Original Article

Bankart Repair With or Without Concomitant Remplissage Results in Similar Shoulder Motion and Postoperative Outcomes in the Treatment of Shoulder Instability

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Purpose: To compare the results of patients who underwent Bankart repair with or without concomitant remplissage for treatment of shoulder instability. **Methods:** All patients who underwent shoulder stabilization for shoulder instability from 2014 to 2019 were evaluated. Patients who underwent remplissage were matched to those patients who received no remplissage based on sex, age, body mass index, and date of surgery. Glenoid bone loss and presence of an engaging Hill—Sachs lesion were quantified by 2 independent investigators. Postoperative complications, recurrent instability, revision, shoulder range of motion (ROM), return to sport (RTS), and patient-reported outcome measures (Oxford Shoulder Instability, Single Assessment Numeric Evaluation, and American Shoulder and Elbow Surgeons scores) were compared between groups. **Results:** Overall, 31 patients who underwent remplissage were identified and matched to 31 patients who received no remplissage at a mean follow-up of 2.8 ± 1.8 years. Glenoid bone loss was similar between groups (11% vs 11%, $P = .956$); however, engaging Hill—Sachs lesions were more prevalent in the patients who underwent remplissage than the patients who received no remplissage (84% vs 3%, $P < .001$). There were no significant differences in rates of redislocation (remplissage: 12.9% vs no remplissage: 9.7%), subjective instability (45.2% vs 25.8%), reoperation (12.9% vs 0%), or revision (12.9% vs 0%) between groups (all $P > .05$). Also, there were no differences in RTS rates, shoulder range of motion, or patient-reported outcome measures (all $P > .05$). **Conclusions:** If a patient is indicated for Bankart repair with concomitant remplissage, surgeons may expect shoulder motion and postoperative outcomes similar to those of patients without engaging Hill—Sachs lesions who undergo Bankart repair without concomitant remplissage. **Level of Evidence:** Therapeutic case series, level IV.

Many factors, including glenoid bone loss, presence of an engaging Hill—Sachs lesion, younger age, male sex, participation in contact sports, and others, are relevant when determining risk of recurrent shoulder instability.[1-3] Patients who are at high risk for recurrence or have persistent instability may elect for surgical intervention.[4-8] When considering surgical options and counseling patients on potential complications, differences in patient demographics and structural damage must be considered.[9-13] Options for

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The authors report the following potential conflicts of interest or sources of funding: M.B. reports education payments from Smith & Nephew, and Gotham Surgical Solutions and Devices, Inc; Hospitality payments from Stryker; and grant payments from Arthrex. B.E. reports education payments from Arthrex, DePuy, Smith & Nephew, Pinnacle, and Gotham Surgical; research support/consultation payments from Arthrex, DePuy, Linvatec, Smith & Nephew, and Stryker; consulting fees from Arthrex; Board or committee member. American Academy of Orthopaedic Surgeons, American Orthopaedic Society for Sports Medicine, and American Shoulder and Elbow Surgeons; and editorial or governing board, PLoS One. *Full ICMJE author disclosure forms are available for this article online, as supplementary material. This study was performed at the Rothman Orthopaedic Institute, New York, New York, U.S.A.*

Received May 25, 2022; accepted November 8, 2022.

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2666-061X/22695
https://doi.org/10.1016/j.asmr.2022.11.009

surgical stabilization include the open and arthroscopic Bankart repair, with or without a concomitant remplissage, or a bony augmentation procedure.

