

Does Undergoing Arthrotomy versus Arthroscopy Affect Clinical Outcomes in Hip and Knee Native Septic Arthritis Patients?

Vineet Desai¹, Jared Mark Alswang, Gabriel S Linden, Sophie Lipson, Daniel Chukwuebuka Gabriel¹, Scott Patrick Ryan, Matthew J Salzler², Jeffrey K Lange³, Antonia F Chen

¹Harvard Medical School, ²Tufts Medical Center, ³Brigham and Women's Hospital

INTRODUCTION: Septic arthritis is a surgical emergency that often requires treatment with both irrigation and debridement (I&D) and antibiotics. The two most common methods of I&D for treating septic arthritis are arthrotomy, an open procedure, and arthroscopy, a less invasive approach. There is currently no consensus on whether treating hip and knee native septic arthritis with arthrotomy or arthroscopy is more effective. Therefore, the purpose of this study was to evaluate whether undergoing arthrotomy or arthroscopy affected the outcomes of patients with hip and knee native septic arthritis.

METHODS: A retrospective analysis was conducted at two separate hospital systems on 135 patients with hip or knee septic arthritis admitted from 3/2016-11/2018 (system 1) and 6/2014-9/2018 (system 2). Patients were identified through each hospital system's database using ICD-10 codes, and inclusion was verified through manual chart review. Patients with periprosthetic joint infections, tuberculous or fungal infections, or no outcomes data recorded were excluded. If patients had multiple septic joints, each joint was analyzed individually. We analyzed a total of 147 joints (hip=51, knee=96). Statistical analysis was performed using Pearson's Chi-squared test for independence, Fisher's Exact Test, and independent samples t-test with an alpha of 0.05.

RESULTS: Seventy-two joints underwent arthroscopy and 75 joints underwent arthrotomy. Patients in the two cohorts did not differ significantly in gender (p=0.15), age (p=0.82), immunocompromised status (p=0.20), smoking status (p=0.45), serum C-reactive protein (CRP, p=0.39), and serum white blood cell (WBC, p=0.21) when presenting to the emergency department. No significant difference was observed between groups in regard to undergoing a second I&D, overall readmission at 30 days, readmission at 30 days for septic arthritis, overall readmission at 90 days, readmission at 90 days for septic arthritis, death at 30 days, death at 90 days, or amputation at 90 days (**Table 1**). Furthermore, there was no significant difference in serum CRP (p=0.87) or serum WBC (p=0.62) after the first I&D.

DISCUSSION AND CONCLUSION:

Clinical outcomes after I&D for hip and knee native septic arthritis were similar between the arthrotomy and arthroscopy cohorts. Arthroscopy may be an effective and less invasive treatment option for hip and knee septic arthritis in comparison to arthrotomy.

Table 1. Post-operative outcomes based on type of irrigation and debridement (I&D) in hip and knee native septic arthritis (SA)

	Arthroscopy N=72	Arthrotomy N=75	p-value
	n (%)	n (%)	
Underwent a second I&D	20 (28%)	16 (21%)	0.34
30 day readmission overall	11 (15%)	15 (20%)	0.45
30 day readmission due to SA	7 (10%)	12 (16%)	0.26
90 day readmission overall	20 (28%)	29 (39%)	0.16
90 day readmission related to SA	13 (18%)	21 (28%)	0.15
30 day death	0 (0%)	2 (3%)	0.50
90 day death	0 (0%)	5 (7%)	0.06
90 day amputation	0 (0%)	1 (1%)	1.00

P-values < 0.05 considered significant