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Research Article

OUTCOME OF ATHROSCOPIC BANKART STABILIZATION USING SUTURE ANCHORS IN POST TRAUMATIC ANTERIOR SHOULDER INSTABILITY, KING FAHAD GENERAL HOSPITAL, JEDDAH, SAUDI ARABIA

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ABSTRACT

Introduction: The arthroscopic method offers a less invasive technique of Bankart repair for traumatic anterior shoulder instability. The results continue to improve with the advancements made in instrumentation and technique. This study aims to evaluate the outcome of arthroscopic repair of anterior shoulder instability pathology with the use of suture anchors for cases that were followed-up for at least one year from the date of surgery with median was 19 months.

Methods: This was a consecutive series of 81 shoulders in 81 patients operated in King Fahd Hospital (Jeddah) who underwent arthroscopic repair of anterior shoulder instability with suture anchors. The mean age at the time of operation was 28.4 years. The patients were assessed with (the University of California at Los Angeles [UCLA]). The mean duration of follow-up was 19 months. The recurrence rate, range of motion, and postoperative function were evaluated.

Results: All patients demonstrated a good range of motion, including external rotation postoperatively. Failure rate in the form of recurrent dislocation was 9 patients (11.1%), however the success rate was 72 patients (88.9%).

Conclusion: Arthroscopic repair of anterior shoulder instability pathology with the use of suture anchors is a reliable treatment method that can provide a good clinical outcome with excellent postoperative shoulder motion and low recurrence rate.

Keywords: Anterior Shoulder Instability, Arthroscopic Surgery, Bankart Repair, Shoulder Dislocation, Suture Anchors, Hill Sachs, Remplissage.

INTRODUCTION

Anterior instability is the most common form of shoulder instability¹. Recurrent anterior shoulder instability results in a functional disability for the patient, in terms of both shoulder function and general health status². The role of the glenoid labrum in maintaining stability of the glenohumeral joint is well described.³Theanteriorinferior labrum also serves as the anchor point for the inferior glenohumeral ligament, the primary static restraint to the anterior humeral translation in the abducted shoulder. An avulsion of the labrum from the glenoid rim is known as Bankart lesion, first described by Perthes and Bankartin the early twentieth century⁴. When treating shoulder instability, one should consider the ideal surgical technique. The technique should include the ability to assess the glenohumeral joint instability with regard to the type of lesion, the anatomic structures involved, its potential

for healing and the type of fixation needed.⁵The ideal technique should also avoid injuries to the surrounding normal tissues. Shoulder arthroscopy provides for such a technique. Unlike the open method of Bankart repair, which renders significant loss of range of motion because of disruption of the subscapularis tendon, the arthroscopic method creates minimal tissue trauma⁶. While the orthopaedic community continues to debate on the indications for arthroscopic shoulder stabilisation, the recent reports in the arthroscopic method are encouraging^{7,8}.

Labral tears:

3- Perthes lesion

The Perthes lesion is a variation of the Bankart lesion, where the scapula periosteum is lifted and stripped medially with the detached anterior labrum. The labrum may appear to be in a normal position at surgery,¹⁰ but is still unstable. It can be seen on MR or CT Arthrogram¹⁰.

The following study was to evaluate the outcome of arthroscopic repairs of Bankart alone or Bankart with Hill sachs lesion, or certain types of SLAP lesion, with the use of suture anchors for the patients that were followed-up for at least one year from the date of surgery.

Methods and patients:

All patients were assessed clinical, radiological, routine preoperative laboratory investigations, all patients underwent preoperative and postoperative physiotherapy program, all patients received general anaesthesia, lateral position with traction 3 kg used.

All patients with anterior shoulder instability are candidates of our work and study whatever the pathology but some exclusion criteria was taken in consideration (multidirectional instability, AMBRI, Associated rotator cuff pathology, patients older than 50).

81 shoulders with recurrent anterior shoulder instability were the material of our study between the periods from 2009 till 2013 with the mean follow up period 19 months, 78 patients were males and 3 were females (table I).

1-Bankart lesion: is an avulsion of the anteroinferior glenoid labrum at its attachment to IGHL complex 2-SLAP lesion⁹

Type	Description	%
I	Labral and biceps fraying, anchor intact	11%
II	Labral fraying with detached biceps tendon anchor	41%
III	Bucket handle tear, intact biceps tendon anchor (biceps separates from bucket handle tear)	33%
IV	Bucket handle tear with detached biceps tendon anchor (remains attached to bucket handle tear)	15%
V	SLAP lesion and anterior labral tear (Bankart lesion)	
VI	Superior flap tear	
VII	SLAP lesion with capsular injury	

Table I

Gender	Frequency	Percent
Male	78	96.3
Female	3	3.7
Total	81	100.0

67 patient were right shoulder instability and 14 were left side (table II)

Table II

Affected side	Frequency	Percent
Right	67	82.71
Left	14	17.29
Total	81	100.0

All patients received general anaesthesia, all patient were operated in lateral position with the use of pump and cannulas, three portals was created in all operations, the posterior one for the entry and two anterior working portals, we used different types of anchors either metal or biodegradable, after complete examination of the shoulder to identify the lesion and any other pathology, the most important step is to mobilize the detached labrum and capsule, curettage of the glenoid edge, dealing with lesion by fixation with two or three anchors according to the size of the lesion, the first anchor was

placed is the anteroinferior one, the anchor was placed 2-3 mm on the glenoid articular surface so this do tensioning of the capsule plus after fixation testing of the stability of the fixation with probing.

