Patient-Reported Outcomes Decline Over Time following Arthroscopic Bankart Repair for Anterior Shoulder Instability

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INTRODUCTION: Anterior shoulder instability is often a challenging orthopedic condition to treat due to high rates of recurrent anterior shoulder instability in high-risk populations, such as younger patients, collision or overhead athletes, and military personnel. (1) Arthroscopic Bankart repair (ABR) has become the mainstay of surgical stabilization for anterior shoulder instability, and may be augmented with soft tissue remplissage for patients who present with significant osseous defects to the posterolateral humeral head, termed a Hill-Sachs lesion (HSL). While the "glenoid track" framework has significantly advanced treatment of anterior shoulder instability, namely that off-track HSLs may benefit from remplissage whereas on-track HSLs may be treated sufficiently with isolated ABR, there remains a persistently elevated recurrent instability rate following ABR at long-term follow-up. (2,3) In addition, a time-dependent decline in clinical outcomes following ABR for anterior shoulder instability has been shown, suggesting the effectiveness of ABR and remplissage may diminish over time. (4,5) However, there remains limited understanding of how patient-reported outcomes (PROs) change over time following ABR for anterior shoulder instability and on-track HSLs. Therefore, the purpose of this study was to evaluate the trend in PROs over time following ABR for anterior shoulder instability and on-track HSLs in a young population. The hypothesis was that PROs would decline over time following ABR for anterior shoulder instability and on-track HSLs in a young population.

METHODS: A retrospective review of prospectively collected data was conducted on all patients undergoing ABR with or without remplissage for anterior shoulder instability between 2007-2023. Exclusion criteria included age >30 years, glenoid bone loss >25%, off-track HSLs, concomitant rotator cuff tears, and revision procedures. All patients were contacted to obtain PROs, including Western Ontario Shoulder Index (WOSI), pain Visual Analog Scale (pVAS), and Subjective Shoulder Value (SSV) scores, recurrent anterior shoulder instability events, and subsequent shoulder surgeries. Correlation analysis was utilized to identify the association between PRO variables and follow-up length to evaluate how PROs may trend over time in a young patient population. Correlation analysis was performed for the total study population, as well as separately for patients with and without recurrent anterior shoulder instability. Significance was set to $p<0.050$.

RESULTS SECTION: PROs were obtained for 116 eligible patients (age: 19±5 years, 29 females) at mean follow-up of 7.1 years (range: 1.6-17.2 years). Recurrent anterior shoulder instability occurred in 28 (24.1%) patients. There was a statistically significant increase in WOSI ($r=0.219$; $p=0.019$) and decrease in SSV ($r=-0.201$; $p=0.032$) scores over time (Table 1). Both trends represent inferior PRO scores with longer-term follow-up. When stratifying between patients with and without recurrent anterior shoulder instability, the correlation towards inferior PROs was most pronounced in the recurrent anterior shoulder instability group (WOSI: $r=0.243$; pVAS: $r=0.225$; SSV: $r=-0.343$), however this failed to achieve statistical significance (Table 1).

DISCUSSION: PROs significantly declined over time following ABR for anterior shoulder instability with on-track HSLs, with a more pronounced effect in patients who sustained recurrent anterior shoulder instability. The decline in PROs over time following ABR for anterior shoulder instability aligns with the increase in recurrent instability rates seen over time at long-term follow-up, and indicate that subjective patient outcomes also decline along with clinical outcomes at long-term follow-up. (6,7) In addition, the inferior PROs seen over time in patients with recurrent instability compared to patients without recurrent instability suggest that subjective patient outcomes are intimately related to sustaining recurrent anterior shoulder instability. This suggests that improved identification of risk factors for recurrent anterior shoulder instability is needed pre-operatively to both reduce recurrent anterior shoulder instability rates and improve subjective patient outcomes at long-term follow-up after ABR for anterior shoulder instability.

SIGNIFICANCE/CLINICAL RELEVANCE: Patients should be counseled pre-operatively on the expected outcomes over time following ABR for anterior shoulder instability.

REFERENCES: (1) Owens et al, AJSM 2009; (2) Yamamoto et al, JSES 2007; (3) Schwihla et al, JSES 2023; (4) Panzram et al, BMC MSK Disorders 2020; (5) Delgado et al, KSSTA 2025; (6) Murphy et al, JSES 2019; (7) Ono et al, JSES 2019

Correlation with Follow-Up Length:	Correlation Coefficient	p-value
Total Cohort (n = 115)		
WOSI	0.219	***0.019***
pVAS	0.179	0.055
SSV	-0.201	***0.032***
Patients Without Recurrent Instability (n = 88)		
WOSI	0.128	0.236
pVAS	0.113	0.293
SSV	-0.046	0.673
Patients With Recurrent Instability (n = 28)		
WOSI	0.243	0.212
pVAS	0.225	0.249
SSV	-0.343	0.074
WOSI = Western Ontario Shoulder Index, pVAS = Pain Visual Analog Scale, SSV = Subjective Shoulder Value		

Table 1. Correlation of Follow-Up Length with Patient-Reported Outcomes Among Patients With versus Without Recurrent Anterior Shoulder Instability