

Clinical outcome following arthroscopic Bankart repair in post-traumatic recurrent anterior shoulder dislocations of shoulder at tertiary health care centre

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Abstract

Background: Repeated shoulder dislocations cause injury to surrounding structure such as bone, cartilage and soft tissues, resulting in more instability. The traumatic detachment of glenoid labrum has been called the Bankart lesion. Treatment of recurrent anterior dislocation of the shoulder with arthroscopic Bankart repair is being increasingly used as the gold standard procedure. Aim of present study was evaluation of clinical outcome following arthroscopic Bankart repair at our tertiary care center. **Material and Methods:** This is prospective, observational study was conducted in 30 cases of recurrent anterior shoulder dislocation. Results: Out of 30 patients, most common age group was 26-35 years (77 %) followed by age group 15-25 years (20%). The mean age at surgery was 27.87 ± 3.34 years. 98 % patients in our study were male. Most patients had less than 4 dislocations (57%), mean number of shoulder dislocations before surgery was 2.98 ± 1.45 . When outcome was compared by Walch-Duplay scoring system most of the patients had good to excellent outcomes. Total pre-operative score of 55 ± 9 reached to 89 ± 10 after 1 post-operative year. We also assessed UCLA score of patients at 1 year of follow-up showed excellent score in 33.33 %, good score in 50 % patients. **Conclusion:** Arthroscopic repair of Bankart's lesion in shoulder joint gives good to excellent functional and clinical results.

Keywords: shoulder dislocation, Bankart's lesion, UCLA score, Walch-Duplay score

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INTRODUCTION

Shoulder joint has a unique anatomy and biomechanics, gives a wide range of motion at various positions mainly by using the glenohumeral joint as a fulcrum. Excess

mobility predisposes it to instability. Shoulder is one of the most unstable joint, frequently dislocated joints in the body, with a 2% incidence of dislocations in the general population¹. Dislocations are common in sport personnel, athletes, in trauma patients where forced abduction and external rotation of the shoulder can cause dislocation resulting in instability². Repeated dislocations are related with factors such as patient age that first dislocation occurred, closed reduction methods, immobilization time, severity of trauma, accompanied fracture and soft tissue damage, athletic activity³. Repeated dislocations cause injury to surrounding structure such as bone, cartilage and soft tissues, resulting in more instability. In patients with acute dislocations, the humeral head is forced anteriorly out of the glenoid cavity and it tears fibrocartilaginous labrum, rim of glenoid cavity, capsule and periosteum

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from anterior surface of the neck of scapula. This traumatic detachment of glenoid labrum has been called the Bankart lesion⁴. Bankart lesion is most common form of labro-ligamentous injury in patients with traumatic dislocations of the shoulder⁵. The ultimate aim of the surgical treatment of Bankart's lesion is reattachment of the labrum to the glenoid rim, deepen the glenoid concavity, restore the capsular ligamentous constraint. Treatment of recurrent anterior dislocation of the shoulder with arthroscopic Bankart repair is being increasingly used as the gold standard procedure⁶. In comparison to arthroscopic repair, open repair results in wide dissection, loss of external rotation, subscapularis tendon injury and post-operative pain^{7,8}. Other studies also reported excellent clinical outcomes after arthroscopic Bankart repair.^{9,10} But high a high recurrence rate after arthroscopic Bankart repair noted in patients with a large glenoid or humeral defect. Aim of present study was evaluation of arthroscopic Bankart repair in our tertiary care center.

MATERIAL AND METHODS

This prospective, observational and descriptive study was conducted in Department of Arthroscopy and sports medicine at Baby memorial hospital, Kerela. We studied clinical outcome of arthroscopic Bankart repair in 30 cases of recurrent anterior shoulder dislocation operated between March 2016 to September 2017 (18 months period).

Inclusion criteria:

- Posttraumatic recurrent shoulder dislocation with Bankart lesion confirmed on MRI,

Exclusion criteria:

- Age more than 50 years
- Bony lesion more than 30% of the glenoid rim,
- Patients with associated injury like rotator cuff tear, glenoid fracture and proximal humerus fractures,
- Other causes of recurrent shoulder dislocation like epilepsy and muscle paralysis, mentally retarded and non-cooperative patients
- Previously operated for Bankart repair.

