

Return to Sport Following Arthroscopic Repair of 270° Labral Tears



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Purpose: To evaluate the rate of return to sport following arthroscopic repair of 270° labral tears. **Methods:** We performed a retrospective review of patients with 270° labral tears treated arthroscopically between 2013 and 2017 by a single surgeon. Patients were followed-up to assess whether they were able to return to sport, the level to which they returned and the timing of return. Complications, the Visual Analogue Scale for pain (VAS), the Rowe score, the Shoulder Instability-Return to Sport after Injury (SIRSI) score, and the Subjective Shoulder Value (SSV) were recorded. **Results:** The study included 25 patients, with a mean follow-up of 42.2 ± 16.5 months. Of the 25 patients, 19 (76.0%) returned to sport at a mean of 6.8 ± 2.6 months, while 15 (60%) returned at the same or a higher level. At final follow-up, the mean Rowe score was 80.6 ± 14.2 ; the mean SIRSI score was 61.8 ± 25.4 ; the mean SSV was 86.4 ± 15.2 ; and the mean VAS score was 2.2 ± 2.0 . One patient reported recurrent subluxation, but no patients suffered a recurrent dislocation during the study period. No revision surgeries were performed within the study period. **Conclusion:** Patients with 270° labral tears who were treated with arthroscopic repair showed an overall high rate of return to sport. Despite a low rate of recurring instability, not all patients were able to return to their previous levels of sports. **Level of evidence:** Level IV, therapeutic case series.

The glenohumeral joint allows for a wide range of movement and, as such, is associated with high rates of instability, especially compared to other joints. Extensive 270° tears of the glenoid labrum, however, are a rare pathology, with panlabral tears comprising only approximately 2.4% of all labral tears.¹ Panlabral tears involve damage to the anterior, posterior and superior labral, whereas 270° labral tears typically do not include damage to the superior labrum and do include preservation of the biceps complex.^{2,3} Such extensive labral tears pose a challenge in treatment due to the extent of damage to the joint.² The true extent of such extensive tears is frequently missed on

noncontrast MRI and MR arthrography, thus, leading to problems with diagnosis, which further complicate treatment and outcomes.⁴

Arthroscopic labral repair is the most common treatment for glenohumeral instability, providing excellent outcomes for anterior and posterior instability with high levels of patient satisfaction and high rates of return to sport.⁵ However, when it comes to more extensive tears, arthroscopic treatment has less favorable outcomes; concerns regard recurrent instability and stiffness.² Additionally, there is scant literature on return to sport following extensive labral injuries, despite this being 1 of the most important outcome measures for patients when they are undergoing shoulder stabilization.⁶

The purpose of this study was to evaluate the rate of return to sport following arthroscopic repair of 270° labral tears. Our hypothesis was that despite extensive labral damage, a large number of athletes would be able to return to their athletic activities.

Methods

Data Collection

All patients who underwent arthroscopic shoulder instability surgery between January 2013 and December 2017 by a single fellowship-trained shoulder

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surgeon were reviewed. The inclusion criteria were (1) traumatic 270° (anterior, posterior, inferior) labral lesion; (2) minimum 12-month follow-up; (3) athletes. Exclusion criteria included prior surgery on the ipsilateral shoulder, biceps tenotomy or tenodesis, and multidirectional instability. Details regarding return to sport, including level, timing and, if applicable, reasons for not returning to sport at the same level, were evaluated. Furthermore, follow-up included documentation of the Rowe score, the Shoulder Instability-Return to Sport after injury (SIRSI) score, the Visual Analogue Scale (VAS) score, and the Subjective Shoulder Value (SSV) score, recurrence of dislocations or subluxations, revision surgeries, and complications.⁷⁻⁹ All patients were assessed by a single investigator, who was not involved in the surgical procedures (EH). Internal review board approval was obtained prior to the start of the investigation.

