

Contemporary TKA in Patients with Prior Tibial Plateau Fractures: 15-Year Survivorship in 274 cases

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INTRODUCTION: Total knee arthroplasty (TKA) following tibial plateau fracture is more complex compared to TKA for osteoarthritis. We aimed to report survivorship, complications, radiographic results, and clinical outcomes of the largest series of TKA in this population.

METHODS: We identified 274 TKAs with prior ipsilateral tibia plateau fracture at a single institution between 2000-2020. Mean age was 62 years, 58% were female, and mean BMI was 32 kg/m². Fracture patterns were lateral plateau (54%), medial plateau (20%), and bicondylar (26%). Initial fracture treatment was open reduction internal fixation (ORIF) in 54%, nonoperative in 37%, and external fixation in 9%. Stems (30%) and metaphyseal fixation (8%) were used selectively. Mean follow-up was 9 years.

RESULTS:

The 15-year survivorships free of aseptic loosening, aseptic revision, and any revision were 96%, 94%, and 90%, respectively. There were 22 (8%) revisions, most commonly for infection (n=10) and aseptic loosening (n=5). Male sex (HR 3, p=0.016) and age \leq 50 years (HR 2.6, p=0.025) were risk factors for revision. Survivorship free of any reoperation was 77% at 15 years. Of 48 (18%) reoperations, the most common non-revision indications were stiffness (n=8) and infection (n=6). Prior ORIF (HR 2.3, p=0.02) and age \leq 50 years (HR 2.5, p=0.001) were risk factors for reoperation. There were 43 (16%) nonoperative complications, with wound problems (n=11), stiffness (n=10), and venous thromboembolism (n=5) most common. Most complications (80%) occurred within 90 days. No radiographic failures were evident in unrevised cases. Mean Knee Society scores improved from 43 to 80 at 10 years.

DISCUSSION AND CONCLUSION: Survivorship of contemporary TKA performed following tibial plateau fracture was very good and considerably better than historic series. Males \leq 50 years were at increased risk of revision, while patients \leq 50 years with prior ORIF were at increased risk of reoperation. Early complications were not uncommon.