

Etiology of Failure of Revision Total Knee Arthroplasty At Intermediate Term Follow-up

Neeku Salehi, Shreyas R Soma, Zoraiz Irshad, David Neil Kugelman, Paul Maxwell Courtney

INTRODUCTION:

Although primary total knee arthroplasty (TKA) has demonstrated excellent long-term outcomes, less is known about the survivorship of revision TKA. While few case series report short-term data, the purpose of this study is to identify the outcomes and risk factors for failure after revision TKA at intermediate term follow-up.

METHODS: We reviewed a consecutive series of 419 re-revision TKA patients from 2011-2023 across 21 hospitals at our institution. We collected data on time to failure, indications for both revision and re-revision TKA, and subsequent return to surgery. Time to failure from revision to re-revision TKA was classified as early (<2 years) or late (>2 years).

RESULTS: 160 (38%) patients were revised for infection, 110 (26%) for loosening, and 73 (17%) for instability. The leading causes for re-revision TKA also included infection (49%), loosening (21%), and instability (13%). Early failure after revision TKA occurred in 35% of patients, while 65% experienced late failure. Infection occurred more frequently in the early failure group compared to the late failure group for both first-time revisions (50% vs 31%, $p<0.001$) and re-revisions (53% vs 46%, $p<0.001$). Conversely, compared to early failures, loosening was more common within the late failure group for both revisions (17% vs 33%, $p<0.001$) and re-revisions (18% vs 24%, $p<0.001$). Of the overall cohort, 95 (23%) patients underwent subsequent surgery after their re-revision TKA, with infection being the most significant contributor (57%), followed by instability (15%) and loosening (14%).

DISCUSSION AND CONCLUSION: Infection, loosening, and instability are the most common causes for both revision and re-revision TKA. Infection is the leading etiology for early failure in both procedures and for subsequent surgery after re-revision TKA, underscoring the importance of preventing and appropriately managing these cases.