

# Failed Back Surgery Syndrome에서 만족스러운 치료 결과에 영향을 주는 요인들\*

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= Abstract =

## The Factors Affecting the Favorable Outcomes in the Treatment of the Failed Back Surgery Syndrome

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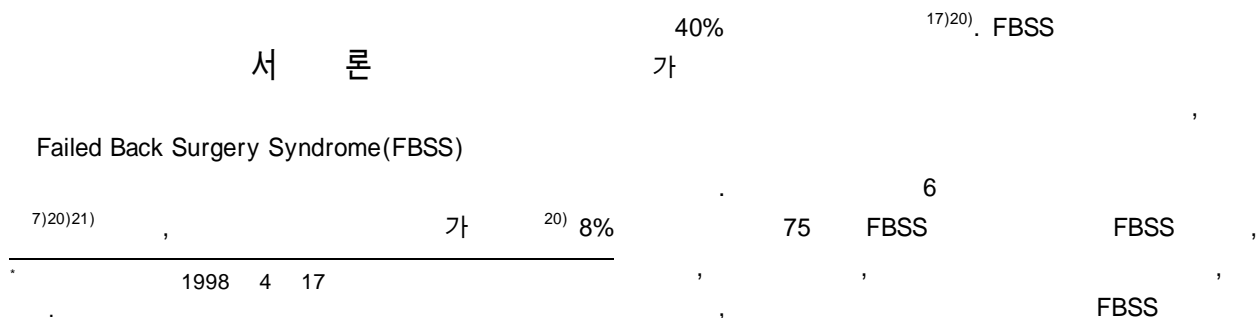
**Objective :** The authors retrospectively analysed the factors affecting the favorable outcomes in the treatment of the Failed Back Surgery Syndrome(FBSS) or six years.

**Method :** From March 1991 to December 1996, seventy - five patients were diagnosed as FBSS and its incidence was 3.4% of admitted patients with back pain in our department. We analysed the demographic data, etiologies, clinical manifestations, outcomes according to methods of operation, numbers of previous surgery, and time intervals between initial operation and final operation.

**Result :** The most common etiology and previous surgical method of FBSS were insufficient surgery(54.7%) and partial laminectomy(53.3%). Patients were managed as followings ; Total laminectomy and spinal fusion with instrument in 41 cases(54.7%), total laminectomy without fusion in 23 cases(30.7%), and only partial laminectomy in 11 cases(14.7%). The overall treatment outcome was satisfactory in 48 cases(64%). Satisfactory results were observed in those patients who were treated by spinal fusion after complete laminectomy(34 cases), who had underwent only one operation previously(45 cases), and when the time interval between the initial operation and reoperation is shorter than 12 months(43 cases).

**Conclusion :** The treatment outcome in FBSS was favorable in cases of the complete total laminectomy and spinal fusion with instrument, only one previous back surgery, and short time interval between initial and final operations.

**KEY WORDS :** Failed back surgery syndrome(FBSS) · Insufficient surgery · Partial laminectomy · Spinal fusion with instrumentation.



**Table 1.** Grading of postoperative outcome (by Zucherman et al<sup>38</sup>)

Excellent	Minimal symptoms, no use of analgesics
Good	Marked improvement over preoperative status, occasional rare use of analgesics
Fair	Some improvement over preoperative status, continued need for analgesics, significant functional limitation
Poor	No improvement in preoperative status, no improvement in functional capacity, regular use of analgesics

**Table 2.** Age and sex distribution of 75 FBSS\* patients

Age (years)	Male	Female	Total (%)
Under 20	2	1	3 ( 4.0)
21—30	7	2	9 ( 12.0)
31—40	22	4	26 ( 34.7)
41—50	11	5	16 ( 21.3)
51—60	10	7	17 ( 22.7)
Over 60	4	0	4 ( 5.3)
Total (%)	56 (74.7)	19 (25.3)	75 (100.0)

Mean age = 41.9y

\*FBSS = failed back surgery syndrome

11),  
Zucherman  
excellent, good, fair poor (Table 1)<sup>27</sup>.  
excellent good  
fair poor  
,  
,  
),  
SPSS(version 8.0,  
SPSS Inc., Chicago, IL)  
chi - square  
p 0.05 가  
가

