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Retrospective Analysis of Arthroscopic L-type Inferior Capsular Shift for Treatment of Anterior Shoulder Instability

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ABSTRACT

Background: Shoulder instability or its recurrent form is a common complaint in daily orthopedic practice. Many treatment approaches are in use. However, continuous advancements are introduced to increase safety and effectiveness. The current work aimed to assess the arthroscopic management of anterior shoulder instability and dislocation by L-Type arthroscopic capsular shift.

Patients and Methods: This was a retrospective multicenter study. It included 70 patients with unilateral should instability unidirectional recurrent dislocation. Preoperative evaluation included (history, clinical and radiological examinations). Then, local examination was directed to discover muscle wasting, deformity, local tenderness and stability tests. The radiological workup included plain radiography, MRI and MR arthrography. Postoperatively, shoulder was immobilized for 6 weeks. The overall results were scored by University of California, Los Angeles (UCLA) score (including domains of pain, functions, active forward flexion & its strength, satisfaction and total score).

Results: The right shoulder was the commonly affected side (78.6%). Playing sports on regular basis was reported for (15.7%). X-ray showed normal findings for 71.4%, humeral head defect in 22.9% and Bankart lesions in 5.7%. Arthroscopic examination revealed isolated capsular laxity for 62.9%, laxity with labral tears for 18.6% and laxity with rudimentary labrum among 12.9%. The postoperative pain was minimal or absent in 95.7%, moderate in 2.9% and severe in 1.4%. All subjects returned to normal preoperative activities at the final follow-up visit, with no or minimal limitations recorded for (97.1%) and moderate limitations for 2.9%. The only registered complication was recurrent instability in one patient (1.4%). UCLA assessment revealed a significant improvement in all its domains after than before surgery.

Conclusion: The Arthroscopic L-type Inferior Capsular Shift for treatment of anterior shoulder instability provides a safe and effective treatment approach. On a short-term follow-up, the recurrence rate is minimal with no or mild complications.

Keywords: Shoulder Instability; Dislocation; Inferior Capsular Shift; Range of Motion; University of California, Los Angeles (UCLA) score.



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INTRODUCTION

Shoulder instability is due to changes in glenohumeral stability by different factors. It is a common complaint in daily orthopedic practice. In young patients, traumatic anterior shoulder dislocation is associated with recurrent instability. Glenoid labrum and anterior inferior labrum played an important role in stability of shoulder joint^(1,2). The avulsion of glenoid labrum is a well-known condition and termed Bankart lesion, initially described in the twentieth century⁽³⁻⁵⁾.

Recurrent instability of the anterior shoulder is ascribed to overstretching of capsulo-ligament, Bankart lesion or both. The diagnosis of instability is based on clinical data and radiological study (plain radiography, computed tomography (CT), magnetic resonance imaging (MRI) and MRI arthrography). To achieve ideal results of surgical intervention, it is crucial to clearly define the lesion, estimate healing potential, anatomic repair of the lesion (restoration of near-normal anatomy), labrum, rotator cuff or joint capsule. Arthroscopy could be used as a diagnostic tool for better assessment of anatomic pathology and in therapeutic role, it permits more anatomical repair^(4,6-8). The recent and continuous advances in instruments and surgical techniques led to significant improvement of surgical outcome⁽⁹⁻¹¹⁾.

The untreated capsular laxity is the main cause of treatment failure of arthroscopic Bankart repair⁽¹²⁻¹⁴⁾. However, arthroscopy provides a less invasive approach for repair of traumatic anterior shoulder instability. In addition, it is reported that this approach is associated with decreased morbidity, less pain, reduced need for narcotics, and less disruption of normal anatomy. This treatment method had three main concepts, repair of torn detached anterior glenoid labrum, partial capsular shift for anterior capsular laxity and reconstruction of the capsular ligaments⁽⁶⁾. To avoid capsular laxity, Fleega introduced the L-type inferior capsular shift for treating antero-inferior instability of the shoulder⁽¹⁵⁾.

The current study aimed to retrospectively assess the outcome of arthroscopic management of anterior shoulder instability and dislocation by L-Type arthroscopic capsular shift technique.