Hill—Sachs lesions generally occur as the humeral head collides with the anterior glenoid during the reduction of an anteroinferior shoulder dislocation.[14] The remplissage ("to fill in") technique may be performed concomitantly in the setting of other stabilization techniques in order to fill significant Hill—Sachs lesions.[15-17] The remplissage technique involves capsulotenodesis of the posterior capsule and infraspinatus tendon in order to occupy the void of the Hill—Sachs lesion.[17] Performing concomitant remplissage for patients with a significant Hill—Sachs lesion has been shown to decrease recurrent instability and complication rates[13,18,19] but has the potential to cause a loss of external rotation.[20-22]

Previous studies have compared the outcomes of shoulder stabilization procedures with and without remplissage only in patients with engaging Hill—Sachs lesions. While the current literature supporting the inclusion of concomitant remplissage for patients with engaging Hill—Sachs lesions is substantial,[19,22-28] little is known about postoperative outcomes between patients with concomitant remplissage and those without concomitant remplissage according to current clinical indications. This comparison is necessary to clarify the expected outcomes between these surgical patient populations based on surgical indications that take into account our understanding of on- and off-track Hill—Sachs lesions.

Therefore, the purpose of this study was to compare the results of patients who underwent Bankart repair with or without concomitant remplissage for treatment of shoulder instability. The authors hypothesized that there would be no difference in postoperative outcomes between patients who underwent labral repair with or without concomitant remplissage.

Methods

This study was approved by our institutional review board (Thomas Jefferson University institutional review board study #21E.690). All patients 18 to 55 years of age who underwent arthroscopic shoulder stabilization from January 2014 to December 2019 at a single multicenter institution were identified with the Current Procedural Terminology code 29806. Patients were included if arthroscopic surgery was performed in response to anterior shoulder instability. Patients were excluded for revision shoulder stabilization surgery, multidirectional instability, Latarjet procedure, open surgery, significant glenohumeral osteoarthritis (as evidenced by osteophyte formation or significant loss of joint space), concomitant rotator cuff repair, concomitant subacromial decompression, or isolated SLAP repair. Of 420 eligible patients who underwent surgical stabilization procedures, 31 patients were identified who underwent labral repair with concomitant remplissage and were successfully matched to 31 control patients who underwent Bankart repair without concomitant remplissage. Concomitant remplissage was indicated in patients who underwent Bankart repair with engaging Hill—Sachs lesions noted via preoperative magnetic resonance imaging (MRI) or intraoperative examination where the shoulder was taken out of traction and into 90° of abduction and external rotation.

Data Collection

Pre- and perioperative variables were collected from the patient office notes and operative reports. Variables collected includes age, sex, body mass index, laterality of surgery, mechanism of injury, history and number of preoperative shoulder dislocations, sport participation (none, noncontact, contact), concomitant procedures, surgery duration, and perioperative complications.

Postoperative complications were collected by screening postoperative patient encounters for infection, deep-vein thrombosis/pulmonary embolism, nerve injury, subjective instability, shoulder dislocation, reoperations, and revision. Subjective instability was considered either patient-reported apprehension or a subluxation event, whereas shoulder dislocation was considered an event requiring subsequent reduction. Revision was considered any shoulder stabilization reoperation including revision Bankart repair/capsulorrhaphy, or a bony augmentation procedure, whereas reoperations were considered all other shoulder procedures. Shoulder forward flexion and external rotation range of motion (ROM) also were collected from the office notes at final follow-up.

Patients were contacted via RedCap (Vanderbilt University, Nashville, TN) to complete several validated patient-reported outcome surveys such as the Oxford Shoulder Instability score, Single Assessment Numeric Evaluation, and American Shoulder and Elbow Surgeons score. Minimal clinically important differences are not available in the literature for anterior shoulder stabilization patients with 2-year follow-up.

A RedCap survey regarding post-operative complications, shoulder reinjury, and return to sport (RTS) also was included to confirm the data collected from patient records. Subjective postoperative shoulder instability also was assessed by asking patients "have you felt instability in your shoulder after your shoulder stabilization surgery?"

