Retrograde Nailing for Subtrochanteric Fractures of the Femur

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INTRODUCTION:
Fractures of the subtrochanteric region are not commonly treated with retrograde intramedullary nailing (RIMN) due to theoretical concerns of limited fracture stability and potential fracture malalignment. Antegrade nailing has demonstrated excellent union rates however RIMN may be beneficial in cases where patient positioning for antegrade nailing is precluded by morbid obesity or concomitant orthopedic, spinal, visceral, or pulmonary injuries. The purpose of this study is to report the results of RIMN for the treatment of subtrochanteric femur fractures to learn more about the results and complications of this strategy.
METHODS:
A retrospective study was performed of all femur fractures involving the anatomic region within ten centimeters of the inferior border of the lesser trochanter (LT) that were treated with RIMN at our Level I trauma center between 2009 and 2020. Demographic data, clinical history, time to union, radiographic parameters, implant characteristics, and complications were analyzed.
RESULTS: Forty-eight fractures were included for analysis. The minimum clinical follow-up was 12 months with a mean of 41 months (range 12-146 months). The mean patient age was 35 years (range 18-84 years) and the mean BMI was 27 (range 14-45). Thirty-one (65%) patients were polytraumatized. Clinical and radiographic union was achieved in 44 of 48 (92%) fractures after index operation at a mean time to union of 22 weeks (range 9-51 weeks). Delayed union requiring nail dynamization occurred in one (2%) instance. Malreduction was noted in one (2%) patient with a 12° flexion deformity that resulted in nonunion. In total, there were three (6%) nonunions requiring revision surgery, one treated with retrograde exchange nailing and two revised to cephalomedullary nails; all united after revision.
DISCUSSION AND CONCLUSION:
Our series demonstrated a high rate of union and a low rate of complications. This represents the largest series in the literature with one-year clinical follow-up. The results confirm the utility of a retrograde strategy for the treatment of subtrochanteric femur fractures, suggesting that RIMN is a reasonable alternative to AIMN in the appropriate clinical setting.