

Treatment of Degenerative Lumbar Stenosis with Minimal Decompression

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– Abstract –

Study design: A retrospective study

Objectives: In the operative treatment of lumbar spinal stenosis, the wide decompression and fusion method has many problems, such as a long operation time, large blood loss and the long time required to achieve solid fusion. As a solution to these problems, a minimal decompression method was been performed, which minimizes the resection of laminae and facet joints.

Summary of Literature Review: In the operative therapy for lumbar spinal stenosis, favorable results can be obtained by simple decompression.

Materials and Methods: 42 cases of degenerative lumbar stenosis, with neither segmental instability nor spondylolisthesis, underwent a minimal decompressive surgery, without instrumentation. The mean operation time and amount of blood loss were analyzed, and the clinical results evaluated according to Kim's criteria and the postoperative segmental instability by the Dupuis method. The average follow-up period was 70 months.

Results: Transfusions were not required in all cases. The mean operative times were 1hour 5minutes and 1hour 46minutes in the one and two segment decompressions, respectively. The clinical results, according to Kim's criteria, were excellent in 24 cases and good in 12. There was no dynamic instability in the radiographs at the last follow-up.

Conclusions: With the degenerative lumbar stenosis, without segmental instability or spondylolisthesis, minimal decompression was an effective surgical method.

Key Words: Lumbar spine, Spinal stenosis, Minimal decompression

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42 가 13 , 가 29 , 39 78 60 , 30 가 1 , 40 가 4 , 50 가 9 , 60 가 24 , 70 가 4 .

2. , 가 20 , 22 2). 42 , 64 2~3 2 , 3~4 15 , 4~5 35 , 5 ~ 1 12 4~5 가 (Table 1).

3. , 64 가 47 (74%) 가 , 가 50 (78%), 41 (64%), 25 (39%) (Table 2).

1. 1995 4 1999 1 4. , -

48 가 가 42 , 48 , 94 70

Table 1. Distribution of Op. segments

Op. segments	Numbers
L2-3	2 cases
L3-4	15 cases
L4-L5	35 cases
L5-S1	12 cases
Total	64 cases
1 segment	20 patients
2 segments	22 patients
Total	42 patients

Table 2. Associated pathologies (in 64 segments)

Associated pathology	Segments	Percent
Ligamentum flavum thickening	50	78%
Facet joint hypertrophy	47	74%
Combined with HIVD	41	64%
Disc degeneration	25	39%

