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# MEDIUM TERM OUTCOME OF ALL SUTURE SOFT ANCHORS IN ARTHROSCOPIC SHOULDER STABILIZATION IN RECURRENT ANTERIOR SHOULDER DISLOCATION

Orthopaedics

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## ABSTRACT

**Background:** There are only a few studies which have evaluated the medium-term clinical outcome of arthroscopic all suture soft anchors technique for shoulder dislocation, the aim of this study was to find the clinical outcome and range of motion with activities of daily living using oxford shoulder instability score in patients after arthroscopic repair of recurrent anterior shoulder dislocation. **Methods:** we recruited patients with recurrent anterior shoulder dislocation and used OSIS pre- and post-operatively to evaluate the clinical condition, range of motion and activity of daily living at the end of 12 weeks, we excluded patients previously operated for shoulder dislocation. All the recruited patients were made to undergo arthroscopic repair of labrum along with capsule reattached to the glenoid with help of 3 all suture anchors. **Results:** 32 patients with a median age of median age of 28.5 (15-50 years) were recruited. Male outnumbered female by a ratio of 5:3, fifty-three percent of patients reported injury due to road traffic accident. Mean pre and post-operative OSIS was 21.4 and 36.8, mean score of range of motion was 24.7 and 37.8. There was only 1 case of post-operative subluxation and dislocation each. **Conclusion:** all suture soft anchors in arthroscopic shoulder repair of recurrent shoulder dislocation is an efficient technique with favourable medium term outcome and low post-operative complications.

## KEYWORDS

Shoulder dislocation, OSIS[Oxford Shoulder Instability Score] , Arthroscopic repair, Labrum, Glenoid, Soft anchor suture.

## INTRODUCTION

Shoulder joint is one of the most flexible joint in the body and is capable of a varied range of motion[1] however, this comes at a cost of being vulnerable to subluxations and dislocations, the event is particularly common in young athletic individuals and it is seen that the incidence of glenohumeral dislocation or subluxation is around 1-2% amongst general population.[2–4] Amongst these subluxations and dislocations, anterior dislocation remains the commonest and accounts for nearly 90-97% of all the dislocations,[4–7] in nearly all the anterior dislocation which is the commonest of all, Bankart lesion i.e. anteroinferior labrum tear, remains the most common direction and pathology associated with the instability, depending upon the nature of injury and the recurrence of dislocation the treatment can be non-operative intervention like specific physiotherapy or operative procedures with open or arthroscopic surgery directed at Bankart lesion repair[8–16]. Currently arthroscopic repair is considered as standard treatment for the repair of anterior shoulder instability, the results are similar to the open repair in terms of clinical benefit and the return to the daily activities, however the risk of recurrence is high which can be due to factors like younger age of presentation and the number of anchors used to the fixation of the capsule-labral structures.[12,14,16–21] The standard method currently used in practice is to arthroscopically implant a suture anchor into the bone, which is then used to secure the labrum and lax joint capsule tissue back onto the bone[13,14,22]. There are several fixation materials to facilitate the arthroscopic technique in this process with varying success rates and operative and post-operative complications like interference with imaging, chondral damage by loosening and migration towards articular surface, rigidity related complications such as anchor migration and glenohumeral cartilage damage, which are associated with solid anchors.[23–25] In contrast to that, all sutures anchors have a short term favorable clinical outcome but has disadvantages of potential cyst formation and tunnel expansion, there are few studies in the Indian sub-continent which have evaluated the medium term outcome. Our objective of the present study is to measure the medium term outcome of arthroscopic shoulder stabilization in recurrent anterior shoulder dislocation using all suture soft anchors using the Oxford Shoulder Instability Score[26–28] focusing on range of motion of shoulder joint and activity of daily living of shoulder joint.

## METHODOLOGY

This was a longitudinal hospital-based study in which we recruited patients presented with recurrent shoulder dislocation attending the OPD of Department of Orthopaedic, S.M.S Medical College and attached group of hospitals, Jaipur from January to December 2022. We excluded patients who were medically unfit for surgery, had previously failed arthroscopic or open surgery, had Hill Sach's lesion, had any other injury like rotator cuff tear and patients with posterior, inferior, or multidirectional instability. Patients were assessed pre-operatively with OSIS and demographic data was also collected using a structures pe-validate questionnaire. A post-operative follow up was done at the end of second fourth and sixth weeks with accompanying exercise, OSIS score was assessed at the last follow up. All the recruited patients were made to undergo arthroscopic repair of labrum along with capsule reattached to the glenoid with help of 3 all suture anchors. The data of these patients was collected and tabulated in Ms-Excel and was analyzed in SPSS version 25.0.

