Analysis of Athletes Who Did Not Return to Play After Open Latarjet

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Background: The Latarjet procedure is indicated in patients with risk factors for postoperative recurrence, including collision and competitive athletes. However, the factors that prevent athletes from being able return to play (RTP) after the open Latarjet procedure are still unclear and have not been fully elucidated in the literature.

Purpose: To evaluate patient-reported outcomes and psychological and psychosocial factors associated with athletes who did not RTP after the open Latarjet procedure compared with patients who did RTP.

Study Design: Cohort study; Level of evidence, 3.

Methods: We conducted a retrospective review of athletes who underwent the open Latarjet procedure and subsequently did not RTP after a minimum of 12 months. These patients were pair matched in a 2:1 ratio for age, sex, sport, and level of preoperative play with a control group who returned to play. Patients were evaluated for their psychological readiness to return to sport using the Shoulder Instability–Return to Sport after Injury (SIRSI); other measures included the visual analog scale (VAS) for pain and Subjective Shoulder Value (SSV). Multivariate regression models were used to evaluate factors affecting RTP.

Results: Included were 35 patients in the no-RTP group and 70 patients in the RTP group. In the no-RTP group, 7 patients (20%) passed the SIRSI benchmark of 56, with a mean overall score of 41.5 ± 21.9; in the RTP group, 57 patients (81.4%) passed the SIRSI benchmark, with a mean overall score of 74.5 ± 19.8 ($P < .0001$ for both). Patients in the RTP group had better SSV (88.0 vs 75.7; $P < .0001$) and VAS pain (1.7 vs 2.9; $P = .0046$) scores. Of the athletes who did not return, 18 felt persistent pain/apprehension and 17 felt that it was a natural end to their career or that their lifestyle had changed. Multiple logistic regression revealed that thoughts of having to go through surgery and rehabilitation again was significantly associated with lower RTP ($P < .05$).

Conclusion: Patients who did not RTP after open Latarjet exhibited poor psychological readiness to RTP and worse pain VAS and SSV scores compared with patients who did RTP.

Keywords: shoulder; instability; Latarjet; athlete; return to play

Anterior shoulder instability is a common shoulder issue occurring in up to 2% of the general population,[14,30] with reported rates of between 8 to 17 dislocations per 100,000 person-years.[16,22,26] Collision athletes are noted to have a higher incidence of anterior shoulder instability, with rates as high as 15% reported in this cohort.[13,20] For the athlete with anterior instability, return to play (RTP) after injury remains their primary concern; this has been shown to affect decision making about treatment more so than other factors such as shoulder stability.[29]

The Latarjet procedure is indicated in patients with risk factors for postoperative recurrence, including collision athletes, competitive athletes, young patients, and those with glenohumeral bone loss.[3,5,24,27] After the open Latarjet procedure, there is a high reported rate of RTP, as Hurley et al,[12] in their systematic review, found that 88% of athletes returned. However, the factors that prevent athletes from returning are still unclear and have not been fully elucidated in the literature. In their study on 25 patients after arthroscopic Bankart repair (ABR), Tjong et al[28] reported that fear of reinjury, as well as shifts in priority, mood, social support, and self-motivation, can have effects on patients' desire to RTP. However, to our knowledge, there has not been a similar study evaluating patients who did not RTP after the open Latarjet procedure.

The purpose of this study was to analyze patients who did not RTP after the open Latarjet procedure compared with those who did RTP and to analyze patient-reported outcomes and psychological and psychosocial factors

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associated with those who did not RTP. Our hypothesis was that those who do not RTP exhibit poorer psychological readiness to RTP, along with inferior clinical outcome scores, compared with those who do RTP.

METHODS

Patient Selection

After receiving ethics approval from our institutional review board, we conducted a retrospective review to identify all patients who underwent the open Latarjet procedure by a single surgeon (H.M.) between July 2012 and March 2019. The operative notes of the patients were analyzed, and those who played sports preoperatively were included in the study. Subsequent patient matching between those who did and those who did not RTP based on patient characteristics (ie, age, sex, sport, level of preoperative play, and follow-up length) was performed to generate 2 comparable groups. As the majority of athletes who underwent the open Latarjet procedure successfully returned to play, they were matched 2:1 with those who did not RTP.

