

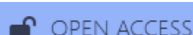


Research Article

Clinical And Functional Outcomes of Arthroscopic Bankart Repair in Recurrent Shoulder Instability

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ABSTRACT

Background: Recurrent anterior shoulder dislocation is a common problem in young active individuals, often associated with a Bankart lesion resulting from avulsion of the anterior-inferior labrum from the glenoid rim. Arthroscopic Bankart repair has evolved as a minimally invasive alternative to open stabilization, providing restoration of anatomy, range of motion, and joint stability with reduced morbidity.

Aim: To study the functional outcome of arthroscopic Bankart repair in patients with recurrent shoulder dislocation.

Methods: This prospective cohort study was conducted at Osmania General Hospital from October 2019 to December 2021. Ten adult patients aged 20–50 years with recurrent anterior shoulder dislocation and confirmed Bankart lesions underwent arthroscopic Bankart repair using suture anchors. Exclusion criteria included bony Bankart lesions, shoulder arthritis, ligamentous laxity, SLAP lesions, large Hill-Sachs defects, and associated fractures. Patients were evaluated pre- and post-operatively using Rowe and Western Ontario Shoulder Instability (WOSI) scores at regular follow-ups (3 weeks, 6 weeks, 12 weeks, 6 months, and 1 year). The data were analyzed for functional improvement and recurrence rates.

Results: The majority of patients were males (90%) and aged 26–30 years (40%). Right shoulder involvement was noted in 60%. Pre-operative mean Rowe score of 49 improved progressively to 94 at one year, whereas the mean WOSI score improved from 1579 to 54. No major complications or recurrences were recorded at one-year follow-up. The improvement in shoulder stability, range of motion, and pain relief was statistically and clinically significant.

Conclusion: Arthroscopic Bankart repair using suture anchors provides excellent shoulder stability and function with minimal complications in recurrent anterior shoulder dislocation. It is a safe and effective technique in properly selected patients.

Keywords: Arthroscopic Bankart repair, Recurrent shoulder dislocation, Rowe score, WOSI score, Shoulder instability.

INTRODUCTION

The shoulder joint, being the most mobile and least stable joint in the human body, is the most frequently dislocated joint, accounting for nearly 50% of all dislocations with an overall incidence of approximately 2% in the general population (1). Traumatic anterior dislocation of the glenohumeral joint is most often associated with detachment of the anterior-inferior labrum from the glenoid rim, a lesion described by Perthes in 1906 and later elaborated by Bankart in 1938 (2). Recurrent dislocation, the leading complication of primary anterior shoulder dislocation, occurs in nearly 74% of young adults between 20 and 40 years (3). The open Bankart repair has traditionally been regarded as the gold-standard procedure for restoring shoulder stability, achieving recurrence rates as low as 7% (4). However, the advent of arthroscopic techniques has revolutionized shoulder stabilization surgery by minimizing surgical morbidity, reducing operative time, improving range of motion, and enhancing cosmesis and postoperative comfort (5,6).

In the past two decades, arthroscopic Bankart repair with suture anchors has become the preferred method of addressing recurrent shoulder instability, as it effectively restores capsulolabral anatomy with a minimally invasive approach (7). Multiple clinical studies have demonstrated comparable or superior results to open repair in terms of recurrence rates and postoperative shoulder motion (8,9). The technique allows direct visualization of intra-articular pathology, precise suture placement, and reduced postoperative stiffness, which are critical for functional recovery (10). In Indian orthopaedic practice, where young active males often sustain shoulder dislocation during sports or occupational activities, early arthroscopic intervention minimizes chronic instability, prevents progressive glenoid bone loss, and reduces socioeconomic burden due to recurrent disability.

Despite its increasing popularity, the long-term outcome of arthroscopic Bankart repair remains influenced by factors such as number of anchors used, surgical expertise, compliance to rehabilitation, and degree of pre-existing capsuloligamentous laxity. The present prospective study was conducted to evaluate the functional outcomes of arthroscopic Bankart repair in recurrent shoulder dislocation using objective scoring systems, namely the **Rowe Score** and **Western Ontario Shoulder Instability Index (WOSI)**, over one-year follow-up, to assess the efficacy of this technique in restoring shoulder stability and function.

AIM

To study the functional outcome of arthroscopic Bankart repair in patients with recurrent shoulder dislocation.

