

Use of Posterior Anchor in Arthroscopic Anterior Shoulder Labral Repair Does Not Decrease Rate of Recurrent Instability

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INTRODUCTION: Labral tears of the shoulder are a common injury that can occur in patients of all ages. Conservative management is the first line treatment, with arthroscopic repair reserved for those who do not respond to nonoperative measures. Although arthroscopic repair with suture anchors is widely accepted as the standard surgical treatment, there is limited consensus on anchor placement. Cadaveric investigations suggest that posterior anchor placement may allow for greater range of motion when compared to anterior anchor placement. However, there is a paucity of literature regarding the impact of posterior anchor placement on rates of recurrent instability. The purpose of this study is to evaluate clinical outcomes and complication rates of patients who underwent arthroscopic labral repair for anterior labral tear with and without use of posterior anchor.

METHODS: A retrospective review was conducted of patients who underwent arthroscopic labral repair for anterior labral tear with shoulder instability between 2018 to 2023. Patient demographics, past medical history, and surgical technique were recorded. Patients were categorized into groups according to surgical technique, resulting in a cohort of patients who underwent anterior labral repair with additional posterior anchors versus those without posterior anchors (control cohort). Pre-operative and post-operative range of motion was compared within and between cohorts. The rate of complications, including residual stiffness, anchor pullout, recurrent shoulder instability, and revision surgery were recorded. Chi-square analysis was performed to compare categorical variables while paired or independent t-tests were used to compare continuous variables. Statistical significance was determined to be a p-value <0.05.

RESULTS: There were 219 patients included for analysis, 94 in the control cohort and 125 in the posterior anchor cohort. The average age was 23.1 ± 10.6 years, 50 patients (23%) were female, and the average follow-up was 7.7 months. There were 77 patients (35%) with history of shoulder instability. When comparing preoperative and postoperative range of motion within the control cohort, forward flexion significantly improved from $158^\circ \pm 29^\circ$ to $168^\circ \pm 16^\circ$, respectively ($p=0.02$). External rotation of the control cohort also improved, but this was not statistically significant. Within the posterior anchor cohort, external rotation significantly improved from $54^\circ \pm 16^\circ$ preoperatively to $61^\circ \pm 21^\circ$ postoperatively ($p=0.02$). Forward flexion of the posterior anchor cohort also improved, but this was not statistically significant. Postoperatively, there were no significant differences in forward flexion ($p=0.17$) or external rotation ($p=0.66$) between the control cohort and posterior anchor cohort. The posterior anchor cohort had a higher rate of recurrent instability (10%) compared to the control cohort (7%); however, this was not statistically significant ($p=0.45$). Both groups had the same rate of revision procedures (6%) with the posterior anchor cohort undergoing revision sooner after index procedure compared to the control cohort (11.7 months vs 16.2 months, $p=0.53$).

DISCUSSION AND CONCLUSION:

The use of posterior anchors during arthroscopic repair of anterior labral tear did not decrease the rate of recurrent instability. Both the control cohort and posterior anchor cohort had improved range of motion when comparing preoperative and postoperative values. Furthermore, there were no significant differences in final range of motion between the control cohort and posterior anchor cohort.

Table 1: Cohort Characteristics

	Control Cohort (n=94)	Posterior Anchor Cohort (n=125)	p-value
	mean (SD) or n (%)		
Age (years)	24.7 (12.5)	22.1 (8.8)	0.07
Sex			
Male	68 (72)	101 (81)	0.14
Female	26 (28)	24 (19)	
BMI	27.6 (6.7)	27.0 (5.1)	0.45
Athlete			
No	34 (36)	22 (18)	0.002
Yes	60 (64)	103 (82)	
Specific Injury			
No	48 (51)	65 (52)	0.65
Yes	46 (49)	60 (48)	
History of Instability			
No	58 (62)	84 (67)	0.40
Yes	36 (38)	41 (33)	
Avg. Follow-Up (months)	7.7 (10.8)	7.7 (8.9)	0.96

Table 2: Postoperative Complication Rate

	Control Cohort (n=94)	Posterior Anchor Cohort (n=125)	p-value
	mean (SD) or n (%)		
Stiffness			
No	85 (90)	115 (92)	0.52
Yes	9 (10)	10 (8)	
Anchor Pullout			
No	95 (100)	123 (98)	0.67
Yes	0 (0)	2 (2)	
Recurrent Instability			
No	88 (93)	112 (90)	0.45
Yes	7 (7)	13 (10)	
Revision			
No	89 (94)	117 (94)	0.99
Yes	6 (6)	7 (6)	
Time to Revision (months)	16.2 (15.8)	11.7 (11.4)	0.53