

Classification and Outcomes of 474 Periprosthetic Femoral Fractures in Primary TKA

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INTRODUCTION: Periprosthetic femoral fractures around primary total knee arthroplasties (TKA) are rare, with a paucity of long-term follow up data. The purpose of this study was to report the classification, management, and outcomes of periprosthetic femoral fractures in the largest cohort to date.

METHODS: We identified 474 periprosthetic femoral fractures (455 patients) around a primary TKA sustained between 1988 and 2023, utilizing our institutional total joint registry. There were 117 intraoperative fractures and 357 postoperative fractures. Postoperative fractures were classified according to the Su classification. There were 24% Type I (proximal to femoral component), 30% Type II (originates at proximal femoral component), and 46% Type III (distal to anterior flange of the femoral component) fractures. Mean age was 68 years, 74% female, and mean BMI 31 kg/m². Mean follow up was 10 years.

RESULTS: The incidence of intraoperative femoral fracture was 0.3%, most commonly occurring during bone preparation (91%). The 10-year survivorship free of any revision and any reoperation for intraoperative fractures was 87% and 80%, respectively. Among the 357 postoperative fractures, 98% were associated with ground level falls. The 10-year survivorship free of any implant revision and any reoperation were 69% and 60%, respectively. Revision risk after postoperative fracture varied by Su classification. The 10-year survivorship free of any revision was highest in Type I (94%) and lowest in Type III (60%) fractures (HR 2.6; p=0.04). Mortality following postoperative periprosthetic femoral fractures was 20% at 2 years and 64% at 10 years.

DISCUSSION AND CONCLUSION: Intraoperative periprosthetic femoral fractures during primary TKA were uncommon and associated with an acceptable survivorship free of revision. In contrast, postoperative periprosthetic femoral fractures were associated with significantly worse survivorship and increased mortality at 10 years. Su Type III fractures were associated with the greatest risk of revision.