METHODS

This was a retrospective study that was performed on 70 patients with unilateral shoulder instability with unidirectional recurrent dislocation. They were selected from those managed in the past five years (2020 to 2024) at Damietta Specialized Hospital, Private Clinics and Al-Azhar University Hospital (New Damietta).

Preoperative patient evaluation was performed in a standard

manner including general assessment (history taking and general clinical examination), local examination of the affected shoulder (by palpation, and determination of the range of motion). The aim of clinical examination was to discover any wasting of muscles, deformity around the shoulder, local tenderness and stability tests.

The stability of the affected shoulder was assessed using group of provocative tests to determine the instability degree and direction (anterior- and posterior-apprehension, sulcus sign, and drawer tests).

The radiological workup included plain radiography (true AP, lateral scapular, and axillary (Stryker notch) views), MRI and MR arthrography.

Surgical technique:

All patients received general anesthesia. However, some patients received additional interscalene block when indication to reduce postoperative pain. All surgeries were performed in the sitting position in 70 to 90 degrees.

Examination under general anesthesia was performed for all patients before starting surgery to reassess the range of motion (ROM) and joint stability. Then, a standard diagnostic shoulder arthroscopy was done. The arthroscope was introduced through the standard posterior portal, 2 cm below and medial to the posterolateral corner of the acromion. Glycine was used to distend the shoulder. The probe was introduced through a superior anterior portal. The biceps tendon was visualized and followed into its groove. Then the anterior labrum, the anterior capsule and the inferior recess were palpated. Then the arthroscope was slightly drawn posteriorly to examine the posterior labrum and assess if there was Hill-Sachs lesion on the postero-superior part of the externally rotated humeral head.

L-arthroscopic inferior capsular shift (LACS) was performed. An arthroscopic (L-type) inferior capsular shift was performed using a posterior portal for visualization and an anterior portal as a working portal (as described previously). A raw bleeding area (3-4 mm wide) with a rough surface was prepared along the capsular attachment to the humeral neck using a 3.5-mm abrader. An inverted L-shaped incision was performed in the inferior part of the anterior capsule using a radiofrequency cutter or a laser probe. The horizontal cut started in the capsule in front of the middle of anterior glenoid rim till the neck of humerus and then extended in an inferior direction, 4 mm parallel to the neck till it reached the lower end of the inferior capsule. With the electrical cutter the capsule was separated from the subscapularis through the horizontal incision. A 45-degree chop needle suture pusher with a No. 2 nonabsorbable suture was passed from outside at the level of the flap through the skin, the subscapularis and through the apex of the triangular

capsular flap. Then, 45-degree chop needle suture puller was passed through the anterior working portal, through the rotator interval of about 5mm medial and above the insertion of the upper edge of the subscapularis to pull the suture from the tip of the suture puller and bring it out of the anterior working portal. This was performed simultaneously by pulling the chop pusher out through the skin. Now having both suture limbs, a clamp was put on the posterior suture end to avoid slipping out of the suture while doing the next step. Then the chop needle puller was passed once more via the anterior portal through the interval through the upper edge of the subscapularis about 5mm from its insertion to pull the anterior suture limb between the capsule and the subscapularis out through the upper edge of the tendon and the anterior portal. Then both limbs of the suture at the apex of the triangular flap appear from the anterior working portal with one strand passing through and the other passing above the upper edge of the subscapularis held with the clamp. With the arm in the neutral position, the flap was pulled up and sutured to shift the triangular capsular flap up over the upper half of the capsule overlaying the upper border of the subscapularis to bring the edge of the flap of the inferior capsule in contact with the previously prepared trough in the neck of the humeral head.

Postoperative workup and evaluation: All cases received analgesia by nonsteroidal anti-inflammatory drugs (NSAIDs). The shoulder immobilization for 6 weeks was achieved by a cast depending on pathological findings, the quality of the capsule and strength of the repair. Immobilization performed by the arm to pelvis cast in 20-degree abduction and about 50-degree internal rotation. The cast was formed of an above elbow cast applied to the affected extremity and a cylindrical cast was done around the abdomen, resting over the iliac crests. Both are connected by a bar made of plaster of Paris (the writing position). After the immobilization period by cast, the patient put in broad arm sling for another 2 weeks if the cast was used for 4 weeks, this permits the patient to use the arm for eating.

