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A Prospective Comparison of Surgical Approach for Lateral Retroperitoneal L4-5 Fusion : Laparoscopic Versus Mini-ALIF

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– Abstract –

Study Design : We have analyzed the laparoscopic lateral retroperitoneal approach of the L4- 5 interspace to the miniopen retroperitoneal approach for lateral lumbar interbody fusion.

Objectives : To prospectively compare the laparoscopic lateral retroperitoneal approach of the L4- 5 interspace to the miniopen retroperitoneal approach for lateral lumbar interbody fusion

Summary of Background Data : The introduction of laparoscopic techniques in 1993 has stimulated a great deal of discussion regarding the risks and benefits of such minimally invasive approaches. In many centers the anterior endoscopic approach to L5- S1 has become routine. However exposure at L4- 5 can be much more difficult.

Materials and Methods : From 1997 to 1999 thirty eight patients were entered into a prospective study. These patients were all undergoing anterior interbody fusion at the L4- 5 level. The patients were divided into two groups for analysis. Group I patients underwent anterior interbody fusion utilizing threaded interbody devices placed via laparoscopic lateral retroperitoneal approach. Group II patients underwent anterior lumbar interbody fusion using threaded interbody devices placed via a miniopen retroperitoneal approach.

Results : In Group I, Operation time was 48 minutes longer than Group II ($p=0.035$) but there were no significant statistical differences in bleeding amount and hospitalization period. Paresthesia and tingling sensation of thigh were developed in two cases of Group I patients, one case of Group II patients but they were gradually diminished. In Group I, only one cage was inserted in five cases of patients (28%) who had an inadequate exposure of L4- 5 area. However, all of the patients in Group II (100%) had an adequate exposure of L4- 5 area.

Conclusion : The surgical results of laparoscopic technique was not superior to miniopen technique.

Key Words : Surgical approach, AIF, L4- 5

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* 2000

Foley catheter 가
500 ml 5 balloon
CO₂ gas 12 mmHg
portal cage portal por-
tal cage portal
가 cage
가 cage
cage cage
가 가 arm
portal 3
. I 18
8 , 10 43 (35
~56) . 3 가
18,23,26,27) . 1993 16 가 ,
1 가 , 1
가 . 5 - . 2 (20)
() threaded interbody device(BAK cage)
4-5
4-5 7 cm 가
5~10
5,16,18,19,22) 가
4-5
() C-arm
4-5 cage
(reaming)
1997 1999 38
. 4-5 . cage 가
4-5 . C-arm
portal
3
. I 20 9
, 11 41 (29 ~59)
10 5
axillary line . 17 가 , 2 가
1~2 cm , 1 가 . I II
가 ,
18 Fr



Fig. 1. Plain anteroposterior radiograph showing only one cage insertion due to inappropriate exposure of operation field



Fig. 2. Plain lateral radiograph showing only one cage insertion due to inappropriate exposure of operation field

(I ; 14.5 II ; 17.2). 5 cage 2 mm 가 50% 3,4,6,25) 가 , 가 SAS .

0.5 mm . II 3 0.68 mm 1 SAS Student t 가 0.05 가 48 110 cc, II 14.4 , II 115 cc , (p=0.035) I 2 (11.1%) I 2 (11.1%), II 1 (5%) . I 5 (28%) 1 cage (Fig. 1, 2) cages I 72%, , 360 II 100% I 13 (72%), II 17 (85%) I 5 가

0.5 mm . II 3 0.68 mm 1 SAS Student t 가 0.05 가 48 110 cc, II 14.4 , II 115 cc , (p=0.035) I 2 (11.1%) I 2 (11.1%), II 1 (5%) . I 5 (28%) 1 cage (Fig. 1, 2) cages I 72%, , 360 II 100% I 13 (72%), II 17 (85%) I 5 가

8-11,13,17,18,21,23,25,29)

6,9,20,26)

가 , (CO₂ tension) 12 mmHg

23,24,26,29)

portal

2,5,9,12,23,25). 1988 Bagby²⁾가

portal

portal

4

portal

88%

cage

26,29). Regan 26)

cage

cage

cage

가

()

1)

5,23,27,29)

cage

(horizontal cylinder),

(vertical ring),

(Open Box)

가 .

29)

1983 Bagby²⁾ Kuslich⁸⁾가

Dezawa

BAK cage

1)

()

cage

22

18,23,26,27)

가

가

16-20,22,24)

5

-1

가

4-5

. Kuslich¹⁸⁾

cage

69%

4-5

10

(left

iliac vein),

(Middle sacral vessel)

(superior hypogastric sympathetic plexus)

. 5

(left common iliac vein)

cage

cage가

(iliolumbar vein)

4-5

가

cage

cage가

cage 가

cage

가

. cage

가

가

3,4,6) cage 가 Brodke 7)

BAK cage - 2

TSRH BAK

4 가 가

cage

Tencer 28) Ray cage

1997 Glazer 14,15)

가

가

I 72%, II 100%

I 72%, II 85%

. cage

가

가

가

5 5000 29) cage

가

()

cage

(

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: 4-5

: 4-5

4-5

: 1997 1999 38 4-5

threaded interbody devices 10

threaded interbody device

가 SAS

: 48 (p=0.035)

가 1 2 , 2 1

1 5

2 2 cages 1 1 cage 72%, 2 100%

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: , 4-5