

Early Complications of the Femoral Neck System for the Treatment of Femoral Neck Fractures

Brendon Mitchell MD; Matthew Siow MBA; Paul J Girard MD; Alexandra Kay Schwartz MD; William T Kent MD

UCSD, San Diego, CA, United States

Purpose: Young high-energy, valgus-impacted, and nondisplaced femoral neck fractures (FNFs, AO/OTA 31-B) are routinely treated with cannulated screws or sliding hip screw (SHS) constructs. FNFs have high complication rates, including avascular necrosis (AVN) and nonunion leading to implant failure and reoperation. Recently, Synthes introduced the Femoral Neck System (FNS), consisting of a blade and screw design, which has demonstrated biomechanically greater rotational stability, a smaller bone footprint, and potentially smaller incision size. We evaluated the FNS and its early outcomes.

Methods: 25 patients underwent FNF fixation with FNS at our academic Level-I trauma center from February to December 2019. We retrospectively collected data regarding patient demographics, comorbidities, complications, and follow-up.

Results: All patients had isolated FNFs. 13 (52%) were female. Mean age, body mass index (BMI), and Charlson Comorbidity Index (CCI) were 63.6 years, 24.9 kg/m², and 4.2, respectively. Regarding injury mechanism, 20 (80%) were ground level falls, of which 4 were off a micromobility vehicle. 19 (76%) were nondisplaced or valgus-impacted FNFs. Operative duration averaged 45 minutes. There were 2 major complications (8%) requiring reoperation. One patient developed AVN with subsequent femoral head fracture after a mechanical fall at 6 months postoperatively, and another patient had a nonunion. Both required conversion to arthroplasty.

Conclusion: FNS is a newer implant for treating FNFs. Our reoperation rate of 8% is slightly lower than that of other fixation constructs when treating FNFs. This is the largest study to date that evaluates the FNS. Further studies with longer follow-up and larger sample sizes are needed to fully comprehend the effectiveness of FNS as an alternative to cannulated screws or SHS in the treatment of FNFs.