Glenoid bone loss and presence of an engaging Hill—Sachs lesion were quantified by 2 independent investigators (R.W.P. and G.O.) for all included patients with an accessible sagittal oblique MRI. To measure glenoid bone loss, a best-fit circle was inserted over the intact margins of the glenoid border to approximate the

Table 1. Comparison of Demographic Variables Between Patients Who Underwent Isolated Bankart Repair (No Remplissage) and Those Who Underwent Bankart Repair With Concomitant Remplissage (Remplissage)

Demographic Variable	No Remplissage (n = 31)	Remplissage (n = 31)	*P* Value
Age, y	28.4 ± 9.7	28.8 ± 9.3	.693
Sex, male	28 (90.3%)	28 (90.3%)	1.000
BMI	25.6 ± 3.0	25.4 ± 3.3	.559
Athlete	20 (64.5%)	19 (61.3%)	1.000
Athletic participation			
None	11 (35.5%)	12 (38.7%)	.694
Non-contact	1 (3.2%)	1 (3.2%)	
Contact	15 (48.4%)	17 (54.8%)	
Overhead	4 (12.9%)	1 (3.2%)	
History of chronic shoulder instability	7 (22.6%)	9 (29.0%)	.772
Number of preoperative dislocations	4.0 ± 4.0	5.6 ± 3.7	.105
Concomitant SLAP repair	8 (25.8%)	5 (16.1%)	.533

NOTE. Categorical data are presented as n (%), and continuous data are presented as mean ± standard deviation.
BMI, body mass index.

fully intact surface area. The area of the glenoid defect was then traced within the best-fit circle. The area of the glenoid defect was divided by the area of the expected glenoid rim (best-fit circle) to calculate glenoid bone loss.[29,30] To determine whether an engaging Hill−Sachs lesion was present, the length of the Hill−Sachs lesion on the MRI slice with the largest measured length was compared with the glenoid track size, and Hill−Sachs lesion length greater than the glenoid track size were considered engaging.[31] For patients without an accessible preoperative MRI, the operative report and radiology reports were screened for details about engaging versus nonengaging Hill−Sachs lesions. In total, 16 patients who underwent remplissage and 13 patients who did not receive remplissage lacked an accessible MRI and did not have amount of bone loss reported in their imaging reports, and thus were left out of the bone loss assessment. Of these 29 patients without accessible MRIs, all but 6 patients (remplissage group) had information in their operative reports about whether their Hill−Sachs lesions were engaging.

Statistical Analysis

These 31 patients who underwent remplissage were matched to patients who did not receive remplissage based on sex (male/female), age (±4 years), body mass index (±2), and date of surgery (±3 years). All 31 patients were successfully matched to one control patient. Demographic, perioperative data, and postoperative outcomes were compared between patients who underwent concomitant remplissage and patients who underwent isolated Bankart repair. A subanalysis isolating athletes who underwent concomitant remplissage versus isolated Bankart repair also was performed. Mann−Whitney *U* tests were used to calculate *P* values for nonparametric data. χ^2 tests or Fishers exact tests were used to calculate *P* values for categorical data. Post-hoc power analysis was performed with a Beta value of 0.20 and a power value of 0.80. *P* values less than .05 were deemed significant. All statistical analyses were done using R Studio (Version 3.6.3; R Foundation for Statistical Computing, Vienna, Austria).

Results

There were 62 patients included in this study, 31 patients who received remplissage and 31 patients who did not receive remplissage. A mean follow-up of 2.8 ± 1.8 years was available for the included patients. There were no significant demographic differences between groups (Table 1). Patients had a mean glenoid bone loss of 11% ± 4% with a range of 2% to 17%.

Engaging Hill−Sachs lesions were more prevalent in the patients who received remplissage than the patients who did not receive remplissage (84% vs 3%, $P < .001$); however glenoid bone loss was similar between groups (remplissage: 11% ± 4% vs no remplissage: 11% ± 5%, $P = .956$). All 4 patients who received remplissage who had non-engaging Hill−Sachs lesions were athletes, including one volleyball, one football, one wrestling, and one soccer athlete. The one no patients who received remplissage who had an engaging Hill−Sachs lesion was not an athlete.

