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Results of Minimally Invasive Percutaneous Plate Osteosynthesis for Fractures of the Distal Tibia

Topic: Health Conditions (Nervous System, Musculoskeletal System, Cardiopulmonary System)

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BACKGROUND

Fractures of the distal tibia are usually high-energy injuries, frequently associated with severe soft tissue compromise. Minimally invasive percutaneous plate osteosynthesis (MIPO) is an established technique for fixation of fractures of the distal third tibia. It was developed on the concept that preservation of the soft tissue envelope during surgical management of these injuries is of paramount importance.

The aim of this study was to determine the functional and radiological results of distal tibial fractures treated with MIPPO technique.

METHODS

From January 2022 to June 2024, 11 patients (age 24 - 81 years) with fractures of the distal tibia underwent fixation by MIPO technique and were evaluated retrospectively. Three fractures were open (Gustillo Type I). Five patients were 43-A1-type, three were 43-A2-type, one was 43-A3-type and two were 43-B2 fractures according to AO classification. The mean follow-up was 14 months (4-24 months).

The quality of surgical reduction was scored and the clinical outcome was assessed through the (AOFAS) Ankle-Hind foot Score.

RESULTS

Two cases of superficial infection were noted, with one case of deep infection. The radiographic score of surgical reduction was excellent in eight patients. One patient had an intra-articular step of 3 mm and revised for the loss of reduction. Nine fractures united within a period of 8-14 weeks (mean 11 weeks). There was not any leg length discrepancy of more than 1 cm, or any angular deformity of more than 58. The Ankle-Hind foot score had a mean value of 80 (74-93). All patients were satisfied.

DISCUSSION

Surgical management of distal tibial fractures has always been challenging. Traditional methods of fixation are often fraught with complications, which sometimes may be devastating. Preservation of the soft tissue envelope during surgery cannot be overemphasized. Reports on fixation of these fractures by MIPO techniques are very encouraging.

CONCLUSION

Minimally invasive percutaneous plate osteosynthesis respects the soft tissue envelope along with maintaining the biological environment needed for proper osseous healing. Favorable results have been shown with MIPO in regard to function, healing time, and decreased complications.

Statement of Disclosures

None

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