Scoring of the results: The results of this study after arthroscopic management of the cases of shoulder instability were evaluated by University of California, Los Angeles (UCLA) score. It is the most common score used and accepted in USA ⁽¹⁶⁾.

Rehabilitation: After removal of immobilization, the patient started rehabilitation program consisting of three phases. In the first phase, patients started isometric and assisted passive exercises to gradually restore the muscle tone and range of motion for 1 to 2 weeks. Then, phase 2 started where self-assisted stretching and slight self-assisted strengthening exercises were done for 3 to 4 weeks to reach the normal ROM and the patient was permitted full light activities. The third phase started where strengthening exercises together with the stretching exercises to

reach the normal muscle power and active ROM by the end of the 16th postoperative week. Sports were allowed only when the range of motion and the strength of forward elevation and external rotation were comparable with that of the normal contralateral side. In most cases, this was achieved within 3 to 5 months postoperatively.

Statistical Analysis: All data were analyzed using standard statistical software. Continuous variables were summarized by their mean \pm standard deviation, while categorical variables expressed by their counts and percentages. The paired samples "t" test was used to compare means between pre- and post-operative times. Statistical significance was defined as a two-sided p value <0.05 .

RESULTS

The age of study subjects ranged between 18 to 48 years; the mean values were 28.58 ± 6.26 years. The commonest age groups were in the third decade (60.0%) followed by fourth decade (28.6%), while the least group was in the fifth decade (4.3%). Most of patients were males (84.3%) and the right shoulder was the common affected side (78.6%). All 40 patients had a clear history of dislocation. They were complaining of feeling that the humeral head "went out" and remain out for moments. The frequency of episodes ranged between 3 to 15; the mean \pm SD value was 7.80 ± 2.66 . Playing sports on regular basis was reported for 11 patients (15.7%). All had the same complaint (inability to continue their sport due to instability of their shoulders. The mode of reduction of previous dislocations was without anesthesia for 64.3% (self-reduced or by physician). Four patients (5.7%) reduced under anesthesia and 30.0% under reduction without and with anesthesia (different from time to time). The results of the x-ray examination showed normal study among 71.4%, humeral head defect in 22.9% and Bankart lesions in 5.7%. In addition, MRI and MR arthrography revealed labral tears (22.9%), which were not confirmed for all cases arthroscopically. However, Hill Sachs' lesions were recorded for 5.7%. Pouch in the anterior capsule was recorded for all patients. Arthroscopic examination revealed hill Sachs among 4 subjects, isolated capsular laxity for 62.9%, laxity with labral tears for 18.6% and laxity with rudimentary labrum among 12.9%. The operative management approach was L-arthroscopic inferior capsular (LACS) shift with one (70.0%) or two sutures (7.1%), Bankart overlap technique (5.7%) and LACS with abrasion at scapular neck (17.1%). The approach dependent on arthroscopic findings (Table 2).

The follow up duration ranged between 6 and 12 months, the mean value was 9.86 ± 2.11 months; the 6-months follow up duration was recorded for 14.3%, while 9-months and 12-months duration of follow up was recorded for 42.9% (for each category).

The last assessment postoperative pain was minimal or absent in 95.7%, moderate in 2.9% and severe in 1.4%. It was anterior in 2.9% and posterior in 1.4%. ROM examined in forward elevation, external rotation, and internal rotation. For forward elevation, it was more than 180 among 8.6% and between 170 and 179 in 91.4%, reflecting reasonable ROM. External rotation ROM ranged between 70 to 80, the majority were in 70 to 79 group (94.3%). However, internal rotation ranged between T6 to T10 with most of patients in T6 and T7 groups 40.0% and 28.6% respectively).

All subjects returned to preoperative normal activities at the final follow up visit. No or minimal limitations were recorded for (97.1%), while moderate limitations were recorded for 2.9%. the only registered complication was recurrent instability in one patient (1.4%) after 9 months (Table 3).

UCLA assessment before and after surgery revealed that there was statistically significant improvement in all domains after than before surgery. However, the active forward flexion was fixed before and after surgery (Table 4).

