

골다공증이 있는 고령의 대퇴부 전자간 골절에서 근위 골수강내 고정술을 이용한 치료

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목 적: 골다공증이 있는 고령의 대퇴부 전자간 골절에 대하여 근위 골수강내 고정술로 치료받은 환자들을 대상으로 임상적 및 방사선적 결과를 분석하여 술식의 유용함과 합병증 등을 알아보고자 하였다.

대상 및 방법: 대퇴 전자간 골절에 대해 근위 골수강내 고정술로 치료받은 환자 중 1년 이상 추시 가능하였던 32예의 환자를 대상으로 하였다. Evans 분류상 안정성 골절은 11예였으며 불안정성 골절은 21예였다. 임상적으로 보행 능력을 비교하였고, 방사선학적으로 건측 대퇴 경부의 골밀도 검사 및 술 후 골유합 및 합병증 등을 분석하였다.

결 과: 술 전과 술 후 보행능력의 비교평가에서는 술 후 양호가 9예 (28%), 보통이 17예 (53%), 불량인 6예 (19%)였으며 술 후 활동 상태를 기준으로 정상 보행을 보인 경우 7예, 한 개의 목발로 통증 없이 보행 가능한 경우 9예, 두 개의 목발로 보행 가능한 경우 5예, 타인의 도움이 있어야만 보행이 가능한 경우 11예였다. 방사선 평가상 건측 대퇴 경부의 골밀도 검사상 T-score는 -3.12였고 3개월 이내 골 유합을 보였던 경우는 20예였다. 합병증으로는 술 중 근위부 골절이 2예, 3예의 불유합 및 술 후 1년 내 사망이 4예가 있었다.

결 론: 고령의 대퇴부 전자간 골절에서 근위 골수강내 고정술 비교적 유용한 치료방법이나 T-score가 -3.0 이하로 심한 골다공증이 있거나 불안정성 골절인 경우 합병증의 빈도가 비교적 높아 이에 대해서는 인공관절 치환술 등의 치료방법이 유용할 것으로 사료된다.

색인 단어: 대퇴골, 전자간골절, 골다공증, ITST 정

Treatment of Senile Osteoporotic Intertrochanteric Fracture using Proximal Femoral Nail

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Purpose: Clinical and radiologic results of femur intertrochanteric fractures treated with ITST nail in elderly patients with osteoporosis were analyzed to evaluate the efficacy and complication of ITST nailing.

Materials and Methods: 32 patients who were treated with ITST nail due to femur intertrochanteric fracture and were followed up for more than 1 year were analysed. According to Evans classification, 11 cases were stable fractures and 21 cases were unstable fractures. Clinically, ambulatory function was compared and radiologically, BMD of healthy leg was checked with analysis of postoperative bone union and complication.

Results: In ambulatory function comparison before and after the operation, there were 9 cases of good, 17 cases of moderate and 6 cases of poor. Considering social activity after the operation, 7 cases showed normal ambulation, 9 cases showed ambulatory with one cane, 5 cases showed two cane ambulation and 11 cases showed dependent ambulation. In radiologic evaluation, T-score of ward triangle in healthy femoral neck showed BMD of -3.12. In 20 cases, bone union was observed within 3 months. The patients with low BMD result had poor outcome. There were 2 cases of intraoperative proximal femur fracture, 3 cases of nonunion and 4 cases of death within 1 year.

Conclusion: In elderly patients with intertrochanteric fracture, ITST nailing is relatively efficient treatment. However, in pateint with severe osteoporosis (T-score<-3.0) and unstable fracture pattern, arthroplasty should be considered due to relatively high complication rate.

