

Expecting the Unexpected: Incidence and Management of Intraoperative Complications in Primary Total Joint Arthroplasty at Ambulatory Surgery Centers

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INTRODUCTION: Primary total joint arthroplasty (TJA) has increasingly moved to ambulatory surgery centers (ASCs) in recent years. However, ASCs often operate with limited resources, including a constrained selection of orthopaedic instruments and revision implants. Unanticipated intraoperative complications requiring revision components can increase operative time, costs, and patient risks. The incidence of complications requiring specialized components during primary TJA remains largely undocumented. Therefore, this study aims to evaluate the frequency, indications, and types of unplanned complications during primary TJA to improve surgeon preparedness and resource allocation in ASCs.

METHODS: We retrospectively reviewed primary total hip arthroplasty (THA) and total knee arthroplasty (TKA) cases performed at a single academic-affiliated ASC from January 2021 to October 2024. The study included patients undergoing primary TJA without preoperatively planned use of specialized components. Evaluated components included cones, cerclage cables, plates, modular or monoblock revision stems, varus-valgus constrained (VVC) implants, and stemmed femoral components. Chart review identified cases necessitating revision components. Additionally, patient demographics such as age, sex, smoking status, and Charlson Comorbidity Index (CCI) were collected.

RESULTS: Out of 1,307 TKA cases, 5 patients (0.38%) required VVC implants due to medial (n = 3) or lateral (n = 2) collateral ligament injury. Among 1,061 THA cases, 9 patients (0.85%) required implants that deviated from the initial surgical plan, including 8 patients that received cerclage cables for intraoperative periprosthetic fractures, with 1 of these patients also requiring a modular femoral stem. Another patient required a monoblock femoral stem alone due to excessive femoral retroversion.

DISCUSSION AND CONCLUSION: This study is the first to examine the incidence of intraoperative complications during primary TJA at an ASC, revealing a low incidence rate (0.38% for TKA and 0.85% for THA). Ensuring the availability of essential components can help ASCs minimize surgical delays, mitigate risks, and maintain optimal patient outcomes.