Table (1): Summary of study subjects

		Values in Study subjects (n=70)
Age (years)	Mean±SD; Min. – Max.	28.58±6.26; 18-48
Age group (n,%)	Second decade	5(7.1%)
	Third decade	42(60.0%)
	Fourth decade	20(28.6%)
	Fifth decade	3 (4.3%)
Sex (n,%)	Male	59 (84.3%)
	Female	11 (15.7%)
Affected side (n,%)	Right	55 (78.6%)
	Left	15 (21.4%)
Dislocation	Yes	70(100.0%)
Frequency of episodes	Mean±SD; Min. – Max.	7.80±2.66; 3 - 15
Playing sports	Yes	11 (15.7%)
Mode of reduction	Without anesthesia	45(64.3%)
	Under anesthesia	4(5.7%)
	Mixed	21(30.0%)

Table (2): Perioperative details among study subjects

		Values (n=70)	
x-ray results	Humeral head defect	16(22.9%)	
	Bony Bankart lesions	4 (5.7%)	
	Normal study	50 (71.4%)	
MRI and MR arthrography	Labral tears	16(22.9%)	
	Hill Sachs' lesion	4 (5.7%)	
	Pouch in the anterior capsule	70 (100.0%)	
Arthroscopic examination	Hill Sachs lesion	4 (5.7%)	
	Isolated capsular laxity	44 (62.9%)	
	Laxity with labral tears	13 (18.6%)	
	Laxity with rudimentary labrum	9 (12.9%)	
Operative approach	L-arthroscopic inferior capsular (LACS) shift	+ one suture	49(70.0%)
		+two sutures	5(7.1%)
	Bankart overlap technique	4 (5.7%)	
	LACS with abrasion at scapular neck	12(17.1%)	

Table (3): Follow up among study subjects

		Values (n=70)	
Follow up duration (months)	Mean±SD; Min. – Max.	9.86±2.11; 6-12	
	6 months (n,%)	10 (14.3%)	
	9 months (n,%)	30 (42.9%)	
	12 months (n,%)	30 (42.9%)	
Postoperative pain	Severity	Minimal or absent	67 (95.7%)
		Severe	1 (1.4%)
		Moderate	2 (2.9%)
	Site	Anterior	2 (2.9%)
		Posterior	1 (1.4%)
ROM	Forward elevation	>180	6(8.6%)
		170-179	64(91.4%)
	External rotation	70-79	66(94.3%)
		80	4(5.7%)
	Internal rotation	T6	28 (40.0%)
		T7	20 (28.6%)
		T8	9 (12.9%)
		T9	8 (11.4%)
Return to normal activities	With no limitation	68 (97.1%)	
	With moderate limitations	2 (2.9%)	
Complications	Infection	0(0.0%)	
	Axillary nerve injury	0(0.0%)	
	Recurrence	1 (1.4%)	

Table (4): Comparison between pre and postoperative UCLA components

	Preoperative		Postoperative		Paired (t)	P
	Mean	SD	Mean	SD		
Pain	6.46	0.72	8.97	0.54	28.54	<0.001*
Functions	6.73	0.76	9.07	0.39	24.06	<0.001*
Active forward flexion	5.00	0.00	5.00	0.00	a	
Strength of forward flexion	4.37	0.49	4.93	0.26	9.31	<0.001*
Satisfaction	0.00	0.00	4.91	0.28	145.82	<0.001*
Total	22.56	1.30	32.89	0.84	64.60	<0.001*

* = significant (p ≤ 0.05); a: no statistics can be computed because the variable is constant

DISCUSSION

In the current work, we aimed to evaluate the value of arthroscopic inferior capsular shift technique for treatment of shoulder instability. We retrospectively analysed data of 70 subjects' treatment by the above approach. No complications were recorded except recurrence in one subject after 9 months of follow-up. Most patients (97.1%) returned to normal activities without or with minimal limitations. In addition, there was significant improvement of pain, functions, strength of forward flexion satisfaction and total domains of UCLA scoring system. These results reflect the high safety profile and effectiveness of this treatment approach. It was initially introduced by Fleega in the nineties of the twentieth century. In one interesting study, **Fleega et al.** (17) treated 108 subjects with anteroinferior shoulder instability due to capsular laxity. However, the final analysis included only 75