Key Words: Femur, Intertrochanteric fracture, Osteoporosis, ITST nail

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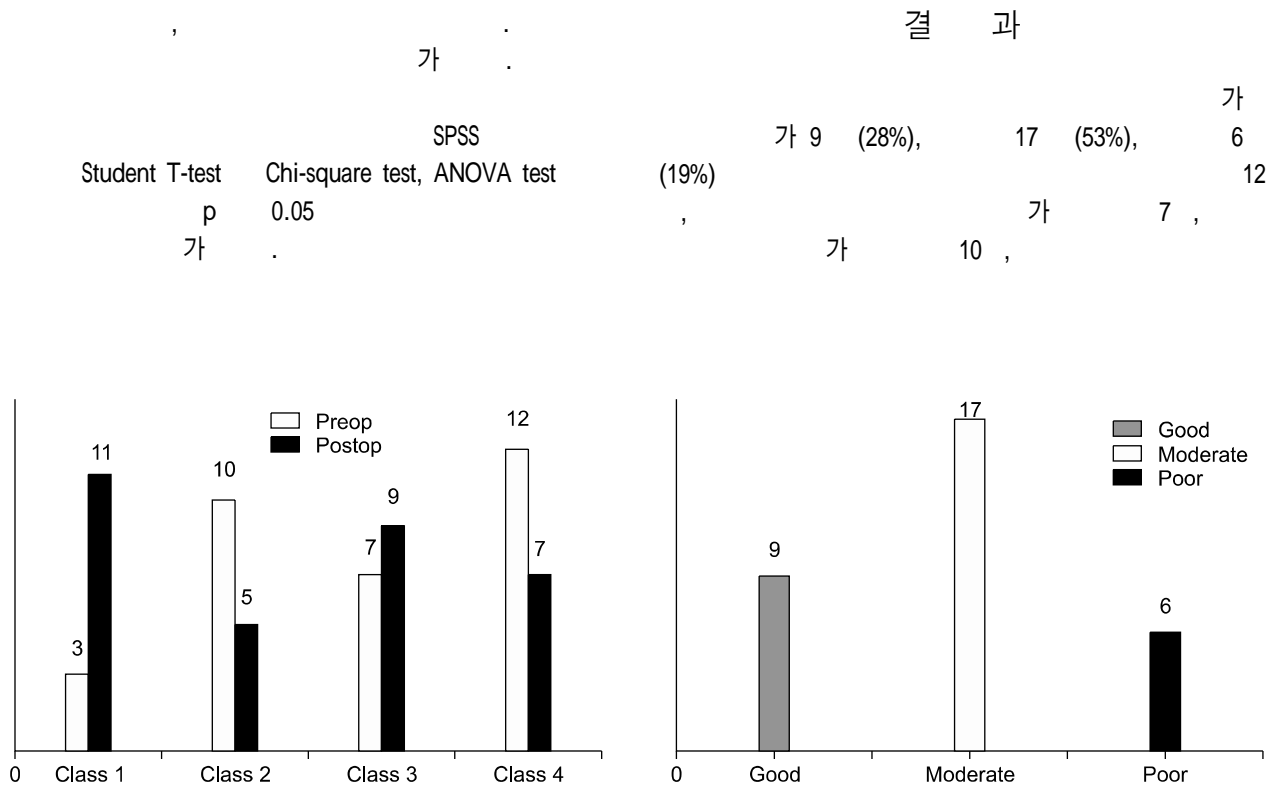


Fig. 2. Clinical results by Clawson's walking ability score. In comparison test of ambulatory function before and after the operation, there were 9 cases of good, 17 cases of moderate and 6 cases of poor postoperatively.

