



International Journal of Orthopaedics Sciences

E-ISSN: 2395-1958
P-ISSN: 2706-6630
IJOS 2021; 7(1): 147-151
© 2021 IJOS
www.orthopaper.com
Received: 29-10-2020
Accepted: 09-12-2020

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The clinical and functional outcome of arthroscopic bankart repair in recurrent shoulder dislocation

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DOI: <https://doi.org/10.22271/ortho.2021.v7.i1c.2472>

Abstract

Background: Study aimed to assess the functional and clinical outcome of arthroscopic bankart's repair in recurrent shoulder dislocation using UCLA & SST scoring system.

Methods: It is a prospective cohort study conducted on the 28 patients undergoing arthroscopic bankart's repair for recurrent shoulder dislocation in the department of orthopaedics at vydehi institute of medical sciences and research centre, bengaluru from September 2017 to October 2019. Patients aged between 18-50 years of both genders undergoing arthroscopic bankart repair with anterior instability of glenohumeral joint with at least ≥ 2 episode of dislocation/subluxation, a positive clinical apprehension test and radiological evidence of glenohumeral instability and glenoid bone loss $< 25\%$ were included in the study and patients with glenoid bone loss $> 25\%$, contact sports athletes, previously failed arthroscopy or open surgery, seizure disorder, multidirectional instability/habitual dislocation were excluded. Each case was followed post-operatively for atleast 1 year.

Results: This series consisted of 28 patients, with the mean follow-up period of 12 months, the mean pre-operative UCLA score of 18 improved to 31.75 post-operatively, the mean pre-operative SST score of 4.89 improved to 10.96 post-operatively. Out of 28 patients none had episodes of recurrent dislocation and anterior translation or apprehension. External rotation in 90° of abduction improved in 25 patients (89%).

Conclusion: we conclude that arthroscopic bankart's repair in recurrent shoulder dislocation with suture anchors is a reliable procedure with respect to shoulder function, recurrence rate and range of movement.

Keywords: Bankart's repair, arthroscopic, recurrent, dislocation, suture anchors

Introduction

Glenohumeral dislocation is a common entity and represents more than 50% of all joint dislocations with anterior dislocation being most common with overall incidence of 2% [1]. The shoulder is unstable joint due to its shallow glenoid that only articulates with a small part of the humeral head [2-6]. Recurrent dislocation of the shoulder is the leading complication of anterior glenohumeral dislocation and it accounts for an average of 70-90% recurrence rate in patients aged 20 to 40 years [7]. Forced abduction and external rotation of the shoulder can cause anterior dislocation resulting in instability [8]. Dislocation of shoulder involves a tear of the inferior capsuloligamentous complex and labrum from the anterior inferior glenoid most of the times (97%) [9]. Avulsion of this anterior inferior labrum from the glenoid rim was first described by Perthes [10] and Bankart [11] in the early 20th century. Bankart lesion is found in over 80% of shoulders with recurrent shoulder instability [12-13]. The frequency of dislocation keeps increasing with time and overhead activity, and it is termed as recurrent when dislocation occurs more than once [14]. The standard procedure for operative treatment of anterior glenohumeral instability is an open Bankart type procedure [15-16], which closely restores normal anatomy. Recurrent instability rates with this type of procedure averaged as low as 7%. Despite these excellent results, there has been growing interest in the arthroscopic management of anterior glenohumeral instability because of the advantages like less morbidity, shorter time of surgery, improved range of motion, improved cosmesis, and less post-operative pain [17]. The purpose of the present study is to verify the functional outcome of the patients with recurrent dislocation of shoulder with Bankart lesion, treated with arthroscopic stabilization with suture anchors.