Kerrison rongeur curette , (Fig. 1A, Fig. 2A) (Fig. 1B, Fig. 2B), (Fig. 1C). 가

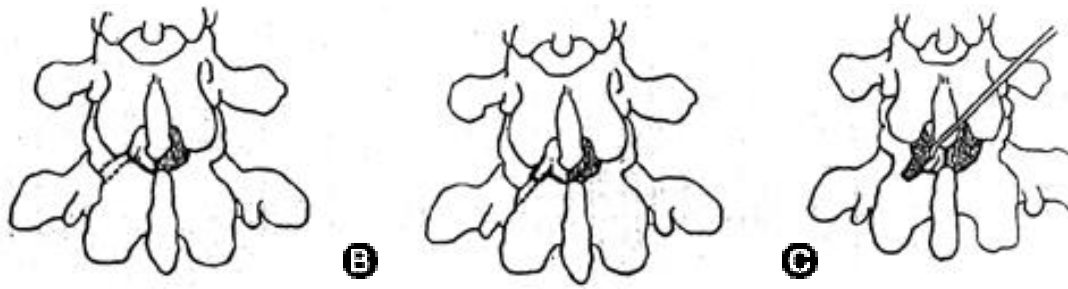


Fig. 1. Operative method

A. After removal of ligamentum flavum, dura is exposed.

B. With additional removal of part of isthmus, nerve root is exposed.

C. Retracting the nerve root and dura medially with root retractor, we decompressed the lateral recess.

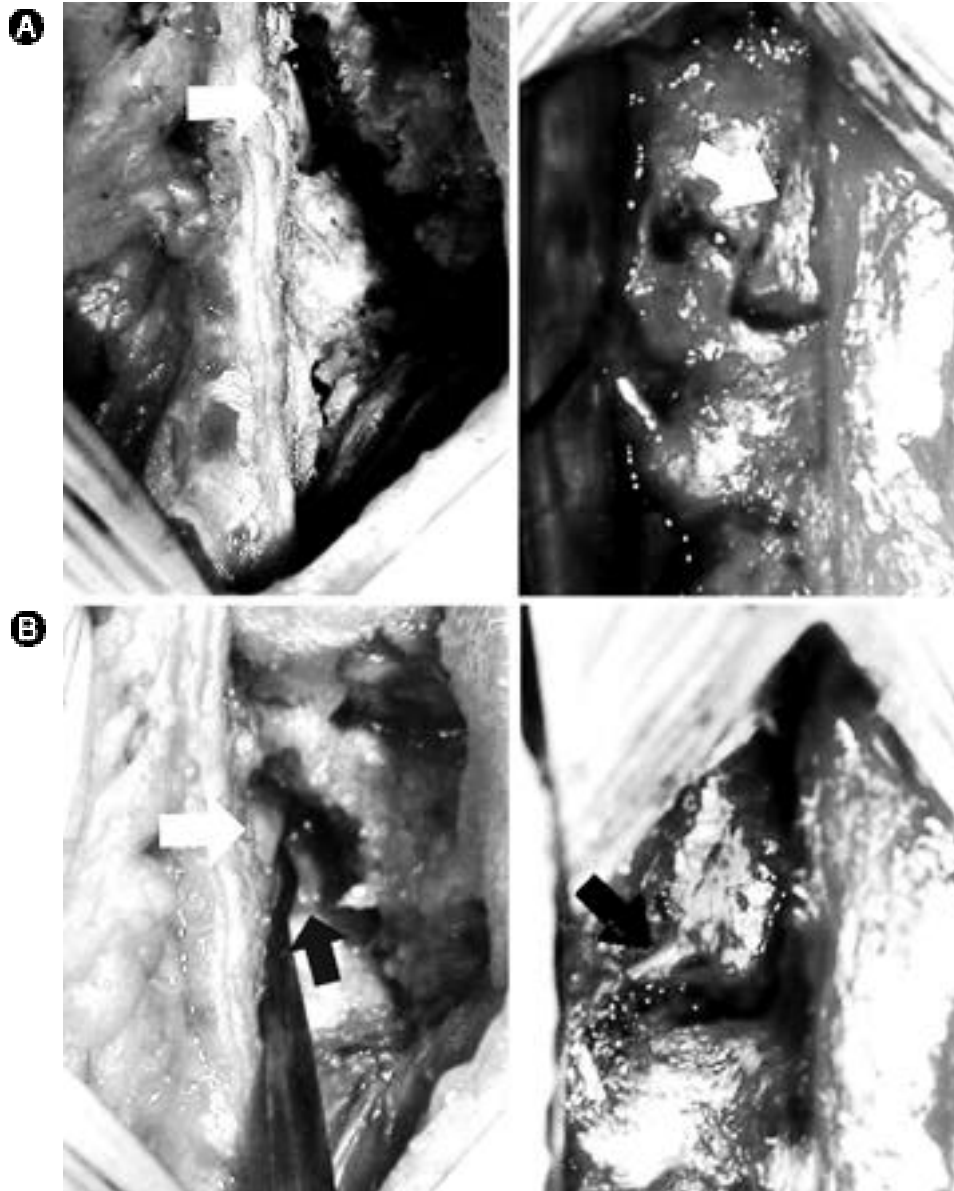


Fig. 2. Intraoperative findings

A. After removal of ligamentum flavum, dura is exposed (white arrow).

B. With additional removal of part of isthmus, nerve root is exposed (black arrow).

1 46
guaze

290cc, 451cc
(Table 3).

가 41 2.

(64%) Knight-Taylor

1, 4 5 가 24 (57%), 가 12 (29%),
6 (14%), 86%
(Table 4, 5).

42 3 가 ,
가

1 , 3
가 2
가 Elcitonin

1 5 , 8 6

Table 3. OP. time and blood loss

	Op. time	Intra. Op.(cc)	Post. Op.(cc)	Total(cc)
1 segment	1hr.5min	217	73	290
2 segments	1hr.46min	283	168	451

Table 4. Kim 's criteria for clinical result.