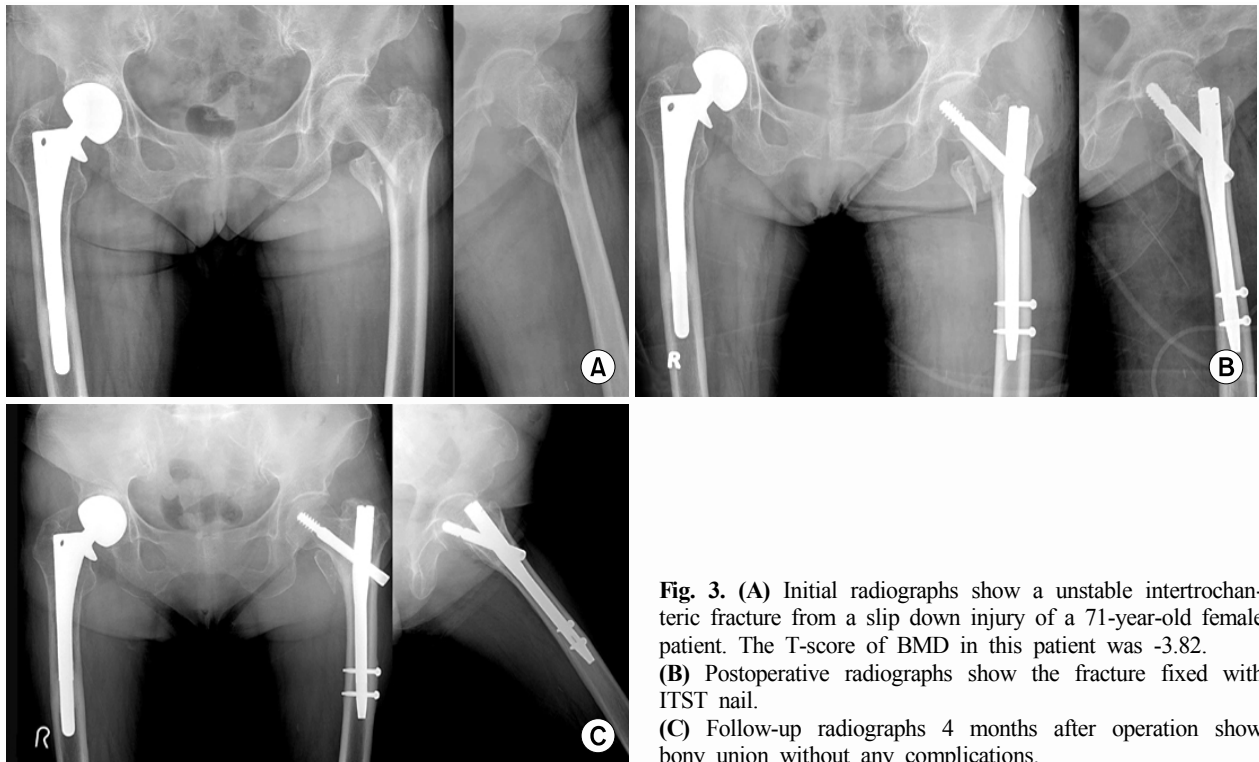


Fig. 3. (A) Initial radiographs show a unstable intertrochanteric fracture from a slip down injury of a 71-year-old female patient. The T-score of BMD in this patient was -3.82. (B) Postoperative radiographs show the fracture fixed with ITST nail. (C) Follow-up radiographs 4 months after operation show bony union without any complications.

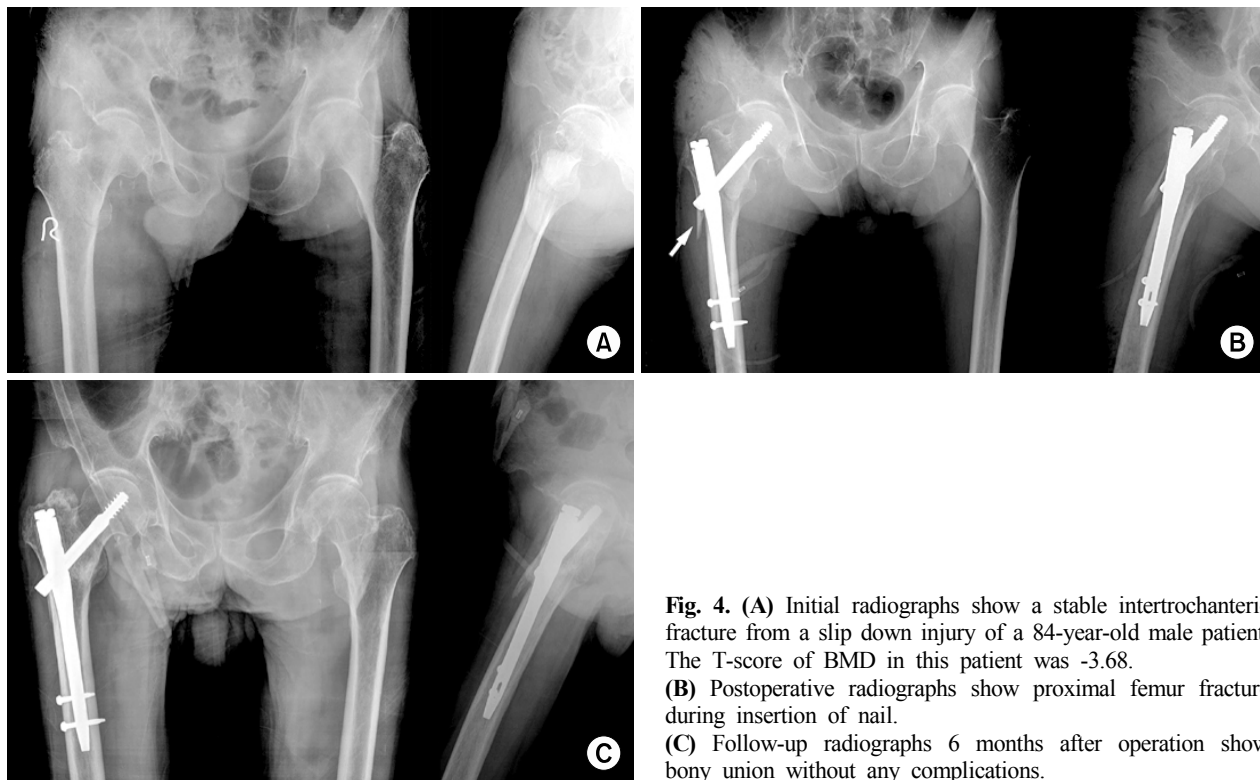
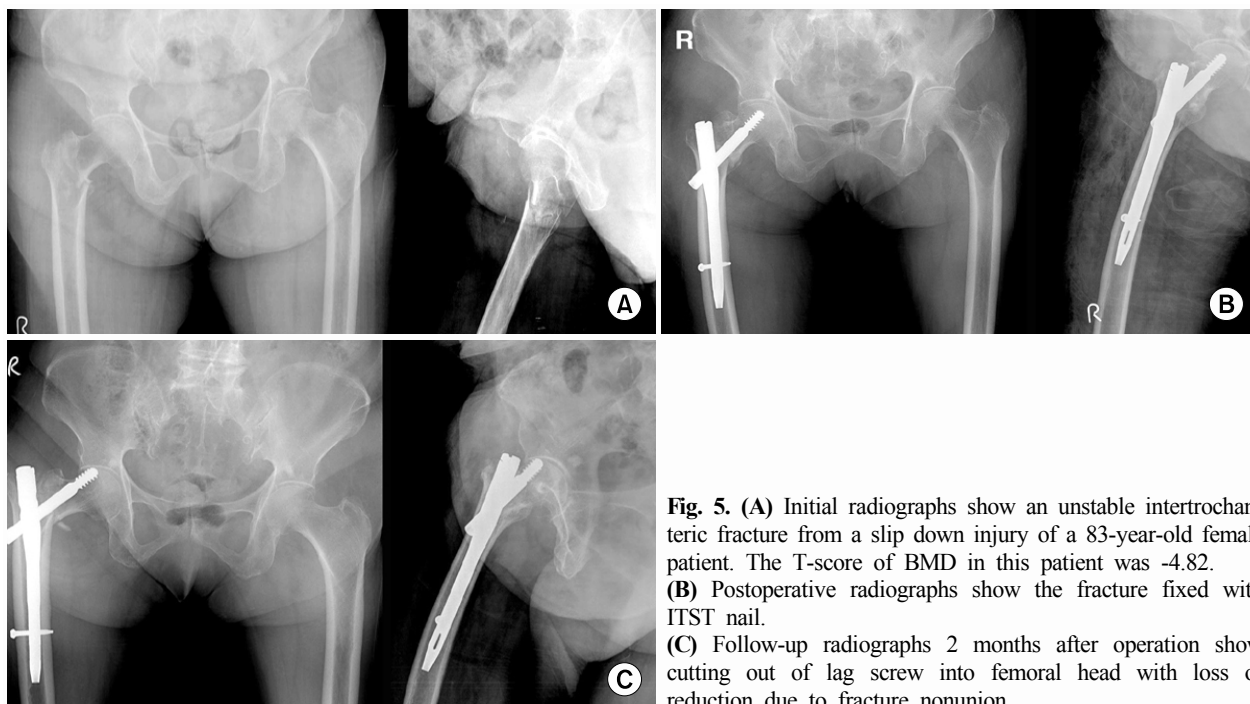


