

[]

: 4 11

: 3

27 28 1

가

가

:

가 2~4

2~4

가

가 가

6~12 (8.4)

5

5 (18%)

가 1 cm

2 (5%)

(1)

(1)

: 4 11

가 가

가

: 158-710,

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: (02) 2650-5378, Fax: (02) 2642-0349

e-mail: yhyun@ewha.ac.kr

7 , 3 , 1 .
 2 8 (4)

2 cm

가 2000

4 5 Rush
 , 11 (11) ,
 Nancy (DKM, Seoul, Korea)
 5 10 (17) . 2.5
 14,18,19 , ~3.5 mm

6,10,11,13,16

3 1 cm
 4 11 27 28 5

가

3 1
 1 ~3

1999 3 2002 2 12~41 (16)
 4 11 ,
 27 ,
 가 28 .
 5
 가 5
 15 가 , ,
 18 scanogram
 , 9 , 6.4 1 cm ,
 8 (28%), 18 (64%), 가 1 cm
 2 (7%) . 13 (46%),
 8 (28%), 7 (25%)
 . 11 ,

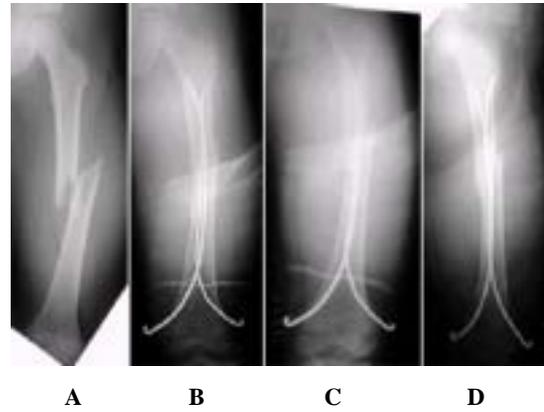


Fig. 1. A 6 year old boy with left femoral shaft fracture.
1A. Preoperative.
1B. Immediate post-operative.
1C. Postoperative view with varus angulation due to size-mismatch of the nails.
1D. The nails were exchanged into a matched pair.

2~4
 120
 가 3 (2~4)
 가 가
 가
 가 가
 ,1
 6~12
 (8.4) ,
 7~42 (18) 가
 가
 가
 3~12 (6 15)
 1
 (7) , 1 (7) , (8)
 (10) 1 , 2 (5 7)
 5 (18%)
 1 가
 26
 , 12 7 mm 12 mm
 , 26 3.2 mm
 10 mm 5 11
 2 (7.7%) 10 mm 12 mm
 가 , . 1 가
 staple epiphyseodesis

1 (Fig.
 1 가
 5
 Rush
 Rush
 5
 3
 Nancy

15,19,21,23) 가 , Dameron Thompson⁵⁾ 4 11
 2~10 10~15 ,
 10~30 가 , 1.
 McCartney Heinrich¹⁷⁾ 3~5 15 2~4 ,
 () 1.5 cm , 5~9 10
 () 2 cm 가 2.
 , 가 가 ,
 3,6,16) 5
 1 cm 3. 5 (18%)
 , 5 (18%) , 2 (7.7%) 10 mm
 , 2 (7.7%) 10 mm
 가
 10 가
 , staple epiphyseo-
 desis 가

Mann¹⁶⁾ Kirby¹¹⁾
 14.1 20.6 , Ligier¹³⁾
 3
 70%
 7~42 (18)
 가
 가 , 가
 가
 가 ,

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Abstract

Flexible Intramedullary Nailing in Children's Femoral Shaft Fractures

Yeo-Hon Yun, M.D., Chang-Ho Choi, M.D., Jae-Hak Jung, M.D.

*Department of Orthopaedic Surgery, College of Medicine,
Ewha Womans University, Seoul, Korea*

Purpose: We report a treatment result and the pros-cons of the flexible intramedullary nailing for femoral shaft fractures in children between the ages of 4 and 11 years.

Materials and Methods: During the recent three years, 28 femoral shaft fractures in 27 consecutive pediatric patients were treated with flexible intramedullary nailing. We retrospectively reviewed their clinical and radiological records, followed-up for at least one year, in respects to the recovery of knee joint motion; time of weight bearing; time of fracture union; period of admission and rehabilitation; angular deformity and leg length discrepancy; and other complications.

Results: In all children, the knee joint motion was rapidly recovered to near normal range within 2~4 weeks. Partial weight bearing with wearing functional brace was possible within 2~4 weeks, while full weight bearing without brace was started until 6~12 (average 8.4) weeks after the nailing. In the last follow-up radiographs, five cases (18%) showed an angular deformity in any direction of more than 5 degrees. Two children represented leg length discrepancy of more than 1 cm. Other complications were one fixation failure, and one deep soft tissue infection at the entry point of the nail.

Conclusion: We strongly recommend the flexible intramedullary nailing in this injury because the fixation is strong enough to permit early knee motion and weight bearing in orthosis, the fracture healing was so rapid without any case of delayed or nonunion, and the incidences of residual angular deformity and leg length discrepancy were significantly less than the nonoperative treatment.

Key Words: Children's femoral shaft fracture, Flexible intramedullary nailing

Address reprint requests to _____

Yeo-Hon Yun

911-1, Mokdong, Yangcheonku, Seoul, Korea

Department of Orthopaedic Surgery, Ewha University Mokdong Hospital

Tel : 82-2-2650-5378, Fax : 82-2-2642-0349

E-mail : yhyun@ewha.ac.kr