

Medial TENS Nail as a Strut: A Simple Solution for Comminuted Distal Femur Metaphyseal Fractures

Introduction: Comminuted distal femur metaphyseal fractures present a major fixation challenge due to loss of medial cortical support, high mechanical stresses, and frequent association with osteoporotic bone. Lateral locking plate fixation alone may be insufficient, leading to varus collapse, implant failure, or delayed union. This study evaluates the use of a simple and readily available medial strut using a TENS or Ender nail to support the medial column in comminuted distal femur metaphyseal fractures.

Methods: A retrospective study was conducted on 30 patients with comminuted distal femur metaphyseal fractures treated surgically. All patients underwent fixation with a lateral distal femur locking plate combined with medial strut augmentation using a 3.5–4 mm TENS or Ender nail. Indications for medial strut use included severe medial comminution, metaphyseal bone loss, or poor bone quality.

Results: Radiological fracture union was achieved in the majority of cases with satisfactory maintenance of coronal alignment. The medial TENS/Ender nail provided effective medial column support and helped prevent varus collapse. Complications were observed in 5 out of 30 cases, consisting of medial-sided impingement and backing out of the nail, predominantly in patients with severe osteoporosis. These complications were managed conservatively or with minor secondary procedures. There were no cases of implant breakage, non-union, or deep infection.

Conclusions: Medial strut augmentation using a 3.5–4 mm TENS or Ender nail is a simple, cost-effective, and biologically friendly technique for managing comminuted distal femur metaphyseal fractures with medial cortical deficiency. It enhances construct stability and aids in maintaining alignment. However, complications such as medial impingement and nail back-out can occur, particularly in severely osteoporotic bone. When used judiciously, a medial TENS nail can be a valuable adjunct—and often a saviour—in complex distal femur fractures.