Material and method

It is a prospective cohort study conducted among patients undergoing arthroscopic repair of the bankart lesion with suture anchors in the department of orthopaedics at Vydehi institute of medical sciences and research centre, Bengaluru during September 2017 to October 2019. Ethics clearance was obtained prior to the recruitment of the patients for the study. Patients were included in the present study after obtaining the informed consent. Patients aged between 18-50 years of both genders undergoing arthroscopic bankart repair with anterior instability of glenohumeral joint with at least ≥ 2 episode of dislocation/subluxation, a positive clinical apprehension test and radiological evidence of glenohumeral instability and glenoid bone loss $< 25\%$ were included in the study and patients with glenoid bone loss $>25\%$, contact sports athletes, previously failed arthroscopy or open surgery, seizure

disorder, multidirectional instability/habitual dislocation were excluded from the study. The patients were regularly followed, Functional outcome and Recurrence was assessed at 6 weeks, 3 months, 6 months and 1-year post-surgery with Modified University of California Los Angeles (UCLA) and simple shoulder test (SST).

The collected data were analysed with IBM. SPSS statistics software 23.0 Version. To describe about the data descriptive statistics frequency analysis, percentage analysis were used for categorical variables and the mean & S.D were used for continuous variables. To find the significant difference in the multivariate analysis for repeated measures, the repeated measures of ANOVA was used with Bonferroni correction to control the type I error on multiple comparison. In the above statistical tools, the probability value. 05 is considered as significant.

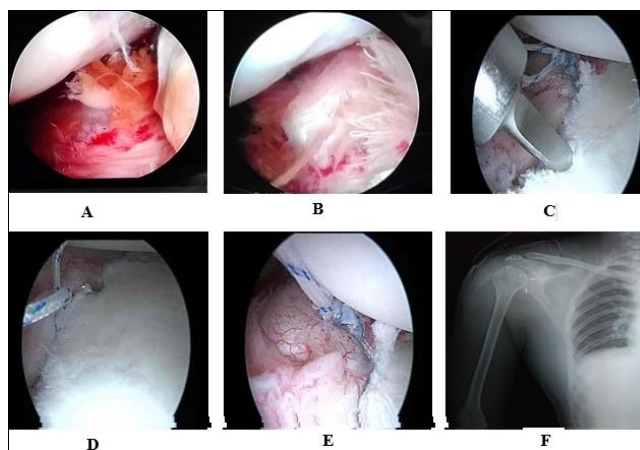


Fig 1: Showing bankart's tear (A&B), Pre-drilling for suture anchor placement (C), Suture anchor placement (D&E), Post-op x-ray (F)

Result

The majority of the patients were in the age group between 26 to 30 years (42.9%). With Mean age of 28.179 ± 5.0483 , 27 males (96%), and 1 female (4%), eighteen patients (64.28%), were involved in a significant occupation requiring overhead activity such as fisherman, students with sporting activities, agriculturists. The majority of patients had symptoms for a period ranging from 7 to 12 months in 10 patients (35.7%), 13 to 18 months in 9 patients (32.1%), Less than 6 months and 19 to 24 months in 4 patients (14.3%) each and Above 2 years in 2 patients (3.6%) Among 28 patients, 16(57%) patients had their right shoulder involved, rest 12 (43%) patients had Left shoulder involved, Among 28 patients, 13 patients (46.4%) had very unstable shoulder joint on the involved side and 7 patients had unstable shoulder joint (25%) and 8 had stable shoulder joint (28.6%), Among 28 patients, 12 patients (42.9%) had discomfort, 7 patients had pain (25%) and 9 patients had no pain and discomfort (32.1%). In the majority of patients, 17 patients (60.714%) 2 suture anchors were used and in the rest of 11 patients (39.285%) 3 suture anchors were used. Among 28 patients, only 1(4%) patient had 10 or more events of dislocations pre-operatively, 10(36%) patients had 6 to 10 times dislocated the shoulder pre-operatively, and 17(60%) patients dislocated 2 to 5 times preoperatively, Pre-operative mean UCLA score of 18, improved on periodic rehabilitation of 6th weeks, 3months, 6 months and 1 year, to a mean UCLA score of 31.75 by the end of 1 year. Pre-operative mean SST score of 4.89, improved on periodic rehabilitation of 6th, 12weeks, 6 months and 1 year, to a mean

SST score of 10.96 by the end of 1 year.

