

Cementless Total Knee Arthroplasty in Post-traumatic or Post-ACL Knees: A Case Series

Maha L. Khan BA, Sara Winfrey MD, Nicholas M. Brown MD

Background

Cementless fixation in total knee arthroplasty (TKA) has re-emerged due to advancements in cementless prosthetic technology and new evidence supporting its use in younger and/or obese patients. While previous research on cementless fixation in varied populations is promising, there are few studies, to our knowledge, investigating outcomes in patients with post-traumatic osteoarthritis. The objective of this case series was to analyze the clinical outcomes and reoperation rates of cementless TKA in patients with post-traumatic arthritis.

Methods

This study was an institutional review board (IRB) exempt retrospective review of cementless TKAs between 2020 and 2025 at an academic, tertiary referral center. Patients with a history of anterior cruciate ligament (ACL) reconstruction and/or knee trauma as demonstrated by an x-ray revealing hardware from a previous knee surgery were included. Basic univariate statistics were used to analyze the data.

Results

Ten patients were included: three patients with a history of ACL reconstruction, two with a prior femoral fracture, one with a history of patellar fracture and open reduction and internal fixation of the tibial plateau, two with tibial fractures, one patient with a previous fracture of the tibia and femur, and one patient with a valgus deformity. The mean age at surgery was 60.6 years. One patient was lost to follow-up. There were no acute complications, and mean follow-up time was 8.8 months in the remaining seven patients. At four months post-operative, one patient had an acute prosthetic infection after a spine infection that was effectively treated with irrigation & debridement (I&D) polyethylene exchange. There were no signs of migration or loosening in recent radiographs.

Conclusion

While the sample size and follow-up time is limited, use of cementless implants in TKA is safe in post-ACL or post-traumatic knees in the short-term and indicates the need for more research in this patient population.