Behcet's Syndrome Patients Are at Increased Risk of Postoperative Complications Following Total Hip Arthroplasty and Total Knee Arthroplasty

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INTRODUCTION: Total hip arthroplasty (THA) and total knee arthroplasty (TKA) are commonly performed orthopedic procedures with high success rates. Understanding the potential outcome of underlying conditions on outcomes of such conditions is of clinical importance.

Behcet's syndrome is a multisystem autoimmune disorder that causes immune dysregulation, cardiopulmonary issues, and vascular dysfunction. The potential impact of Behcet's syndrome on postoperative outcomes following orthopedic procedures, specifically THA and TKA, is not well understood, and defining this is the aim of the current study.

METHODS: This retrospective cohort study utilized data from the PearlDiver 2010-2021 M157Ortho database - a large administrative dataset. THA and TKA patients with Behcet's syndrome were identified and matched 1:4 to those without Behcet's based on patient age, sex, Elixhauser Comorbidity Index (ECI) scores, and procedure performed (THA or TKA).

The incidence of 90-day adverse events following THA or TKA was subsequently determined and compared between the two groups by multivariate analysis. Five-year survival to reoperation was also determined.

Given that all PearlDiver data is aggregate and de-identified, our institutional review board granted studies using this database exempt from review.

RESULTS: After matching, 282 THA/TKA patients with Behcet's were identified and compared to 1,127 without. Multivariate analysis, adjusting for patient age, sex, ECI, and procedure type (TKA or TKA), showed that patients with Behcet's were at significantly greater risk of any (odds ratio [OR] 2.16, p<0.0001), severe (OR 1.78, p=0.0051), and minor (OR 2.39, p<0.0001) adverse events compared to those without Behcet's.

Among the serious postoperative adverse events analyzed, Behcet's patients had an increased risk of pulmonary embolism (OR 2.93, p=0.0083) and sepsis (OR 3.03, p=0.0016). Regarding minor adverse events, Behcet's patients were at increased risk of urinary tract infection (OR 3.71, p<0.0001) and pneumonia (OR 4.76, p<0.0001). Notably, there was no statistically significant difference in 5-year survival to reoperation following surgery between those with and without Behcet's.

DISCUSSION: In the largest cohort of Behcet's patients undergoing THA/TKA to date, Behcet's patients were found to be at significantly increased risk of experiencing 90-day postoperative adverse events but had similar 5-year reoperation rates. Limitations of this study include those inherent to administrative database research and patient-specific information. Further, this study did not account for the severity of disease or treatment regimen utilized among THA/TKA patients with Behcet's.

SIGNIFICANCE/CLINICAL RELEVANCE: Behcet's syndrome is sufficiently rare that data regarding perioperative and longer-term outcomes following THA/TKA has been lacking in the literature. The results of the present study show that Behcet's patients are at increased risk of 90-day postoperative complications following THA/TKA but not at increased risk for long-term complications. This study emphasizes the impact of systemic inflammatory conditions such as Bechet's syndrome on postoperative outcomes. It is suggested that the defined perioperative adverse events defined for those with Behcet's syndrome may help develop risk-mitigation strategies while giving confidence in longer-term joint survival.

Risk of Adverse Events Following THA/TKA in Patients with Behcet's vs. Without Behcet's
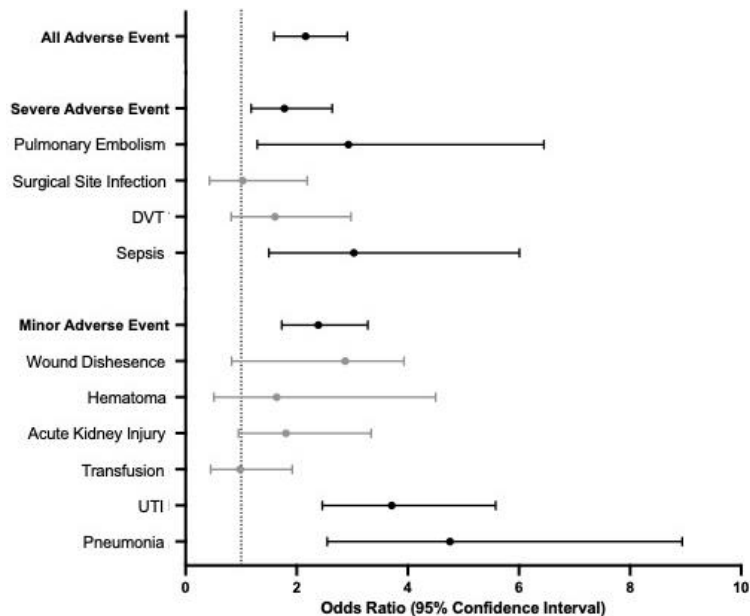

Figure 1. Risk of Adverse Events Following THA/TKA in Patients with Behcet's vs. Without Behcet's