

ABSTRACT

Purpose: This study aims to report on a large multicenter cohort of patients with interprosthetic femur fractures to describe the injury characteristics, fixation strategies, and clinical outcomes in these patients.

Methods: This study includes patients who underwent operative fixation of interprosthetic femur fractures at 5 level-1 trauma centers between 2013-2023. Patient and injury demographics, surgical implants, complications and return to ambulation were recorded.

Results: 126 patients with a mean age of 75.8 ± 9.9 years and BMI of 29.7 ± 6.4 kg/m² were included and followed for an average of 23.7 months (range: 1-248). The majority of patients were female (72.2%), Caucasian (90.5%), and non-smokers (63.5%). 24 (19%) patients had been preoperatively diagnosed with osteoporosis, and 9 (7.1%) with osteopenia. Ground-level fall was the prevalent mechanism of injury (85.7%). 1 patient had an open-fracture. 92.1% of patients had a primary THA, and 7.9% had a revision THA. 87.3% of patients had a primary TKA and 12.7% had a revision TKA. Of the TKA's, 54% had an open box femoral component, and 46% were closed. 59 patients had a periprosthetic THA fracture (32 Vancouver B, 27 Vancouver C). 37 patients had a periprosthetic TKA fracture (7 Suh 1, 24 Suh 2, 6 Suh 3). 30 patients had a shaft fracture not involving implants. Most patients were fixed with a lateral plate (88, 69.8%), followed by a nail and plate combination (21, 16.7%), and isolated intramedullary nailing (7, 5.6%). 4 (3.2%) patients had revision hip arthroplasty with a long stem and cables, 4 (3.2%) patients were fixed with cables alone, and 2 (1.6%) patients underwent total femoral replacement. None had revision TKA. 117 (92.8%) patients went on to union. At final follow-up, 90.5% of the patients were ambulating. Malunion occurred in 2.4%, nonunion in 7.2%, implant failure in 6.3%. and reoperation in 20 (15.9%). There was no statistically significant difference between the operative constructs.

Conclusion: Most patients with interprosthetic femur can be managed to successful union and return to ambulation. Fixation can be individualized based upon the treating surgeon's judgement.