



FUNCTIONAL OUTCOME OF MANAGEMENT OF IPSILATERAL INTERTROCHANTERIC, MID-SHAFT, AND EXTRAARTICULAR SUPRACONDYLAR FEMUR FRACTURES

Orthopaedics

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ABSTRACT

Multilevel femoral fractures are rare and challenging to manage. This report presents the case of a 38-year-old male with ipsilateral intertrochanteric (AO Type 31A1.2), mid-shaft (AO Type 32A3), and extraarticular supracondylar (AO Type 33A2.3) femur fractures sustained from a road traffic accident (RTA). After stabilization, the fractures were managed with a proximal femoral nail (PFN) combined with a lateral T-plate for additional stability. Early mobilization and progressive weight-bearing led to satisfactory functional and radiological outcomes at six months. This case highlights the importance of biomechanically sound implants and early rehabilitation for managing rare complex femoral fractures.

KEYWORDS

INTRODUCTION

With the increasing prevalence of high-velocity trauma due to road traffic accidents, complex femoral fractures are becoming more common. Ipsilateral intertrochanteric, mid-shaft, and extraarticular supracondylar fractures are extremely rare and demand meticulous management. The proximal femoral nail (PFN), known for its biomechanical advantages, has shown promising results in managing such cases when augmented with additional stability measures.

Case Report

A 38-year-old male presented with injuries sustained in a road traffic accident. Radiographic evaluation revealed ipsilateral intertrochanteric (AO Type 31A1.2), mid-shaft (AO Type 32A3), and extraarticular supracondylar femur (AO Type 33A2.3) fractures. The patient was hemodynamically stable with normal vital parameters upon admission.



Figure 1 Preoperative X-ray showing Intertrochanteric Femur fracture with ipsilateral Shaft fracture with Ipsilateral distal one-third femur fracture

Management

After stabilization, the patient underwent closed reduction and internal fixation under spinal anesthesia. The fractures were reduced using fluoroscopic guidance on a fracture table. A proximal femoral nail was used to manage the intertrochanteric and mid-shaft fractures, while a lateral T-plate was added to provide additional stability for the supracondylar fracture.

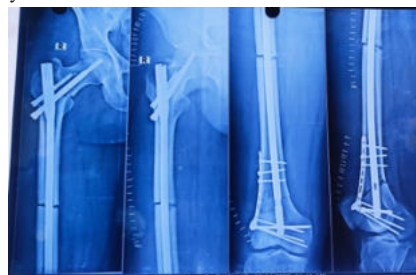
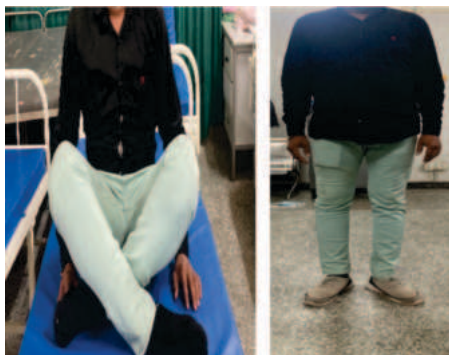


Figure 2 Post-op X-ray showing internal fixation with PFN nail and lateral distal femur plating.

Postoperative Course and Follow-Up

Postoperative recovery was uneventful. Rehabilitation included early knee mobilization, static quadriceps exercises, and toe-touch weight-bearing from postoperative day one. Partial weight-bearing began at three weeks and progressed to full weight-bearing by six months. At follow-up, the patient demonstrated near-normal gait and functional independence, with radiological evidence of complete union in the intertrochanteric and supracondylar fractures and near-complete healing of the mid-shaft fracture.



Figure 3 Follow-Up X-ray showing callus formation at fracture sites**Figure 4** Clinical pictures on follow-up showing ROM at hip and knee with full weight bearing ability

DISCUSSION

Multilevel fractures of the femur, especially ipsilateral intertrochanteric, mid-shaft, and extraarticular supracondylar fractures, are exceptionally rare. Such injuries are generally associated with high-energy trauma, such as motor vehicle accidents. The complexity of these injuries arises from the need to stabilize three distinct fracture regions while maintaining anatomical alignment, biomechanical integrity, and functionality.

The PFN has emerged as a reliable implant for managing fractures of the proximal femur due to its load-sharing properties and ability to provide stable fixation for intertrochanteric and mid-shaft fractures. The implant's intramedullary positioning minimizes stress concentration at the fracture site, reducing the risk of implant failure [1]. Furthermore, PFN allows for early mobilization, which is critical in minimizing complications such as joint stiffness and thromboembolism [2].

For distal femur fractures, especially extraarticular supracondylar fractures, PFN alone may not provide sufficient rotational stability. Supplementary lateral plating enhances stabilization and prevents varus collapse, especially in fractures with a comminuted pattern. Studies have highlighted the efficacy of dual-implant strategies in ensuring satisfactory outcomes in complex femoral fractures [3,4].

Early mobilization plays a pivotal role in achieving functional recovery. Delayed weight-bearing risks complications such as joint stiffness and muscle atrophy, while premature loading can disrupt fracture healing. In this case, the initiation of toe-touch weight-bearing followed by gradual progression to full weight-bearing aligns with the principles of fracture biology and rehabilitation [5].

This case underscores the importance of individualized treatment plans that consider fracture pattern, patient factors, and the biomechanical demands of fixation. Future studies with larger cohorts are warranted to validate the efficacy of combined implant strategies and refine rehabilitation protocols.

CONCLUSION

PFN, augmented with additional lateral plating, is an effective strategy for managing multilevel femoral fractures. Early mobilization and gradual weight-bearing significantly contribute to functional recovery and fracture union. This case highlights the need for a multidisciplinary approach to complex femoral injuries to ensure optimal patient outcomes.

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