

## Bariatric Surgery Patients at Increased Risk of PJI Following TJA

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**INTRODUCTION:** Prior to total joint arthroplasty (TJA), patients with morbid obesity may undergo bariatric surgery as a means to mitigate the risk of adverse outcomes by facilitating weight loss. However, the impact of bariatric surgery on complications following TJA is not known. Patients who undergo bariatric surgery may have a higher prevalence of medical comorbidities and nutritional deficiencies, which may increase the risk of periprosthetic joint infection (PJI). The present study sought to examine the relationship between prior history of bariatric surgery and the risk of PJI following TJA.

**METHODS:** The Premier Healthcare Database was queried for patients who underwent primary elective total hip or total knee arthroplasty from 2016-2023 using International Classification of Disease, Tenth Revision (ICD-10), and Current Procedural Terminology codes. Patients with a history of bariatric surgery were identified using ICD-10 codes. Propensity scoring was used to create a 3:1 matched cohort based on age, sex, and comorbidities. Odds of 90-day PJI were assessed with multivariable regression.

**RESULTS:** In total, 40,455 patients with a history of bariatric surgery were matched to 120,257 controls. Final matched model covariates included age, sex, hypertension, diabetes, obesity, iron deficiency anemia, hypothyroidism, and depression. The incidence of PJI was significantly higher in the bariatric surgery cohort (0.85% vs. 0.67%,  $p < 0.001$ ). After accounting for confounding factors, bariatric surgery was associated with an increased risk of PJI (adjusted odds ratio [aOR]: 1.25; 95% confidence interval 1.10-1.41;  $p = 0.001$ ).

**DISCUSSION AND CONCLUSION:** Patients with a history of bariatric surgery had an approximately 25% increased risk of PJI following TJA. Surgeons should consider the increased likelihood of infection when assessing risk and counseling these patients prior to surgery.

	No History of Bariatric Surgery N=120,257		History of Bariatric Surgery N=40,208		P value	Multivariable Analysis				
	N	%	N	%		aOR	95% CI	P value		
<b>Primary Complication</b>										
Periprosthetic Joint Infection	808	0.67%	342	0.85%	<0.001	1.245	1.096	1.415	0.001	
<b>Secondary Complications</b>										
Pulmonary Embolism	458	0.38%	122	0.30%	0.025	0.787	0.643	0.962	0.019	
Deep Vein Thrombosis	757	0.63%	310	0.77%	0.003	1.230	1.076	1.405	0.002	
Wound Dehiscence	803	0.67%	386	0.96%	<0.001	1.400	1.238	1.583	<0.001	
Seroma	100	0.08%	56	0.14%	0.002	1.641	1.180	2.282	0.003	
Stroke	116	0.10%	33	0.08%	0.412	0.817	0.553	1.205	0.308	
Pneumonia	522	0.43%	166	0.41%	0.573	0.908	0.761	1.084	0.285	
Acute Respiratory Failure	1,271	1.06%	360	0.90%	0.005	0.780	0.691	0.880	<0.001	
Myocardial Infarction	171	0.14%	62	0.15%	0.584	1.002	0.747	1.345	0.990	
Acute Renal Failure	2,483	2.06%	920	2.29%	0.007	1.046	0.965	1.135	0.274	
Transfusion	2,080	1.73%	1,107	2.75%	<0.001	1.535	1.424	1.654	<0.001	
Hematoma	374	0.31%	199	0.49%	<0.001	1.551	1.303	1.845	<0.001	
Acute Anemia	17,641	14.67%	6,922	17.22%	<0.001	1.218	1.181	1.257	<0.001	
Hemorrhage	228	0.19%	100	0.25%	0.023	1.277	1.008	1.619	0.043	
90-Day Hospital Readmission	3,350	2.79%	1,434	3.57%	<0.001	1.224	1.149	1.305	<0.001	
Mortality	83	0.07%	35	0.09%	0.248	1.265	0.848	1.887	0.249	

Table 1: Complications for 3:1 Matched Patients w/o and w/ History of Bariatric Surgery.