

Long-Term Postoperative Outcomes Following Hip Disarticulation: A Retrospective Study of 756 Patients

Sinead Leon Duran, Haad A Arif, Prabh Partap Singh, Gavin Thomas Lebrun, Abbad Sultan, Christopher T LeBrun
INTRODUCTION: Hip disarticulation (HD) is a rare, radical procedure with considerable associated morbidity and mortality. Studies investigating postoperative outcomes have been limited in sample size due to the rarity of the procedure and poor surgical follow-up. We sought to provide the most robust description of the surgical outcomes following this major ablative operation.

METHODS:

The TriNetX database was accessed to identify patients who underwent HD (CPT: 27295) between January 2010 to December 2022. Patient baseline demographics, comorbidities, and indications for surgery were collected. Postoperative outcomes, including major and minor complications, mortality, reoperation, and readmission, were extracted at 30-days, 90-days, and 1-year time points. Three cohorts, according to indication for HD (infection, trauma, cancer), were 1:1 propensity matched by patient demographics. Major 1-year complications, including mortality, readmission, reoperation, major adverse cardiac events, stroke, pulmonary embolism (PE), and deep vein thrombosis (DVT), of each cohort were compared after propensity matching.

RESULTS: A total of 861 patients were identified as having undergone hip disarticulation. Of these, outcomes were available for 756 (92.3%). Baseline patient characteristics and comorbidities can be found in Tables 1 and 2. Of the 719 patients with indications for HD, 382 (53.13%) patients underwent disarticulation for necrotizing fasciitis or other severe infection, 210 (29.21%) following traumatic amputation of the hip, and 127 (17.66%) for orthopaedic malignancy. Table 3 provides an overview of overall surgical outcomes. Patient mortality nearly doubled, from 21% at 1 month postoperatively to 42% by one year. Over the study period, the rate of DVT, wound disruption, and cellulitis at least doubled while the rate of reoperation, stroke, myocardial infarction, sepsis, PE, acute kidney injury, stump breakdown, surgical site infection, and pneumonia increased by at least 1.5. Readmission rate remained constant at above 80% at all time points. No statistically significant differences were found in incidence of major, 1-year complications based on indication for surgery.

DISCUSSION AND CONCLUSION: To our knowledge, this study provides the largest description of hip disarticulation outcomes to date. Regardless of the cause for amputation, patients experience staggering rates of repeat hospital visits and surgical care, with nearly half of patients not surviving to one-year from surgery. In patients who do survive the immediate postoperative period, orthopaedic surgeons should expect complication rates to rise substantially over the following year with particular emphasis on anticoagulation, infection risk, and wound care. The results of this study underscore the necessity of multidisciplinary care, including infectious disease, critical care, and close nursing support, in the long-term recovery following this life-saving procedure.

Table 1. Patient Characteristics

Characteristic	Value/ N (%)
Average Age at Surgery	52.3 ± 18
Average BMI at Surgery	27.5 ± 7.98
Sex	
Male	453 (59.92%)
Female	292 (38.62%)
Unknown	11 (1.46%)
Race	
White	517 (68.38%)
Black/African American	124 (16.40%)
Asian	≤ 10 (1.32%)
Native Hawaiian	≤ 10 (1.32%)
Unknown	65 (8.59%)
Other	94 (11.46%)

Table 2. Patient Comorbidities

Comorbidity	N (%)
Hypertension	392 (47.80%)
Heart Failure	370 (45.12%)
Malnutrition	259 (31.59%)
Diabetes Mellitus	254 (30.98%)
Chronic Obstructive Pulmonary Disease	163 (19.88%)
Chronic Kidney Disease	159 (19.40%)
Paralytic Syndrome (Quadriplegia/Paraplegia)	150 (18.30%)

Table 3. Rate of 30-day, 90-day, and 1-year Postoperative Complications Following Hip Disarticulation

Complication	30d	90d	1y	Increase Factor
Readmission	614 (81.22%)	622 (82.28%)	634 (83.86%)	1.03
Respiratory Failure	159 (21.03%)	200 (26.46%)	234 (30.95%)	1.47
Death	162 (21.43%)	263 (34.79%)	320 (42.32%)	1.98
Acute Kidney Injury	99 (13.10%)	126 (16.67%)	149 (19.71%)	1.51
Major Adverse Cardiac Event	84 (11.11%)	110 (14.55%)	132 (17.46%)	1.57
Reoperation	76 (10.05%)	98 (12.96%)	114 (15.10%)	1.5
Stroke	16 (2.12%)	22 (2.91%)	27 (3.57%)	1.69
Wound Complications				
Stump Breakdown	113 (14.95%)	156 (20.64%)	169 (22.35%)	1.5
Wound Disruption	68 (9.00%)	117 (15.48%)	140 (18.52%)	2.06
Surgical Site Infection	46 (6.09%)	73 (9.66%)	81 (10.71%)	1.76
Thromboembolism				
Pulmonary Embolism	29 (3.84%)	40 (5.29%)	52 (6.88%)	1.79
Deep Vein Thrombosis	25 (3.31%)	40 (5.29%)	51 (6.75%)	2.04
Infection				
Other Systemic Infection	234 (30.95%)	307 (40.61%)	354 (46.83%)	1.51
Sepsis	138 (18.25%)	174 (23.02%)	220 (29.10%)	1.59
Pneumonia	78 (10.32%)	102 (13.49%)	127 (16.80%)	1.63
Urinary Tract Infection	50 (6.61%)	89 (11.77%)	125 (16.53%)	2.50
Cellulitis	44 (5.82%)	76 (10.05%)	104 (13.76%)	2.36
Necrotizing Fasciitis	65 (8.60%)	82 (10.85%)	91 (12.04%)	1.40