## RESULTS:

We recruited 32 patients in our study out of which 20(62.5%) were males and 12(37.5%) were females with a median age of 28.5 (15-50 years).

**Table 1: Descriptive summary of cases**

| Individual characteristics | Data |
|---|---|
| Mean Age (Mean ± SD) | 30.3±10.9 years |
| Sex: Male/Female | 20/12 |
| Side of Dislocation (Right/Left) | 15/17 |
| Number of recurrent dislocations | |
| • 2 times | • 1 |
| • 3 times | • 7 |
| • 4 times | • 5 |
| • 5 times | • 7 |
| • 6 times | • 9 |
| • 7 times | • 3 |
| Mechanism of injury | |
| • RTA | • 17 |
| • Accidental Fall | • 7 |
| • Sports injury | • 8 |
| Number of Sutures | |
| • 2 sutures | • 3 |
| • 3 sutures | • 10 |
| • 4 sutures | • 12 |
| • 5 sutures | • 7 |
| Labral repair | |
| • Anterior | • 29 |
| • Posterior | • 3 |

| Post-operative complications | |
|---|---|
| • Subluxations | • 1 |
| • Dislocations | • 1 |

The dislocation in 53% patients was on left side while 47% had right shoulder dislocation, most of the patients reported the mode of injury as road traffic accident (53%), while accidental fall and sports injury was seen in 22 and 25% patients respectively. In our arthroscopic repair we took 3 or more sutures in 90% of our patients and similarly 91% of the patients required anterior repair and only 9% patients required posterior labral repair.

We did a follow up of the patients and compared the pre- and post-operative OSIS of patients along with range of motion and activity of daily living. Table 2 provides and overview of the change that has been seen after arthroscopic surgery.

**Table 2: Pre- and Post-operative score of patients**

| Score | Pre-operative | Post-operative | p-value |
|---|---|---|---|
| Oxford Shoulder Instability Score | 21.4 ± 4.7 | 36.8 ± 5.7 | 0.001 |
| Range of motion | 24.7 ±3.8 | 37.8 ±3.6 | 0.001 |
| Activity of daily living | 10.1 ± 1.6 | 18.8 ± 1.5 | 0.001 |

There was a significant difference in the mean OSI score of patients before and after surgery which was significant on application of Wilkcoxon signed rank test, the range of motion score was 24.7 in the pre-operative phase and 37.8 in the post-operative phase a similar difference of 8 points was seen in the activity of daily living with pre-op score of 10.1 and post-op score 18.8.

**Case illustration**

**Case 1 –**

28 year old male with history of 4 episodes of traumatic anterior shoulder dislocation with span of approximately 6 months between presented with complaints of pain at shoulder and restricted movements [ especially during abduction]. On clinical and radiographic evaluation a Bankart lesion in anterio-inferior labrum of shoulder was noted and planned subsequently for the all arthroscopic 3 anchor sutures technique. Given below are some intra-operative pictures of the same