Excellent:	Complete relief of pain in back and lower extremity. No limitation of physical activity. Analgesics not used at all.
Good:	Relief of most of pain in back and lower extremity. Able to return to accustomed employment. Physical activities slightly limited. Analgesics used only infrequently.
Fair:	Partial relief of pain in back and lower extremity. Able to return to accustomed employment with limitation, or returned to lighter work. Physical activities definitely limited. Mild analgesic medication used frequently.
Poor:	Little or no relief of pain in back and lower extremity. Physical activities greatly limited. Unable to return to accustomed employment. Strong analgesics medication used regularly.

Table 5. Clinical results (42patients)

Results	No. of patient	Percent
Excellent	24	57%
Good	12	29%
Fair	6	14%
Poor	0	0%

3.

70

Dupuis⁴⁾

(Fig. 3)

2.2

mm (1.0 mm~ 3.5 mm) Dupuis
 4 mm ,
 9.1 (2 ~ 14) White Panjabi¹⁵⁾가
 1~4 15 ° , 4~5
 20 ° , 5 ~ 1 25 °

4.

39

2

CT

4~5

가

가

5

가

5 ~ 1

1

가

(Fig. 4-A, B).

4~5

4

5

~ 1

, Penfield dissector

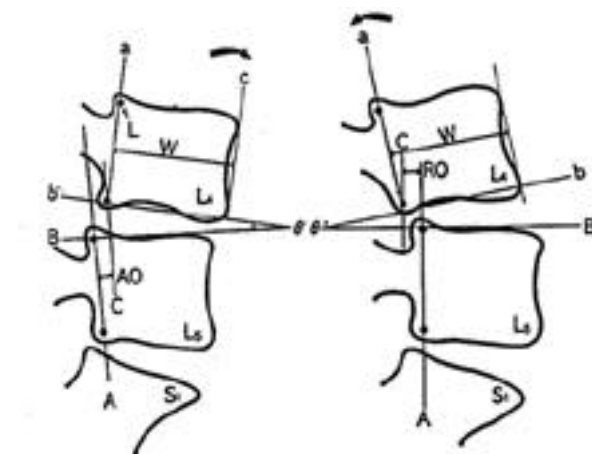


Fig. 3. Dupuis method of measuring the translation and angulation of segmental motion on flexion-extension radiographs. Translation=RO-(-AO), Angulation= +(- -).