Surgical Technique

All surgeries were performed in the beach-chair position under general anesthesia. An examination under anesthesia was performed preoperatively on both shoulders to evaluate range of motion and joint laxity. Arthroscopic examination was performed through a standard posterior portal including evaluation of the capsuloligamentous complex, while the glenoid and humerus were checked for osteochondral or osseous defects. A dynamic examination was performed to evaluate laxity and engagement of any osseous defects while moving the shoulder through its full range of motion. A probe was then used to assess the stability of the labrum and biceps anchor.

After arthroscopic examination, a 4 cm–long skin incision was placed in extension of the axillary fold, starting approximately 2 to 3 fingerbreadths distal to the tip of the coracoid. The coracoacromial ligament laterally and the pectoralis minor insertion medially were then released off the coracoid. An osteotomy of the coracoid was then performed at the junction between its body and base with a 90° angled saw, while aiming to harvest a minimum 20 mm–long graft. The undersurface of the coracoid was then prepared with a high-speed bur. A horizontal subscapularis split was performed at the junction between its middle and lower third to expose the capsule, which was then split horizontally. The coracoid graft was fixed to the glenoid with 2 standard 3.5-mm, partially threaded, cancellous screws. The graft was then contoured to be flush with the glenoid surface using a high-speed bur. No formal labral repair was performed. Capsular closure was then performed with 2 to 3 nonabsorbable stitches.

Rehabilitation Protocol

The rehabilitation protocol was the same for all patients. Postoperatively, the shoulder was placed in a sling for 3 weeks, while allowing nonresisted activities of daily living without excessive elevation or external rotation of the shoulder. Patients immediately began physical therapy, which continuously increased in intensity over the next 9 weeks. Return to contact in training was allowed after 12 weeks, while return to full contact and competition usually would follow within the next 3 months. In clearing an athlete to RTP, time, strength, range of motion, and pain are considered.

Clinical Outcomes

Postoperative patient-reported outcomes were collected via telephone survey and included psychological readiness for RTP using the Shoulder Instability–Return to Sport after Injury (SIRSI), visual analog scale (VAS) for pain, Subjective Shoulder Value (SSV), and satisfaction. A SIRSI score >56 is considered a passing score for being psychologically ready to RTP.[6] In addition, patients responded to whether they would undergo the same surgery again.

Statistical Analysis

For all continuous and categorical variables, descriptive statistics were calculated. Continuous variables were reported as weighted means and estimated standard deviations, whereas categorical variables were reported as frequencies with percentages. Simple and multiple logistic regression models were used to evaluate factors affecting RTP. Factors in the model included individual components of the SIRSI, VAS, and SSV. A value of $P < .05$ was considered to be statistically significant. All statistical analysis was performed utilizing GraphPad Prism Version 8.4.2.

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Ethical approval for this study was obtained from Sports Surgery Clinic.

TABLE 1
Patient Characteristics[a]

	No RTP (n = 35)	RTP (n = 70)	P
Age, y	27.9 ± 8.3	26.2 ± 4.9	.20
Sex, male	100	100	>.99
Primary dislocation	74.3	70.0	.89
Collision sport, n	26	52	>.99
Glenoid bone loss, %	15.2 ± 8.3	13.4 ± 8.1	.29
Off-track Hill-Sachs lesions	42.9	42.9	>.99
Follow-up, mo	41.5 ± 25.3	39.3 ± 24.9	.67

[a]Data are reported as mean ± SD or percentage.

