

## Grade I 요추부 척추 전방 전위증의 치료 : 감압성 후궁절제술과 고정기구 삽입술의 비교

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= Abstract =

### Long Term Clinical and Radiological Follow-up Study in Spondylolisthesis, Grade I : Decompression with or without Instrument

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**O**bjective : Controversy exists which surgical treatment better in lumbar grade I spondylolisthesis, decompressive laminectomy with or without lumbar instrumentation.

**Methods** : Out of Sixty - four patients with lumbar spondylolisthesis underwent surgery, 18 patients operated with decompressive laminectomy alone and 44 patients with decompression and lumbar instrument, during recent 5 - years between January, 1994 and December, 1998. The author studied a long term follow - up in the above two groups to analyzing the overall clinical outcomes in each group and to determining the incidence of post - operative radiologic instability.

#### Results :

- 1) Overall postoperative symptoms improvement were not so different in both groups.
- 2) Postoperative progressive subluxation is more common after decompressive laminectomy without instrumentation than with instrumentation group.
- 3) Overall clinical outcomes were slightly better in decompressive laminectomy without instrumentation than with instrumentation group but there was no significant difference.
- 4) Postoperative radiologic changes did not seem to influence the patient - reported clinical outcomes.
- 5) Postoperative complications is more common in decompressive laminectomy with instrumentation group than without instrumentation group.

**Conclusion** : In the surgical management of grade I spondylolisthesis, the efficiency and superiority of surgical treatments requires the cost effectiveness and risk/benefit analysis of decompressive laminectomy with or without instrumentation. Therefore, Further detailed studies of long term follow up in a large number of patients in each group are needed for choice of best treatment.

**KEY WORDS** : Grade spondylolisthesis · Laminectomy · Lumbar instrumentation · Outcome · Surgical instability.

서 론

10)

가

가

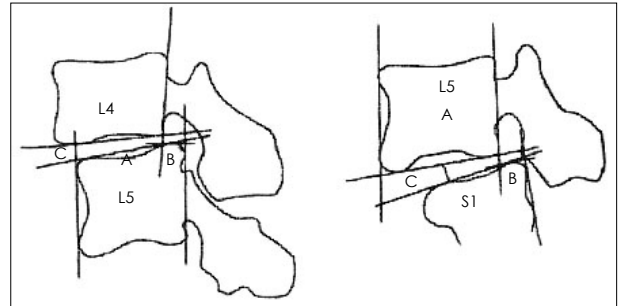
가

1999 10 14

Grade

가  
11). , grade

24). grade



**Fig. 1.** Measurement of percent-slip( $B/A \times 100$ ) and percent-height( $C/A \times 100$ ). A : AP length of L<sub>5</sub> upper(in L<sub>4-5</sub>) or lower (in L<sub>5</sub>S<sub>1</sub>) body. B : Degree of displacement. C : Disc height at the anterior in L<sub>4-5</sub> and at the midpoint of L<sub>5</sub> lower margin vertical to S<sub>1</sub> upper margin in L<sub>5</sub>-S<sub>1</sub>.

가

가가 2mm

**대상 및 방법**

1994 1 1998 12  
grade 64 6  
가 가 2 가 62

good,

fair,  
poor

Chi - square test

**결 과**

20 , 42 56.8 2.5  
Meyering

**1. 임상 양상**

62 1  
A (88.9%) (94.4%) (72.  
2%), (61.1%), (55.6%)  
B (95.5%) (93.  
2%) (72.7%),  
(61.4%), (54.5%)  
30 (A 6  
, B 24 ), 32 (A 24 , B 20 )

**2. 수술방법**

(18 , A )  
(44 ,  
B ) . A 59.6  
6 , 12 B 55.6  
14 , 30  
, 1 , 6  
ter 30)  
5 5

A  
(7 )  
가 (11 ) B

(Fig. 1). (32 )

(2 )

가 3mm

(10 ).

BAK(Bagdy and Kuslich), TFC(threaded fusion cage) carbon fusion cage

B (Table 2).

Diaperson

3. 방사선 추적검사

6  
가  
가 10 (55.6%)  
8 (44.4%)  
grade 7 (38.9%), grade 1 (5.6%)  
가  
가 38 (84.6%)  
6 (15.8%)  
grade

A B (Table 3, 4).

good A 55.6%, B 6%, fair가 A 33.3%, B 11.1%, B 54.5%, fair가 A 33.3%, B 11.4% A B 34.1%, poor가 A 90%  
A  
가  
good 62.5%  
good  
가  
B

4. 치료결과

White <sup>26)</sup> (Table 1)  
good  
A 82.4%, B 92.6%,  
A 81.3%, B 81.0%, A  
76.9%, B 75.0%, A 81.8%, B 96.3%,  
A 90.0%, B 93.7%

Table 2. Comparison of Pre-and Postoperative Symptoms Change

Symptoms	Group A (n=18)			
	Preop		Postop	
	Yes	Good	Fair	Poor
Low back pain	17	14(82.4)	2(11.8)	1(5.8)
+Painful numbness	16	13(81.3)	2(12.5)	1(6.2)
Weakness	10	9(90.0)	1(10.0)	0(0)
Sensory deficit	13	10(76.9)	3(23.1)	0(0)
*Intermittent claudication	11	9(81.8)	2(18.2)	0(0)

+,\* : p>0.05 ( ) : %

Table 1. Outcome grade\* of clinical symptoms

Excellent	Complete recovery, free of all limitations, never have pain greater than mild pain aware of but not bothered by
Good	Return of full activities, sports, the same job or prophylactic limitation to light work : 70% relief or pain : no daily habituating medication
Fair	Patient able to work but at lighter capacity : less than 70% pain relief : activities limitation : occasional episode of severe pain : or daily pain medications
Poor	No improvement or worsening : 25% or less subjective relief of pain : episode of severe pain, disability, or reoperation