Fig. 4. (A) Initial radiographs show a stable intertrochanteric fracture from a slip down injury of a 84-year-old male patient. The T-score of BMD in this patient was -3.68. (B) Postoperative radiographs show proximal femur fracture during insertion of nail. (C) Follow-up radiographs 6 months after operation show bony union without any complications.

가 3 , 7 , 가 5 , T-score가 -3.0 , 10 mm (Fig. 2). , 가 , (p=0.028). 20 3 32 9 (28%) 5 , 3 6 p 4.2 (2. 2~ 5.6) (Fig. 3) (p=0.022). 4), 2 (7%) 5 (Fig. 4), 3 (8%) , 2 (Fig. 5). 20 , 12 가 22 , 10 가 4.6 mm (, 0~12 mm) 3 1 4 (13%)가 6 (p=0.022). -2.8 (p=0.039). 13.4 mm (, 11~17 mm) , 10 mm 11 , 11 mm 12 , 12 mm 9 . 고 찰



The diagram illustrates a network of relationships between various entities and concepts. The nodes are represented by text labels, and the connections are shown as lines of varying thickness and color. The entities and concepts include:

- 가** (Ga)
- Gamma**
- PFN**
- Simmermacher**
- ITST**
- Gamma ITST**
- 24)**
- 3%**
- 32**
- 4**
- 30**
- 9**
- 2**
- 5**
- 1**
- 3**
- 1,2,9)**
- 8,17,22)**
- 21,23)**
- 10,13,16)**
- 3,10,14)**
- 1,9,16)**

The connections are represented by lines of varying thickness and color, indicating different types or strengths of relationships. The diagram is a complex network, with many nodes and a high density of connections.

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