TABLE 2
Clinical Outcomes[a]

	No RTP	RTP	P
SIRSI	41.5 ± 21.9	74.5 ± 19.8	<.0001
SIRSI passed	7 (20)	57 (81.4)	<.0001
VAS	2.9 ± 2.5	1.7 ± 1.7	.0046
SSV	75.7 ± 16.9	88.0 ± 11.1	<.0001
Satisfied	25 (71.4)	68 (97.1)	.0002
Surgery again?	24 (68.6)	67 (95.7)	.0003

[a]Data are reported as mean ± SD or n (%). RTP, return to play; SIRSI, Shoulder Instability–Return to Sport after Injury; SSV, Subjective Shoulder Value; VAS, visual analog scale.

TABLE 3
Simple Logistic Regression Analysis of SIRSI, SSV, and VAS Affecting Return to Play[a]

	|Z|	P[b]
VAS	2.703	.0069*
SSV	3.746	.0002*
SIRSI	4.846	<.0001*

[a]SIRSI, Shoulder Instability–Return to Sport after Injury; SSV, Subjective Shoulder Value; VAS, visual analog scale.
[b]*Indicates P value statistically significant.

RESULTS

Patient Characteristics

Overall, 220 athletes were followed up, with 182 (82.7%) returning to play. Of these patients, we included 70 in the RTP group and 35 in the no-RTP group. It was not possible to match 3 athletes who did not RTP. Overall, all patients were male, with a mean age of 26.8 years and a mean follow-up of 40 months. There were no significant differences in patient variables between the RTP and no-RTP groups. The patient characteristics are further illustrated in Table 1.

Comparison of Outcomes

In those who did not RTP, 20% passed the SIRSI benchmark of 56 with a mean overall score of 41.5 ± 21.9, which was significantly lower than those who did RTP, as 81.4% passed the SIRSI benchmark of 56 with a mean overall score of 74.5 ± 19.8 ($P < .0001$ for both). Additionally, there was a significant difference between the 2 groups in every component of the SIRSI score. Furthermore, in those who did RTP, there was a higher SSV score (88.0 vs 75.7; $P < .0001$), a lower VAS score (1.7 vs 2.9; $P = .0046$), and they were more likely to be satisfied (97.1% vs 71.4%; $P = .0002$) and willing to undergo surgery again if required (95.7% vs 68.6%; $P = .0003$). The clinical outcomes are further illustrated in Table 2.

Logistic Regression Analysis of Factors Affecting RTP Rate

A simple logistic regression revealed that VAS, SIRSI, and SSV were all significantly associated ($P < .05$), with VAS negatively correlated and SSV and SIRSI positively correlated, with RTP. Multiple logistic regression revealed that among the SIRSI questions, thoughts of having to go through surgery and rehabilitation again was the only factor associated with lower RTP ($P < .05$). The logistic regressions are further illustrated in Tables 3 and 4.

Reasons for Not Returning to Play

The most common primary reasons for not returning were feeling physically unable to return with persistent pain (12 patients; 34.3%), feeling it was a natural end to their career (11 patients; 31.4%), feeling physically unable to return with persistent apprehension (6 patients; 17.1%), and noting their lifestyle had changed or other factors in their life prevented them from returning to play (6 patients; 17.1%).

DISCUSSION

The most important finding from this study was that patients who do not RTP after the open Latarjet procedure exhibited poor psychological readiness to RTP. Additionally, those who did not RTP had higher pain scores and worse functional outcome scores than those who did RTP. Furthermore, patients who did not RTP had significantly lower satisfaction rates than those who did RTP and were also significantly less likely to be willing to undergo surgery again if it was required.

Our study used the SIRSI to evaluate athletes for their psychological readiness to RTP. The SIRSI score was shown to be significantly higher in those who did RTP, with the majority passing the SIRSI benchmark of 56 to RTP, and in contrast the vast majority of those who did not RTP did not pass the SIRSI benchmark. The findings of this study closely follow a pattern of Pareto distrubtion,[4] known in layperson's terms as the 80/20 rule. This rule demonstrates that although 80% of those who RTP pass the SIRSI benchmark, the converse can also be said, as 80% of those who did not RTP did not pass the SIRSI benchmark. Additionally, we identified thoughts of having to go through surgery and

TABLE 4
Multiple Logistic Regression Analysis of Factors Affecting Return-to-Play Rate Based on the SIRSI[a]

