

퇴행성 경추 질환에서 Plate Cage System을 이용한 전방 융합술

양동훈 · 조기홍 · 정영선 · 안영환 · 윤수한 · 조경기

Anterior Cervical Interbody Fusion Using a Plate Cage System in Degenerative Cervical Disease

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Objective : The plate cage system is an intradiscal cage combining with an integrated plate. To evaluate its suitability for an clinical application, the authors present a retrospective analysis of outcome assessment of our series.

Methods : From March 1998 to November 2001, fifty three patients with degenerative cervical disease underwent anterior cervical interbody fusion with the PCB® (PCB® instrument, SCIENT'X, Paris, France). Single level fusion was accomplished in 31 patients, two levels in 19 patients, and three levels in two patients.

Results : All patients were improved without intraoperative complications ; excellent in 28 (52.9%), good in 15 (28.3%), and satisfactory in 10 (18.8%). Four cases of screw loosening were identified, however, there was no cage backout, worsening of symptom or reoperation due to screw loosening. The bony fusion was confirmed in all patients by cervical flexion and extension X-ray and computed tomography during follow-up.

Conclusion : The design of this plate cage system appears to prevent bone-graft recipient site and donor site complications, provides immediate stability, and restores height and lordosis.

KEY WORDS : Anterior cervical interbody fusion · Degenerative cervical disease · Plate cage system.

서 론

1998년 3월부터 2001년 11월까지 53명의 환자를 대상으로 전방 경추판상 융합술을 시행하였다. 이 중 31명은 단일 수준, 19명은 2수준, 2명은 3수준의 수술을 시행하였다. 모든 환자는 수술 후 통증이 호전되었으며, 28명(52.9%)은 우수, 15명(28.3%)은 양호, 10명(18.8%)은 만족스러운 결과를 보였다. 4건의 나사 풀림이 관찰되었지만, 나사 풀림으로 인한 수술 재수술이나 판상 융합술의 탈락, 증상 악화 등은 없었다. 전방 경추판상 융합술을 시행한 모든 환자는 추간관 협착이 호전되었으며, 추간판의 고도와 경추의 경추전만도가 유지되었다.

대상 및 방법

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1998 3 2001 11
53 PCB®

가 39 (73.6%), 가 14 (26.4%) 40
 가 16 가 (Table 1).
 34 (64.2%) 가 ,
 가 13 (24.5%),
 가 4 (7.5%), 가
 가 2 (3.8%) (Table 2).
 가 31 (58.5%) 5 -
 6 21 (39.7%) 가 , 2 19
 (37.7%), 3 2 (3.8%) (Table 3, Fig. 1, 2).
 가 22 (41.5%),
 가 18 (34.0%),
 가 13 (24.5%) .
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Table 1. Age and sex distribution

Age	Male(%)	Female(%)	Total(%)
31 - 40	6(11.3)	3(5.7)	9(17.0)
41 - 50	11(20.8)	5(9.4)	16(30.2)
51 - 60	8(15.1)	4(7.5)	12(22.6)
61 - 70	12(22.6)	1(1.9)	13(24.5)
>71	2(3.8)	1(1.9)	3(5.7)

Table 2. Characteristics of lesions

Characteristic	Numbers(%)
Cervical disc herniation	34(64.2)
Cervical disc herniation with stenosis	13(24.5)
Cervical disc herniation with OPLL*	4(7.5)
Cervical disc herniation with stenosis and OPLL*	2(3.8)

*OPLL : ossification of posterior longitudinal ligament

Table 3. Lesion levels with the number of patients

Levels	Number(%)
One level	31(58.5)
C3/4	4(7.5)
C4/5	2(3.8)
C5/6	21(39.7)
C6/7	4(7.5)
Two levels	20(37.7)
C2/3, 3/4	1(1.9)
C3/4, 4/5	4(7.5)
C3/4, 5/6	4(7.5)
C4/5, 5/6	4(7.5)
C5/6, 6/7	6(11.4)
C5/6, 7/T1	1(1.9)
Three levels	2(3.8)
C3/4, 4/5, 5/6	2(3.8)

(Fig. 1).
 Odom 's criteria¹⁵⁾ (Table 5).

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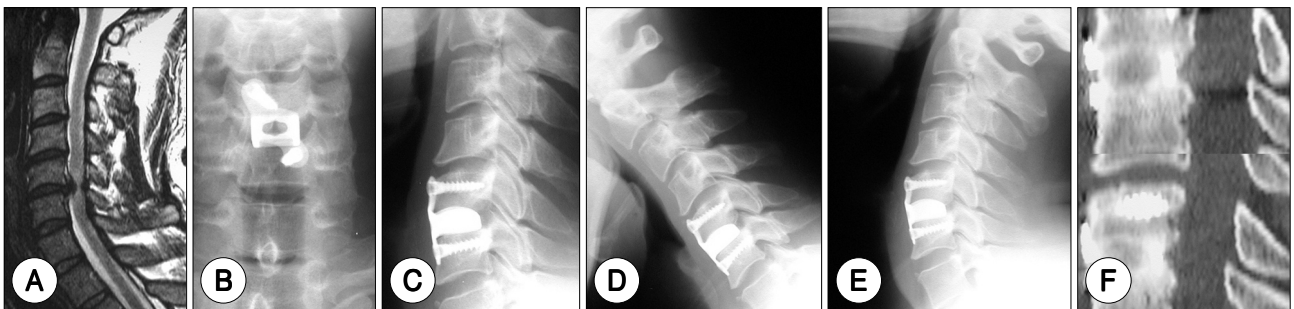