\* : According to White AH et al<sup>26)</sup>

Table 3. Patient-reported Activity Level

Factor	Group A(n=18)		Group B(n=44)	
	Preop		Postop	
	Preop	Postop	Preop	Postop
Activity level				
Unassisted(no help, no aids)	5	8(44.4)	12	20(45.5)
Some difficulty(no help, no aids)	9	8(44.4)	21	17(38.6)
Difficulty(require cane/walker)	3	2(11.2)	11	6(13.6)
Required to bed, fully dependent	1	0(0)	0	1(2.3)

( ) : %

Grade

**Table 4.** Patient-reported walking ability in comparison with the preop. status

Factor	Group A(n=18)	Group B(n=44)
Self-reported walking ability		
Much better	9(50.0)	25(56.8)
A little better	6(33.3)	15(34.1)
About the same	2(11.1)	2( 4.5)
A littel worse	1( 5.6)	1( 2.3)
Much worse	0( 0)	1*( 2.3)

\* : Death by pulmonary embolism ( ) : %

**Table 5.** Relationship between postop. radiologic changes and patient-reported outcomes

Radiologic changes	Outcome		
	Good	Fair	Poor
Group A			
+Increased slippage(n=10)	5(50.0)	3(30.0)	2(20.0)
*No change in slippage(n=8)	5(62.5)	3(37.5)	0( 0)
Decreased slippage(n=0)	0( 0)	0( 0)	0( 0)
Group B			
Increased slippage(n=6)	3(50.0)	3(50.0)	0( 0)
No change in slippage(n=11)	5(45.4)	3(27.3)	3(27.3)
Decreased slippage(n=27)	16(59.3)	9(33.3)	2( 7.4)
	34	21	7

+, \* : p>0.05 ( ) : %

가  
good 55.2%  
good 50.0%  
(Table 5).

**5. 수술후 합병증**

11 (17.7%) . A  
1 , 가 1 B  
6 , 2 , 가 1  
1  
B 가 13.6% A  
5.6% B 4

**고 찰**

가  
5%가  
가  
7)30).

1) (posterior  
(pedicle) (neural  
articular facet) 2)  
arch) 3) 4)

Newman 20) (isthmic, spondylo-  
tic), (degenerative), (traumatic) (pa-  
thogenic) 4가 Wiltse 29)  
(dyspalstic), (isthmic, spondylo-  
tic), (degenerative), (traumatic), (patho-  
genic) (iatrogenic) 6가 .

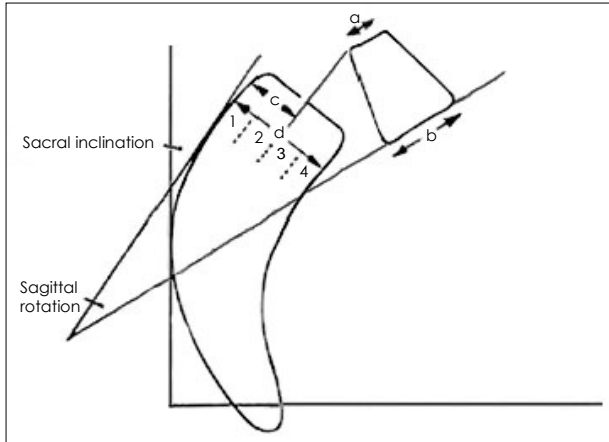
가 , 2)  
가 .

60% Epstein 8) 53%  
Alexander 1) 50%  
(numbness), (paresthesia),  
(motor weakness)

27).  
10% 21).

가  
가

가  
가 가



**Fig. 2.** Meyerding Method & Tailor Method : Illustration demonstrating the standard methods used to evaluate spondylolisthesis on plain radiographs.  $(a/b \times 100)$  : Lumbar index.  $(c/d \times 100)$  : Anterior displacement.

가 28)

가 9)12)21) 22)

가 92% 2mm

가 good fair

가 90%

(posterior arch)

가 28)

가 19)

가 65~100%

가 25)

가 93~96%

가 16)

가 4)14)15)22)

가 16)

Meyerding Tailor 30)

(Fig. 2). Meyerding S1

L5 grade -

, Tailor S1

L5

(ratio)

allo - implant 가 Rosenberg<sup>21)</sup> 14% , Meyerding grade

Grade

**Table 6.** Relationship between Postop. Radiologic Changes and Outcomes in Group A(n=18)

Radiologic changes	Outcome		
	Good	Fair	Poor
Decompression alone			
Increased slippage(n=5)	3(60.0)	1(20.0)	1(20.0)
No change in slippage(n=2)	1(50.0)	1(50.0)	0( 0)
Fusion*			
Increased slippage(n=6)	4(66.6)	1(16.2)	1(16.2)
No change in slippage(n=5)	2(40.0)	3(60.0)	0( 0)
	10	6	2

\* : p>0.05 ( ) : %

가  
 가 3). ,  
 3mm  
 6).  
 가  
 (13.6%)  
 good 50%  
 가  
 가,  
 Matsuzki 17) 21%  
 11%  
 7 , 2 , 2)  
 가 2  
 1 11 (17.7%)  
 6 가  
 (1 )  
 4  
 5)  
 . Stauffer<sup>23)</sup>  
 6 9  
 6  
 grade I  
 가

(Table 6).

12)

가

16).

가 grade

가 가

가  
 가  
 grade

결 론

1994 1 1998 12  
 grade

18  
 44 6

가,

1)

2)

3)

4)

5)

, grade

가

grade I

- : 2001 9 5
- : 2001 12 6
- :

130 - 702

1

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