Surgical Technique

All surgeries were performed in beach-chair position under general anesthesia. An examination under anesthesia was performed on both shoulders to evaluate instability, range of motion and joint laxity. A diagnostic arthroscopy through a standard posterior portal was performed, including dynamic examination to confirm the diagnosis. The capsuloligamentous complex was evaluated, and the glenoid and humerus were checked for osteochondral or osseous defects. A probe was used to confirm the instability of the labrum and biceps anchor between the 10 and 2 o'clock positions. The labrum was then mobilized and the glenoid bone freshened. The capsulolabral tissues were fixed to the glenoid rim with suture anchors approximately up to the 10 and 2 o'clock positions, respectively. Arthroscopic knots were positioned away from joint to avoid glenohumeral irritation. In all cases, anatomic reconstruction of the anterior and posterior inferior glenohumeral ligament, without overtightening the overall capsular volume, was attempted.

Rehabilitation and Return to Play

Postoperatively, the shoulder was placed in a sling for 3 weeks, while allowing nonresisted activities of daily living without elevation of the shoulder. Patients immediately began physiotherapy, which continuously increased in intensity over the next 9 weeks. Return to contact in training was allowed after 12 weeks, whereas return to full contact and competition usually would follow within the next 3 months, depending on the progress of physiotherapy.

Statistical Analysis

Quantitative statistical analysis was performed using SPSS version 22 (IBM, Armonk, NY).

Table 1. Patient Demographics

Age	28.9 ± 7.4 years
Gender, n (%)	f = 2 (8%)/m = 23 (92%)
Shoulder, n (%)	left = 11 (44%)/right = 14 (56%)
Follow-up	42.2 ± 16.5 months
Level of sport, n (%)	Recreational = 4 (16%) Competitive = 20 (80%) Professional = 1 (4%)
Collision athletes, n (%)	19 (76%)
Rugby	11 (44%)
Gaelic football/hurling	7 (28%)
Mixed martial arts	1 (4%)
Noncollision athletes, n (%)	6 (24%)
Volleyball	1 (4%)
Kayak	1 (4%)
Soccer	1 (4%)
Crossfit	1 (4%)
Tennis	1 (4%)
Tag-rugby	1 (4%)

Results

Patient Demographics

There were 466 arthroscopic shoulder stabilizations performed during the study period. A total of 29 patients met the inclusion criteria, and 25 patients were available for follow-up and could be included in the study (follow-up rate: 86.2%). The mean age of the patients was 28.9 years (16-43), and 23 patients were males (92.0%). Of the patients, 21 (84.0%) played sport at a competitive level. Additionally, 19 (76.0%) played collision sports. The mean number of anchors used was 6.2 ± 1.3. The number of dislocations prior to surgery ranged from 1 to >10 instability events. The mean follow-up time was 42.2 (18-71) months (Table 1).

Return to Play

At final follow-up, 76.0% (19/25) had returned to sport. The mean time of return to sport was 6.8 ± 2.6 months. Of these 25 patients, 15 (60.0%) returned to the same or a higher level of sport, whereas 4 patients returned to a lower level of their respective sport. Only 1 of these 4 patients reported that this was due to the shoulder injury, whereas the remaining 3 patients linked it to other life factors. Of the 19 collision athletes, 15 (78.9%) returned, and of the 6 noncollision athletes, 4 (66.7%) returned. Of the 6 patients who did not return to sport, only 1 said that it was directly related to the shoulder injury, whereas the remaining 5 stated that it was because they had decided to stop playing their sport due to a combination of their latest injury and external life factors (Table 2).

Patient-Reported Outcomes

Overall, 80.0% (20/25) were satisfied or very satisfied. When asked if they would undergo surgery again, 20 (80.0%) would, 3 (12.0%) were unsure and 2

Table 2. Return to Play

	n/N (%)
Overall	19/25 (76%)
Same/higher level	15/25 (60%)
Collision athletes	15/19 (79%)
Noncollision athletes	4/6 (67%)
Returned 3-6 mo	9/19 (47%)
Returned 6-9 mo	7/19 (37%)
Returned 9-12 mo	0/19 (0)
Returned >12 mo	3/19 (16%)

mo, months; n, number.