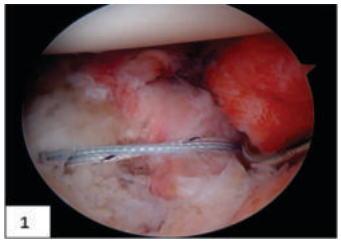


**Figure-1 = Knot tightening.**

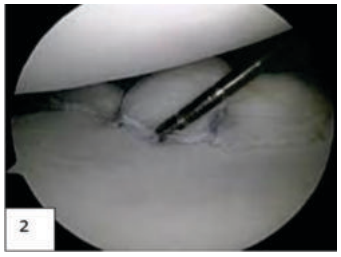


**Figure 2 = Nice bump by all 3 suture anchors with good stability.**

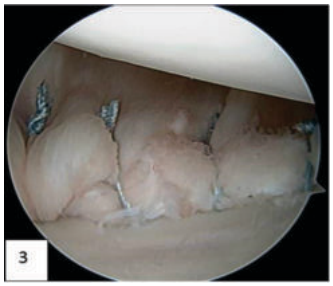


**Figure-3 = Capsulo-labral bumper with all 4 suture anchors positioned at 2-6 'O' clock.**

## DISCUSSION:

We performed the arthroscopic repair of the lesion and evaluated the condition of shoulder using the pre- and post-operative OSIS score for activity of daily living and range of movement. As most of the patients had anterior dislocation, we performed the anterior labral repair in 91% of the patients. In the previous studies it has been shown that the type of repair is more important than the procedure of performing the procedure, in the meta-analysis by Belven et al[29] it was seen that Latarjet had a lesser chances of radiolocation as compared to Bankart irrespective of laparoscopic or open repair. Also, Latarjet procedure had better outcome evaluated on the basis of range of movement and pain. We performed the arthroscopic repair as it has been seen in the studies that it has similar efficacy when compared to open Bankart repair[8,15,21,30].

When we compared the score for activity of daily living before and after operation there was a difference with the pre-op score of 10.06 ± 1.59 and post-op score of 18.81 ± 1.45, this was seen to be significant. In the study by Yang et al[31] the range of motion showed a significant improvement after the arthroscopic repair of chronic instability however the study did not use the similar scale of daily activity of living and OSIS as in the present research still the finding of our study is in concurrence with Yang et al. We had one year follow up of the patients which is a relatively long term as most of the recovery and complication can occur during this period and if the re-dislocation happens it will be seen during this period[8,32–34].

There was also a tremendous reduction in the OSIS score of our patients, while the mean pre-operative score was 36.78 ± 5.7, the post-operative score was 21.44 ± 4.71 and was statistically significant, other scores for assessing the operational success, it is one of the efficacious scale available and simple to administer with a range of insights it can provide over other scales like Western Ontario, Japanese orthopaedic etc which are better suited for non-operative procedures[35]. Booker et al in their metanalysis also have registered a similar finding when range of motion and OSIS is considered in patients, they saw an average OSIS score of 35.4 ±11.7 in the pre-operative period and 18.9 ±9.0 in the post-operative period, similarly the range of motion score was 22.8 ±10 and 11.2 ±8 in pre and post op respectively[35]. This increased in the range of motion after the arthroscopic repair is seen in other studies too and has caused an increased activities as compared to the age and sex matched controls as seen by Brophy et al[36].

Law et al[37] in their study used the Rowe score to measure the outcome and showed an excellent recovery with the arthroscopic repair, they however included an intensive rehabilitation program post-operatively which caused the progression of recovery rapid, they also assessed the anatomical recovery using imaging techniques which was lacking in our study. Arthroscopy is not only better in recurrent dislocation but is also useful in failed previous operation as seen in the study by Pascal Boileau et al in which Walch-Duplay and Rowe score was used[38] and showed an excellent recovery in a 6 month period with similar result of a long term follow up. Dekker et al[39] in their retrospective study found that the mean post-op OSIS score of the patients was 39. Other studies performing arthroscopic repair of the shoulder joint also registered a similar improvement in the range of movement as well as the pain and subjective well-being even after employing different scoring methods[9,21,22,32,40–43]. There is not a single method or criterion n scores which can mark the success of the operative procedures and hence it depends on the patients' pain relief or range of movement achievement, however Xu et al[28] had concluded a threshold OSIS of 24 at 12 months and 38 at the 6 month period as measure of the operative success. Foong et al[27] similar to our study saw a pre-operatvie OSIS of 35.1 ± 9.4 and a post-op follow up score of 20.6 ± 8.3 at 12 months, they also found that a score difference of around 7.1 is significantly associated with the arthroscopic repair. These studies above have findings similar to our present research.

Not only the score is necessary to evaluate the success of the surgical repair but the recurrence after the treatment and the subluxation following surgery is also one of the benchmark in knowing the success of arthroscopic repair, in the present study we saw a very small rate of post repair instability with only 2 patients presenting with one traumatic dislocation and subluxation each, arthroscopic with all suture soft anchors has a very low complication rate with minimal sutures. Dekker et al[39] also had a failure of 4.5% with none of them requiring any surgical intervention and got corrected with physical rehabilitation. Since we used the labrum repair with triple anchor