All the 28 patients had a full range of motion in all planes at the end of 6 months post-operatively. None of the 28 patients postoperatively experienced apprehension. There was no recurrence of dislocation or subluxation reported among 28 patients, during their periodical follow-up to 1 year. There was no stiffness of joint reported among 28 patients, during their periodical follow up to 1 year. All of the patients return to their normal activity at 6 months post-operatively. In which 75% of the patients returned to previous sporting activities, while the remainder felt they could not return because they were afraid of a recurrence.

Table 1: Showing the demographic details of the patients

		Frequency	Percent
Age-wise	21 - 25 yrs	09	32.1
	26 - 30 yrs	12	42.9
	31 - 35 yrs	05	17.9
	Above 35 yrs	02	7.1
Gender	Male	27	96.4
	Female	01	3.6
Side effected	Left	12	42.9
	Right	16	57.1
Stability Duration in months	Stable	08	28.6
	Unstable	07	25.0
	< 6 months	04	14.3
	7 - 12 months	10	35.7
	13 - 18 months	09	32.1
	19 - 24 months	04	
>24 months	01		

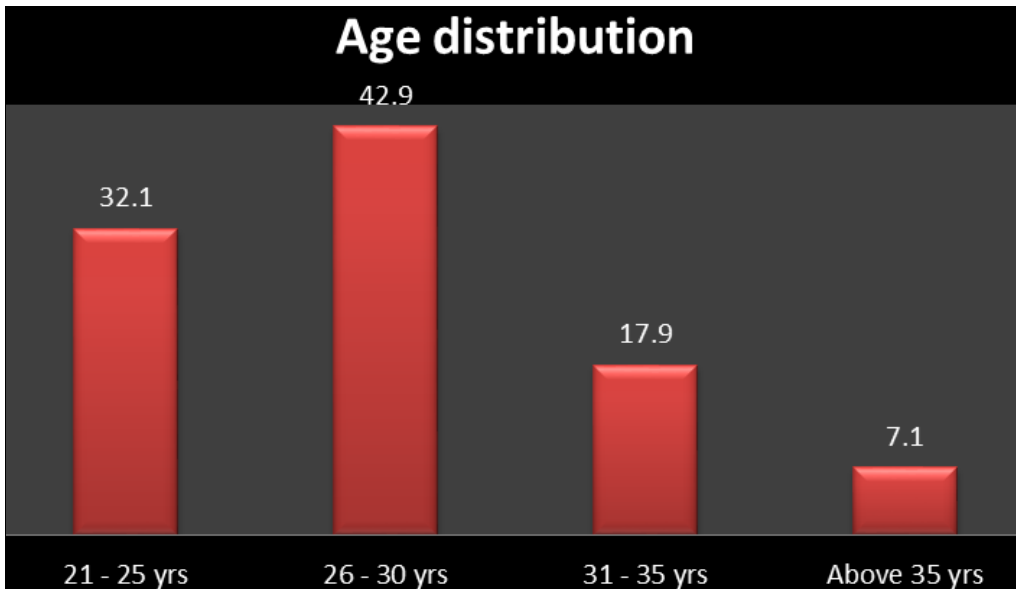


Fig 2: Showing age distribution

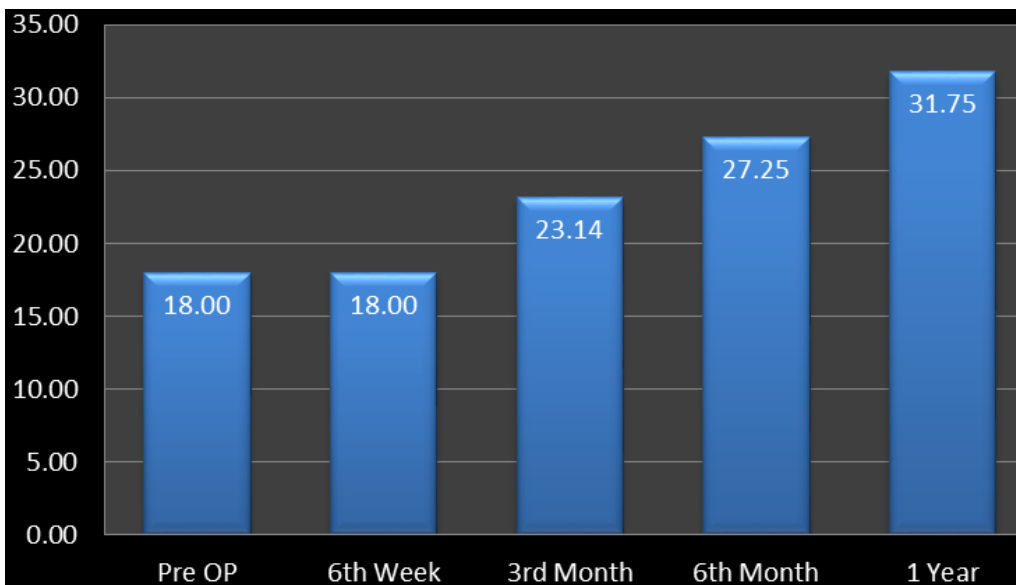


Fig 3: Showing improvement in UCLA score

