

Sex-Based Differences in Arthroscopic Shoulder Surgical Delay for Complete Rotator Cuff Tears: A Propensity Matched Analysis

Ronak J. Mahatme¹, Peter F. Monahan², Michael S. Lee³, Stephen M. Gillinov⁴, Nancy Park⁴, Katherine J. Coyner⁵, Andrew E. Jimenez⁴

¹University of Connecticut School of Medicine, Farmington, CT, ²Penn State College of Medicine, Hershey, PA, ³Medical College of Wisconsin, Milwaukee, WI, ⁴Department of Orthopaedics and Rehabilitation, Yale School of Medicine, New Haven, CT, ⁵Department of Orthopaedic Surgery, UConn Musculoskeletal Institute, University of Connecticut, Farmington, CT
mahatme@uchc.edu

Disclosures: Ronak J. Mahatme (N), Peter F. Monahan (N), Michael S. Lee (N), Stephen M. Gillinov (N), Nancy Park (N), Katherine J. Coyner (N), Andrew E. Jimenez (N)

INTRODUCTION: Increased complete rotator cuff tear (RCT) surgical delay, defined as the time from complete RCT diagnosis to arthroscopic shoulder surgery with rotator cuff repair, is associated with worse post-operative outcomes. Previous studies have shown that delaying RCT repair beyond 12 months of diagnosis is associated with increased fatty appearance of the rotator cuff muscles on preoperative MRI and ultimately increased rates of revision surgery. However, factors that potentially increase surgical delay have not been well studied. The purpose of this study is to evaluate sex-based differences in complete RCT surgical delay using a large national database.

METHODS: A retrospective analysis was conducted using the TriNetX database using International Classification of Disease-10 (ICD-10), Current Procedural Terminology (CPT) and Veterans Administration (VA) drug classification codes. Patients undergoing arthroscopic shoulder surgery with RCT repair (CPT 29827) with a diagnosis of complete RCT (ICD-10 M75.12) were identified. Patients with prior complete RCTs and/or prior arthroscopic shoulder surgery were excluded. Patients were divided into male and female cohorts. Cohorts were propensity matched for age at initial injury, nicotine dependence (ICD-10 F17), diabetes mellitus (ICD-10 E08-E13), obesity (ICD-10 E66.01), and opioids analgesic prescription (VA: CN101) within 1 year of complete RCT diagnosis. Arthroscopic repair rates within 1 month, 3 months, 6 months, 1 year, and 2 years following complete RCT diagnosis were determined by Kaplan-Meier analysis. Statistical significance was set to $P < .05$.

RESULTS: After querying the database, 138,988 patients were identified of which 76,822 were male (55.3%). Ultimately 60975 female patients were propensity matched to 60975 male patients and were included in the analysis. Males had significantly greater rates of RCT repair compared to females within 1 month following complete RCT diagnosis (43.8% versus 42.8%; $P = 0.0009$). There was no statistically significant difference within 3 months following RCT diagnosis (76.7% versus 76.8%; $P = 0.919$). However, females had significantly greater rates of RCT repair within 6 months (87.4% versus 86.9%; $P = 0.0034$), 1 year (93.0% versus 92.5%; $P = 0.0005$), and 2 years (96.2% versus 95.8%; $p < 0.0001$) following complete RCT diagnosis. Thus, a significantly greater percentage of males did not have RCT repair within 2 years of diagnosis.

DISCUSSION: In this study of sex-based differences in complete RCT surgical delay, males had lower rates of arthroscopic shoulder surgery with complete RCT repair compared to females within 2 years following complete RCT diagnosis. Existing literature has shown that delaying surgery for more than 12 months is associated with increased rates of re-tear and revision surgery. Therefore, surgical delay may be one factor causing male patients to be at greater risk of complications following complete RCT repair compared to their female counterparts.

SIGNIFICANCE/CLINICAL RELEVANCE: Males had lower rates of arthroscopic shoulder surgery with complete RCT repair compared to females within 2 years following complete RCT diagnosis. Delaying RCT repair beyond 12 months of diagnosis is associated with increased rates of revision surgery, so surgical delay may be one factor causing male patients to be at greater risk of complications.

IMAGES AND TABLES:

	Cohort	1 month		3 months		6 months		1 year		2 years	
		% Patients	p-value	% Patients	p-value	% Patients	p-value	% Patients	p-value	% Patients	p-value
Females	60975	42.824	0.0009	76.741	0.9190	87.431	0.0034	92.986	0.0005	96.216	<0.0001
Males	60975	43.767		76.766		86.87		92.464		95.756	

Table 1. Sex-Based Differences in Rotator Cuff Repair Rates at Different Time Points Following Complete Tear