Operative finding:

The operative findings we found in our patients was Bankart lesion only in 51shoulders 63%, Bankart lesion associated with Hill sachs lesion in 17 shoulders 21%, SLAP lesion in 13 shoulders 16%, one shoulder had ganglion cyst,

Table III

Diagnosis	Frequency	Percent
Bankart only	51	63.0
Bankart&Hillsachs	17	21.0
SLAP3 + Bankart	1	1.2
SLAP5	12	14.8
Total	81	100.0

All patients passed the postoperative period smoothly without any reported significant complications. During the period of follow up sling immobilization strictly for 4-6 weeks. Then the patient started physiotherapy by active exercises.

Postoperative management: Clear guidelines for postoperative rehabilitation were provided orally and on paper. Between weeks 1 and 4, passive to active assisted to active motion progressed as tolerated and was restricted to 90°

of forward flexion, 20° of ERS, and 45° of abduction. Isometrics were initiated in a sling. Between weeks 4 and 8, the sling was discontinued, and active motion was increased in forward flexion to 140°, ERS to 40°, and abduction to 60°. Light band strengthening was initiated within active range of motion limitations, and scapular strengthening was initiated. Strengthening was advanced as tolerated.

RESULTS

There were 81 patients, all patients having unilateral shoulders affected. 78 patients male and 3 females. 64 cases were right shoulders and 17 were left shoulders. The mean age at the time of surgery was 28.4 (range 20–44) years. The mean number of dislocations before surgery was 7.7 times. The mean interval from the initial dislocation and surgery was 39.6 months. The mean duration of surgery was 82.5 minutes. The mean duration of follow-up was 19 months. The operative findings are summarized in Table III. Excluding recurrent instability, there were no intraoperative complications related to the arthroscopic procedure with regard to nerve injuries, compartment syndrome, or infection. No neurological compromise was detected in all patients at the latest follow-up. The mean postoperative shoulder scores were significantly improved at the time of the final follow-up. The total UCLA score improved from a mean and SD of 20.15 ± 4.03 (range 12–28) preoperatively to 32.07 ± 4.82 (range 14–35) postoperatively (p < 0.05). According to the UCLA scoring system, 44 shoulders had excellent (66.67%), 17 good scores

(24.76%), and 5 had poor scores (7.58%). Patients satisfied and better in 61 patients (75.3%), unsatisfied and worse 5 patients (6.2%) and 15 patients were missed during final follow up (18.5%) All patients demonstrated a good range of motion, including external rotation postoperatively. Failure rate in the form of recurrent dislocation was 9 patients (11.1%), however the success rate was 72 patients (88.9%). At final follow-up, 88.9% of cases returned to their level of activity prior to dislocation. Most of them returned to their prior activity at the same level of performance. The remainder had not resumed their sports activities because of either recurrent instability or phobia of recurrence.

DISCUSSIONS

The currently-accepted standard treatment of anterior glenohumeral instability is treating the underlying lesions. This is done by re-attaching the anterior inferior labrum along with the ligaments to the glenoid labrum, reattaching the slab lesion and managing the hill sachs lesion by remplisage and this is our vision to treat recurrent shoulder instability, the underlying pathology should be corrected in the same sitting, this improves the outcome in our study.

In comparison of our result to that published in literature, the recurrence rate or failure rate in our study was 11.1% in the form of dislocations following new trauma of poor functional outcome

Final result according to ULCA scoring system in our study

Scoring	Frequency	Percent
Excellent	44	66.67
Good	17	25.76
Poor	5	7.58

Harris et al 2013 in 5 studies (200 patients) outcome were reported following arthroscopic Bankart repair using suture anchors with a mean 7.3 years follow up, there were 17 recurrent dislocations (8.5%) and 8 subluxations (4%) at a mean 2.2 years postoperatively, sixty percent of recurrent instability was due to new trauma¹¹.

Carreira et al 2006 reported 12.5% recurrence rate in the form of subluxations and dislocations in their study up on 85 patients treated with arthroscopic Bankart repair¹².

Uhorchak et al reported a 23% recurrence rate for dislocation (3%) or subluxation (20%) in contact and collision athletes treated with arthroscopic stabilization.¹³ Pagnani and Dome¹⁴ reported a 3% subluxation rate in American football players treated with open stabilization.¹⁴ Bacilla et al reported a 5% dislocation rate in football players using an arthroscopic suture anchor technique. Preservation of range of motion using the arthroscopic technique was also noted in our study, with the majority of patients maintaining more than 95% of preoperative motion as compared with the opposite shoulder¹⁵.

Sedeek S M, et al 2008, stated two shoulder scores significantly improved after surgery (p-value is less than 0.05). According to the UCLA scale, 37 shoulders (92.5 percent) had excellent or good scores, one shoulder (2.5 percent) had a fair score, and two (five percent) had poor

scores. All 12 components of SST showed improvement, which was statistically significant. Overall, the rate of postoperative recurrence was 7.5 percent (three shoulders). All patients either maintained or demonstrated improvement of range of motion. There was no loss of external rotation range of motion postoperatively.

CONCLUSION

The general result of arthroscopic Bankart repair is improved because of the improved technique, improved suture material, good experience of the surgeons.

Shoulder instability is a major complex aspect that should be properly treated to avoid functional disability

The younger the patient with dislocation the more vulnerable the recurrent instability

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