subjects (due exclusion of patients with associated labral tears (n = 25) and patients with open rotator intervals (n = 8). They followed up all patients for a minimum of 7 years. They reported that three patients (4.0%) had a redislocation after a significant trauma. The range of motion preoperatively was 168.1° ± 7.5° in forward elevation, 64.7° ± 7.9° in external rotation, and T5.0 ± T0.8 in internal rotation. Postoperatively, it was 167.2° ± 5.8° in forward elevation, 59.95° ± 4.9° in external rotation, and T7.1 ± T1.0 in internal rotation. The University of California, Los Angeles (UCLA) (21.97 to 33.84; P < .001) scores demonstrated significant improvement postoperatively. These results are comparable to the current work. They concluded that, the approach of arthroscopic capsular shift treated capsular redundancy associated with anteroinferior shoulder instability. The long-term results are very good.

Uchiyama et al. (18) previously assessed the Neer modified

inferior capsular shift procedure for recurrent anterior instability in a single sport. Their treatment approach provides the basis of the current approach used in our study. They included 50 athletes (42 male and 8 females, 52 shoulders), with age ranged between 14 and 38 years (average 20 years) and mean follow up period of 61 months. The recurrence of should instability was recorded for 5.8% of their patients. The average Rowe and UCLA scores were 37.3 and 20.8 points preoperatively and 86.7 and 32.4 points at the final follow-up, respectively ($P < 0.05$). their results regarding sex distribution are comparable to the current one with male sex predominance. However, their patients are relatively younger than our patients. The outcome is comparable to the current approach. However, the return to pre-operative sports activity was lower in their work than the current one. This was anticipated due to inclusion of a single sport (Judo), while only 15.7% of our patients practice sports.

Vavken *et al.*⁽¹⁹⁾ reported on the open inferior capsular shift for multi-directional shoulder instability in adolescents with generalized ligamentous hyperlaxity. They analysed data of 18 open inferior capsular shift surgeries in 15 adolescent patients. Their results showed that improvement in pain and stability with satisfaction was achieved for 87% of subjects. In addition, 64% were able to return to sports, while one patient (7%) was dissatisfied with continuous pain and recurrent instability. They concluded that the treatment approach was associated with significant improvement in subjective and objective domains of assessment. However, their results are lower than the current work. This could be attributed to small sample size in their study, different inclusion criteria and different assessment methods.

Xu Y *et al.*⁽²⁰⁾ assessed three treatment approaches for recurrent should instability (arthroscopic Bankart repair, capsular shift, and open Latarjet). They retrospectively evaluated 168 patients with recurrent should instability. The mean age was 30.8 years, with male sex predominance as in the current study. The average follow up was 67.6 months. They reported effective improvement of shoulder functional status by the three procedures nearly to the same extent. However, Latarjet had an advantage over subjective perception. Recurrence was recorded for two cases (one in each of the arthroscopic Bankart and capsular shift groups). The Latarjet group was superior in subjective results. They concluded that, capsular shift offers stabilizing of inferior or multidirectional type, especially for little bone defect. However, Latarjet was more effective in reducing recurrence with higher stability. Their results for capsular shift are comparable to the current work.

In a study with the longest follow up duration (more than 20 years), **Takatori *et al.***⁽²¹⁾ evaluated the outcomes of open modified inferior capsular shift for traumatic anterior shoulder instability. They included 84 patients (86 shoulders; 67 men, 17 women), with

average follow up duration of 28.0 years. They investigated the recurrence rate, apprehension, revision rate, satisfaction, return to preinjury sporting activity, and patient background characteristics between recurrent and nonrecurrent groups. in addition, they recorded clinical and functional outcome. The recurrence rate was 10.5% (3 with dislocation and subluxation in 6) with no need for revision surgery. Both recurrent and non-recurrent groups were comparable. However, significant differences between affected and nonaffected sides were seen in the mean active ROM, muscle strength for external rotation in the anatomic position or in 90° of abduction. Patients reported that 84 shoulders (97.7%) were "much better." Most athletes (88.4%) had returned to sports activity at a level >70%. They concluded that satisfaction was high and clinical scores were good. They believe that this surgical method offers good results even after more than 20 years.