Four patients who received remplissage and zero patients who did not receive remplissage required revision shoulder stabilization surgery (Appendix Table 1, available at www.arthroscopyjournal.org). No patients in either group required a shoulder reoperation for nonrevision stabilization purposes. There were no significant differences in rates of recurrent instability, reoperation, revision, or shoulder ROM between groups (all $P > .05$) (Table 2). Also, there were no differences in American Shoulder and Elbow Surgeons,

Table 2. Comparison of Postoperative Outcomes Between Patients Who Underwent Isolated Bankart Repair (No Remplissage) and Those Who Underwent Bankart Repair With Concomitant Remplissage (Remplissage)

Postoperative Outcome	No Remplissage (n = 31)	Remplissage (n = 31)	*P* Value
Redislocation	3 (9.7%)	4 (12.9%)	.688
Subjective instability	8 (25.8%)	14 (45.2%)	.111
Reoperation	0 (0.0%)	4 (12.9%)	.113
Revision	0 (0.0%)	4 (12.9%)	.113
External rotation ROM, °	44.7 ± 15.2 (40.9-50.4)	50.0 ± 14.1 (40.9-60.6)	.645
Patient-reported outcome scores	No Remplissage (n = 22)	Remplissage (n = 21)	
ASES	85.3 ± 18.8 (76.9-93.6)	86.9 ± 13.8 (80.6-93.2)	.744
SANE	74.4 ± 25.2 (66.5-81.5)	73.7 ± 24.0 (62.7-84.6)	.926
OSI	40.2 ± 12.2 (34.8-45.6)	38.0 ± 8.9 (33.9-42.0)	.496

NOTE. Categorical data are presented as n (%), and continuous data are presented as mean ± standard deviation (95% confidence interval).
ASES, American Shoulder and Elbow Surgeons, OSI, Oxford Shoulder Instability; ROM, range of motion; SANE, Single Assessment Numeric Evaluation.

Single Assessment Numeric Evaluation, or Oxford Shoulder Instability scores at follow-up (all $P > .05$).

In total, 20 who did not receive remplissage and 19 patients who received remplissage were active athletes before surgery. There were no demographic differences between the athletes in either group, and most athletes (82%) were contact sport athletes (Table 3).

Engaging Hill—Sachs lesions were also more prevalent in the athletes who underwent remplissage than the athletes who did not undergo remplissage (73% vs 0%, $P < .001$), whereas glenoid bone loss was similar between athletic groups (12% vs 10%, $P = .343$).

Athletes who underwent remplissage had a high rate of subjective instability that was statistically similar to athletes who did not undergo remplissage (58% vs 30%, $P = .079$) (Table 4). Rates of redislocation, reoperation, revision, or shoulder ROM did not differ between athletic groups (all $P > .05$). Finally, patient-reported outcome scores and RTS rates (remplissage: 57.1% vs no remplissage: 52.6%) did not differ between remplissage and no remplissage athletes (all $P > .05$).

Of the patients who underwent remplissage who did not return to their preoperative sport, 1 was no longer interested, 1 switched to another sport, and 2 stated that the opportunity was no longer available. Only 2 patients (one football/baseball and one basketball athlete) stated that the surgery and/or recovery did not allow for RTS. Similarly, of the 8 patients who did not undergo remplissage and who did not RTS, 3 were no longer interested and 3 stated that the opportunity was no longer available. Only 2 patients (one football/basketball and one ice hockey player) stated that the surgery and/or recovery did not allow for RTS.

Discussion

This study found that there were no differences in clinical or patient-reported outcomes between patients who underwent labral repair with or without concomitant remplissage. Overall, 7 of 62 patients (remplissage: 4 [13%], no remplissage: 3 [10%]) experienced a redislocation event postoperatively, and 4 patients who underwent remplissage required a revision shoulder stabilization procedure.