suturing using arthroscopic technique the chances of re-dislocation are minimal as seen in the study by Kavaja[14] et al the post-op instability is minimal in such patients with a relative risk of only 0.15 in arthroscopic repair. McDonald et al[33] had also registered a similar result with only 2 out of 53 and 6 out of 52 in arthroscopic operation using different procedure. Similarly in the study by Parmar and Kapoor[13], the number of sutures did not have any correlation with the outcome of surgery, the incidence of post-operative dislocation after arthroscopic repair was very low 6.7%(2/30) which is comparable to our study. Yang et al[31] also encountered a very low incidence of recurrence or subluxation after arthroscopic repair of chronic shoulder instability, in the long-term follow up study by Aboalata et al[21] the 13 year subluxation following arthroscopic repair was only 18%, while the above studies had employed arthroscopic repair and seen a very low complication rate, the meta-analysis by Long Chen et al[16] has actually concluded that the open repair has a lower chances of subluxation as compared to the arthroscopic repair, however the surgery also depends on the patients' acceptability muscle laxity or the presence/absence of specific injuries[17]. In a recent study by Uzun et al[44] arthroscopic techniques was employed with single and double portal and no difference was observed in view of the occurrence of post operative sub-luxation or dislocation, another long term follow up study in Canada Ontario also found the complications to be less than 6% after the arthroscopic surgery[45].The finding in our study is comparable in terms of both outcome as well as complications with the previous studies.

We can conclude from our that arthroscopic repair is a good procedure for shoulder dislocation with minimal post-operative complication and a significant rate of improvement in the patients outcome in terms of range of motion, pain and daily activities we recommend all suture soft anchor arthroscopic repair for shoulder dislocation