More recently, **Plancher *et al.***⁽²²⁾ reported on arthroscopic labral reconstruction with a modified inferior capsular shift for anterior shoulder instability. They included 92 patients. However, 64 patients met the inclusion criteria and were included in analysis. They concluded that arthroscopic labral reconstruction with a modified inferior capsular shift addresses anterior instability with return to sport of all subjects with excellent functional and clinical outcomes, full shoulder ROM, and a low prevalence of advanced osteoarthritis (OA) at minimum 5-year follow-up. This approach resulted in a low failure rate.

Castillo de la Peña *et al.*⁽²³⁾ also reported on the safety profile of Arthroscopic capsular shift from inferior to superior. Thirty-six subjects were included, the mean age of the population is 30.8±11.4 years, with a male dominance (86.1%) and a mean clinical follow-up of 2.7 ± 1.2 years. The age and sex distribution is comparable to our results. In addition, **Castillo de la Peña *et al.***⁽²³⁾ recorded no intraoperative complications (e.g., bleeding or neurovascular injury). Additionally, there are no early PO complications (e.g., infection or hospital re-admission). During the follow-up, one patient (3%) had persistent apprehension. The mean Western Ontario Shoulder Instability index decreased from 66.6 ± 13.10% to 27.9 ± 22% postoperatively ($P < 0.001$).

In conclusion, the Arthroscopic L-type Inferior Capsular Shift for treatment of anterior shoulder instability provides a safe and effective treatment approach. On a short-term follow-up, the recurrence rate is minimal with no or mild complications. However, due to limitations of our study (retrospective nature and small sample size), it is highly recommended to conduct future studies to validate the current results. In addition, our results must be treated cautiously when it comes to generalization.