A randomized controlled trial (RCT) has been conducted evaluating clinical and patient-reported outcomes for 104 shoulder instability patients with engaging Hill—Sachs lesions who were randomized to

Table 3. Comparison of Demographic Variables Between Athletes Who Underwent Isolated Bankart Repair (No Remplissage) and Those Who Underwent Bankart Repair With Concomitant Remplissage (Remplissage)

Demographic Variable	No Remplissage (n = 20)	Remplissage (n = 19)	*P* Value
Age, y	27.3 ± 9.7	25.4 ± 6.6	1.000
Sex (male)	19 (95.0%)	18 (94.7%)	1.000
BMI	25.8 ± 2.9	25.5 ± 3.1	.623
Athletic participation			
Noncontact	1 (5.0%)	1 (5.3%)	.574
Contact	15 (75.0%)	17 (89.5%)	
Overhead	4 (20.0%)	1 (5.3%)	
History of chronic shoulder instability	7 (35.0%)	4 (21.1%)	.541
Number of preoperative dislocations	5.4 ± 4.3	5.5 ± 3.1	.952
Concomitant SLAP repair	5 (25.0%)	3 (15.8%)	.695

NOTE. Categorical data are presented as n (%), and continuous data is presented as mean ± standard deviation.
BMI, body mass index.

Table 4. Comparison of Postoperative Outcomes Between Athletes Who Underwent Isolated Bankart Repair (No Remplissage) and Those Who Underwent Bankart Repair With Concomitant Remplissage (Remplissage)

Outcomes	No Remplissage (n = 20)	Remplissage (n = 19)	*P* Value
Postoperative outcome			
Redislocation	3 (15.0%)	3 (15.8%)	.946
Subjective Instability	6 (30.0%)	11 (57.9%)	.079
Reoperation	0 (0.0%)	3 (15.8%)	.106
Revision	0 (0.0%)	3 (15.8%)	.106
External Rotation ROM, °	47 ± 13 (39.3-53.9)	54 ± 12 (44.3-64.5)	.167
Patient-Reported Outcome Scores	No Remplissage (n = 18)	Remplissage (n = 14)	
ASES	87.0 ± 20.1 (77.0-97.0)	83.7 ± 15.4 (74.8-92.6)	.604
SANE	76.4 ± 25.1 (63.9-88.9)	73.4 ± 23.4 (59.9-86.8)	.772
OSI	41.1 ± 12.6 (34.8-47.3)	36.2 ± 9.4 (30.8-41.7)	.223
RTS	10 (52.6%)	8 (57.1%)	.797
Months until RTS	7.6 ± 2.4 (5.9-9.3)	9.3 ± 6.2 (4.9-13.7)	.727
Shoulder instability while playing sport	1 (10.0%)	0 (0.0%)	1.000

NOTE. Categorical data are presented as n (%), and continuous data are presented as mean ± standard deviation (95% confidence interval).
ASES, American Shoulder and Elbow Surgeons; OSI, Oxford Shoulder Instability; ROM, range of motion; RTS, return to sport; SANE, Single Assessment Numeric Evaluation.

either Bankart repair with (n = 54) or without concomitant remplissage (n = 54).[22] Unlike the current study, the presence of an engaging Hill–Sachs lesion was treated as inclusion criteria for this RCT. At mean follow-up of 25.4 months (range: 21-64 months), recurrent instability rates were significantly greater in the no-remplissage group (18% vs 4%).[22] The no-remplissage group also required significantly more revision surgeries (6 vs 0).[22] There were no significant differences in patient-reported outcomes, and the authors concluded that remplissage is beneficial in reducing recurrence rates and rates of revision for patients with engaging Hill–Sachs lesions.[22] However, the patients without concomitant remplissage in the current study did not have engaging Hill–Sachs lesions, so the benefit of including remplissage for these patients is likely less and contributes to the differences in findings between the RCT and the current study.