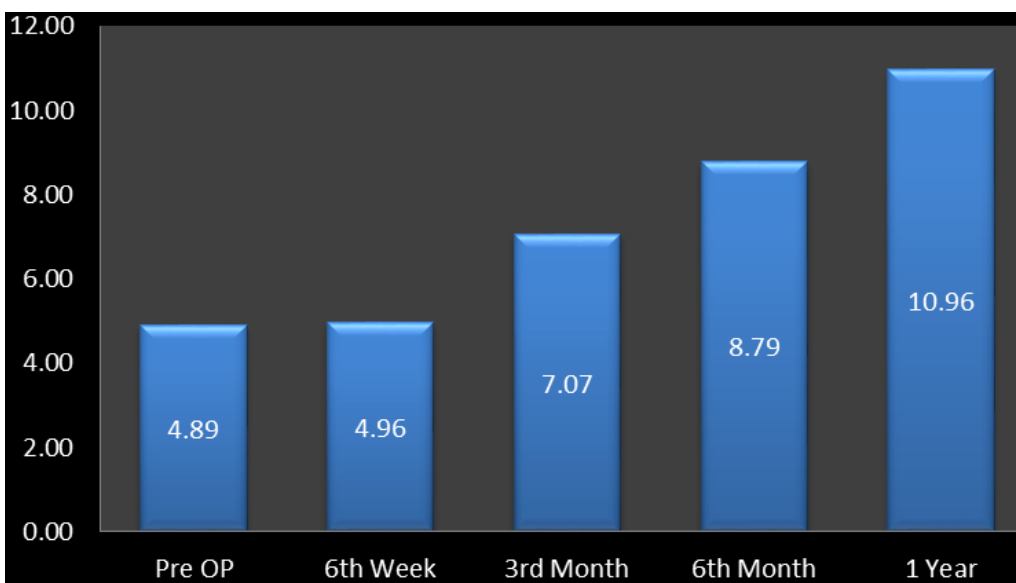


Fig 4: Showing improvement in SST score



Fig 5: Showing case results



Fig 6: Showing case results.

Discussion

Anterior instability of the shoulder with a Bankart lesion was treated with open repair initially, as performed by Bankart himself, published by Dickson and Devas in 1957 [2]. The standard procedure for operative treatment of anterior glenohumeral instability is an open Bankart type procedure [15-16], which closely restores normal anatomy. Recurrent instability rates with this type of procedure averaged as low as 7%. But with the evolution of shoulder arthroscopy in the past two decades, from a limited diagnostic modality to a surgical tool, the arthroscopic stabilization for recurrent anterior

instability with varying stabilizing techniques like staple capsulorrhaphy, transglenoid suture capsulorrhaphy, bioabsorbable tacks and the suture anchors varying success being reported. Arthroscopic management of anterior glenohumeral instability is becoming a preferable treatment, because of the advantages like less morbidity, shorter time of surgery, improved range of motion, improved cosmesis, and less post-operative pain [17].

