

Loss of Stabilization in Distal Tibia Shaft Fractures (LOST): How Many Interlocks Are Required?

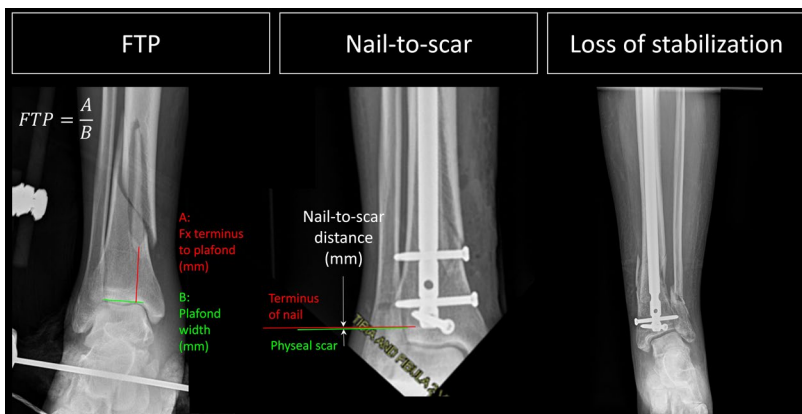
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Purpose: Distal tibia shaft fractures represent a treatment challenge. Malreduction is common (10% to 29%), but reasons for loss of reduction are largely uninvestigated. For the very distal tibia fracture, there are a paucity of data regarding the circumstances that may lead to postoperative changes in alignment.

Methods: All tibia fractures treated with locked intramedullary nails at two Level I academic centers over a 12-year study period were reviewed. Only fractures within 3.0 plafond widths of the plafond were included, isolating very distal fractures. Loss of stabilization (LOST) was defined as a change in linear or angular alignment of >4 mm or $>4^\circ$ on an AP or lateral projection between initial and final postoperative radiographs, revision surgery (excluding for infection or symptomatic hardware), or broken hardware.

Results: 1942 tibias were screened, capturing 236 eligible fractures. LOST occurred in 45 tibias (19.1%) with no differences in demographics between groups. Open fractures and the number of medial-to-lateral interlocks (fewer than two) were associated with LOST ($P = 0.038$ and 0.007 , respectively). Oblique distal interlocks were used in more distal fractures, with no change in the incidence of LOST. Greater numbers of medial-to-lateral and oblique interlocks, in total, approached significance for protection against LOST ($P = 0.11$), but likely remained underpowered for a more complex comparison. Nail size, nail depth, the use of tibial or fibular adjuvant stabilization, tibia and fibula fracture location and shape, and time to full weight bearing were not associated with LOST.

Conclusion: Loss of stabilization in distal tibia fractures is associated with open fracture and the number of distal interlocks used. This data may be used to determine which distal tibia fractures are amenable to nail stabilization. This work characterizes the contribution of interlocks to postoperative stability in far distal tibia fractures.



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