Written informed consent was taken prior to participation in study. Detailed history, physical examination findings, investigations like MRI shoulder, operative details, postoperative outcome were documented in Microsoft excel sheet and analysed accordingly. In follow-up visits patients were evaluated for post-operative pain, return to sports activity and limitation of work, history of recurrence, etc. Range of movements, instability testing including apprehension test were done. We assessed functional outcome of post-operated patients using

Walch-Duplay¹¹ and UCLA¹² (University of California Los Angeles) scoring systems.

- Walch -Duplay scoring system assesses the sport / daily activity, stability, pain and mobility of patients. Patients were regularly assessed at 3 months, 6 months and at 1 year post-operatively.
- UCLA scoring system was used for the functional outcome at 1 year of follow-up. The UCLA scoring system consists of 5 parameters namely - Pain, Function, Active forward flexion, Strength and patient satisfaction. We assessed functional outcome at 1 year of follow-up.

Patients with persistent instability, shoulder dislocation after surgery, unable to perform full activity, required another surgery were considered as treatment failure.

RESULTS and DISCUSSION

Increased health awareness, sports activity, availability of experts lead to rise in early pick up and evaluations for recurrent shoulder dislocations. Anterior instability is most common type of shoulder dislocations seen and mainly due to trauma (accidental or sports related). Bankart's lesion is most common type of injury seen, it can be treated either by open procedure or arthroscopic method. In 1993 arthroscopic stabilization was reported first, lot of improvements in terms of technique, suture material, bioabsorbable anchors and concomitant treatment of other pathologies, now arthroscopic repair has become a standard care.¹³ In our study period total 33 patients underwent arthroscopic repair of Bankart's lesion. Out of those 30 patients had completed 1 year follow up and necessary evaluation. Most common age group was 26-35 years (77 %) followed by age group 15-25 years (20 %). The mean age at surgery was 27.87±3.34 years. 98 % patients in our study were male. Younger age, male predominance was also noted in other studies¹⁴. This can also be explained as, young males are largely involved in sports, travelling activities and more susceptible to trauma.

Table 1: Age and Gender Distribution

	Number	Percentage
Age Group		
15-25 years	6	20%
26-35 years	23	77%
36-50 years	1	3%
Gender		
Male	28	93%
Female	2	7%

Most patients had less than 4 dislocations (57 %), mean number of shoulder dislocations before surgery was 2.98±1.45.

Table 2: Pre op Dislocations

Pre op Dislocations	Number	Percentage
1 to 4	17	57%
5 to 7	9	30%
More than 7	4	13%

When outcome was compared by Walch-Duplay scoring system most of the patients had good to excellent outcomes. Total pre-operative score of 55 ± 9 reached to 89 ± 10 after 1 post-operative year.

Table 3: Walch Duplay Score

Mean \pm SD	Walch Duplays Score				
	Sport Or Daily Activity	Stability	Pain	Mobility	Total
Pre op	12 \pm 3	15 \pm 4	15 \pm 3	13 \pm 6	55 \pm 9
3 months	15 \pm 2	22 \pm 3	22 \pm 4	15 \pm 5	74 \pm 8
6months	16 \pm 2	23 \pm 3	22 \pm 5	18 \pm 5	83 \pm 13
At 1 year	17 \pm 5	24 \pm 4	23 \pm 5	24 \pm 5	89 \pm 10
P value	$p \leq 0.05$	$p \leq 0.05$	$p \leq 0.05$	$p \leq 0.05$	$p \leq 0.05$

We also assessed UCLA score of patients at 1 year of follow-up showed excellent score in 33.33%, good score in 50 % patients. Other studies were also reported similar results in Walch Duplays Score and UCLA score for arthroscopic Bankart repair.^{7,10,15} Overall most patients achieved maximum improvement in range of motion, pain at shoulder joint, etc. we noted no intra-operative complications, while post-operative complications were not significant. Only 1 patient had Superficial wound infection which was managed conservatively. We noted treatment failure rate as 3.33 % (1 patient). While treatment failure rates in other studies were reported upto 7 %.^{10,11}.

Table 4: UCLA Score at 1 year

UCLA Shoulder Rating	Number	Percentage
Poor <20	2	6.66666667
Fair (21-27)	3	10
Good (28-31)	15	50
Excellent (32-35)	10	33.33333333

CONCLUSION

Arthroscopic repair of Bankart's lesion in shoulder joint gives good to excellent functional and clinical results. Endoscopy procedures are have advantages like minimally invasive , less traumatic to surrounding structures, less hospital stay, fast recovery, less post-operative pain, better range of movements.

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