## REFERENCES:


1. Wong M, Kiel J. Anatomy, Shoulder and Upper Limb, Acromioclavicular Joint [Internet]. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2022 [cited 2023 Feb 3]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK499858/
2. Varacallo M, Musto MA, Mair SD. Anterior Shoulder Instability [Internet]. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2022 [cited 2023 Feb 3]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK538234/
3. Chang LR, Anand P, Varacallo M. Anatomy, Shoulder and Upper Limb, Glenohumeral Joint [Internet]. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2022 [cited 2023 Feb 3]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK537018/
4. Tuite MJ, Pfirrmann CWA. Shoulder: Instability [Internet]. In: Hodler J, Kubik-Huch RA, von Schulthess GK, editors. Musculoskeletal Diseases 2021-2024: Diagnostic Imaging. Cham (CH): Springer; 2021 [cited 2023 Feb 3]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK570161/
5. Abrams R, Akbarnia H. Shoulder Dislocations Overview [Internet]. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2022 [cited 2023 Jan 25]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK459125/
6. Kao JT, Chang CL, Su WR, Chang WL, Tai TW. Incidence of recurrence after shoulder dislocation: a nationwide database study. J Shoulder Elbow Surg 2018;27(8):1519–25.
7. Brelin A, Dickens JF. Posterior Shoulder Instability. Sports Med Arthrosc Rev 2017;25(3):136–43.
8. Haskel JD, Wang KH, Hurley ET, Markus DH, Campbell KA, Alaia MJ, et al. Clinical outcomes of revision arthroscopic Bankart repair for anterior shoulder instability: a systematic review of studies. J Shoulder Elbow Surg 2022;31(1):209–16.
9. Xing JS, Lu MF, Zhao LL, Fu CY, He LL. [Arthroscopic Bankart repair combined with Reimplissage for the treatment of recurrent anterior dislocation of shoulder in adults with Hill-Sachs defect]. Zhongguo Gu Shang China J Orthop Traumatol 2021;34(6):497–503.
10. Rashid MS, Arner JW, Millett PJ, Sugaya H, Emery R. The Bankart repair: past, present, and future. J Shoulder Elbow Surg 2020;29(12):e491–8.
11. Hurley ET, Manjunath AK, Bloom DA, Pauzenberger L, Mullett H, Alaia MJ, et al. Arthroscopic Bankart Repair Versus Conservative Management for First-Time Traumatic Anterior Shoulder Instability: A Systematic Review and Meta-analysis. Arthrosc J Arthrosc Relat Surg Off Publ Arthrosc Assoc N Am Int Arthrosc Assoc 2020;36(9):2526–32.
12. Arner JW, Peebles LA, Bradley JP, Provencher MT. Anterior Shoulder Instability Management: Indications, Techniques, and Outcomes. Arthrosc J Arthrosc Relat Surg Off Publ Arthrosc Assoc N Am Int Arthrosc Assoc 2020;36(11):2791–3.
13. Parmar RS, Kapoor S, Sharma B. Arthroscopic Bankart repair following traumatic recurrent shoulder dislocation: A prospective review of 30 cases. J Orthop Surg Hong Kong 2019;27(1):2309499019832708.
14. Kavaja L, Lähdeoja T, Malmivaara A, Paavola M. Treatment after traumatic shoulder dislocation: a systematic review with a network meta-analysis. Br J Sports Med 2018;52(23):1498–506.
15. Adam M, Attia AK, Alhammoud A, Aldahamsheh O, Al Ateeq Al Dosari M, Ahmed G. Arthroscopic Bankart repair for the acute anterior shoulder dislocation: systematic review and meta-analysis. Int Orthop 2018;42(10):2413–22.
16. Chen L, Xu Z, Peng J, Xing F, Wang H, Xiang Z. Effectiveness and safety of arthroscopic versus open Bankart repair for recurrent anterior shoulder dislocation: a meta-analysis of clinical trial data. Arch Orthop Trauma Surg 2015;135(4):529–38.
17. Cole BJ, Warner JJ. Arthroscopic versus open Bankart repair for traumatic anterior shoulder instability. Clin Sports Med 2000;19(1):19–48.
18. Lützner J, Krummenauer F, Lübke J, Kirschner S, Günther KP, Bottesi M. Fuctional outcome after open and arthroscopic bankart repair for traumatic shoulder instability. Eur J Med Res 2009;14(1):18–24.
19. Olds M, Ellis R, Donaldson K, Parmar P, Kersten P. Risk factors which predispose first-time traumatic anterior shoulder dislocations to recurrent instability in adults: a systematic review and meta-analysis. Br J Sports Med 2015;49(14):913–22.
20. Olds M, Donaldson K, Ellis R, Kersten P. In children 18 years and under, what promotes recurrent shoulder instability after traumatic anterior shoulder dislocation? A systematic review and meta-analysis of risk factors. Br J Sports Med 2016;50(18):1135–41.
21. Aboalata M, Plath JE, Seppel G, Juretzko J, Vogt S, Imhoff AB. Results of Arthroscopic Bankart Repair for Anterior-Inferior Shoulder Instability at 13-Year Follow-up. Am J Sports Med 2017;45(4):782–7.
22. Abrams JS. Arthroscopic Surgical Stabilization of Glenohumeral Dislocations with Clavicular Graft and Remplissage. JBJS Essent Surg Tech 2019;9(1):e11.
23. Tross AK, Nolte PC, Horan MB, Ruzbarsky J, Elrick BP, Woolson TE, et al. Short-term outcomes after knotless all-suture anchor Bankart repair. Obere Extrem 2021;16(1):27–33.
