

Standard and Fin Surgical Implant Generation Network (SIGN) Intramedullary Nails Treated by Retrograde Approach in Closed Femoral Fractures: A Comparative Retrospective Study

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Purpose: Our objectives were to investigate and compare the effectiveness of SIGN standard intramedullary nail and the SIGN fin nail utilizing a retrograde approach in closed femoral fractures.

Methods: In this retrospective cohort study, skeletally mature patients who had received retrograde intramedullary nail fixation using standard or fin SIGN nails to treat their closed femur fractures were selected for study from the SIGN surgery database based on inclusion criteria. The length of surgery and type of reduction were both recorded postoperatively. In addition, time of follow-up until complete recovery was also recorded, with recovery determined by painless weightbearing, radiological healing, and knee range of motion.

Results: Demographically and preoperatively, the standard and fin SIGN nail patients were found to not have any statistically significant differences in age, sex, associated injuries, or fracture location. SIGN standard nail patients were found to have open reduction more often compared to fin patients. For patients with recorded surgery duration, surgery duration was significantly less in fin patients compared to SIGN patients. The mean follow-up date with complete recovery was 151.3 days for standard and 134.5 for fin SIGN nail patients, with the removal of 3 outliers. 100% of patients experienced full recovery, with painless weightbearing, radiological healing, and full knee range of motion.

Conclusion: Both standard and fin SIGN nails are effective methods of treatment for patients with closed femoral fractures. Fin nails were found to take less surgical time in implantation and require less invasive surgery in comparison to standard SIGN nails.