

Posterior Lumbar Interbody Fusion Using Laminar Bone and Titanium Block

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– Abstract –

Study Design: A retrospective study to analyze the results of posterior lumbar interbody fusion, using laminar bone and titanium block, with pedicle screw instrumentation.

Objectives: To evaluate the clinical and radiological results of posterior lumbar interbody fusion, using laminar bone and titanium block, with pedicle screw instrumentation.

Summary of literature review: Several studies have demonstrated the results of posterior lumbar interbody fusion, there has been no report on our method.

Materials and Methods: From March 2001 to May 2002, seventeen patients were treated by posterior lumbar interbody fusion, using laminar bone block, from spinous process and titanium block. All patients were clinically followed up over 12 months. The mean age of the patients and follow-up were 58 years and 15 months, respectively. The clinical results were evaluated by Kim ' s criteria and radiological union, and the subsidence of disc space and change of the lordotic curve were assessed by a simple X-ray.

Results: The satisfactory clinical result and radiological union rates were 83.3 and 90.4%, respectively. The mean subsidence of the disc space and change of the lordotic curve were 0.8 mm and 1.6 degrees, respectively. There was one complication of a wrong insertion of the pedicle screw to the disc space.

Conclusion: Posterior lumbar interbody fusion using laminar bone and titanium block showed an acceptable radiological union rate and clinical results. This could be a good alternative method for obtaining initial stability and bony union without taking a bone graft from the posterior ilium in various spinal lesions.

Key Words: Spinal lesions, Spinous process, Laminar bone block, Titanium block, Posterior lumbar interbody fusion

1950 Cloward¹⁾
, 1984

Lin²⁾ 88% 82%

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spacer 가
BAK, TFC, carbon cage, trapezoid mesh 1.
3-5)
가 2001 3 2002 5 17
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, 가 4
2,5-7) , 가 13 , 38 73
58 . 6 ,
11 (Table 1). 12
가 , 가 ,
12 18 15.4, 14.2
17 21
3,4,8,9) . 1 13 , 2 4 .
가
10,11)
(Prospace, Aes- 2.
culap AG & Co., Tuttlingen, Germany)
가 가 가

Table 1. The results of PLIF using Laminar Bone Block and Titanium Block.

No	Sex	Age	Clinical F/U(Mo)	Radiologic F/U(Mo)	Etiology	Clinical result	Level	Degree of union
1	M	73	20	20	spondylolisthesis	poor	L4-5	complete union
2	F	47	17	15	spondylolisthesis	good	L4-5	complete union
3	F	55	17	17	stenosis	good	L5-1	complete union
4	M	64	19	19	spondylolisthesis	fair	L4-5	complete union
5	F	63	20	12	spondylolisthesis	good	L4-5	complete union
6	F	59	15	15	spondylolisthesis	good	L5-1	complete union
7	F	55	14	12	stenosis	good	L3-4	complete union
8	M	57	14	12	stenosis	good	L4-5 L1-2	complete union complete union
9	F	63	14	12	stenosis	good	L3-4 L1-2 L4-5	complete union nonunion nonunion
10	M	55	12	12	spondylolisthesis	excellent	L4-5	complete union
11	F	70	15	15	stenosis	good	L2-3 L4-5	complete union complete union
12	F	73	15	12	spondylolisthesis	excellent	L4-5	complete union
13	F	73	12	12	stenosis	good	L5-1	complete union
14	F	38	14	14	spondylolisthesis	good	L5-1	complete union
15	F	45	18	18	spondylolisthesis	fair	L3-4	complete union
16	F	45	13	13	spondylolisthesis	good	L4-5	complete union
17	F	44	12	12	spondylolisthesis	good	L4-5	complete union

(transverse osteotomy)

11

, 3 mm

(Fig. 1A)

(Fig. 2E, F).

(Fig. 1B), 3~4 mm

가

5 mm
(Fig. 2C, D).

3. 가

가 ¹²⁾

, 가

가

1.

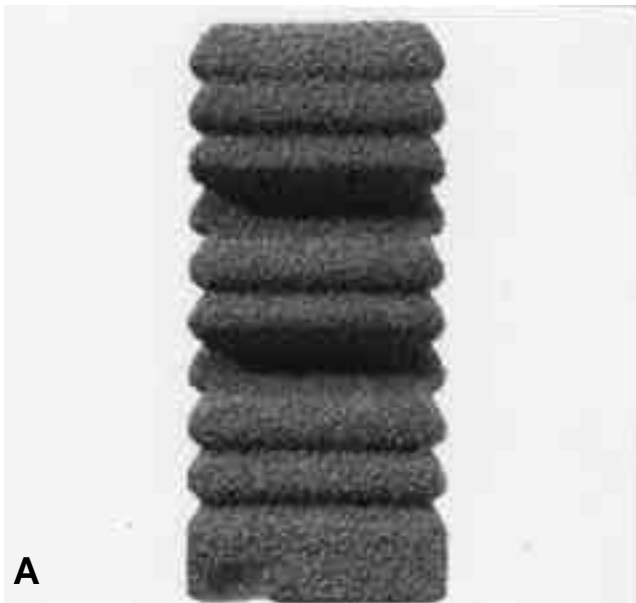
¹²⁾

17

가 2 12%, 가 12 70%, 가 2
12%, 1 6% .
12 (70%) 가 7
(59%), 가 4 (33%),
가 1 (8%) . 11 (65%)
가 9 (82%), 가 2 (18%)

2.

21 가
19 90.4%, 2 9.6%



A



B

Fig. 1. (A) Photograph showing titanium block (Prospace). (B) Photograph showing en bloc osteotomized lamina and spinous process with removal of soft tissue.

0.8 mm ,

1.6 .

3.

가

1,13,15)

1

4 가

가

가

가

16,17)

1943 Cloward¹⁾

가

Lin²⁾

가

Hutter ¹³⁾

80%~90%

Lin¹⁴⁾

가

82%



Fig. 2. A 55-year-old male patient with spondylolisthesis L4 on L5 (case 10). (A, B) Preoperative anteroposterior and lateral roentgenograms showing anterior slippage of L4. (C, D) Postoperative anteroposterior and lateral roentgenograms shows well fixed graft and titanium block with maintaining of intervertebral disc space and reduction of spondylolisthesis. (E, F) Roentgenograms at the final follow-up showing complete union without settlement. Clinically the patient achieved an excellent result.

Lin^{2,14)} 82% , , , 가 2,5,7) 가 82.4% 가 . 가¹²⁾ 가 , , 가 . 가 80% 90.4% . 2 , 가 1 0.8 mm , 가 가 . (Prospace, Aesculap AG & Co., Tuttlingen, Germany) plasma-pore , bone ingrowth , 가 가 . 가 가 . Loguidice¹⁸⁾ 34% Denis¹⁹⁾ 가 . Nascar²⁰⁾ 가 가 .

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