Original Research Paper

VOLUME-6 | ISSUE-4 | APRIL - 2017 • ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

ARTHROSCOPIC EVALUATION AND MANAGEMENT OF RECURRENT ANTERIOR SHOULDER INSTABILITY.

Orthopaedic

KEYWORDS:

Dr.Shrinivas Jadhav	Dept. of Orthopaedics
Dr.Shantanu Deshpande	Dept. of Orthopaedics
Dr. Sanjay Patil	Dept. of Orthopaedics

ABSTRACT

Introduction The Bankart lesion represents the most common form of labro-ligamentous injury in patients with traumatic dislocations of the shoulder leading to shoulder instability. We report the clinical outcome of arthroscopic repair of Bankart lesion in 20 patients. **Aim and Objectives**- To evaluate the results of arthroscopic repair of the Bankart lesion of shoulder with suture anchors with reference to: 1. Results of Rehabilitation program 2. Final Surgical and Functional outcome. **Methodology** Management of the patients Follow up of the patients Complication of Data and its analysis will be done **Results** According to Rowe scores, there were 14 excellent, 3 good, 2 satisfactory, and 1 poor results. Rowe scores improved in a statistically significant manner (p=0.00) post-surgery, to a mean of 90 (range: 25-100). Treatment outcomes measured as UCLA scores improved in a statistically significant manner (p=0.00), reaching post-operative levels of 12-35 (mean: 33.5). **Conclusions** With rigorous criteria for qualifying patients for surgery, arthroscopic treatment of post-traumatic anterior shoulder instability produces good outcomes and low recurrence and complication rates irrespective of the number of previous dislocations, age, or sex.

INTRODUCTION:

Glenohumeral dislocation is a common entity affecting approximately 2% of general population. Recurrent instability of the shoulder is the main complication of anterior glenohumeral dislocation and it accounts for 74% recurrence rate in patients aged 20 to 40years.[1]

The bony architecture of the glenohumeral joint is often likened to that of a golf ball and tee. This geometry provides a functional benefit by allowing for a large arc of motion, but also confers an inherent instability that can result in traumatic anterior shoulder dislocation. In fact, the incidence of traumatic shoulder instability has been reported to be 1.7% in the general population.1,2 By far the most common type of glenohumeral instability is anterior dislocation, accounting for over 90% of all shoulder dislocations. Rates are increased in men, contact athletes, and enlisted persons.[3]

The glenohumeral joint relies on a complex network of static and dynamic structures that that aid in stabilizing the joint. Compromise of these structures leads to dislocation and often, recurrent instability. Structures providing static stability to the glenohumeral joint include the congruency of the humeral head and glenoid, the glenoid labrum, glenohumeral ligaments surrounding the joint, and negative intra-articular pressure.4 Dynamic stabilizers are primarily muscular and include the rotator cuff, which provides a compressive stabilizing effect, the tendon of the long head of the biceps, and muscles that stabilize the scapula.

AIM:

- To evaluate the results of arthroscopic repair of the Bankart lesion of shoulder with suture anchors

OBJECTIVES OF THE STUDY:

- To evaluate the results of arthroscopic repair of the Bankart lesion of shoulder with suture anchors with reference to:

1. Results of Rehabilitation program
2. Final Surgical and Functional outcome.

MATERIALS AND METHODS:

Study Design:

The present study was prospective study undertaken to evaluate the results of arthroscopic repair of the Bankart lesion of shoulder with suture anchors.

Study Period:

The present study period was carried out during August 2014 to August 2016 at Bharati vidyapeeth deemed university medical college, pune.

Study Population:

All the patients presenting to the OPD department of Orthopedics with history of recurrent shoulder dislocation were included as study population.

Sample Size:

A total sample size of 20 patients with recurrent dislocation of the shoulder with Bankart lesion was included in the study.

Inclusion Criteria:

- All patients above 18 years of age with recurrent dislocation of the shoulder with Bankart lesion.

Exclusion criteria

- Other shoulder pathologies such as:
  -Biceps rupture
  -Bony Bankart
  -Rotator cuff tear
- Significant defects of the humeral head (greater than 30%) requiring bone graft or rotational osteotomy of proximal humerus.
- Multidirectional instability and posterior instability of shoulder.
- Arthritis of shoulder.

