

Arthroscopy Versus Open Arthrotomy in the Treatment of Septic Arthritis of the Wrist: An Analysis of Reoperation Rates and Inpatient Outcomes

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INTRODUCTION:

Septic arthritis of the wrist is an uncommon condition, but one that can result in substantial morbidity. There are limited data on the inpatient outcomes of septic arthritis of the wrist among patients treated using arthroscopy versus open arthrotomy. The purpose of our study was to compare the reoperation rates and inpatient complications between these two procedures.

METHODS:

The Nationwide Inpatient Sample database was used to identify patients 18 years old and older with a diagnosis of septic arthritis of the wrist in the United States from 2002 to 2012. Septic arthritis cases were classified based on the treatment modality and patients who were treated either arthroscopically or using arthrotomy were included in statistical analysis. Hospitalization outcomes including reoperation rates, surgical and medical complications were compared after adjusting for age, gender, race, and comorbidities in multivariate logistic regression analysis. Mean costs and length of stay (LOS) were compared using the student's t-test.

RESULTS:

A total of 1065 were treated either arthroscopically (n = 516) or using arthrotomy (n = 549). Patients who were treated arthroscopically had a higher reoperation rates (48.6% vs 8.7%; p<0.05). Using multivariate analysis, patients who were treated arthroscopically were more likely to undergo repeat arthroscopic procedures (OR, 9.90; 95% CI, 7.0-14.0; p <0.0001). However, they were not different in terms of the risk of developing medical (OR, 1.19; 95% CI, 0.82-1.71; p=0.36) or surgical complications (OR, 0.81; 95% CI, 0.62-1.00; p=0.12). Arthroscopy and arthrotomy did not differ in terms of length of stay (6.29±5.0 vs 6.26±4.5; p=0.90) and inpatient hospital charges (\$33,563.4±\$30,296.3 vs \$34,422.6±\$31,362.0; p=0.65).

DISCUSSION AND CONCLUSION:

Given these findings, orthopaedic surgeons should be aware of the increased reoperation rates when managing patients with septic arthritis of the wrist arthroscopically and should discuss such findings with potential surgical candidates during a shared decision-making process.

Table 1. Demographic measurements for patients with septic arthritis of the wrist in the United States, stratified by treatment modality: 2002-2012 combined, Nationwide Inpatient Sample.

Category	Total patients with septic arthritis of the wrist included in the	Septic arthritis of the wrist treated arthroscopically	Septic arthritis of the wrist treated using arthrotomy	P Value ¹
Number of admissions (N%)	1065 (100)	516 (48.5)	549 (51.5)	
Mean age (yr)	60.6±17.7	60.7 ±17.7	60.6 ±17.7	0.92
Sex (N%)				
Male	674 (63.3)	327 (63.4)	347 (63.2)	<0.05
Female	389 (36.5)	189 (36.6)	200 (36.4)	<0.05
N/A	2 (0.2)	0 (0)	2 (0.4)	
Race (N%)				
White	619 (58.1)	295 (58.8)	326 (59.4)	<0.05
Black	137 (12.9)	63 (12.2)	74 (13.5)	<0.05
Hispanic	67 (6.3)	34 (6.6)	33 (6.0)	<0.05
Other	44 (4.1)	26 (5.0)	18 (3.3)	<0.05
N/A	198 (18.6)	100 (19.4)	98 (17.9)	
Primary insurance				
Medicare	518 (48.6)	258 (50.0)	260 (47.4)	<0.05
Medicaid	98 (9.2)	50 (9.7)	48 (8.7)	<0.05
Private Insurance	297 (27.9)	140 (27.1)	157 (28.6)	<0.05
Self-Pay	83 (7.8)	38 (7.4)	45 (8.2)	<0.05
No charge	13 (1.2)	4 (0.8)	9 (1.6)	<0.05
Other	54 (5.1)	24 (4.7)	30 (5.5)	<0.05
N/A	2 (0.2)	2 (0.4)	0 (0)	
Elixhauser comorbidity index (N%)				
0	181 (17.0)	99 (19.2)	82 (14.9)	<0.05
1	204 (19.2)	96 (18.6)	108 (19.7)	<0.05
2	219 (20.4)	98 (19.0)	121 (22.0)	<0.05
≥3	448 (42.1)	217 (42.1)	231 (42.1)	<0.05
N/A	13 (1.2)	6 (1.2)	7 (1.3)	

N/A: missing data
¹Comparisons were conducted using the z-test with p-values adjusted using the Bonferroni method.

Table 2. Association of treatment modality with hospitalization outcomes among patients with septic arthritis of the wrist, United States: 2002-2012, Nationwide Inpatient Sample

Hospitalization outcome	OR (95% CI)*	P value
Performed repeat operation		<0.0001
Arthrotomy	Reference	
Arthroscopy	9.90 (7.0-14.0)	
Surgical complications ¹		0.12
Arthrotomy	Reference	
Arthroscopy	0.81 (0.62-1.00)	
Medical complications ²		0.36
Arthrotomy	Reference	
Arthroscopy	1.19 (0.82-1.71)	

* Multivariate logistic regression adjusted for age, sex, race and comorbidities.
¹Wound hemorrhage, disruption, and infection.
²Acute myocardial infarction, pulmonary embolism, pneumonia, acute renal failure, deep vein thrombosis, sepsis, urinary tract infection, and stroke.