

No shortening of the patellar tendon during two-stage knee arthroplasty revision using articulating spacers

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INTRODUCTION:

Given the rising number of knee arthroplasties, an increased incidence of complications is to be expected in the future. In particular, the treatment of periprosthetic infections remains a challenge. It is still controversial whether antibiotic-impregnated static or mobile spacers are superior for the treatment of periprosthetic joint infections after TKA.

While static spacers lead to major patellar tendon shortening, mobile spacers might not. Shortening of the patellar tendon could be a reason for inferior functional outcome in two stage septic revision knee arthroplasty (TKA). The aim of this study was to analyze if mobile spacers also result in shortening of patellar tendon in two-stage-revision TKA.

METHODS:

This retrospective study includes 65 consecutive patients (23 women, 42 men, age $71,3 \pm 1,2$; range 51,2-88,6 years) undergoing septic two-stage TKA revision using an articulating spacer between 2014 and 2021 in a single orthopedic center in Germany. Surgical technique included debridement and removal of all components and cement, preserving the collateral ligaments if possible. Antibiotic loaded Polymethylmethacrylate (PMMA) cement was used to form a short stemmed tibial component. A new femoral component was implanted cementless. In addition, major bone defects were filled with PMMA seals.

For all patients, calibrated true lateral radiographs before TKA explantation (T0), directly after TKA explantation (T1), before TKA reimplantation (T2) and after TKA reimplantation (T3) were used to calculate the modified Insall Salvati ratio. Two-sided paired t-test was performed to compare groups.

All data for this study were obtained from the institutional database. Two-sided Student t-tests were used to compare modified Insall Salvati ratio among the different groups. P-values <0.05 were considered significant. All values are presented as means with standard error of mean.

RESULTS:

Insall Salvati ratio decreased significantly directly after explantation (T0 versus T1, $p=0,002$) from 1.43 ± 0.03 (T0) to $1,36 \pm 0,03$ (T1) and stayed the same until T2 ($1,37 \pm 0,02$). After reimplantation of TKA the modified Insall Salvati ratio increased again to $1.43 \pm 0,03$ (T3). There were no significant differences between T0 versus T3 ($p=0,88$).

DISCUSSION AND CONCLUSION:

A septic two-stage revision TKA with an articulating spacer does not lead to shortening of the patellar tendon in contrast to two-stage revision with a static spacer described in the literature. The literature has shown comparable reinfection rates with promising clinical outcomes compared to static spacers. This study shows one reason why clinical outcome after reimplantation might be better using this technique compared to static spacers.