대상 및 방법

결 과

1991 3 1996 12  
6  
가  
FBSS 75  
X -  
31 FBSS 44  
가  
3 가  
Valsalva maneuver  
4mm X - 3  
가

1. 대상 환자의 분포 및 병력  
6 2206 FBSS  
75 (3.4%) 56 (74.7%),  
19 (25.3%) , 18 68  
41.9  
52 (69.3%)  
23 (30.6%) (Table 2).  
1 67 (89.3%), 2 5  
(6.7%), 3 3 (4%)  
40 (53.3%)  
가 13 (17.3%),  
(chemonucleolysis)  
(automated percutaneous lumbar discectomy)  
8 (10.7%), 6 (8%)  
(Table 3).  
2. 임상 양상의 비교  
26 (34.7%) 가  
25 (33.4%),  
20 (26.7%),  
4 (5.3%)  
36 (48.0%) 가  
가 25 (33.3%),

**Table 3.** Methods of initial operations in 75 FBSS patients

Methods	Number of cases(%)
Partial laminectomy	40( 53.3)
Subtotal or total laminectomy	13( 17.3)
Chemonucleolysis	8( 10.7)
APLD*	8( 10.7)
Posterior spinal fusion	6( 8.0)
Total	75(100.0)

\*APLD = automated percutaneous lumbar discectomy

**Table 4.** Main symptoms before and after initial operation in FBSS patients

Symptoms	Before initial operation	After initial operation
	Number of cases(%)	Number of cases(%)
Low back pain	26( 34.7)	36( 48.0)
Low back pain + sciatica	20( 26.7)	25( 33.3)
Sciatica only	25( 33.3)	10( 13.3)
NIC*	4( 5.3)	4( 5.3)
Total	75(100.0)	75(100.0)

\*NIC = neurogenic intermittent claudication

10 (13.3%)  
4 (5.3%)

가 (Table 4).

6 가 35 (46.7%), 6 12 가 25 (33.3%), 12 15 (20.0%) (Table 5).

3. FBSS의 원인별 분류

가 . 가  
가 41 (54.7%) ,  
(medial facetectomy)  
(foraminotomy)  
가 37 (49.3%) 가  
,  
가 4 (5.3%) .  
가 19 (25.3%) .  
가 6 (8.0%)  
가 3 (4.0%),  
2 (2.7%), 1 (1.3%) .  
가  
가 4 (5.3%) , 4 (5.3%),

**Table 5.** Time interval between the initial operation and the final operation of 75 FBSS patients

Time interval	Number of cases(%)
Under 6mo	35( 46.7)
6mo - 12mo	25( 33.3)
Over 12mo	15( 20.0)
Total	75(100.0)

**Table 6.** Etiologies of 75 FBSS patients

Causes	Number of cases(%)
Insufficient surgery	41 ( 54.7)
Incomplete decompression	37( 49.3)
Incomplete removal of disc	4( 5.3)
Spinal instability	19( 25.3)
Surgical complication	6( 8.0)
Nerve root injury	3( 4.0)
Infection	2( 2.7)
Hematoma	1( 1.3)
Inadequate patient selection	4( 5.3)
Compensation	2( 2.7)
Hypochondriasis	1( 1.3)
Neurosis	1( 1.3)
Epidural fibrosis	4( 5.3)
Misdiagnosis	1( 1.3)
Total	75(100.0)

1 (1.3%)가 (Table 6).

4. FBSS의 수술 방법 및 치료 결과

FBSS 가  
가  
가 41 (54.7%)  
가  
가 23 (30.7%) 11 (14.7%)  
(Table 7).  
excellent 15 (20.0%), good 33 (44.0%), fair 15 (20.0%) poor 12 (16.0%) , 64%  
(

**Table 7.** Methods of operative treatment in 75 FBSS patients

Methods	Number of cases(%)
Total laminectomy and spinal fusion with instrument	( 54.7)
Total laminectomy without spinal fusion	23( 30.7)
Partial laminectomy	11( 14.7)
Total	75(100.0)

**Table 8.** Treatment outcomes according to methods of operation in 75 FBSS patients

Methods	Treatment outcomes			
	Excellent	Good	Fair	Poor
Fusion groups				
Total laminectomy and spinal fusion with instrument	12	22	6	1
Non-fusion group				
Total laminectomy	2	8	6	7
Partial laminectomy	1	3	3	4
Total	15	33	15	12
(%)	(20.0)	(44.0)	(20.0)	(16.0)