In this study, out of 28 patients, 2 suture anchors were used in 17 patients (60.714%) and in the rest of 11 patients (39.285%) 3 suture anchors were used. The two suture strands are tied together using a Duncan Loop sliding locking knot and the knot reinforced with multiple reversing half hitch knots. Pascal Boileau *et al.*, [18] recommended that at least four anchor points should be used to obtain secure shoulder stabilization. In our study, none of the 28 patients complained of pain or sense of instability or discomfort which is comparable to the study of Daniel *et al.* [19]

In our study the mean post-operative UCLA score improved to 31.75 ± 2.56 from a pre-operative UCLA score of 18, with excellent in 10 patients, good in 15 and fair in 3 patients. We used the UCLA system because it was one of the first shoulder outcome measures that was introduced, the test is easy to administer and clinicians who want to quickly and simply evaluate outcomes for a variety of diagnoses find UCLA to be helpful [20, 21, 22] and have low inter-observer variability [23].

The mean post-operative SST score improved to 10.96 ± 0.69 from a pre-operative SST score of 4.89, with excellent in 15 patients. SST has also been shown to satisfy the American Shoulder and Elbow Surgeons recommended attributes for a shoulder function assessment [24].

Ee GW *et al.* has conducted a study long term results of arthroscopic bankart repair for traumatic anterior shoulder instability in 79 shoulders in 74 patients over 4 years in single hospital by a single surgeon over the time period and found 34 had excellent outcome and 35 had good results, 1 had fair and 3 had poor results. They concluded that Arthroscopic bankart repair with the use of suture anchor is a reliable treatment method, with good clinical outcome, excellent post-operative shoulder motion and low recurrence rates [25]. Which is comparable to our study.

J. Hobby *et al.*, did a systematic review and metaanalysis of 62 studies including 3044 arthroscopic operations concluded that the failure rates are less in arthroscopic stabilization using suture anchors and bio absorbable tacs, compared to arthroscopic stabilization with staples and transglenoid suture technique. And arthroscopic anterior stabilization has a similar rate of failure to open stabilization after 2 years of follow up [26].

Conclusion

We conclude that Arthroscopic Bankart repair in recurrent shoulder dislocation with suture anchors is a reliable procedure with respect to shoulder function, recurrence rate and range of movement.

References

1. Dumont GD, Russell RD, Robertson WJ. Anterior shoulder instability: a review of pathoanatomy, diagnosis and treatment. *Curr Rev Musculoskeletal Med* 2011;4:200-207.
2. Dickson JW, Devas MB. Bankart's operation for recurrent dislocation of shoulder. *J Bone Joint Surg (Br)* 1957;39:114-9.