SIRSI Question	$\|Z\|$	P
Are you confident that you can perform at your previous level of sport participation?	0.7773	.437
Do you think you are likely to reinjure your shoulder playing sport?	1.083	.279
Are you nervous about playing your sport?	1.921	.0548
Are you confident that your shoulder will remain stable when playing your sport?	0.06402	.949
Are you confident that you could play sports without concern for your shoulder?	0.6983	.485
Do you find it frustrating having to consider your shoulder when playing your sport?	1.617	.1058
Are you fearful of reinjuring your shoulder when playing your sport?	0.9581	.338
Are you confident of your shoulder holding up under pressure?	0.005832	.9953
Are you afraid of accidentally reinjuring your shoulder when playing your sport?	1.282	.1998
Do thoughts of having to go through surgery and rehabilitation again prevent you from playing your sport?	2.374	**.0176**
Are you confident about your ability to perform well at your sport?	0.2706	.7867
Do you feel relaxed about playing your sport?	1.369	.171

[a]Bolded P value indicates statistical significance. SIRSI, Shoulder Instability–Return to Sport after Injury.

rehabilitation again as the only factor independently associated with lower RTP.

The SIRSI is based on adaptation of the commonly used anterior cruciate ligament RSI (ACL-RSI) score, for which a higher score correlates with patients who are successfully able to RTP.[1,2,15,19] Additionally, psychological recovery has been shown to be independent of a patient's physical recovery, as the ACL-RSI score has been shown to not correlate with athletes' strength and power measures.[21] However, a higher ACL-RSI score has been found to be predictive of reinjury.[17] While our study found that patients who were able to RTP had higher SIRSI scores, further research is still needed on utilizing this psychological tool. Gerometta et al[6] validated this tool in patients who did or did not RTP after shoulder instability using the international Consensus-based Standards for the selection of health Measurement Instruments methodology. However, it has not yet been evaluated in athletes during their postoperative rehabilitation before returning to play and has only been utilized by a few studies.[18,23] Thus, further research is still needed to optimize its use and it role in screening athletes who wish to RTP.

Overall, there were low pain scores found among participants in this study; however, pain scores were significantly higher in the group of patients who did not RTP. Postoperative pain after the open Latarjet procedure is a common complication and is a concern with this procedure and may be as a result of the associated hardware used.[8-11,25] Godenèche et al[8] evaluated patients with severe pain after the open Latarjet procedure who underwent screw removal, which was found to completely alleviate the pain in 14 of the 21 included patients and reduced the pain in the other 7. Multiple logistic analysis found a significant association between pain and RTP; and pain may play a role as it may limit a patient's ability to participate in sports, particularly among those playing collision sports. Furthermore, our study evaluated shoulder function using the SSV score, a subjective shoulder assessment marked from 0 up to a score of 100, representing an entirely normal shoulder.[7] However, SSV is based on a patient's own perception, and therefore it is limited by many uncontrollable external factors. There was a significantly lower SSV score in those who did not RTP, and multiple logistic regression showed that this was associated with a lower rate of RTP. Therefore, it appears that a patient's perceived function also affects his or her ability to RTP.

In their study on 25 patients after ABR, Tjong et al[28] identified fear of reinjury and shifts in priority, mood, social support, and self-motivation as having effects on patients' desire to RTP. However, to our knowledge, there has not been a similar study evaluating patients after the open Latarjet procedure who did not RTP. Similar to our study, they found that functional outcomes in patients did not influence RTP. Our study determined that of those who did not RTP, approximately half reported shoulder issues as their primary reason for not returning, with lifestyle factors also being reported by less than one-fifth of patients. However, of the lifestyle factors listed, nearly one-third felt it was a natural end to their career and retired from sport, which itself may be influenced by pain and a lack of confidence in their shoulder.