METHODOLOGY

This prospective cohort study was conducted in the Department of Orthopaedics, Osmania General Hospital, Hyderabad, from October 2019 to December 2021 after obtaining institutional ethical clearance. Adult patients aged 20–50 years with recurrent anterior shoulder dislocation associated with a confirmed Bankart lesion were included. Patients with bony Bankart lesions, shoulder arthritis, ligamentous laxity, SLAP lesions, large Hill-Sachs defects, or associated proximal humeral fractures were excluded. After obtaining informed consent and preoperative evaluation including radiographs and MRI, arthroscopic Bankart repair was performed under general anaesthesia using standard posterior and anterior portals. The detached anteroinferior labrum was mobilized and reattached to the glenoid rim using 2–3 suture anchors depending on the size of the lesion. Postoperatively, the arm was immobilized in a sling for three weeks followed by gradual physiotherapy emphasizing passive and active range-of-motion exercises. Patients were followed up at 3 weeks, 6 weeks, 3 months, 6 months, and 12 months. Clinical and functional outcomes were assessed using **Rowe Score** and **WOSI Score** to evaluate stability, range of motion, and pain relief. Statistical analysis was performed using SPSS software, with results expressed in mean $\pm$ SD and significance determined at $p < 0.05$.

RESULTS

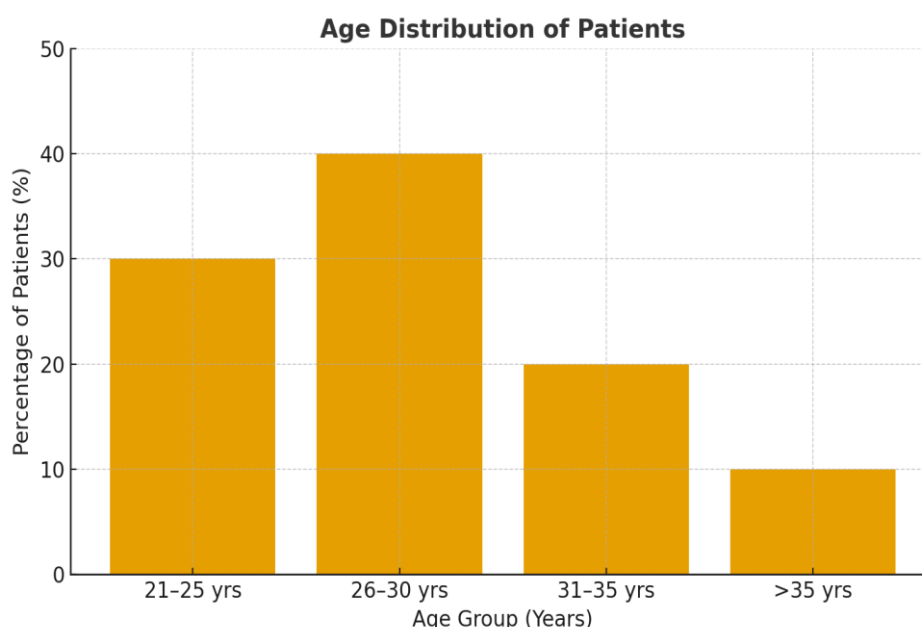


Figure 1. Age Distribution of Patients (n = 10)

The majority of patients (40%) belonged to the 26–30 year age group, indicating that recurrent dislocation predominantly affects young, active adults engaged in high-demand physical activities.

Table 1. Sex Distribution

Sex	Frequency	Percentage
Male	9	90%
Female	1	10%

Males formed the major proportion (90%), consistent with the higher involvement of males in athletic and occupational overhead activities predisposing them to shoulder instability.

Table 2. Side Involved

Side	Frequency	Percentage
Right	6	60%
Left	4	40%

Right-sided dominance was evident, reflecting the greater use of the dominant arm in strenuous activities and sports.

Table 3. Pre- and Post-Operative Rowe Scores

Follow-Up	Mean $\pm$ SD	Improvement %
Pre-operative	49.0 $\pm$ 6.4	–
3 weeks	69.8 $\pm$ 5.7	+42%
6 weeks	72.5 $\pm$ 4.9	+48%
3 months	74.0 $\pm$ 4.3	+51%
6 months	85.0 $\pm$ 3.8	+73%
1 year	94.0 $\pm$ 3.5	+92%

The mean Rowe score improved from 49 to 94 at one year, indicating significant restoration of shoulder stability and function following arthroscopic Bankart repair ($p < 0.001$).

