## Cephalomedullary Nail Fixation of Subtrochanteric Femur Fractures: Is One Distal Locking Screw Enough?

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Subtrochanteric (ST) fractures are proximal femur fractures with strong deforming muscular forces, which complicate anatomical reduction and treatment. These fractures are fixed with intramedullary nails with two distal locking screws, although the need for both screws has never been researched. This study's purpose was to investigate the use of one versus two distal locking screws on clinical and radiographic outcomes and complications.

METHODS: IRB-approved retrospective review of a consecutive series of subtrochanteric femoral fractures was performed. Each patient's medical record was reviewed for demographics, injury and treatment information, perioperative details, radiographic parameters, hospital quality measures, and outcomes. Patients were divided into 2 cohorts: one distal locking screw (1-screw Cohort) and two distal locking screws (2-screw Cohort). Comparative analyses were conducted.

## **RESULTS:**

Two hundred and thirty-two patients met inclusion criteria with a mean age of  $71.18\pm19.05$  years and average follow-up of 11 months. All fractures were treated with an antegrade, reamed cephalomedullary nail (CMN). 50 (21.6%) patients were fixed with one 5 mm distal locking screw and 182 (78.4%) patients had two screws. Patients with 1 screw had a shorter operative time in minutes (156.64 $\pm$  47.06 vs 176.06 $\pm$  41.32, p=0.005), but there were no further perioperative differences. Both cohorts experienced similar rates of fracture healing, medical and mechanical complications, mortality, and readmission.

## DISCUSSION AND CONCLUSION:

Clinically, a single distal locking bolt is sufficient for subtrochanteric femur fractures fixed with a cephalomedullary nail. A second distal locking screw may be reserved for situations in which the first screw may not have achieved adequate fixation.