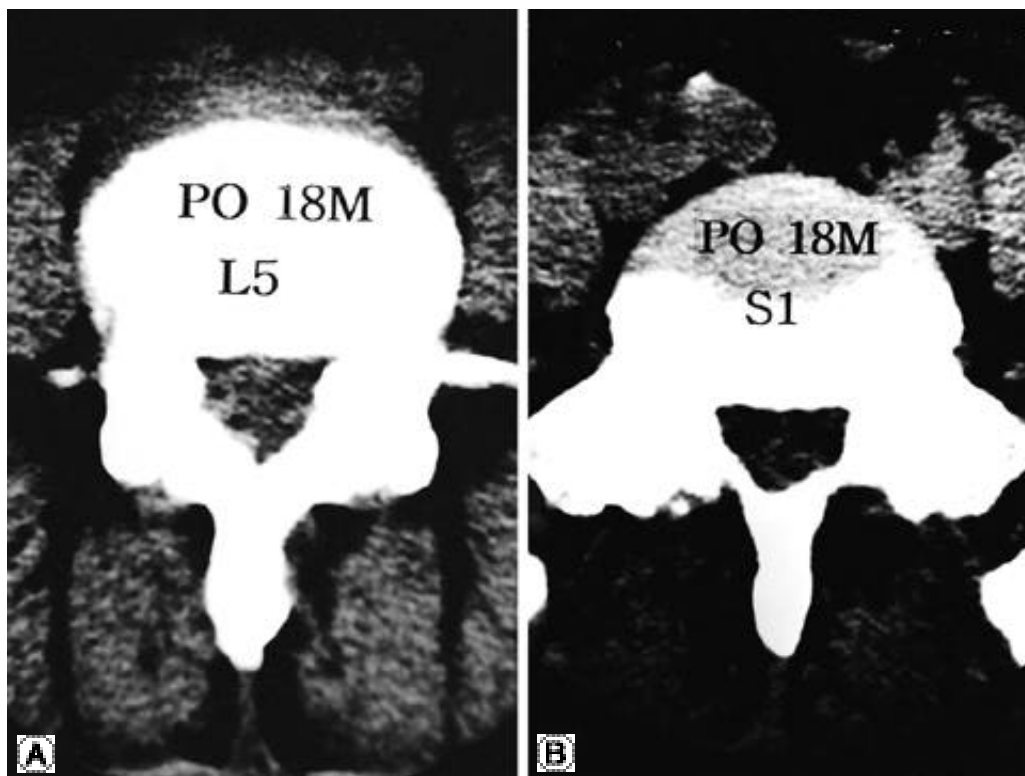


Fig. 4. Preoperative CT findings. In trefoil spinal canal, bilateral ligamentum flavum thickening is prominent in L4-5 space (A), both lateral recesses are narrow due to ligamentum flavum thickening and facet joint hypertrophy in L5-S1 space (B).

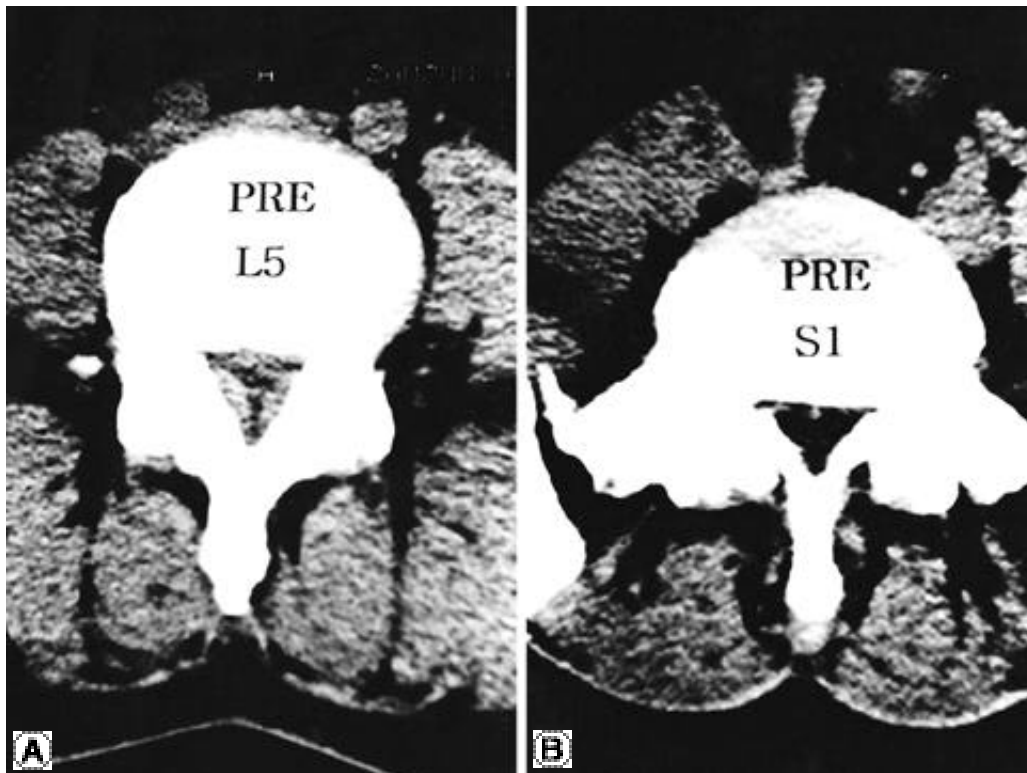


Fig. 5. Postoperative 18months CT findings. Spinal canal is enlarged and both lateral recesses are decompressed in L4-5 (A) and L5-S1 space (B).



Fig. 6. Postoperative 6years CT findings. The CT film of postoperative 6years shows no significant change such as overgrown new bone comparing to that of postoperative 18months.

18 CT 5 가 1 (Fig. 5- CT , A, B). 6 CT 가 (Fig. 6-A, B). Penfield dissector Thomas 14) gall bladder probe , 2~3 3.5 mm, 3~4 3.9 mm, 4~5 4.3 mm, 5 ~ 1 5.1 mm Grob 6) 가 , 가 , Spivak 7) 가, 가 가 9,11). Kirkaldy-Willis 3 가 , 가 10). 가 가 13). Crock 3) 가 가 12).

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193-5

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