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: 1996 3 1998 6 (AO, Unreamed Femoral
 Nail) 74 82 ,
 Winqvist II , Winqvist-Hansen ,
 (Injury severity score)가
 : 93% 27 , 10 (12%),
 6 (7%) . Winqvist ,
 IV 가 32 ,
 18 , 18 2 가

:

가

가

:

가

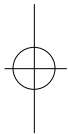
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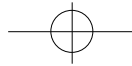
2가 50

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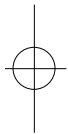


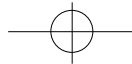


(piriformis fossa)
가
(image intensify control) AO
가
2
(ARDS, adult respiratory distress syndrome)
7,10,11,14)
(Winquist I 가)
가 (ischial
weight bearing brace)
, Winquist II-IV 6

1.
1996 3 1998 6
(AO, 가
Unreamed Femoral Nail)
1 가
74 82
, 7), 82 76
93% 10
Winquist II 6 27
가 66 , 가 14 , 20 (31
)가가 (Injury severity
score, ISS) 2) 18 Winquist (Table 1)
I 27 , II 26 , III 30 , IV 27 ,
V 19 (p=0.63),
IV 16%(2) 가
Winquist I 5 (14%), Winquist III
3 (17%)가
29 , 26 , 27
가 (p=0.77).
(Table 2) 32
1
34
16 , 60 , 6 2 (16%)
, 82 12
Gustilo-Anderson 4) I 3 , II 6 2.
, III 3 (IIIa 1 , IIIc 2)

3. , 18
31 (30 4), 18 43



**Table 1.** Type of fractures and treatment results according to Winquist-Hansen classification system

| Winquist type | I | II | III | IV | V | Total |
|------------------------|----|----|-----|----|----|------------|
| No. of patients | 35 | 13 | 18 | 12 | 4 | 82 |
| No. of delayed union | 5 | 1 | 3 | 1 | 0 | 10(p=0.84) |
| No. of nonunion | 1 | 1 | 2 | 1 | 0 | 5(p=0.76) |
| Mean union time(weeks) | 27 | 26 | 30 | 27 | 23 | 27(p=0.63) |

Table 2. Open grade and treatment results according to Gustilo-Anderson classification system

| Open Grade | I | II | IIIa | IIIb | IIIc | Total |
|------------------------|---|----|------|------|------|-------|
| No. of patients | 3 | 6 | 1 | 0 | 2 | 12 |
| No. of delayed union | 2 | 0 | 0 | 0 | 0 | 2 |
| No. of nonunion | 0 | 0 | 1 | 0 | 0 | 1 |
| Mean union time(weeks) | | | | | | 32 |

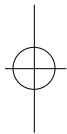
, 18 2 48 , 10 6) AO (unreamed femoral nail) 92% 18.7 93% 27 가 , Winquist I 3. 10 , 5 1cm 가 , Winquist IV 3 (reaming debris) 가 Clatworthy 1) 11 , 4 가 , Tornetta Tiburzi¹²⁾ 가 Küntscher가 9), (solid) (dead space) (flouish) 가 , Winquist ¹³⁾ 가 , 가 5,8,11), I II 10 12

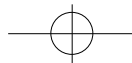


, 1 IIIa 1 IIIc
가 ,
.
Lhowe Hansen¹⁰⁾ IIIa
, IIIB
가가 .
9 2 , 48
11% 2 , 18
, Wolinsky¹⁵⁾
가 , Heim⁵⁾ 가
가 starting awl
가 ,
4 ,
가 가 .

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Abstract

Treatment of the Femoral Shaft Fractures Using Unreamed Interlocking Intramedullary Nail

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Purpose : To evaluate the usefulness of unreamed nailing in the treatment of femoral shaft fractures.

Materials & Methods : Between March 1996 and June 1998, unreamed nailing with closed method was done for 74 patients with 82 femoral shaft fractures. The main indications for this treatment were multiple injury or isolated femoral fracture above Winqvist type II. The influence of Winqvist- Hansen classification, anatomical location, and open injury over bone union and the influence of injury severity score over general complication including fat embolism were investigated.

Results : Primary union occurred in 76 cases(93%) with 6 cases of nonunion and 10(12%) of delayed union, and mean time to union was 27 weeks. In open fractures, the union time was delayed(32 weeks) rather than closed fracture. In Winqvist classification, there was no statistical importance on time to union, but nonunion was most common in Winqvist type IV. Anatomical location has no influence on time to union. In the view point of multiple injury, the group above 18 points(31 patients) in injury severity score had none of fat embolism, but the group below 18 points(43 patients) had 2 patients.

Conclusion : The treatment of femoral shaft fractures by unreamed nailing had longer time to union with higher rate of delayed union, and we think that the theoretical advantage of decreasing pulmonary complications is controversial.

Key Words : Femur Shaft Fracture, Unreamed Nailing, Delayed Union