

개방성 경골 골절의 치료 - 내고정의 역할 -

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서 론

(unreamed nail)

가
(medial border)

(biological fixation techniques)

10)

가

(debridement)

(stabilization)

본 론

1. 금속나사 내고정 (Screw fixation)

가

(tibial plateau fractures)

(plafond fractures)

(dead space)

(cannulated screw)

가

가

(external fixation),
screws)
king intramedullary nail)

(plates and
(interloc-

2. 교합성 골수강 내 금속정 내고정 (Interlocking intra-medullary nailing)

(reamed nail)

23,25,27,37)

⁶⁾ (Table 1)

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I, II, IIIA, IIIB, 24%가, 6, 8, 392, 4, (implant failure)가, 149, 4 (2.7%), 536, 68.5%, 28,33-36,47), 468, 20%, 16.2%, 4.2%, 32.2%, (pin traction infection), 2) 비확공성 골수정 (Unreamed nails) 17, 1,9,13,16,28,29,31,35,40-44,46-49), 666, 53%가, III, 10, 72, 95%, 7%, 13, 1,4,8,12,15,18,21,28,29,41,42,47,48), 536, 82%, 가, III, 9, 405, 22%, 10%, (implant failure) 12.4%, 34,36), 1) 외고정 (External fixation) 13, 536, 82%, 가, III, 9, 405, 72, 94%, 37, 34,36), 2) 외고정과 비확공성 골수정의 비교 (External fixation versus unreamed nails) 4, 28,29,47,48), 296, meta-analysis, 18.7% (p=0.002), 34.6%

Table 1. Preferences for fixation of tibial shaft fractures among North American surgeons³⁷⁾

| Fixation type | Reamed or unreamed intramedullary fixation (%) | External fixation (%) |
|---------------------|--|-----------------------|
| Closed, low energy | 96.3 | 0.5 |
| Closed, high energy | 96.0 | 1.8 |
| Open, type I | 94.5 | 3.4 |
| Open, type II | 88.1 | 11.1 |
| Open, type IIIA | 68.4 | 30.6 |
| Open, typ2 IIIB | 48.4 | 50.5 |

Table 2. Summary of the outcomes of the various types of bone fixation in open fractures of the tibia²³⁾

| | Union rate (%) | Delayed union rate (%) | Malunion rate (5) | Infection rate (%) | Re-operationrate (%) | Bone graft rate (%) |
|--------------------|----------------|------------------------|-------------------|--------------------|----------------------|---------------------|
| EF | 94 | 24 | 20 | 16.2 | 68.5 | 46.2 |
| UTN | 95 | 22 | 10 | 7 | 33.2 | 14.4 |
| RTN | 97 | Not documented | 6 | 6.4 | 31.6 | 15.5 |
| EF and delayed RTN | 92 | 14 | 11 | 17 | 23 | 17 |
| Plates and screws | 100 | 38 | 4 | 35 | 69 | 42 |

*EF: External fixation, UTN: Unreamed tibial nailings, RTN: Reamed tibial nailings

III B

4) 확공성 골수정 (Reamed nails)
 4^{14,30,39,40}, 187 III A 16%,
 III B 27% III 43% 24
 가 2.5%, 24~27 가 37.5%,
 97%, 15.5%
 6.4%, 0.75%
 6% ,
 31.6% 가
 3%

5) 확공성 골수정과 비확공성 골수정 간의 비교
 (Reamed versus unreamed nails)
 Keating³¹⁾ III B
 50 , 44

(29%) (9%)
 recreation
 가

6) 확공성 골수정과 외고정 간의 비교 (Reamed nails
 versus external fixation)
 Bhandari⁵⁾

가

7) 외고정 후 지연성 확공 골수정으로의 전환 (Ex-
 ternal fixation and delayed reamed nailing)
^{11,26} , III ,
 가
 가
 4^{11,20,22,26} , III 51 96
 17% 가 가
 38.5 92%
 , 23% 가
 39 15.3%
 (mean time of conversion) 26 ,

가 (ESR)가

17%
 2.5% 14% , 11%
 Lim³³⁾ McGraw
 16 7 (44%), 5
 (31%) Maurer³²⁾

가³⁸⁾ 4
 2,7)

3. 금속판 내고정 (Plating)

(buttress plate,
 anti-glide plate),
^{3,4,24)}

2
 (tibial
 plateau fractures)¹⁹⁾ (pilon fractures)⁴⁵⁾
 가 (temporizing joint span-
 ning external fixation) 가
⁴⁾ , 30 26
 29%가 III
 (delayed soft-
 tissue cover)
 69%
 (30%)
 (p<0.05). 가

24)

17)

결 론

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