There is currently a substantial body of literature that supports the use of concomitant remplissage to decrease recurrence rates in the setting of shoulder instability with engaging Hill–Sachs lesions.[19,22-28] A systematic review compared remplissage and no remplissage for shoulder instability patients with engaging Hill–Sachs lesions across 6 clinical studies, resulting in a total analysis of 133 patients with remplissage and 129 patients with no remplissage.[15] They found that all 6 of the included studies unanimously found lower recurrence rates in the remplissage group for patients with Hill-Sachs lesions.[15] The authors of this systematic review also suggest that the impact remplissage has on decreasing recurrence rates is underestimated in retrospective studies because the patients that are candidates for concomitant remplissage are more prone to recurrence due to having more significant osseous defects at initial presentation compared with no remplissage patients.[15] For example, Pandey et al.[27] showed that patients with off-track Hill–Sachs lesions who underwent Bankart repair without remplissage had significantly more redislocations than similar patients who instead had on-track Hill–Sachs lesions. This further supports the findings of the current study, as only one patient (3%) without concomitant remplissage had an engaging Hill–Sachs lesion, which likely led to improvements in this cohort's post-operative outcomes.

The findings of the current study may differ from previously published literature because this current study did not use engaging Hill–Sachs lesions as inclusion criteria. Due to the significant body of literature supporting remplissage for the treatment of Hill–Sachs lesions, remplissage has been utilized throughout the authors' institution to treat engaging Hill–Sachs lesions, leading to the significant difference in engaging Hill–Sachs lesion prevalence between the remplissage and no remplissage cohorts (84% vs 3%, respectively). Thus, in the current study, surgical indications were not controlled for. This helps explain why the authors' findings differ significantly from the highest-quality published findings such as the RCT performed by MacDonald et al.,[22] and why the recurrence and revision data for our patients who did not remplissage is superior to previous literature. The difference in engaging Hill–Sachs lesion prevalence in between our study provides a currently relevant comparison of patient outcomes between these 2 patient populations. As the glenoid bone loss was identical between groups, this really becomes a humerus problem. It may also be that the remplissage was not enough to account for the humeral bone loss and these patients may have been better treated with a Latarjet.

The current study also found surprisingly low rates of RTS (remplissage 57% vs no remplissage 53%). In a meta-analysis comparing the 2 approaches, Camus et al.[19] pooled the data of 72 patients who received remplissage and 74 who did not receive remplissage across 3 included comparative studies; the authors found return to same level of play rates of 63% and 54% in the remplissage and no-remplissage groups, respectively. Feng et al.[32] recently found that 29 patients who received remplissage had greater rates of RTS (100% vs 84%) and greater rates of return to same level of play (78% vs 50%) than 41 patients who did not receive remplissage. Lastly, a retrospective comparative study found that 19 of 20 (95%) patients who received remplissage were able to return to their preoperative sport, and 16 of 19 (84%) patients who did not receive remplissage were able to do the same.[23] RTS rates in the current study may be lower because patients were provided various answer options evaluating why athletes did not RTS, since patients may not have returned based on choice rather than because of their shoulder stability and function. The low rates may also be attributed to a smaller sample size. Regardless, there was no significant difference between RTS between the 2 cohorts.

Overall, clinicians should strongly consider the differing indications between the remplissage and no-remplissage study cohorts of the current study. Unlike previous research, this study should not be used to compare the efficacy of concomitant remplissage for patients with engaging Hill–Sachs lesions, since having an engaging Hill–Sachs lesion was not inclusion criteria for this study. Instead, this study compares postoperative outcomes between patients with and without remplissage who underwent the currently indicated surgical procedures for their specific osseous defects. If a patient is recommended for Bankart repair with concomitant remplissage, surgeons may expect postoperative outcomes similar to those of patients without engaging Hill–Sachs lesions who undergo Bankart repair without concomitant remplissage.

