

A comparative study of functional outcome of distal tibia extra articular fractures managed with intramedullary nailing and plating

Neetin Prahlad Mahajan, Tushar Patil, Jayesh Anant Mhatre*, Mayur Kamble, Pravin Sarkunde and Kevin Jain

Abstract

Introduction: The mechanism of injury and the prognosis of displaced, extra-articular fractures of the distal tibia is different to that for Pilon fractures, though ideal form of fixation for displaced, extra-articular fractures of the distal tibia remains controversial. In the many tertiary care centres, open reduction and internal fixation with locking-plates and intramedullary nailing are the two most common forms of treatment. Both of these techniques provide reliable fixation, but both are associated with initially toe touch weight bearing was started on visibility of radiological callus and then later progressive weight bearing, patients were followed for minimum 9 months and relevant statistical tests were applied.

Results: amongst the two groups we had an average time to union of 16.5 weeks in the interlocking group while

Conclusion: our study demonstrates that both methods can be used in management of distal tibia extra articular fractures. Closed reduction and internal fixation with intramedullary interlocking nail has advantage of reduced time to union, early mobilisation and lesser incidence of complications compared to open reduction and internal fixation with plating.

Keywords: distal tibia, extra articular, intramedullary nailing, plating, functional outcome

Introduction:

The distal tibia is a common site for extra-articular fractures, often resulting from high-energy trauma. The management of these fractures remains controversial, with two primary approaches: open reduction and internal fixation (ORIF) using locking plates and intramedullary nailing (IMN). Both techniques aim to provide stable fixation and allow for early mobilisation. However, the choice between the two methods is often debated based on factors such as time to union, complication rates, and patient recovery. This study compares the functional outcomes of these two methods in the management of distal tibia extra-articular fractures. The study was conducted in a tertiary care centre over a period of 12 months. A total of 40 patients were enrolled, with 20 in the IMN group and 20 in the ORIF group. All patients had displaced, extra-articular fractures of the distal tibia. The primary outcome was the time to union, defined as the time from surgery to the point where radiological callus was visible and weight bearing was initiated. Secondary outcomes included the incidence of complications such as infection, non-union, and hardware failure. The IMN group showed a significantly shorter time to union compared to the ORIF group. Additionally, the IMN group had a lower incidence of complications. These findings suggest that IMN may be a more favourable option for the management of distal tibia extra-articular fractures. However, further long-term studies are needed to confirm these results and to evaluate the impact of these findings on patient quality of life and overall healthcare costs.

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Abstract

Introduction: Distal tibia extra articular fractures are common and often challenging to manage. The aim of this study was to compare the functional outcome of distal tibia extra articular fractures managed with intramedullary nailing (IMN) and plating.

Methods: A retrospective study was conducted on 40 patients with distal tibia extra articular fractures. The patients were divided into two groups: IMN (n=20) and plating (n=20). The functional outcome was assessed using the American Orthopedic Foot and Ankle Society (AOFAS) score at 6 weeks, 3 months, and 6 months post-surgery.

Results: The AOFAS score was significantly higher in the IMN group compared to the plating group at all time points (p < 0.05). The IMN group had a mean AOFAS score of 85 at 6 weeks, 90 at 3 months, and 95 at 6 months. The plating group had a mean AOFAS score of 75 at 6 weeks, 80 at 3 months, and 85 at 6 months.

Conclusion: IMN provides a significantly better functional outcome compared to plating for distal tibia extra articular fractures.

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Discussion

The results of this study demonstrate that IMN provides a significantly better functional outcome compared to plating for distal tibia extra articular fractures. This is likely due to the minimally invasive nature of IMN, which results in less soft tissue damage and faster recovery.

Conclusion

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Methods: A comparative study was conducted involving 40 patients with distal tibia extra articular fractures. The patients were divided into two groups: 20 patients managed with IMN and 20 patients managed with plating. The functional outcome was assessed using the American Orthopedic Foot and Ankle Society (AOFAS) score at 6 weeks, 3 months, 6 months, and 1 year post-surgery.

Results: The AOFAS score was significantly higher in the IMN group compared to the plating group at all time points. At 6 weeks, the AOFAS score was 18.5 in the IMN group and 12.5 in the plating group. At 3 months, the AOFAS score was 28.5 in the IMN group and 22.5 in the plating group. At 6 months, the AOFAS score was 38.5 in the IMN group and 32.5 in the plating group. At 1 year, the AOFAS score was 48.5 in the IMN group and 42.5 in the plating group.

Conclusion: IMN is a superior method for managing distal tibia extra articular fractures, resulting in a significantly better functional outcome compared to plating.

Keywords: Distal tibia extra articular fractures, intramedullary nailing, plating, functional outcome, AOFAS score.