**Table 9.** Treatment outcomes according to number of previous back surgery

Number of previous Op*	Treatment outcomes			
	Excellent	Good	Fair	Poor
1	14	31	12	10
>1	1	2	3	2
Total	15	33	15	12
(%)	(20.0)	(44.0)	(20.0)	(16.0)

\*Op = operation

**Table 10.** Treatment outcomes according to time interval between initial operation and final operation of 75 FBSS patients at authors' hospital

Time interval	Treatment outcomes			
	Excellent	Good	Fair	Poor
Under 12months	13	30	10	7
Over 12months	2	3	5	5
Total	15	33	15	12
(%)	(20.0)	(44.0)	(20.0)	(16.0)

34 (82.9%) ,  
20 (58.8%) , FBSS

가 (Pearson Chi - square test, p=0.00)(Table 8).  
1 1  
. 1 67 45 (67.2%)가  
1 8 5 (62.5%)가 fair  
poor , 가 1 가  
(p=0.020)

(Table 9).  
6  
35 20 (57.1%), 15 (42.9%),  
6 12 25 23 (92.0%),  
2 (8.0%), 12 15  
5 (33.3%), 10 (66.7%)  
12  
가 (p=0.006)(Table 10).

5. 수술 합병증

1 , 2 가 . 2 ,  
, 1

고 찰

FBSS(failed back surgery syndrome)

4)5)20)22),  
8% 40% 4)17)20)22),  
6  
FBSS  
가 ,  
3.4%  
FBSS  
Long<sup>20)</sup>, 22)  
FBSS ,  
6 ,  
가  
FBSS  
3

spondylolisthetic instability, postoperative instability  
 4가 4 2

FBSS . 1950  
 13)가

FBSS , 75 19 (25.3%)  
 3)5)11)21) Dhar 26), FBSS

6) 가  
 Long 20) 가 66.7% 14)26).

FBSS Heithoff<sup>15)</sup> Finnenson<sup>9)10)</sup>  
 Finnenson<sup>9)10)</sup> (tension)  
 , FBSS  
 80% FBSS  
 6 (8%)  
 4 (5.3%) 가 가

가 가 가  
 FBSS

FBSS  
 Burton<sup>3)</sup> 22) 40% 58% 가  
 (lateral spinal stenosis) 4 (5.3%)  
 , , 11),

FBSS 가  
 75  
 41 (54.7%) ,  
 , Baba<sup>1)</sup> (entrapment),  
 (kinking), 가 7)13)17).

Heithoff<sup>15)</sup> 3),  
 , ADCON - L, Urokinase, transforaminal epidural  
 corticosteroid injection 가  
 . Fritsch<sup>11)</sup> 가

FBSS  
 . Frymoyer Selby<sup>12)</sup> axial roe -  
 tational instability, translational instability, retrograde

(p=0.020).

ADCON - L  
 FBSS 25% 80% (17)(21)(25), Ebeling 7)  
 6, Waddel 25) 가 6  
 가 8)(13)(19)(21)(24), 12  
 가 (p=0.006). level  
 FBSS 8)(20), 2, 1, 2 가  
 가 3  
 1)(2)(11)(16)(23), Kaneda 16) FBSS 2  
 11) Fritsch  
 가 Zdeblick 26) FBSS  
 가 Baba 1)  
 가 FBSS 가

결론

(34 /41 , 82.9%) (p=0.00).  
 Waddel 25) 1991 3 1996 12 failed  
 가 , back surgery syndrome 75  
 Fritsch 11) 1 1  
 , 1 47%가 poor  
 , 1 1)  
 1) 2206 75 (3.4%) 가 3  
 llent good 45 (67.2%), fair poor가 22 (32.8%),  
 1 excellent good 3 (37.5%), 2) FBSS (54.7%),  
 fair poor가 5 (62.5%) 가 1 (25.3%), (8.0%),

(5.3%), (5.3%), (1.3%)

3) 1 가 67 (89.3%) 가 ,  
가

4) 6 가 35 (46.7%), 6 12  
가 25 (33.3%), 12 가 15 (20.0%)  
, 12 가

5) FBSS 41 (54.7%) 가 ,

- : 1999 5 31
- : 1999 8 23
- : 143 - 130 1

: 02) 450 - 9600, 9795, : 02) 201 - 0575

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