Ethical Consideration:

The study was approved by the Ethical Committee of the institute.

METHODS OF STUDY:-

- The selected subjects were visited and the questionnaire was administered after a written informed consent was obtained from the participants.
- All patients admitted with recurrent shoulder dislocation a careful history collected from the patient and/or attendants to reveal the mechanism of injury and the severity of trauma.

The patients are then assessed clinically to evaluate their general condition and the local injury.

- Patients with recurrent dislocations of shoulder operated with arthroscopic suture anchor stabilization have been evaluated during the hospital stay, during the rehabilitation phase, and the surgical and functional outcome.
- The immediate post operative x-rays have been evaluated.
- The post operative rehabilitation evaluation done at 3weeks,6 weeks,12 weeks,6 months and 1 year, for any recurrence of symptoms and morbidity.

STATISTICAL METHODS: -
The patients were assessed using the ROWE score and ULCA score and Statistical analysis was performed. The data obtained was coded and entered into Microsoft Excel Worksheet. Data collected in the study was analyzed using statistical package for the social sciences (SPSS) software for windows version 20. The categorical data was expressed as rates, ratios and proportions and comparison was done using chi-square test or Fisher's exact test. The continuous data was expressed as mean ± standard deviation (SD) and independent sample 't' test was used to compared the data. A probability value ('p' value) of less than or equal to 0.05 at 95% confidence interval was considered as statistically significant.

Results

Table : Distribution of patients according to ROWE Score:

Variable	Mean ROWE Score	SD	P value
3 weeks	52.36	10.12	<0.05*
6 weeks	72.18	7.13	
12 weeks	83.19	5.43	
6 months	92.93	2.34	
12 months	95.63	1.98	

(* P<0.05 Statistically significant)

The above table showed distribution of patients according to ROWE score. It was observed that mean Rowe score at 3weeks, 6 weeks, 12 weeks, 6 months and 12 months was 52.36 ±10.12, 72.18 ±7.13, 83.19 ±5.43, 92.93 ±2.34 and 95.63 ±1.98 respectively. The ROWE score shows statistically significant difference at different time intervals. (P<0.05)

Table : Distribution of patients according to UCLA Score:

Variable	Preoperative	Postoperative	P value
UCLA Score	9.82 ±1.34	27.76 ±3.12	<0.05*

(* P<0.05 Statistically significant)

The above table showed distribution of patients according to UCLA score. It was observed that mean UCLA score preoperative and postoperative at one year follow up was 9.82 ±1.34 and 27.76 ±3.12 respectively. The UCLA score shows statistically significant difference at preoperative and postoperatively. (P<0.05)

Table : Distribution of patients according to Functional outcome of patients

Functional outcome	No. of Patients	Percentage
Excellent	14	70.00
Good	03	15.00
Fair	02	10.00
Poor	01	05.00
Total	20	100

The above table showed distribution of patients according to functional outcome. It was observed that functional outcome was 70%, 15%, 10% and 5% excellent, good, fair and poor respectively.

Table : Distribution of patients according to Subjective outcome of patients:

Functional outcome	No. of Patients	Percentage
Satisfied	17	85.00
Not satisfied	03	15.00
Total	20	100

DISCUSSION:
The present study was prospective study undertaken to evaluate the results of arthroscopic repair of the Bankart lesion of shoulder with suture anchors.

The study was conducted during the period of August 2014 to August 2016 at Bharati Vidyapeeth deemed university medical college, pune. All the patients presenting to the OPD and Emergency department with history of dislocation of shoulder with Bankart lesion were included as study population.

A total sample size of 20 patients above 18 years of age with recurrent dislocation of the shoulder with Bankart lesion treated with arthroscopic repair were included in the study.

The patients with other shoulder pathologies such as biceps rupture, rotator cuff tear, significant defects of the humeral head (greater than 30%) requiring bone graft or rotational osteotomy of proximal humerus and arthritis of shoulder were excluded from the study.

All the subjects included in the study volunteered after proper consent and reported for follow up at right time.

The study was conducted after obtaining clearance from the ethical committee of the institute.

The data collection was done by using predesigned pretested questionnaire. The questionnaire consisted of two parts. The first part included socio-demographic details and complete medical and surgical history. The second part consisted of the functional outcome after follow up of one year.

