

Dual Construct Fixation of Geriatric Distal Femur Fractures to Allow for Immediate Mobilization and Whole Bone Protection

David Cameron Clever, MD; Daniel Bechtold, MD; Mitchel Obey, MD; Marschall B. Berkes, MD

Washington University in St. Louis/Barnes Jewish Hospital, St. Louis, MO, United States

Purpose: Geriatric distal femur fractures are associated with high rates of perioperative mortality. Plate fixation has been limited by protected weight bearing, nonunion, and implant failure, which can compromise mobilization and perioperative mortality. Dual constructs to facilitate healing and early mobilization have recently been reported. We describe our experience using a novel nail-plate construct allowing for immediate weight bearing and prophylactic whole bone protection.

Methods: 10 patients were treated using a retrograde intramedullary nail (rIMN) and lateral plating technique. Surgery commences with fracture reduction and rIMN insertion. The nail is intentionally left short such that the nail just engages the femoral isthmus and is secured with interlocking screws proximally and distally. A variable angle locking compression plate (VA-LCP) is placed in a minimally invasive fashion, with the proximal aspect of the plate lying near the vastus ridge. The plate is aligned proximally along the femoral shaft and secured with unhindered bi-cortical screw fixation proximal to the nail. Distal locking screws are placed through the plate around the nail. Prophylactic fixation of the femoral neck is performed by placing 1 or 2 cortical screws into the femoral neck and head through the most proximal holes. Patients are permitted immediate unrestricted weight bearing.

Results: Technical details of the procedure include (average, range): IMN length (28, 24-36 cm) and diameter (12, 10-14 mm), number of bicortical screws placed above IMN, operative time (198, 130-290 min), and blood loss (360, 150-600 mL).

Conclusion: This technique offers improvements to previously described nail-plate fixation methods. Using a short IMN, fixation through the proximal aspect of the lateral plate is unhindered by the nail and resists the stress riser created at the proximal aspect of the nail. Prophylactic protection of the femoral neck is permitted through strategically placed screws at the proximal aspect of the VA-LCP.



TECHNICAL TRICKS AND TIPS

See the meeting app for complete listing of authors' disclosure information. Schedule and presenters subject to change.