

Recurrence after Anterior Shoulder Stabilization: Two-Year Results from the MOON Shoulder Cohort

Brian R Wolf¹, Warren Dunn², Shannon Ortiz³, Keith M Baumgarten⁴, Julie Young Bishop, Matthew J Bollier³, Jonathan Todd Bravman, Robert H Brophy⁵, James E Carpenter, Charles Leonard Cox, Brian T Feeley, Rachel M Frank⁶, John Andrew Grant⁷, Grant L Jones, John E Kuhn⁸, Drew Lansdown, ChunBong Benjamin Ma⁹, Robert G Marx¹⁰, Ian Savage Elliott¹¹, Bruce Scott Miller, Andrew Shedden Neviasser, Adam Joseph Seidl¹², Matthew V Smith¹³, Rick W Wright¹⁴, Alan Zhang¹⁵, Carolyn Hettrich

¹Univ of Iowa Hosps & Clinics, ²Texas Orthopedic Hospital, ³University of Iowa Sports Medicine, ⁴Orthopedic Institute, ⁵Washington University Orthopedics, ⁶University of Colorado School of Medicine, ⁷MedSport, University of Michigan, ⁸Vanderbilt Univ Med Ctr, ⁹UCSF Med Ctr, ¹⁰Hosp for Special Surgery, ¹¹Tulane School of Medicine, ¹²University of Colorado - Orthopedics, ¹³Washington University, ¹⁴Vanderbilt Dept of Orthopaedics, ¹⁵UCSF Orthopaedic Institute

INTRODUCTION:

Surgical treatment for anterior shoulder instability is common. Success after surgical stabilization can be gauged by recurrence of instability after surgery or need for further surgery. Subsequent instability after surgery includes recurrent frank dislocation requiring reduction or subjective recurrent subluxation. The purpose of this study was to analyze rates of recurrent instability and subsequent surgery in a large prospective multicenter cohort of patients undergoing anterior shoulder stabilization.

METHODS: Patients aged 12 and older undergoing surgery for anterior shoulder instability were prospectively enrolled by 30 surgeons at 10 academic and private institutions in the United States. Both primary and revision surgery, as well as arthroscopic and open surgery, were included. Patients were excluded if a Latarjet or other bone block procedure was performed. Failure was defined as subsequent shoulder dislocation, subluxation, or repeat surgery. Multivariate analysis was performed to identify predictors of any type of failure, and to specifically analyze patient factors and surgical factors associated with recurrent dislocation.

RESULTS: A total of 1,021 patients were prospectively enrolled and had two-year follow up. The average patient age was 22.0 years, 78% were male, and 16% were minorities. Of the 1,021 surgeries, 961 were arthroscopic stabilizations, of which 886 were primary and 75 were revision surgeries. There were 60 open stabilizations, of which 38 were primary and 22 were revision surgeries. At two-year follow up, 286/1,021 (28%) were categorized as a failure due to subsequent surgery, dislocation, or subluxation. This included 44 (4.3%) patients who had undergone subsequent surgery, 62/1,021 (6.1%) who had a shoulder dislocation within two years, and 200 (19.6%) who reported a shoulder subluxation. Of the 200 who reported a shoulder subluxation, only 3 had undergone repeat surgery. Multivariate analysis of variables associated with any type of failure demonstrated that young age and revision surgery were significant predictors. The predicted failure rate was nearly 40% for patients at age 15 and dropped markedly as patients got older. Multivariate analysis of patient factors associated with recurrent dislocation demonstrated that young age and number of preoperative dislocations were significantly predictive of subsequent dislocation. Multivariate analysis of surgical factors related to recurrent dislocation, adjusted for age, demonstrated that only the use of knotless suture anchors was predictive of recurrent dislocation. Variables that were not found to be significant in predicting subsequent dislocation included number of anchors, beach chair versus lateral decubitus, open versus arthroscopic surgery, and use of remplissage for surgical factors; and bone loss, contact sports, primary versus revision, and activity level for patient factors.

DISCUSSION AND CONCLUSION: At a minimum of two years after surgery, there was a 6.1% dislocation and 19.6% subluxation rate in a large multicenter prospective cohort undergoing stabilization surgery for anterior shoulder instability. Young patient age and revision surgery were the two highest predictors of any type of failure. Only 4.3% of patients had repeat surgery for instability at two years. Young age, revision surgery, and use of knotless anchors were significantly associated with recurrent dislocation.