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= Abstract =

Intramedullary Nailing in Distal Tibial Fracture

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Purpose : We evaluated the efficacy of intramedullary nailing in distal tibial fractures.

Material and Method : Twenty-six patients with distal tibial fracture were treated with intramedullary nailing between Jan. 1996 and May 1998. Operation was done on the fracture table under skeletal traction. We evaluated the causes of trauma, type of fracture, location of fracture, time to union, malunion, nonunion, range of motion of knee and ankle, and degree of pain.

Result : There were 4 cases of open fracture and 4 cases of closed soft tissue injury at fracture site. The time to fracture union was 19 weeks on average. One case(3.8%) did not heal by 10 months and was classified as nonunion. The union rate was 96.2 % and the complication rate was 7.7%(one case of nonunion and one case of malunion). There was no infection and soft tissue disruption. The range of motion of knee was reduced in 1 case(3.8%) and 2 patients(7.7%)

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complained of mild pain at the knee joint. The range of motion of the ankle joint was reduced in 4 cases(15.5%), averaging 15.5 degrees in dorsiflexion and 9 cases(34.6%), averaging 21 degrees in plantarflexion. Two patients complained of mild pain at the ankle joint.

Conclusion : We had relatively good clinical and radiological results and concluded that closed intramedullary nailing is a safe and effective method of managing distal tibial fracture.

Key Words : Distal tibial fracture, Intramedullary nailing.

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1996 1

1998 5

199

가

1/3 34

가 12

가 26

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가

가

1/3

Gustilo

Tscheme Gotzen

가

15)

4,5,19) Puno

Hooper

Gustilo I

11,14)

8,13)

7cm

4cm

가

가

1), Robison

17)

26

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5

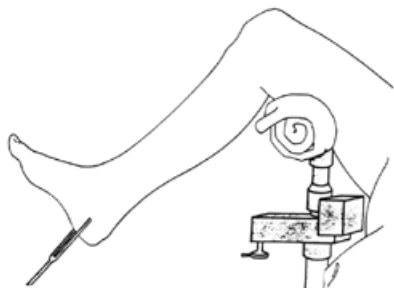
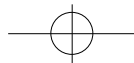


Fig 1. Preparation for operation : Skeletal traction and fracture table were used for closed reduction of distal tibial fracture



Fig 2. Postoperative anteroposterior X-ray : End of the intramedullary nail was cut before insertion.

4 Steinmann

(Fig. 3).

(Fig. 1).

가 , 가

2
1

1mm 가 ZMS(Zimmer, Warsaw, U.S.A.)

가

가

가

1.5cm

가

(Fig. 2).

(pollar screw)

26 17 , 9 .
47 (: 19 -79) 49.5 (:
19 -79), 51.1 (: 19 -76) .
14.0 (: 12 -26)
가 20 (77%)
가 , 가
5 (19%) , 가 1 (4%) .
22 (84.6%) 가 4
(15.4%) . Tscherne
Gotzen I 4 ,
Gustilo I 3 ,

가



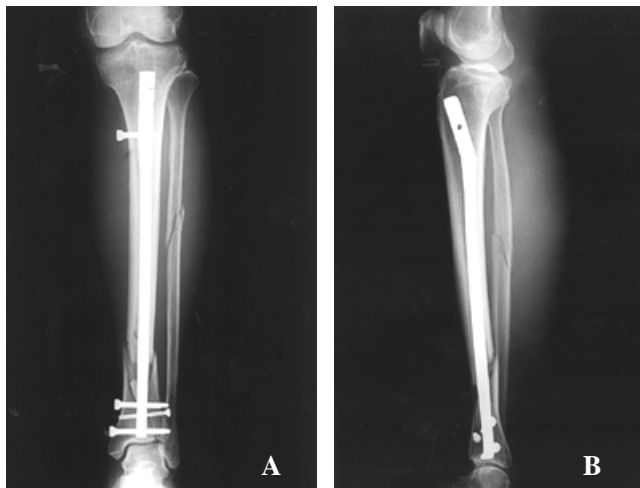


Fig 3-A. Postoperative anteroposterior X-ray

B. Lateral X-rays : The cannulated screw fixation was done before inserting the tibial nail to stabilize the distal fracture fragment

III A 1 . , 20 가 1
 , 10 20 3 .
 , 30
 가 6 (23%) , 7 (: , 20 30 9 .
 5 -10) . 1 (4%),
 2 3 (12%), 17 (69%),
 , 10 (: 7 5 (19%) . 가
 -12) . ,
 가 24 4.5cm(: 0cm-8.6cm)
 (92.3%) 3 . 가 1
 가 2 (7.7%) . 1
 . 2
 1
 가 11 (42%) . 2
 , 12 (46.2%)
 . 가 1
 0 95 .
 가 24 (92.3%) 가
 , 가 2 (7.7%) . 가
 , 19 (: 12 -32) 25
 가 1 . (96.2%) 1
 8cm 4 3
 12
 . 4 (15.5%), .
 9 (34.6%) . 12 (46.2%)



, 13 (50.0%)
 1 (3.8%)
 13 9
 1 (3.8%)
 Gastilo IIIA
 10
 12
 가 1 5.5cm

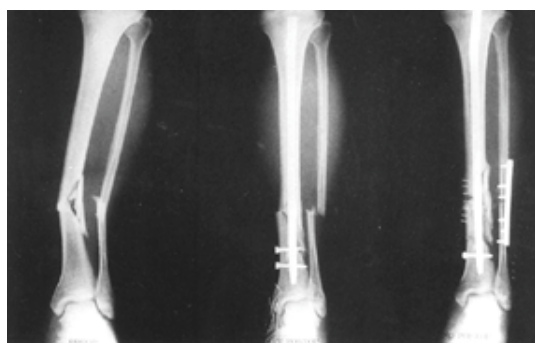


Fig 4. Initial, first postoperative and second postoperative anteroposterior plain X-rays : The first operative film showed 12 degrees of valgus deformity; the second operative film showed a correction to 4 degrees of valgus deformity

Table 1. Complications after intramedullary nailing in distal tibial fractures

| Complication | No. of cases | Percentage(%) |
|--------------|--------------|---------------|
| Nonunion | 1 | 3.8 |
| Malunion | 1 | 3.8 |
| Knee pain | 2 | 7.7 |
| Ankle pain | 2 | 7.7 |
| Infection | 0 | 0 |

(Fig. 4).
 (Table 1).

가
 , Ruedi Allgower
 6%,
 30%
¹⁸⁾, Johner Wruhs
 9.5%,
¹³⁾. Clifford 97
 3.1%, 10.3%
 11.4%,
⁴⁾.
 1940 Kuntscher가
 Klemm
 Schnellmann
 Gross Kempf
 가

가

Bostman 5

3),

, Bone 97%

1

2), Klemm Borner

14),

94%

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, Gregory 20

95%

9), Robinson 63

Hahn 250

5

10), 5 가

7cm

96%

17),

2 (8%)

2 (8%) 1 , 가

1

26 11 (42%)

Freedman Johnson 133

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26

58%, 1/3 7%, 1/3 8%

7),

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1 (4%)

가

가

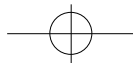
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4 Steinmann

(pollar screw)

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1996 1 1998 5
1/3 26

1. 1/3 가

가

2.

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가 가

4.

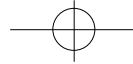
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