# Incidentally Diagnosed Asymptomatic COVID-19 Does Not Increase Complication Risk in Total Joint Arthroplasty

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INTRODUCTION:
As routine preoperative COVID testing has become widespread and mandated at many institutions, asymptomatic COVID-19 cases have been incidentally identified. However, the impact of asymptomatic and incidentally discovered COVID-19 on surgical outcomes in total joint arthroplasty has not been investigated. The goal of the study is to identify differences in resource utilization and postoperative complications among patients undergoing primary elective total joint arthroplasty (TJA) in incidentally identified asymptomatic COVID-positive patients discovered via perioperative screening when compared to non-COVID controls.
METHODS: In this retrospective case control study, we reviewed asymptomatic COVID-19 cases identified on routine COVID testing the day of or within 7 days of surgery for elective primary TJA between March 2020 and December 2022 at our institution. Vaccination status, medical comorbidities, length of stay, utilization of physical therapy and laboratory resources, postoperative mobility as measured by AM-PAC, discharge location, emergency department visits, and complications were collected and compared to group of COVID-negative age and sex matched controls for the respective surgeries at a 1:4 ratio. A patient was determined to be vaccinated at time of surgery if they had received a full vaccination series 30 days or more prior to the date of surgery. Emergency department visits regardless of chief complaint were included. Postoperative complications were limited to 90 days and were defined as minor complications (anemia requiring transfusion, cellulitis of operative extremity, superficial wound complications, and deep vein thrombosis of the operative extremity) and major complications (periprosthetic fracture, prosthetic joint infection, pulmonary embolism, stroke, myocardial infarction, organ failure or death). Statistics consisted of t tests and Fishers exact test for proportions.
RESULTS: Twenty of 1,914 TKA and 28 of 1,424 THA patients had asymptomatic COVID-19 infection diagnosed perioperatively and were compared to 75 and 105 non-COVID matched controls respectively. There was no significant difference between the asymptomatic COVID groups and the controls with respect to insurance status or Charleston Comorbidity Index (TKA p=0.53|THA p=0.95). There was no significant difference in length of stay (TKA p=0.29|THA p=0.22), postoperative mobility in AM-PAC score (TKA p=0.18|THA p=0.21), number of PT visits (TKA p=0.36|THA p=0.36), number of lab tests drawn (TKA p=0.57|THA p=0.82), or non-home discharge (TKA p=1|THA p=1). There was no significant difference in either 90-day complication rate for major (TKA p=0.04|THA p=0.38) or minor (TKA p=1|THA p=0.19) complications or relative risk of major complications between the groups (TKA p=0.04|THA p=0.12). Major complications for asymptomatic COVID positive patients for TKA included one 30-day mortality of unknown cause and a patient with an ischemic stroke two months following surgery. In the THA control group, there was one mortality related to MI within 90 days while the asymptomatic COVID group had one patient with a pulmonary embolism, ICU admission, respiratory failure, renal failure, and shock and one patient with a periprosthetic fracture after a ground level fall. All major complications among the asymptomatic COVID positive group undergoing TKA occurred in unvaccinated individuals however the study was not adequately powered to analyze patients by vaccination status at time of surgery.
DISCUSSION AND CONCLUSION:
This study suggests that asymptomatic COVID-19 patients diagnosed on routine preoperative testing may proceed with elective surgery and can expect similar outcomes relative to their non-COVID positive peers.