

# **One-Stage Revision total knee arthroplasty for periprosthetic joint infection with an overlying sinus tract**

Mustafa Citak, Min-Jae Lee, Christian Lausmann<sup>1</sup>, Niklas Unter Ecker, Thorsten Gehrke

<sup>1</sup>Helios ENDO Klinik Hamburg

## **INTRODUCTION:**

The presence of a sinus tract is not a contraindication to perform one-stage revision for periprosthetic joint infection at our institution, if primary wound closure is possible. The primary aim of the study was to review the outcomes after one-stage TKA for periprosthetic joint infection with an overlying sinus tract and identify risk factors that may be associated with risk of re-infection.

## **METHODS:**

Patients who underwent one-stage revision TKA with an overlying sinus tract between January 2001 and December 2018 were included in the study. We excluded patients who had presented with periprosthetic joint infection of the knee with an overlying sinus but managed with two-stage revision, arthrodesis and total femur replacement. Patients with inadequate documentation or unable to be followed up during the study period were also excluded. From the same time interval, a control group of patients who underwent one-stage revision TKA for PJI without a sinus tract were randomly selected. The groups were proportionately matched by age, sex and date of the surgical procedure. The control group had the same inclusion and exclusion criteria without the presence of a sinus tract overlying the joint. Multiple patient related risk factors were analyzed. The primary endpoints of the study were reinfection, aseptic revision or wound complications.

## **RESULTS:**

There were 278 patients considered for inclusion in the study. 51 patients were excluded from the study as they were treated with a different surgical approach, 50 patients were lost to follow up and 7 patients had died at the time of data analysis. A total of 170 patients were divided into two groups: (1) 69 patients (40.6%) with sinus tract(s) overlying TKA and (2) 101 patients who underwent one-stage revision TKA for PJI without a sinus tract. When bivariate analysis was performed with reinfection as an outcome, the number of operations prior to one-stage rTKA or the location of the sinus tract did not reach significance as a risk factor for predicting reinfection. Out of the 15 patients who developed reinfection in the sinus cohort, 2 patients had the same organism in the intra-operative sample for reinfection as their initial one-stage revision. The most common organism isolated from intraoperative tissue sample in patients with sinus tract overlying TKA were Coagulase-Negative Staphylococcus in 28/69 patients (40.6%) and Staphylococcus Aureus in 12 patients (17.4%). Polymicrobial infection occurred in 14/69 (20.3%) in the sinus cohort, 11/101 (10.9%) in the control group. The result of microorganism culture in pre-operative joint aspiration correlated in 46/69 (66.7%) of patients in the sinus group. Pseudomonas was isolated from 5/69 patients in the sinus group and was strongly associated with presence of a sinus tract. (p=0.026)

## **DISCUSSION AND CONCLUSION:**

In summary, this study evaluates outcomes in a large cohort of patients who present with a sinus tract overlying TKA and demonstrates one-stage revision TKA as a viable operative PJI management option. Previous literature excluded patients with a sinus tract from undergoing one-stage rTKA as they are associated with higher risk of polymicrobial infection and difficulty achieving soft tissue coverage.