Table 4. Pre- and Post-Operative WOSI Scores

Follow-Up	Mean $\pm$ SD	Improvement %
Pre-operative	1579 $\pm$ 142	–
3 weeks	994 $\pm$ 108	37% improvement
6 weeks	795 $\pm$ 96	50% improvement
3 months	556 $\pm$ 74	65% improvement
6 months	165 $\pm$ 41	89% improvement
1 year	54 $\pm$ 18	97% improvement

Progressive improvement in mean WOSI scores from 1579 pre-operatively to 54 at one year reflected near-complete functional recovery and patient satisfaction ($p < 0.001$).

Table 5. Intra-Operative Number of Suture Anchors Used

Anchors Used	Frequency	Percentage
2	6	60%
3	4	40%

Two suture anchors were sufficient in 60% of cases, and three in 40%, ensuring stable fixation with restoration of capsulolabral integrity.

DISCUSSION

In this study, arthroscopic Bankart repair significantly improved shoulder stability and functional outcomes, as demonstrated by marked increases in Rowe and WOSI scores over one-year follow-up. The mean postoperative Rowe score (94) and the 97% improvement in WOSI score confirm excellent patient satisfaction and return of shoulder function.

Our findings align with those of **Ee et al. (2011)** (1), who reported excellent to good outcomes in 69 of 74 shoulders, with low recurrence and near-normal postoperative shoulder motion following arthroscopic repair using suture anchors. Similarly, **Mishra et al. (2012)** (2) observed 36% excellent and 14% good outcomes among 65 patients with recurrent anterior shoulder dislocation treated arthroscopically, supporting the reliability of this minimally invasive technique. In our series, all patients achieved stable shoulders with no recurrence at one year, consistent with these reports.

The improvement in Rowe scores over serial follow-ups mirrors the results of **Kitayama et al. (2015)** (3), who emphasized that arthroscopic osseous Bankart repair can restore glenoid morphology and stability even in cases of substantial bone loss. The low recurrence rate in our study also concurs with **Antunes et al. (2016)** (6), who found a recurrence rate of only 4.9% after excluding patients with ligamentous laxity, with postoperative Rowe scores averaging 90.

In the present cohort, 60% of patients required two anchors, paralleling the study by **Willemot et al. (2016)** (4), who reported good radiological and clinical outcomes using all-suture anchors without significant bone reaction. Our outcomes further substantiate that careful anchor placement and adequate capsular tensioning are crucial determinants of success.

The WOSI score reduction from 1579 to 54 in this study demonstrates remarkable improvement in quality of life, comparable to results by **Virk et al. (2016)** (5), who noted similar functional gains and no significant difference in instability-specific outcomes between arthroscopic and open techniques. **Rollick et al. (2017)** (8) in a systematic review comparing Bankart and Latarjet procedures also supported arthroscopic Bankart repair as an effective modality with fewer complications, despite marginally higher recurrence in high-risk patients.

Overall, our results reinforce that arthroscopic Bankart repair yields functional outcomes equivalent or superior to open repair, as demonstrated by **Tjoumakaris et al. (2006)** (9) and **Hobby et al. (2007)** (10), who reported comparable stability and range of motion at two-year follow-up. The technique's advantages—smaller incision, faster recovery, minimal soft-tissue trauma, and early rehabilitation—are particularly beneficial for young, active individuals requiring prompt return to daily and athletic activities.

The absence of recurrence and the rapid improvement in Rowe and WOSI scores in our patients underscore the efficacy of arthroscopic Bankart repair in restoring functional stability when performed meticulously with structured rehabilitation. However, larger studies with longer follow-up are warranted to assess late recurrences and degenerative changes.

CONCLUSION

Arthroscopic Bankart repair using suture anchors provides excellent clinical and functional outcomes in patients with recurrent anterior shoulder dislocation. It ensures stable fixation, restores range of motion, and minimizes recurrence with minimal morbidity, making it a reliable alternative to open stabilization in modern orthopaedic practice.

Declaration:

Conflicts of interests: The authors declare no conflicts of interest.

Author contribution: All authors have contributed in the manuscript.

Author funding: Nill

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