Fig. 1. Representative images in a 46-year-old man with myelopathy and radiculopathy whom a PCB® was implanted in. A : In pre-operative sagittal T2-weighted magnetic resonance image, a herniated cervical disc at C5/6 is demonstrated. B and C : Postoperative antero-posterior and lateral X-rays showing an implanted PCB®. D and E : Flexion and extension plain X-rays nine-month after operation showing no instability. F : Nine-month postoperative computed tomographic study revealing the bone growth in the cage, and the sclerotic change and disappearance of the radiolucent line between the vertebral body and implanted bone.

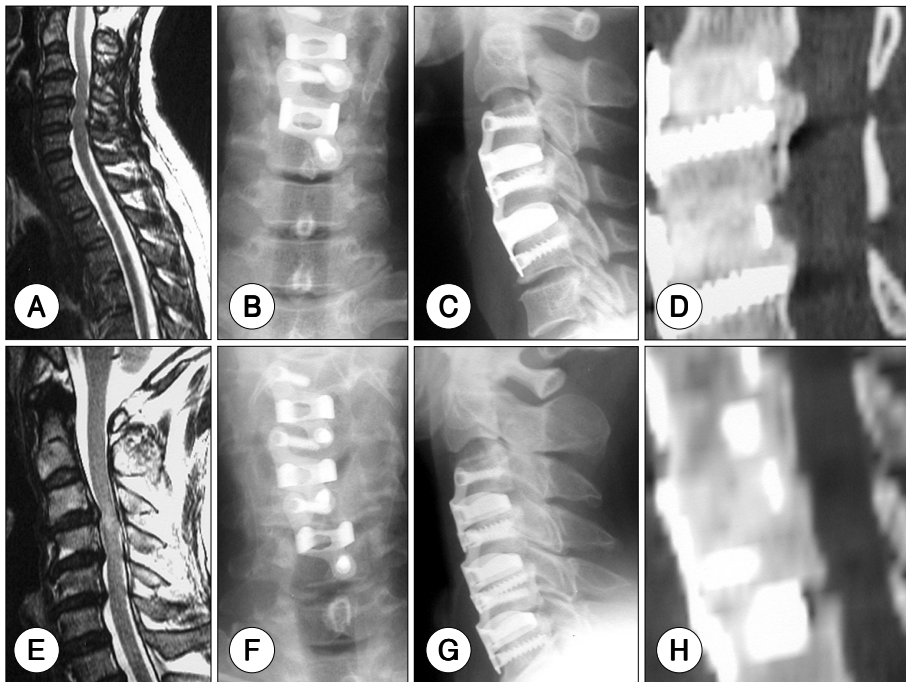


Fig. 2. Two levels (A-D) and three levels (E-G) anterior cervical fusion with PCB® instrument. A : Preoperative sagittal T2-weighted magnetic resonance image showing herniated cervical discs with stenosis at C3/4, C4/5 in a 60-year-old woman. B and C : Plain cervical X-rays six-month after operation. D : Computed tomographic scan twelve-month after operation showing complete bony fusion. E : Preoperative sagittal T2-weighted magnetic resonance image showing herniated cervical discs with stenosis at C3/4, C4/5, and C5/6 in a 54-year-old man. F and G : Plain cervical X-rays eight-month after operation. H : In computed tomographic scan twelve-month after operation, solid bone fusion between the endplates is demonstrated.

Table 4. Characteristics of symptoms (n=53)

	No motor, sensory change (%)	Motor symptom (%)	Sensory symptom (%)	Mixed symptom (%)	Total (%)
Radiculopathy	3 (5.7)	-	16 (30.1)	3 (5.7)	22 (41.5)
Myelopathy	-	5 (9.4)	2 (3.8)	11 (20.8)	18 (34.0)
Mixed	-	-	3 (5.7)	10 (18.8)	13 (24.5)

- : absent

Table 5. Classification of surgical outcomes by Odom's criteria

Grade	Criteria
Excellent	No complaints referable to cervical disease and were able to carry on their daily occupations without impairment
Good	Intermittent discomfort which was referable to cervical disease but which did not significantly interfere with their work
Satisfactory	Subjective improvement but whose physical activities were significantly limited
Poor	No improvement or were worse as compared with their condition before operation

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2~3cm

74

144

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Odom's criteria

excellent 28 (52.9%),

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Oral Poster

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