Satisfaction was shown to be significantly lower in patients who were unable to RTP, with a lower rate of willingness to undergo this procedure again in this group. Therefore, surgeons must be aware of the importance of successful RTP in athletes undergoing shoulder stabilization. Despite the findings of this study, further research is still required on patients who did not RTP. Furthermore, the implementation and subsequent assessment of interventions such as postoperative counseling and its effect on reported patient confidence in one's shoulder, as well as subsequent ability to RTP, remains an area requiring further study.

Limitations

This study was retrospective in nature; therefore, it possesses limitations inherent of such a design. The use of a matched control group augments this study; however, although every effort was made for the control group to

reflect the study groups, discrepancies will inherently exist, with slight, albeit not statistically significant, differences inevitable between the groups. However, we made every effort to match the patients in the control group as closely as possible. Furthermore, this study reports the findings of a single-surgeon cohort, which may limit generalizability.

CONCLUSION

The study findings indicated that patients who do not RTP after the open Latarjet procedure exhibit poor psychological readiness to RTP. Additionally, patients who did not RTP reported worse pain and SSV scores compared with those who did return to their sport.

REFERENCES

1. Albano TR, Rodrigues CAS, Melo AKP, de Paula PO, Almeida GPL. Clinical decision algorithm associated with return to sport after anterior cruciate ligament reconstruction. *J Athl Train*. 2020;55(7): 691-698.
2. Ardern CL, Taylor NF, Feller JA, Whitehead TS, Webster KE. Sports participation 2 years after anterior cruciate ligament reconstruction in athletes who had not returned to sport at 1 year: a prospective follow-up of physical function and psychological factors in 122 athletes. *Am J Sports Med*. 2015;43(4):848-856.
3. Bouliane M, Saliken D, Beaupre LA, et al. Evaluation of the Instability Severity Index score and the Western Ontario Shoulder Instability Index as predictors of failure following arthroscopic Bankart repair. *Bone Joint J*. 2014;96(12):1688-1692.
4. Davies P. Time to acknowledge the workings of the 80/20 principle? *Br J Gen Pract*. 2005;55(510):55-56.
5. Di Giacomo G, Peebles LA, Pugliese M, et al. Glenoid track instability management score: radiographic modification of the Instability Severity Index score. *Arthroscopy*. 2020;36(1):56-67.
6. Gerometta A, Klouche S, Herman S, Lefevre N, Bohu Y. The Shoulder Instability—Return to Sport after Injury (SIRSI): a valid and reproducible scale to quantify psychological readiness to return to sport after traumatic shoulder instability. *Knee Surg Sports Traumatol Arthrosc*. 2018;26(1):203-211.
7. Gilbart MK, Gerber C. Comparison of the Subjective Shoulder Value and the Constant score. *J Shoulder Elbow Surg*. 2007;16(6):717-721.
8. Godenèche A, Merlini L, Roulet S, et al. Screw removal can resolve unexplained anterior pain without recurrence of shoulder instability after open Latarjet procedures. *Am J Sports Med*. 2020;48(6):1450-1455.
9. Griesser MJ, Harris JD, McCoy BW, et al. Complications and re-operations after Bristow-Latarjet shoulder stabilization: a systematic review. *J Shoulder Elbow Surg*. 2013;22(2):286-292.
10. Hurley ET, Lim Fat D, Pauzenberger L, Mullett H. Tranexamic acid for the Latarjet procedure: a randomized controlled trial. *J Shoulder Elbow Surg*. 2020;29(5):882-885.
11. Hurley ET, Manjunath AK, Matache BA, et al. No difference in 90-day complication rate following open versus arthroscopic Latarjet procedure. *Knee Surg Sports Traumatol Arthrosc*. 2021;29(7):2333-2337.
