Fixation of Intertrochanteric Femur Fractures Using the SIGN Intramedullary Nail Augmented by a Lateral Plate in a Resource-Limited Setting Without Intraoperative Fluoroscopy: Assessment of Functional Outcomes at 1-Year Follow-up at Juba Teaching Hospital

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Purpose: The incidence of hip fracture is high and increasing globally due to an aging population. Morbidity and mortality from these injuries are high at baseline and worse without prompt surgical treatment to facilitate early mobilization. Due to resource constraints, surgeons in low-income countries often must adapt available materials to meet these surgical needs. The objective of this study is to assess functional outcomes after surgical fixation of intertrochanteric femur fractures with the Surgical Implant Generation Network (SIGN) intramedullary nail augmented by a lateral SIGN plate.

Methods: This prospective case series was conducted at Juba Teaching Hospital, Tertiary Referral Hospital for South Sudan. Participants were adult patients with intertrochanteric hip fractures, who had a SIGN nail augmented by a lateral plate. Primary outcome was hip function as measured by a modified Harris Hip Score (mHHS) at 1 year after surgery. Secondary end points were the occurrence of reoperation or infection at 1 year after surgery.

Results: 30 patients were included, 16 (53%) men and 14 (47%) women, with a mean age of 62 years. Fractures were classified as AO/OTA Type 31A1 in 12 patients (40%), 31A2 in 15 patients (50%), and 31A3 in 3 patients (10%). Mean mHHS at 1-year was 75.10 ± 21.2 with 76% categorized as excellent or good scores. There was 1 (3%) infection and 2 (7%) reoperations.

Conclusions: The SIGN nail augmented by a lateral plate achieved good or excellent hip function in the majority of patients with intertrochanteric hip fractures. This may be a suitable alternative to conventional implants for hip fracture patients in low-resource settings to allow mobilization.