

Periprosthetic Tibia Fractures following Total Knee Arthroplasty are Associated with High Mortality Rates

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INTRODUCTION:

Periprosthetic tibia fractures following total knee arthroplasty (TKA) are uncommon and remain poorly described. This study aimed to evaluate treatments and outcomes for these injuries.

METHODS:

Patients treated for periprosthetic TKA tibia fractures from 2005-2022 at an academic institution with minimum 90-day follow up were identified. Forty patients were included with a mean follow up of 1.7 years (range: 90 days–8.4 years). Mean age was 70.1 years (range: 36-92) and Charlson Comorbidity Index was 3.8 (range: 1-10). Nine patients (22.5%) previously underwent revision TKA. Mechanism of injury was considered low-energy in 32 patients (80.0%) and high-energy in 8 (20.0%). Fractures were organized by Felix classification. Seven (17.5%) patients sustaining comminuted fractures involving multiple zones. Four (10.0%) patients sustained fractures in Zone I (tibial plateau), 24 (60.0%) in Zone II (adjacent to stem), 17 (42.5%) in Zone III (tibial shaft), and three (7.5%) in Zone IV (tibial tubercle).

RESULTS:

Treatments included: open reduction internal fixation in 27 patients (67.5%), tibial component revision in seven (17.5%), nonsurgical treatment in four (10.0%), and external fixator as definitive treatment in one (2.5%). One patient (2.5%) died prior to surgery. The mean length of stay was 9.9 days (range: 1-31). At 90 days, there were two readmissions (5.0%), two reoperations (5.0%), medical complications in 22 patients (55.0%), and four deaths (10.0%). At last follow up, five (12.5%) patients had undergone reoperations (one each for aseptic tibial loosening, nonunion, periprosthetic femur fracture, abscess, and prominent hardware). One-year mortality rate was 29.4%. There were no differences ($p>0.05$) in reoperation, readmission, or complication rates by Felix class or treatment method.

DISCUSSION AND CONCLUSION:

This study, the largest series to date, found high rates of mortality following periprosthetic tibia fractures. Outcomes did not differ by fracture location or treatment method. Future studies may be warranted to evaluate this rare, but challenging problem.