

The Effect of Trauma History and Symptom Duration on Repair Integrity in 2,335 Consecutive Arthroscopic Rotator Cuff Repairs

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INTRODUCTION:

Few studies have assessed the impact of trauma history and pre-operative symptom duration on cuff integrity after arthroscopic rotator cuff repair (RCR). This study aimed to assess the hypothesis that acute, traumatic rotator cuff tears are less likely to retear after arthroscopic RCR compared to chronic, atraumatic tears.

METHODS:

We conducted a post-hoc analysis of prospectively collected data for 2,335 consecutive patients who underwent primary arthroscopic RCR and were evaluated for retear on ultrasound 6 months post-operatively. A single-row knotless repair technique was used for all patients. The cohort was divided into patients who recalled a specific event that instigated their symptoms ('traumatic' group) and those who did not ('atraumatic' group). Chi-Square test was utilised to assess the difference in retear rate between the traumatic and atraumatic groups. Multivariate logistic regression analyses were performed to identify independent predictors of retear, and receiver operating characteristic (ROC) curve analysis was used to evaluate the accuracy of the regression equations.

RESULTS:

The traumatic and atraumatic groups consisted of 1489 and 846 patients, respectively. There was no significant difference in retear rate between the traumatic and atraumatic groups (13% and 11% respectively, $P = 0.137$). In the entire cohort, trauma history and pre-operative symptom duration were not predictive of retear. In the traumatic group, larger tear size area was the strongest independent predictor of retear (AUC = 0.76, 99% CI = 0.70 – 81), followed by longer operative time (AUC = 0.69, 99% CI = 0.64 – 0.74), older patient age (AUC = 0.68, 99% CI = 0.63 – 0.73) and full thickness tear (AUC = 0.66, 99% CI = 0.61 – 0.71). In the atraumatic group, larger tear size area was the strongest independent predictor (AUC = 0.76, 99% CI = 0.68 – 0.83), followed by older patient age (AUC = 0.67, 99% CI = 0.59 – 0.75) and full thickness tear (AUC = 0.66, 99% CI = 0.58 – 0.73).

DISCUSSION AND CONCLUSION: Trauma history and pre-operative symptom duration did not impact cuff integrity 6 months after arthroscopic RCR. More important factors associated with enhanced repair integrity include smaller tear size and younger patient age.