(8.0%) would not. The mean Rowe score at final follow-up was 80.6 (60-100). The mean SIRSI at follow up was 61.8 (25-99). The mean SSV was 86.4 (50-100). The average VAS score was 2.2 (0-5) (Table 3).

Complications

One patient (3.8%) reported recurrent subluxations but no recurrent dislocation. No patients underwent further ipsilateral shoulder surgery. No other intra-operative or immediate postoperative complications were documented in our series (Table 4).

Discussion

The most important finding of the current study was that patients with 270° labral tears who were treated with arthroscopic labral repair showed an overall high rate of return to sport. However, despite low rates of recurring instability, revisions and complications and good clinical outcomes, not all patients were able to return to their previous levels of sports.

Our study found good rates of return to sport following arthroscopic labral repair for 270° labral tears. The majority of patients were able to return to the same or a higher level of sports than preoperatively. However, this rate is still slightly lower than that reported in a systematic review by Memon et al.,¹⁰ which found rates of 81% following arthroscopic Bankart repair (ABR) for anterior shoulder instability. Warth et al.⁶ found the ability to return is the most significant factor for patients choosing to undergo ABR for anterior shoulder instability and, thus, is an important outcome measure in this population. In line with these findings, 17 of the 19 patients who were able

Table 3. Patient-Reported Outcomes

Outcome	Median score(interquartile Range)
Rowe score	75 (70-95)
SIRSI score	75.87 (43.5-86.67)
VAS score	2 (0-3.5)
SSV	90 (75-100)
Satisfied/very satisfied	20/25 (80%)

SIRSI, Shoulder Instability-Return to Sport after Injury; SSV, subjective shoulder value; VAS, visual analogue scale.

Table 4. Complications

Complication	n (%)
Recurrent dislocation	0 (0%)
Subluxation	1 (3.8%)
Revision surgeries	0 (0%)

n, number.

to return to sport reported that they were satisfied or very satisfied with the procedure compared to 4 of the 6 patients who did not return to sport. This highlights the importance of returning to sport as an aspect of patients' overall satisfaction with their surgeries. Although it is worth noting that in our series of those not returning to sport, the vast majority identified reasons other than the injury or unsatisfactory surgical outcome as their primary reason to not return.

Our study found that the majority of patients had good patient-reported outcomes, such as daily pain levels and functional outcomes. This is reflected in the high scores in the functional-outcome scoring systems used and indicates that the shoulder seems not to be a limiting factor in day-to-day activity. The mean SSV was high, indicating that patients found it similar to their contralateral nonoperative side. Memon et al.¹⁰ found similar low rates of pain in athletes undergoing ABR, indicating this may not be an issue for athletes, as opposed to the Latarjet, where return to play may be limited by recurrent pain.^{10,11}

Previous studies have found rates of up to 15% recurrent instability.^{12,13} In our series, there were no recurrent dislocations, which is of great importance for these active patients. However, there was one case of reported recurrent subluxations in our series, but no revision surgery was required. Despite concerns about the extensive nature of the 270° labral tears, it seems that they may not translate to an increased risk of short-term revision, failure or complications, which is valuable information for surgeons and patients alike. However, Plath et al.¹⁴ found that 69% of patients had some degree of instability arthropathy 10 years after ABR for anterior shoulder instability, and 12% had severe changes. Thus, the extent of arthritic change over time would be of interest in this group because it would be helpful to know whether the more extensive labral damage correlates with an increased rate of arthritic changes.

Limitations

This study had several limitations and sources of potential bias. The primary limitation of the study was that it was retrospective in nature and that there was no surgical or nonsurgical control group. Preoperative data concerning patient-reported outcome scores were not available. However, the focus of the study was not the evaluation of outcomes but the investigation of the rate

of return to sports after repair of 270° labral lesions. Furthermore, a mix of collision and noncollision athletes of different levels were included in the study, and that might influence outcomes relating to return to sports.

Conclusion

Patients with 270° labral tears who were treated with arthroscopic repair showed an overall high rate of return to sport. Despite a low rate of recurring instability, not all patients were able to return to their previous levels of sports.

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