Limitations

There are several limitations to this study. First, this study was not randomized, and thus surgeon bias may have affected perioperative variables and postoperative outcomes. Second, the amount of bone loss and prevalence of engaging Hill–Sachs lesions were not evaluated retrospectively via MRI in all included patients because of a lack of available MRI. However, many of the patients without available MRIs had operative reports describing whether their Hill–Sachs lesion was engaging, leading to 90% of patients having engaging/nonengaging Hill–Sachs information while 47% of patients had glenoid bone loss measures. However, the authors include engaging Hill–Sachs lesion in the setting of minimal glenoid bone loss as indication for a Bankart repair with concomitant remplissage, so glenoid bone loss is not expected to differ between study groups despite unavailable MRIs. Next, our conclusions were limited by sample size. Post-hoc power analysis found that 3,070 total patients (n = 1,535 per group) would be necessary to observe differences in redislocation between groups, whereas 188 patients (n = 94 per group) would be needed to note differences in subjective instability between groups. Lastly, we provided various answer options evaluating why athletes did not RTS, which may have lowered our RTS rates relative to similar studies since patients may not have returned based on choice rather than because of their shoulder. However, we reported the reasons why athletes did not RTS to clarify any discrepancies.

Conclusions

If a patient is indicated for Bankart repair with concomitant remplissage, surgeons may expect shoulder motion and postoperative outcomes similar to those of patients without engaging Hill–Sachs lesions who undergo Bankart repair without concomitant remplissage.

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Appendix

Appendix Table 1. Descriptions of the Patient Cases in the Concomitant Remplissage (n = 4) Cohort Who Required a Revision Shoulder Stabilization Procedure

Patient	Initial Injury History	Revision Procedure	Reason for Revision
23-year-old male soccer player	One acute dislocation, was lifting a door and dropped it on his left shoulder. Succeeded with nonoperative treatment for 3 months but experienced another dislocation after direct contact in soccer. MRI showed a large Hill—Sachs defect with anteroinferior labral tear.	Open Latarjet procedure 20 months postoperatively	Retore the Bankart repair after arm was forced into abduction, extension, and external rotation 11 months postoperatively. The patient later experienced two redislocations over 4 months and decided to undergo revision surgery.
20-year-old male collegiate rugby player	Dislocated shoulder playing rugby 1 year prior, and experienced 8 subsequent dislocations over the following year, most recently while sleeping. MRI showed minimal bone loss with medium engaging Hill-Sachs lesion.	Latarjet procedure 12.5 months postoperatively	Returned to sport 7 months postoperatively and played the rest of the collegiate rugby season. Several months later, he redislocated his shoulder paddling on a surfboard 1-year postoperatively and experienced another redislocation in his sleep 13 months postoperatively. MRI showed a retear of the Bankart repair an increased glenoid bone loss and the patient agreed to Latarjet transfer.
21-year-old male ice hockey player	Patient had experienced more than 30 dislocations and did not respond to nonoperative treatment. MRI showed large Hill—Sachs and Bankart lesions.	Open Latarjet procedure 7 months postoperatively	Returned to sport 6 months postoperatively but quickly experienced a redislocation from a fall during the sixth month postoperatively, which restored the labral repair.
27-year-old male, nonathlete	Dislocated shoulder while leaning over a railing to lift a box off the ground with arms outstretched overhead. Experienced several subsequent dislocations and had constant shoulder pain. MRI showed anteroinferior labral tear and a large Hill—Sachs defect.	Latarjet procedure 7 months postoperatively	Had very aggressive extubation process immediately after surgery and retore the labral repair. Agreed to revision surgery after several months of failed nonoperative treatment.

NOTE. None of these 4 patients who required a revision shoulder stabilization procedure underwent concomitant SLAP repair with their initial Bankart repair.

MRI, magnetic resonance imaging;