In the present study the distribution of patients according to age observed that majority of patients were from age group 21-40 (60%). The mean age among the patients was 32.90 ±12.56 years.

In the study done by Kumaraswami Ramulu Dussa et al5 on descriptive analysis of functional outcome of arthroscopic repair of recurrent anterior shoulder dislocation observed that among forty patients the average age of patients was 28.96 years (range 20-40 years) Similar findings were seen in study done by Ildeu Afonso et al6 on functional assessment of arthroscopic repair for recurrent anterior shoulder instability observed that among 49 patients who underwent arthroscopic repair of anterior shoulder instability mean age was 30 years.

In the study done by J. Lutzner et al on functional outcome after open and arthroscopic bankart repair for traumatic shoulder instability observed majority of patients were male (87%)

In the present study distribution of patients according to sex showed that majority of patients were male (65%) and females were 35%.

Similar findings were seen in the study done by Kumaraswami Ramulu Dussa et al where among 40 patients majority of patients (85 %) were male.

Similar findings were seen in study done by Ildeu Afonso et al where 85% of the patients were male.

In the study, it was observed that majority of patients had right sided dislocation (70%) while left sided dislocation was present among 30% patients.

VOLUME-6 | ISSUE-4 | APRIL - 2017 • ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

Similar findings were seen in the study done by Kumaraswami Ramulu Dussa et al where among 40 patients majority 30 (75%) patients had right-sided extremity involved. There was no patient with bilateral involvement. Right-sided (dominant) involvement was more common than left.

It was observed that mean duration from trauma to surgery was 3.46 ±1.29 months. It was observed that number of dislocations before surgery was <5 in 60% patients while ≥5 in 40% patients.

Similar findings were see in the study done by J. Lutzner et al where number of dislocations before surgery was <5 in 60% patients.

In the present study distribution of patients according to ROWE score showed that mean Rowe score at 3weeks, 6 weeks, 12 weeks, 6 months and 12 months was 52.36 ±10.12, 72.18 ±7.13, 83.19 ±5.43, 92.93 ±2.34 and 95.63 ±1.98 respectively. The ROWE score shows statistically significant difference at different time intervals. (P<0.05) Similar findings were seen in study done by Ildeu Afonso et al the mean Carter-Rowe score was 83 points (ranging from 30 to 100) among the patients.

In the present study, it was observed that mean UCLA score preoperative and postoperative at one year follow up was 9.82 ±1.34 and 27.76 ±3.12 respectively. The UCLA score shows statistically significant difference at preoperative and postoperatively. (P<0.05) Similar findings were seen in the study done by Kumaraswami Ramulu Dussa et al where preoperative UCLA shoulder mean score of 9.93 with a standard deviation of 1.711 improved to 28.15 with a standard deviation of 3.544. There is statistically significant difference between preoperative and postoperative patients with respect to postoperative UCLA shoulder score with p-value <0.05.

In the present study, it was observed that mean pain score preoperative and postoperative at one year follow up was 3.40±1.12 and 1.55 ±0.15 respectively. The pain score shows statistically significant difference at preoperative and postoperatively. (P<0.05)

Similar findings were seen in the study done by Kumaraswami Ramulu Dussa et al where with respect to postoperative pain, there was significant improvement noted. Individual pain scores from UCLA score were compared and statistical test of significance showed significance with P<0.05.

It was observed that mean strength score of muscle preoperative and postoperative at one year follow up was 2.36±0.48 and 4.93 ±0.62 respectively. The strength score shows statistically significant difference at preoperative and postoperatively. (P<0.05)

In the study done by Kumaraswami Ramulu Dussa et al102 where there was significant improvement in postoperative strength. (P<0.05)

In the present study distribution of patients according to functional outcome showed that functional outcome was 70%, 15%, 10% and 5% excellent, good, fair and poor respectively.

It was observed that subjective outcome was satisfied and not satisfied in 85% and 15% patients respectively.

Similar findings were seen in the study done by Kumaraswami Ramulu Dussa et al102 where according to UCLA shoulder score, at the end of 6 months, 6 patients had fair outcome with scores between 21-27 and 34 patients had good outcome with scores between 28-33. This was 15% fair and 85% good outcome.