3. Hovellius L, Augustini BG, Fredin H, Johansson O, Norlin R, Thorling J. Primary anterior dislocation of the shoulder in young patients. A ten-year prospective study. *J Bone Joint Surg Am* 1996;78:1677-1684.
4. Enger M, Skjaker SA, Melhuus K, Nordsetten L, Pripp AH, Moosmayer S *et al.* Shoulder injuries from birth to old age: A 1-year prospective study of 3031 shoulder injuries in an urban population. *Injury* 2018;49(7):1324-1329.
5. Wolfe JA, Christensen DL, Mauntel TC, Owens BD, LeClere LE, Dickens JF. A History of Shoulder Instability in the Military: Where We Have Been and What We Have Learned. *Mil Med* 2018;183(5-6):e158-e165.
6. Lizzio VA, Meta F, Fidai M, Makhni EC. Clinical Evaluation and Physical Exam Findings in Patients with Anterior Shoulder Instability. *Curr Rev Musculoskelet Med* 2017;10(4):434-441.
7. Adla DN, Shukla S, Pandey R. Clinical outcome of arthroscopic anterior stabilisation of shoulder using absorbable knotless suture anchors. *J Bone Joint Surg Br* 2009;91(1):118.
8. Kaplan LD, Flanigan DC, Norwig J, Jost P, Bradley J. Prevalence and variance of shoulder injuries in elite collegiate football players. *Am J Sports Med* 2005;33:1142-1146.
9. Taylor D, Arciero R. Pathologic changes associated with shoulder dislocations. Arthroscopic and physical examination findings in first-time, traumatic anterior dislocations. *Am J Sports Med* 1997;25(3):306-311.
10. Perthes G. Über Operationen bei habitueller Schulterluxation. *Dtsch Z Chir* 1906;56:149-151.
11. Bankart ASB. Recurrent or habitual dislocation of the shoulder. *BMJ* 1920;1:1132-1133.
12. Baker CL, Uribe JN, Whitman C. Arthroscopic evaluation of acute initial anterior shoulder dislocations. *Am J Sports Med* 1990;18:25-28.
13. Arnaldo AF, Gilberto LC, Alessandro MF. Anterior instability of the shoulder: retrospective study on 159 cases. *Acta Ortop Bras* 2011;19(1):41-44.
14. Ranjan DV, Antao NA. The pathogenesis of anterior inferior shoulder instability – part I: current concept review. *Indian J Orthop* 2002;36(4):214-220.
15. Bankart ASB. The pathology and treatment of recurrent dislocation of the shoulder-joint. *Br J Surg* 1938;26(101):23-29.
16. Gummesson C, Atroshi I, Ekdahl C. The disabilities of the arm, shoulder and hand (DASH) outcome questionnaire: longitudinal construct validity and measuring self-rated health change after surgery. *BMC Musculoskeletal Disorders* 2003;4:11.
17. Freedman KB, Smith AP, Romeo AA, Cole BJ, Bach BR Jr. Open Bankart repair versus arthroscopic repair with transglenoid sutures or bioabsorbable tacks for recurrent anterior instability of the shoulder: a meta-analysis. *Am J Sports Med* 2004;6:1520-7.
18. Pascal Boileau, Matias Villalba, Jean-Yves Hery, Fredric Balg, Phillip Ahrens, Lionell Neyton, Risk Factors for Recurrence of Shoulder Instability After Arthroscopic Bankart Repair. *The Journal of Bone and Joint Surgery (American)* 2006;88:1755-1763.
19. Daniel VC, Stoffelen Alope K, Singhania Jan Mievis, Peter Reynders, Recurrent anterior shoulder instability, Results of the glenoid based inferior capsular shift, *Acta Orthop. Belg* 2004;70:112-117.
20. Plancher KD, Lipnick SL. Analysis of evidence-based medicine for shoulder instability, arthroscopy. *Arthroscopy* 2009;25:897-908.
21. Wright RW, Baumgarten KM. Shoulder outcomes measures. *J Am Acad Orthop Surg* 2010;18:436-44.
22. Godfrey J, Hamman R, Lowenstein S, Briggs K, Kocher M. Reliability, validity, and responsiveness of the simple shoulder test: Psychometric properties by age and injury type. *J Shoulder Singapore Med J* 2008;49:681.
23. Lam JJ, Ip FK, Wu WC. Shoulder assessment systems: a comparison of three different methods. *Hong Kong J Med Sports* 2000, 11.
24. Richards RR, An KN, Bigliani LU. A standardized method for the assessment of shoulder function. *J Shoulder Elbow Surg* 1994;3:347-352.
25. Ee GW, Mohamed S, Tan AH. Long term results of arthroscopic bankart repair for traumatic anterior shoulder instability. *J OrthopSurg Res* 2011;6:28.
26. Hobby D, Griffin M, Dunbar P, Boileau IS. Arthroscopic Surgery for Stabilisation of Chronic Shoulder Instability As Effective As Open Surgery? A Systematic Review and Meta-Analysis of 62 Studies Including 3044 Arthroscopic Operations. *J Bone Joint Surg (Br)* 2007;89-B:1188-1196.