12. Hurley ET, Montgomery C, Jamal MS, et al. Return to play after the Latarjet procedure for anterior shoulder instability: a systematic review. *Am J Sports Med*. 2019;47(12):3002-3008.
13. Kawasaki T, Ota C, Urayama S, et al. Incidence of and risk factors for traumatic anterior shoulder dislocation: an epidemiologic study in high-school rugby players. *J Shoulder Elbow Surg*. 2014;23(11):1624-1630.
14. Kirkley A, Litchfield R, Thain L, Spouge A. Agreement between magnetic resonance imaging and arthroscopic evaluation of the shoulder joint in primary anterior dislocation of the shoulder. *Clin J Sport Med*. 2003;13(3):148-151.
15. Kitaguchi T, Tanaka Y, Takeshita S, et al. Importance of functional performance and psychological readiness for return to preinjury level of sports 1 year after ACL reconstruction in competitive athletes. *Knee Surg Sports Traumatol Arthrosc*. 2020;28(7):2203-2212.
16. Krøner K, Lind T, Jensen J. The epidemiology of shoulder dislocations. *Arch Orthop Trauma Surg*. 1989;108(5):288-290.
17. McPherson AL, Feller JA, Hewett TE, Webster KE. Psychological readiness to return to sport is associated with second anterior cruciate ligament injuries. *Am J Sports Med*. 2019;47(4):857-862.
18. Moore TK, Hurley ET, Rowe DN, et al. Outcomes following arthroscopic Bankart repair in female patients. *J Shoulder Elbow Surg*. 2020;29(7):1332-1336.
19. Muller U, Kruger-Franke M, Schmidt M, Rosemeyer B. Predictive parameters for return to pre-injury level of sport 6 months following anterior cruciate ligament reconstruction surgery. *Knee Surg Sports Traumatol Arthrosc*. 2015;23(12):3623-3631.
20. Murphy AI, Hurley ET, Hurley DJ, Pauzenberger L, Mullett H. Long-term outcomes of the arthroscopic Bankart repair: a systematic review of studies at 10-year follow-up. *J Shoulder Elbow Surg*. 2019;28(11):2084-2089.
21. O'Connor RF, King E, Richter C, Webster KE, Falvey EC. No relationship between strength and power scores and Anterior Cruciate Ligament Return to Sport After Injury scale 9 months after anterior cruciate ligament reconstruction. *Am J Sports Med*. 2020;48(1):78-84.
22. Owens BD, Duffey ML, Nelson BJ, et al. The incidence and characteristics of shoulder instability at the United States Military Academy. *Am J Sports Med*. 2007;35(7):1168-1173.
23. Pounder EJ, Hurley ET, Ali ZS, Pauzenberger L, Mullett H. Return to sport following arthroscopic repair of 270 degrees labral tears. *Arthrosc Sports Med Rehabil*. 2020;2(3):e237-e240.
24. Rouleau DM, Hebert-Davies J, Djahangiri A, et al. Validation of the Instability Shoulder Index score in a multicenter reliability study in 114 consecutive cases. *Am J Sports Med*. 2013;41(2):278-282.
25. Scanlon JP, Hurley ET, Davey MS, et al. 90-day complication rate after the Latarjet procedure in a high-volume center. *Am J Sports Med*. 2020;48(14):3467-3471.
26. Simonet WT, Melton LJ III, Cofield RH, Ilstrup DM. Incidence of anterior shoulder dislocation in Olmsted County, Minnesota. *Clin Orthop Relat Res*. 1984;186:186-191.
27. Thomazeau H, Courage O, Barth J, et al. Can we improve the indication for Bankart arthroscopic repair? A preliminary clinical study using the ISIS score. *Orthop Traumatol Surg Res*. 2010;96(8 suppl): S77-S83.
28. Tjong VK, Devitt BM, Murnaghan ML, Ogilvie-Harris DJ, Theodoropoulos JS. A qualitative investigation of return to sport after arthroscopic Bankart repair: beyond stability. *Am J Sports Med*. 2015;43(8): 2005-2011.
29. Warth RJ, Briggs KK, Dornan GJ, Horan MP, Millett PJ. Patient expectations before arthroscopic shoulder surgery: correlation with patients' reasons for seeking treatment. *J Shoulder Elbow Surg*. 2013;22(12):1676-1681.
30. Widjaja AB, Tran A, Bailey M, Proper S. Correlation between Bankart and Hill-Sachs lesions in anterior shoulder dislocation. *ANZ J Surg*. 2006;76(6):436-438.