenosis.

CONCLUSION

The optimal surgical treatment for lumbar spinal stenosis still has not been universally agreed upon.

This study did not show any significant difference in the early post-surgical results of wide versus selective decompression.

Longer follow up is required to determine whether the 2 techniques will differ in their effect on the incidence of late spinal instability.

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