

-

. .

[]

: 가 -
(IC Nail®, Osteo, Switzerland)

: 20, 21

44 (18-69), 8 45 (19),

6 49 (29) 10, 1, 17 (dynamization)

가, 17, 3,

1 . ,

: 1 20, .

4 15 (7.4) 1

2 36 12 .

: -

가 .

: , , -

: 135-710, 50

: (02) 3410-3504, Fax: (02) 3410-0061
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가 , 가
 ,
 1,4,8,11,13,15,18~20,22)
 ,
 가 (interlocking-compre-
 ssion nail, Osteo, Switzerland)
 (Fig. 1),
 10).

가
 ,
 가
 ,
 가
 ,
 2,21) , 가

-
 가
 17
 17 ,
 1 .

1998 11 2002 6
 21 , 20
 (Table 1).

9 , 11 , 44 (18~69)
 , 8 45 ((transverse)
 19) .
 10 , (oblique) 4 , (butterfly)
 3 , 3 , 1 .
 10 , 2
 10 , 1
 (dynamization) ,

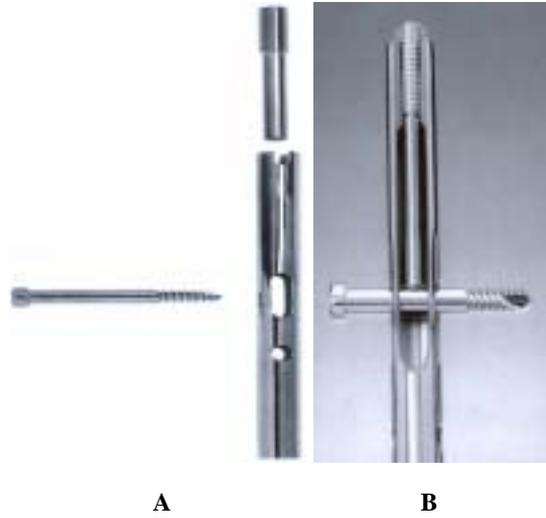
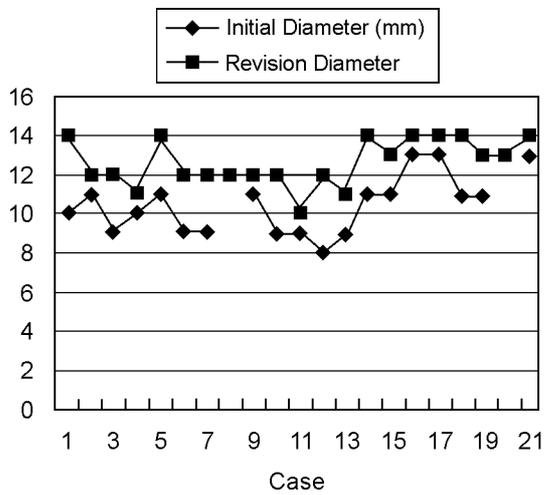


Fig. 1A. Proximal part of Interlocking-Compression (IC) nail composed of locking holes, screw and a compression screw.
1B. Feature of dynamic compression generated by the compression screw via the proximal dynamic locking screw.

가 1 가
 17 .
 17 , 3
 1 .
 1 ,
 ,
 ,
 .
 0.5 1 mm
 4 mm (2 mm) 가 (Table 2).
 1
 , 2
 10 mm 가

Table 2. Diameters of IM nails used for treatment



As case 8 was infected nonunion where hardware had been removed and case 20 had been treated with plate before revision nailing, so initial data were not available in these 2 cases

가

100%^{5,21)}

(95.2%)

3

7.3 (4~

15) (Fig. 2).

7.4 mm (4.1~16.6)

3

3.1

mm (1.4~5.5)

(hypertrophic)

(oligotrophic) 17

6.8

2 7 3

, 1

15

36

1/3,

1 2

8.9 mm 2 6

12

(ESR, CRP)

5.5 mm

가

53%¹⁵⁾

(95.2%)

8,13,19,22)

18,19,21,22)

3 가

1

, 2 cm

Weber¹⁴⁾

가

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Abstract**Treatment of Femoral Shaft Nonunions with Dynamic Compression using Interlocking-Compression (IC) Nail****Youn-Soo Park, M.D., Young-Wan Moon, M.D., Ki-Sun Sung, M.D.***Department of Orthopaedic Surgery, Samsung Medical Center,
Sungkyunkwan University School of Medicine, Seoul, Korea*

Purpose: To evaluate the effectiveness of a specially designed Interlocking-Compression Nail (IC Nail[®], Osteo, Switzerland) which allows compression force across the nonunion site for the treatment of femoral shaft nonunions.

Materials and Methods: Between Nov. 1998 and June 2002, twenty one nonunions of femoral shaft fractures in twenty patients were treated with reamed IC nails of larger diameters without bone grafting in 9 men and 11 women, 8 to 45 months after initial operations. Seventeen cases were hypervascular nonunions, 3 avascular, and 1 infected. For initial operation, 10 closed nailing, 10 open nailing and 1 plate fixation were performed. One or more additional procedures had been done in 17 cases prior to IC nailing.

Results: The nonunion gap was considerably narrowed from 7.4 mm to 3.1 mm with IC nailing and bony unions were achieved in all but one case. The time for radiographic union was 4 to 15 months postoperatively with an average of 7.4.

Conclusion: Reamed IC Nail[®] with a larger diameter is an effective procedure for femoral shaft fracture nonunion regardless of initial treatment modalities and even in 3 avascular nonunions, 2 have shown radiographic union without bone grafting. Additional procedures are to be considered in failed surgery of avascular nonunions.

Key Words: Femoral shaft fracture, Nonunion, IC (Interlocking-Compression) nail

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