New Techniques and Emerging Evidence #NT18

Post-Traumatic Reconstruction

Plate-Tensioned Nail for Subtrochanteric Femur Nonunion

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Purpose: We sought to describe a novel "plate-tensioned nail" construct for subtrochanteric femur nonunion that combines the stability of a medullary nail with the compression of a lateral tension band plate and permits immediate full weightbearing.

Methods: In this consecutive case series, an antegrade reamed piriformis entry femoral nail is placed after nonunion debridement and medullary reaming. A 4.5-mm locking compression plate (LCP) is contoured to the lateral proximal femur and linked to the nail using a 6.5-mm recon screw. The plate is then secured to the distal femoral shaft with a Verbrugge clamp and tensioned across the nonunion with an articulated tensioning device and/or serial plate-based screw compression. Autograft bone is applied to the nonunion site. Postoperatively, full weightbearing and unrestricted motion are encouraged. Outcomes measured were time to mobilization, infection, implant failure, and reoperation.

Results: Six patients with subtrochanteric femoral nonunion were treated with a plate-tensioned nail construct, made immediately weightbearing, and mobilized out of bed on average 1.2 days postoperatively. No patient experienced infection, implant failure, or reoperation. All fractures united without additional intervention.

Conclusion: A "plate-tensioned nail" construct permits immediate weightbearing and unrestricted activity after femoral nonunion repair. Early clinical experience is encouraging.