Similar findings were seen in study done by Ildeu Afonso et al103 where according to ROWE score among 49 patients including in the study 31 had excellent results, 7 had good, 3 fair and 8 poor outcomes. Similar findings were see in the study done by J. Lutzner et al104 where Rowe score [33] demonstrated "good" or "excellent" functional results in 28 of 35 (80%) patients after arthroscopic treatment.

Arthroscopic techniques described previously used transglenoid sutures or bioabsorbable tracks. In the past few years, newer techniques involving suture anchor fixation and capsular plication have evolved with promising results. Suture anchors are low-profile fixation devices that minimize articular surface damage of the humeral head offering anatomic reconstruction of the glenoid labrum as well as the glenohumeral ligament complex. Any redundant or loose capsule is also addressed during the same operation allowing one to address any capsular laxity, restoring tension in the anterior-inferior glenohumeral ligament and stability to the glenohumeral joint.

In the present study, it was observed that total number of recall was 15% with 10% patients had redislocation without trauma and 5% had with trauma.

Open method of Bankart repair has several limiting factors, which renders it a less favourable option. It causes an increased blood loss during surgery, a prolonged period of stay in the hospital and a significant loss of range of motion.

The arthroscopic Bankart repair offers minimally invasive approach with less surgical trauma and blood loss, with improvements in operating time, perioperative morbidity, narcotic use, hospital stay, time loss from work, and decrease in number of complications together with a lower cost of surgery and cosmetic. Postoperative recovery and rehabilitation is faster than open surgical techniques. Postoperative range of motion is also not sacrificed for the sake of stability. Patients are able to have a good range of motion functionally, especially external rotation, which allows them to return to their sports or high-demand jobs.

The limitations of the study were relatively small sample size, lack of comparison with open procedure, and short-term follow-up of one year. We conclude that arthroscopic Bankart repair with suture anchors for recurrent shoulder dislocation is an excellent procedure as our study shows good postoperative functional outcome in terms of range of motion, pain, strength and patient's satisfaction.

CONCLUSION:

The present study was prospective study undertaken to evaluate the results of arthroscopic repair of the Bankart lesion of shoulder with suture anchors.

In the present study distribution of patients according to functional outcome showed that functional excellent outcome in most of the patients. It was also observed that subjective outcome was satisfied in majority of patients.

Hence, arthroscopic repair is excellent method of shoulder dislocation. The arthroscopic Bankart repair offers minimally invasive approach with less surgical trauma and blood loss, with improvements in operating time, perioperative morbidity, narcotic use, hospital stay, time loss from work, and decrease in number of complications together with a lower cost of surgery and cosmetic. Postoperative recovery and rehabilitation is faster than open surgical techniques. Postoperative range of motion is also not sacrificed for the sake of stability. Patients are able to have a good range of motion functionally, especially external rotation, which allows them to return to their sports or high-demand jobs.

REFERENCES

1. Simonet WT, Melton LJ, Cofield RH, Ilstrup DM. Incidence of anterior shoulder dislocation in Olmsted County, Minnesota. Clin Orthop Relat Res. 1984;186: 186–91.
2. Boone JL, Arciero RA. Management of failed instability surgery: how to get it right the next time. Orthop Clin North Am. 2010;41 (3):367–79.
3. Owens BD, Dawson L, Burks R, Cameron KL. Incidence of shoulder dislocation in the United States military: demographic considerations from a high-risk population. J Bone Joint Surg Am. 2009;91(4):791–6.
4. Lippitt S, Matsen F. Mechanisms of glenohumeral joint stability. Clin Orthop Relat Res. 1993;291:20–8.
5. Dussa KR, Parekh AN, Belsare KS, et al. Descriptive analysis of functional outcome of

arthroscopic repair of recurrent anterior shoulder dislocation. J. Evid. Based Med. Healthc. 2016; 3(27), 1216-1221.

6. Ildeu Afonso de Almeida Filho, Marco Antônio de Castro Veado, Márcio Fim, Lincoln Vargas da Silva Corrêa. Functional Assessment Of Arthroscopic Repair For Recurrent Anterior Shoulder Instability. Rev Bras Ortop. 2012;47(2): 214-21
7. J. Lützner, F. Krummenauer, J. Lübke, S. Kirschner, K.-P. Günther, M. Bottesi. Fuctional Outcome After Open And Arthroscopic Bankart Repair for Traumatic Shoulder Instability. Eur J Med Res (2009) 14: 18-24