24. Cho CH, Bae KC, Kim DH. Biomaterials Used for Suture Anchors in Orthopedic Surgery. Clin Orthop Surg 2021;13(3):287–92.
25. Silver M, Daigneault J. Symptomatic Interarticular Migration of Glenoid Suture Anchors. Arthrosc J Arthrosc Relat Surg Off Publ Arthrosc Assoc N Am Int Arthrosc Assoc 2000;16:102–5.
26. The Oxford Shoulder Instability Score [Internet]. [cited 2023 Jan 24];Available from: https://innovation.ox.ac.uk/outcome-measures/oxford-shoulder-instability-score-osis/
27. Foong WS, Zeng GJ, Goh GS, Hao Y, Lie DTT, Chang PCC. Determining the Minimal Clinically Important Difference on the Oxford Shoulder Instability Score in Patients Undergoing Arthroscopic Bankart Repair for Shoulder Instability. Orthop J Sports Med 2022;10(1):23259671211060024.
28. Xu S, Chen JY, Hao Y, Chang CCP, Lie DTT. Threshold scores for treatment success after arthroscopic bankart repair using Oxford Shoulder Instability Score, Constant-Murley Score, and UCLA shoulder score. J Orthop 2020;22:242–5.
29. Bliven KCH, Parr GP. Outcomes of the Latarjet Procedure Compared With Bankart Repair for Recurrent Traumatic Anterior Shoulder Instability. J Athl Train 2018;53(2):181–3.
30. Bah A, Lateur GM, Kouevidjin BT, Bassinga JYS, Issa M, Jaafar A, et al. Chronic anterior shoulder instability with significant Hill-Sachs lesion: Arthroscopic Bankart with remplissage versus open Latarjet procedure. Orthop Traumatol Surg Res OTSR 2018;104(1):17–22.
31. Yang Y, Li Q, Zhang Q, Jia H, Wang B, Dong J, et al. Treatment of Chronic Anterior Shoulder Dislocation by Coracoid Osteotomy with or without Bristow–Latarjet Procedure. Orthop Surg 2020;12(5):1478–88.
32. Eren İ, Büyükdogan K, Yürük B, Aslan L, Birsel O, Demirhan M. Patients without re-dislocation in the short term after arthroscopic knotless Bankart repair for anterior shoulder instability may show residual apprehension and recurrence in the long term after 5 years. J Shoulder Elbow Surg 2022;31(5):978–83.
33. MacDonald P, McRae S, Old J, Marsh J, Dubberley J, Stranges G, et al. Arthroscopic Bankart repair with and without arthroscopic infraspinatus remplissage in anterior shoulder instability with a Hill-Sachs defect: a randomized controlled trial. J Shoulder Elbow Surg 2021;30(6):1288–98.
34. Ernstbrunner L, De Nard B, Olthof M, Beeler S, Bouaicha S, Gerber C, et al. Long-term Results of the Arthroscopic Bankart Repair for Recurrent Anterior Shoulder Instability in Patients Older Than 40 Years: A Comparison With the Open Latarjet Procedure. Am J Sports Med 2020;48(9):2090–6.
35. Booker S, Alfahad N, Scott M, Gooding B, Wallace WA. Use of scoring systems for assessing and reporting the outcome results from shoulder surgery and arthroplasty. World J Orthop 2015;6(2):244–51.
36. Brophy RH, Hettrich CM, Ortiz S, Wolf BR. Patients Undergoing Shoulder Stabilization Surgery Have Elevated Shoulder Activity Compared With Sex- and Age-Matched Healthy Controls. Sports Health 2016;9(1):59–63.
37. Law BKY, Yung PSH, Ho EPY, Chang JJHT, Chan KM. The surgical outcome of immediate arthroscopic Bankart repair for first time anterior shoulder dislocation in young active patients. Knee Surg Sports Traumatol Arthrosc Off J ESSKA 2008;16(2):188–93.
38. Boileau P, Richou J, Lisai A, Chuinard C, Bicknell RT. The role of arthroscopy in revision of failed open anterior stabilization of the shoulder. Arthrosc J Arthrosc Relat Surg Off Publ Arthrosc Assoc N Am Int Arthrosc Assoc 2009;25(10):1075–84.
39. Dekker AP, Sarsasm M, Morris DL, Bateman M, Espag M, Tambe A, et al. Medium term outcomes of all-suture soft anchors in arthroscopic shoulder stabilisation. J Arthrosc Jt Surg 2020;7(1):7–10.
40. Testa EJ, Brodeur PG, Li LT, Berglund-Brown IS, Modest JM, Gil JA, et al. Social and Demographic Factors Impact Shoulder Stabilization Surgery in Anterior Glenohumeral Instability. Arthrosc Sports Med Rehabil 2022;4(4):e1497–504.
41. Zhang MT, Zhang GR, Zhou JP, Wu D, Liu JX, Jia YF, et al. [Progress on arthroscopic surgery for recurrent anterior shoulder dislocation]. Zhongguo Gu Shang China J Orthop Traumatol 2021;34(5):478–84.
42. Pougès C, Hardy A, Vervoort T, Amouyel T, Duriez P, Lalanne C, et al. Arthroscopic Bankart Repair Versus Immobilization for First Episode of Anterior Shoulder Dislocation Before the Age of 25: A Randomized Controlled Trial. Am J Sports Med 2021;49(5):1166–74.
43. Lenart BA, Sherman SL, Mall NA, Gochanour E, Twigg SL, Nicholson GP. Arthroscopic repair for posterior shoulder instability. Arthrosc J Arthrosc Relat Surg Off Publ Arthrosc Assoc N Am Int Arthrosc Assoc 2012;28(10):1337–43.
44. Uzun E, Doğar F, Topak D, Güney A. Comparison of anterior single- and standard two-portal techniques in arthroscopic Bankart repair. Jt Dis Relat Surg 2021;32(2):437–45.
45. Wasserstein D, Dwyer T, Veillette C, Gandhi R, Chahal J, Mahomed N, et al. Predictors of dislocation and revision after shoulder stabilization in Ontario, Canada, from 2003 to 2008. Am J Sports Med 2013;41(9):2034–40.