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REFERENCES

1. Kim KC, Rhee KJ, Shin HD, Kim YM. Arthroscopic separate labral repair and capsular plication with a suture anchor. *Arch Orthop Trauma Surg.* 2008 May;128(5):535-8. doi: 10.1007/s00402-007-0406-8.
2. Wade R, Reddy P V B. Functional outcome of arthroscopic double row repair for Bankart lesion. *J Orthop.* 2018 Mar 22;15(3):792-797. doi: 10.1016/j.jor.2018.03.021.
3. Michaelson EM, Ranson WA, Parsons BO. Arthroscopic Bony Bankart Lesion Fixation Using Knotless Double-Loaded Suture Anchors and Buttress Sutures. *Arthrosc Tech.* 2024 Nov 1;14(4):103297. doi: 10.1016/j.eats.2024.103297.
4. Marcaccio S, Buerba R, Arner J, Bradley J. Arthroscopic Anterior and Inferior Labral Repair for Traumatic Shoulder Instability. *Video J Sports Med.* 2024; 4 (5): 26350254241262328. doi: 10.1177/26350254241262328.
5. Markes AR, Sang L, Cole E, Feeley BT. Arthroscopic Remplissage Before Bankart Repair with All-Suture Anchor Mattress Fixation in the Beach-Chair Position. *Arthrosc Tech.* 2024 Aug 22;14(2):103206. doi: 10.1016/j.eats.2024.103206.
6. Mazzocca AD, Brown FM Jr, Carreira DS, Hayden J, Romeo AA. Arthroscopic anterior shoulder stabilization of collision and contact athletes. *Am J Sports Med.* 2005 Jan;33(1):52-60. doi: 10.1177/0363546504268037.
7. Hoshika S, Matsuki K, Tokai M, Morioka T, Ueda Y, Hamada H, Takahashi N, Sugaya H. Pathology and surgical outcomes of unstable painful shoulders. *JSES Int.* 2022 Feb 5;6(3):349-354. doi: 10.1016/j.jseint. 2022.01.004.
8. Monk AP, Crua E, Gatenby GC, Walsh AJ, Stanley JC, Rosenfeldt MP, Twaddle BC, Walsh SJ. Clinical outcomes following open anterior shoulder stabilization for glenohumeral instability in the young collision athlete. *J Shoulder Elbow Surg.* 2022 Jul;31(7):1474-1478. doi: 10.1016/j.jse. 2021.12.013.
9. Lai MC, Ang FHB, Lee KH, Chang CCP, Lie TTD. Hybrid suture technique vs simple suture technique for antero-inferior labral tears: Two years' clinical outcomes. *Asia Pac J Sports Med Arthrosc Rehabil Technol.* 2019; 18:6-10. doi: 10.1016/j.asmart. 2019.08.002.
10. Ozdemir B, Akpınar S, Çınar BM. A comparative study on use of two versus three double-loaded suture anchors in arthroscopic Bankart repair. *Jt Dis Relat Surg.* 2021;32(1):108-114. doi: 10.5606/ehc.2021.75536.
11. Utami SW, Pratiwi SR, Mitchel, Gani KS, Kholinne E. Return to sports following arthroscopic Bankart repair: a narrative review. *Ewha Med J.* 2024 Apr;47(2):e21. doi: 10.12771/emj.2024.e21.
12. Bigliani LU, Kelkar R, Flatow EL, Mow VC. Glenohumeral stability. Biomechanical properties of passive and active stabilizers. *Clin Orthop Relat Res.* 1996 Sep;(330):13-30. PMID: 8804270.
13. Kandeel AA. Soft Arthroscopic Latarjet Procedure: Technical Note on Biceps Tendon as a Modified Sling for Restoration of Glenohumeral Stability. *Arthrosc Tech.* 2021; 10(6): e1531-e1537. doi: 10.1016/j.eats. 2021.02.021.
14. Strauss EJ, Salata MJ, Sershon RA, Garbis N, Provencher MT, Wang VM, et al. Role of the superior labrum after biceps tenodesis in glenohumeral stability. *J Shoulder Elbow Surg.* 2014 Apr;23(4):485-91. doi: 10.1016/j.jse.2013.07.036.
15. Fleega BA. Arthroscopic reinforced capsular shift of anterior shoulder instability. *Arthroscopy.* 2004 May;20(5):543-6. doi: 10.1016/j.arthro. 2004.03.017.
16. Mukadam AA, Nayak S, Willems J, Pandey V. Estimating the minimal clinically important difference of shoulder functional scores after arthroscopic rotator cuff repair: a prospective study. *Arch Orthop Trauma Surg.* 2024 Apr;144(4):1693-1701. doi: 10.1007/s00402-024-05222-8.
17. Fleega BA, Mohamed T, El shewy: arthroscopic inferior capsular shift. Long term follow-up. *Am J sports Med* Vol.40, no. 5, 1126 – 1132, 2012. doi: 10.1177/03635465124385
18. Uchiyama Y, Hamada K, Miyazaki S, Handa A, Fukuda H. Neer modified inferior capsular shift procedure for recurrent anterior instability of the shoulder in judokas. *Am J Sports Med.* 2009 May;37(5):995-1002. doi: 10.1177/0363546509332278.
19. Vavken P, Tepolt FA, Kocher MS. Open inferior capsular shift for multidirectional shoulder instability in adolescents with generalized ligamentous hyperlaxity or Ehlers-Danlos syndrome. *J Shoulder Elbow Surg.* 2016 Jun;25(6):907-12. doi: 10.1016/j.jse. 2015.10.010.
20. Xu Y, Wu K, Ma Q, Zhang L, Zhang Y, Xu W, Guo JJ. Comparison of clinical and patient-reported outcomes of three procedures for recurrent anterior shoulder instability: arthroscopic Bankart repair, capsular shift, and open Latarjet. *J Orthop Surg Res.* 2019 Oct 18;14(1):326. doi: 10.1186/s13018-019-1340-5.
21. Takatori N, Uchiyama Y, Imai T, Watanabe M. Long-term outcomes of open modified inferior capsular shift for traumatic anterior shoulder instability: over 20 years of follow-up. *J Shoulder Elbow Surg.* 2022 Feb;31(2):359-366. doi: 10.1016/j.jse.2021.07.021.
22. Plancher KD, Briggs KK, Zuccaro P, Tucker EE, Petterson SC. Arthroscopic Labral Reconstruction with a Modified Inferior Capsular Shift Allows Return to Sport and Excellent Outcomes in Contact and Noncontact Athletes with Anterior Shoulder Instability at Minimum 5-Year Follow-Up. *Arthroscopy.* 2024 May;40(5):1420-1430. doi: 10.1016/j.arthro. 2023.10.020.
23. Castillo de la Peña J, Ma J, Wong I. Arthroscopic capsular shift from inferior to superior has an exceptional safety profile and short-term outcomes. *J ISAKOS.* 2024 Jun;9(3):314-318. doi: 10.1016/j.jisako.2024.02.005.



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