

Arthroscopic Bankart Repair with or without Remplissage: A Single-Institution Cost Comparison

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INTRODUCTION:

Anterior shoulder instability has a high rate of recurrence with non-operative management. Repair of the anteroinferior glenoid labrum (Bankart lesion) is typically the first line of treatment with remplissage as a useful adjunct to lower risk of recurrence. We compared overall costs between isolated arthroscopic Bankart repair (ABR) and ABR with remplissage.

METHODS:

This was a retrospective study of all patients who underwent arthroscopic treatment of anterior shoulder instability between June 2011 and August 2021. Patient, procedural factors and clinical outcome data were collected. Financial data was provided by the finance department with reporting of “relative costs”. The glenoid track was calculated using MRI and the best fit circle method to estimate glenoid bone loss (GBL). The Hill Sachs Interval (HSI) was measured, and patients were determined to either have ‘on’ or ‘off’ track lesions.

RESULTS:

The study included 48 patients who underwent ABR alone and 49 patients who underwent ABR with remplissage. There were no significant differences in age (29.6 ± 7.9 years vs. 29.7 ± 9.0 years, $p=0.949$), sex (72.9% male vs. 71.4% male, $p=0.872$), or BMI (25.8 ± 4.5 kg/m² vs. 25.4 ± 4.1 kg/m², $p=0.647$) in the ABR alone and ABR with remplissage cohorts, respectively. There was no significant difference in total cost between isolated ABR and ABR with remplissage ($p=0.429$). The remplissage cohort had a significantly greater mean number of anchors used in surgery (5.5 ± 1.1 vs. 4.0 ± 1.5 , $p<0.001$). There was no significant difference in mean number of dislocations (0.12 ± 0.33 vs 0.06 ± 0.24 , $p=0.312$), ED visits (0.12 ± 0.33 vs 0.04 ± 0.20 , $p=0.150$) or revision surgery (0.10 ± 0.31 vs 0.04 ± 0.20 , $p=0.234$) between the two cohorts. The remplissage cohort had a significantly higher rate of “off-track” lesion (24.5% vs. 6.2%, $p=0.013$), % glenoid bone loss (8.7% vs. 5.7%, $p=0.015$) and Hill Sachs lesion size (16.7 ± 4.1 mm vs. 8.9 ± 6.9 mm, $p<0.001$).

DISCUSSION AND CONCLUSION:

No differences in total cost were found between ABR with or without addition of remplissage. Rates of post-operative ED visits and revision surgery due to recurrent instability were similar in both groups, despite a significant increase in the number of off-track lesions, HSI and GBL seen in the remplissage group. Surgeons may consider addition of remplissage in the appropriate clinical context with low concern of increased cost.

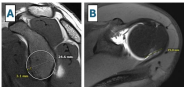


Fig. 2A, Intraoperative MRI (A) axial and (B) coronal view of the glenoid track. Fig. 2B, Intraoperative MRI (B) coronal view. Estimation of the relative glenoid bone loss (GBL) using the best fit circle method. The line indicates the best fit circle method to estimate glenoid bone loss (GBL) resulting in a glenoid track of 17.5mm.

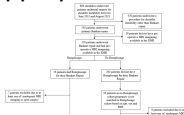


Fig. 3, Diagram illustrating the determination of Hill Sachs Interval (HSI) and Hill Sachs lesion size. The HSI is determined by the length of the Hill Sachs interval (HSI) and the Hill Sachs lesion size is determined by the length of the Hill Sachs lesion.

Table 1: Demographics			
	No Remplissage (n=48)	Remplissage (n=49)	p-value
Age (years)	29.6 ± 7.9	29.7 ± 9.0	0.949
Sex	M: 70.9%, F: 29.1%	M: 71.4%, F: 28.6%	0.872
BMI (kg/m ²)	25.8 ± 4.5	25.4 ± 4.1	0.647

Table 2: Relative Cost Analysis of Remplissage versus No Remplissage Cohort (Relative to Cost of ABR)			
Surgery, Revision Surgery and ED Associated Costs			
	No Remplissage (n=48)	Remplissage (n=49)	p-value
Total Cost	110.00%	100.00%	0.429
Total Cost of Primary Surgery	92.00%	92.40%	0.803
Total Cost of Revision Surgery	14.40%	6.90%	0.280
Total Cost of ED	0%	0.60%	0.112

Table 3: Cost Analysis of Remplissage versus No Remplissage Cohort (Relative to Cost of ABR)			
	No Remplissage (n=48)	Remplissage (n=49)	p-value
Anchors	1.00%	1.00%	0.999
Labral Repair	1.00%	1.00%	0.999
Labrum Reinforced	0.00%	0.00%	0.999
Labrum Repair	1.00%	1.00%	0.999
Labrum Repair	1.00%	1.00%	0.999
Labrum Repair	1.00%	1.00%	0.999
Labrum Repair	1.00%	1.00%	0.999
Labrum Repair	1.00%	1.00%	0.999
Labrum Repair	1.00%	1.00%	0.999
Labrum Repair	1.00%	1.00%	0.999

Table 4: Clinical Outcome Data			
	No Remplissage (n=48)	Remplissage (n=49)	p-value
Number of Dislocations	0.12 ± 0.33	0.06 ± 0.24	0.312
ED Visits	0.12 ± 0.33	0.04 ± 0.20	0.150
Revision Surgery	0.10 ± 0.31	0.04 ± 0.20	0.234
Off-Track Lesion	6.2%	24.5%	0.013
% Glenoid Bone Loss	5.7%	8.7%	0.015
Hill Sachs Lesion Size	8.9 ± 6.9 mm	16.7 ± 4.1 mm	<0.001
Off-Track Lesion	0.12 ± 0.33	0.06 ± 0.24	0.312
ED Visits	0.12 ± 0.33	0.04 ± 0.20	0.150
Revision Surgery	0.10 ± 0.31	0.04 ± 0.20	0.234