

Risk Factors for Wound Complications in Direct Anterior Total Hip Arthroplasty: A 10-Year Analysis

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BACKGROUND

- The Direct Anterior Approach (DAA) continues to grow in popularity for THA
- Wound complications can occur in DAA THA given the at-risk location of the incision
- Limited data exists regarding risk factors that may predispose patients to wound complications after DAA THA

OBJECTIVE

- The purpose of this study was to identify patient and perioperative risk factors for wound complications in the DAA

METHODS

- Retrospective cohort study analyzing 725 patients who underwent THA via DAA from 2011-2023 at a tertiary center
- **Exclusions:** <90 days of follow up, non-elective THA
- **Validated Wound Complication Criteria:**
 - Dehiscence
 - Surgical Site Infection (SSI)
 - Cellulitis/Extended Course of Antibiotics
 - Use of Topical Wound Treatments
 - Wound Care Consult
 - Use of Negative-Pressure Wound Therapy (NPWT)
- **Primary Outcomes:**
 - All-Cause and Septic Revisions
 - 90-day ED visits and Readmissions

Table 1. Baseline Characteristics

	No Wound Complication (n=642)	Wound Complication (n=83)	P-Value
Mean Age (range)	65.5 (21-97)	64.4 (21-84)	0.370
Sex (Women, %)	404 (62.9)	49 (59.0)	0.283
Race (White, %)	504 (78.4)	62 (74.7)	0.881
Mean BMI (range)	27.8 (17.3-43.1)	30.4 (16.1-55.0)	<0.001*
Never Smoking Status (%)	358 (55.8)	39 (47.0)	0.116
Mean CCI (SD)	3.1 (2.5)	3.3 (2.5)	0.604
Active Diabetes (n, %)	43 (6.7)	8 (9.6)	0.218
ASA > 2 (n, %)	173 (27.0)	33 (39.7)	0.030*

Table 2. Perioperative Variables

	No Wound Complication (n=642)	Wound Complication (n=83)	P-Value
Surgical Time (Min, SD)	108.5 (34.5)	138.0 (103.9)	<0.001*
Wound Dressing (n, %)			<0.001*
None	568 (88.5)	62 (74.7)	
Pico	44 (6.9)	7 (8.4)	
Prevena	30 (4.7)	14 (16.9)	
LOS (Hours, SD)	40.6 (32.2)	50.4 (41.1)	0.013*
Disposition (Home, %)	594 (92.5)	73 (88.0)	0.224
Surgeon Experience (<1 Year, %)	21 (3.3)	7 (8.4)	0.012*

Table 3. Clinical Outcomes

	No Wound Complication (n=642)	Wound Complication (n=83)	P-Value
90-day ED Visit (n, %)	28 (4.4)	9 (10.8)	0.018*
90-day Readmission (n, %)	25 (3.9)	13 (15.7)	<0.001*
All-Cause Revisions (n, %)	18 (2.8)	16 (19.3)	<0.001*
Revision for PJI (n, %)	3 (0.5)	11 (13.3)	0.005*

RESULTS

- 83 patients (11.4%) developed a wound complication
- Univariate analysis demonstrated that increased BMI ($P<0.001$), increased surgical time ($P<0.001$), LOS ($P=0.013$), surgeon experience of <1 year with DAA ($P=0.012$) and NPWT use ($P<0.001$) were associated with wound complications
- Multivariate analysis further demonstrated increased BMI (OR: 1.06 [1.01-1.11], $P=0.016$), longer surgical time (OR: 1.01 [1.00-1.01], $P=0.004$) and NPWT use (OR: 2.1 [1.2-3.9], $P=0.016$) as risk factors
- Patients with wound complications demonstrated higher rates of 90-day ED visits (10.8 vs. 4.4%, $P=0.018$), 90-day readmissions (15.7 vs. 3.9%, $P<0.001$) and all-cause revisions (19.3 vs. 2.8%, $P=0.005$)
- The wound complication group showed higher rates of revision for periprosthetic joint infection (PJI) (13.3 vs. 0.5%, $P=0.005$)

CONCLUSIONS

- Obesity, length of hospital stay, longer surgical time and surgeon experience of less than one year with the DAA were identified as risk factors for wound complications
- Prophylactic use of NPWT was not protective against wound complication, and in fact led to **increased** wound issues based on multivariate analysis
- Wound complications resulted in higher rates of ED visits, readmissions, all-cause and septic revisions