

How to Cite:

Rehman, S. U., Hussain, M., Ahmed, N., Saeed, F. U. R., Fazlani, N., & Hassan, R. (2023). Functional outcome of Latarjet for recurrent anterior shoulder dislocation. *International Journal of Health Sciences*, 7(S1), 453–459. <https://doi.org/10.53730/ijhs.v7nS1.14222>

Functional outcome of Latarjet for recurrent anterior shoulder dislocation

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Abstract---Background and Aim: Recurrent shoulder dislocations can be treated with a variety of surgical procedures. However, soft-tissue repair appears to be ineffective in all cases of recurrent shoulder dislocation. The present study aimed to determine the Latar jet technique functional outcome for recurrent anterior shoulder dislocation. Patients and Methods: This descriptive cross-sectional study was conducted on 42 recurrent shoulder dislocation patients at the MTI Lady Reading Hospital Peshawar from January 2019 to December 2022. All the eligible patients were operated with open Latar jet procedure. Constant-Murley shoulder score was used for the assessment of functional outcome at 6th months. SPSS version 27 was used for data analysis. Results: Of the total 42 patients, there were 40 (95.2%) male and 2 (4.8%) female. The overall mean age was 46.8±8.4 years. The right and left-side involvement was found in 32 (76.2%) and 12 (23.8%) respectively. The incidence of poor, fair, good, and very

good outcomes was 3 (7.1%), 4 (9.5%), 12 (28.6%), and 23 (54.8%) respectively. There was significant improvement in shoulder motion and reduction in pain after 6th month's follow-up. Conclusion: The present study found that recurrent anterior shoulder dislocation can be effectively treated by Open Latar jet technique being a safe and reliable treatment alternative with good functional outcomes.

Keywords---anterior shoulder dislocation recurrence, open latar jet technique, functional outcomes.

Introduction

The complicated biomechanical and anatomical structure of the shoulder joint that functions regularly due to multiple stabilizers that act in a particular manner and coordination at specific motion phases. Static and dynamic stabilizers of the shoulder include labrum, deltoid muscle, glenohumeral ligaments and articulation. The humerus head contact with glenoid's bony is approximately accounted for 30% indicating the confinement of shallow osseous joints. The stability of joints in the majority of cases are provided by various structures of soft tissue instead of bony contact [1, 2]. This might lead to the predisposition of joint dislocation during trauma and providing the motion a wide range. The glenoid cavity is widened by anterior glenoid labrum in 50% cases causing significant stability of anteroposterior [3]. Consequently, the injuries cause anterior instability recurrence that lead to glenoid connection's separation. The Bankart lesion or detachment of anteroinferior glenoid labral was reported in 87% to 100% during their shoulder dislocation for the first time [4].

Non-operative therapy has yielded good outcomes, however recurrent shoulder dislocation has been documented in 90% of patients managed conservatively [5]. Recurrent shoulder dislocation frequently causes injury to the capsule and ligaments of the shoulder joint, as well as the glenoid and head of the humerus [6]. Arthroscopic capsular repair, labral repair, and arthroscopic or open bone-block methods are commonly used to treat recurrent anterior shoulder dislocation [7-9]. The coracoid process is moved through the subscapularis muscle to the anterior and inferior glenoid cavities in bone blocking procedures [9, 10]. It has been observed that arthroscopic Bankart repair has a recurrence incidence of 4% when there is no major bone loss, but 67% when there is severe bone loss [11]. The outcome of Latarjet surgery may be split into two categories: main (instability symptoms such as subluxations, chronic anxiety, and repeated dislocation occurrences enduring) and secondary. The Samilson-Prieto classification was used to classify radiographic osteoarthritis, [12]. The osteoarthritis is graded as mild, moderate, or severe. Patient-reported outcomes are increasingly being utilized to scientifically evaluate patient's data and offer a response to treatment. Our study aimed to ascertain the functional result of an open Latar jet operation for recurrent anterior shoulder dislocation.

Methodology

This descriptive cross-sectional study was conducted on 42 recurrent shoulder dislocation patients at MTI Lady Reading Hospital Peshawar from January 2019 to December 2022. All the eligible patients were operated with open Latar jet procedure. Constant-Murley shoulder score was used for the assessment of functional outcome at 6th months. Patients of either gender and over the age of 16 who had recurrent anterior shoulder dislocation with more than two episodes of dislocation, glenoid bone loss greater than 5%, and a positive apprehension test were included. Patients with bilateral recurrent shoulder dislocation, epilepsy, multidirectional instability, symptomatic acromioclavicular joint arthritis, generalized hyperlaxity, voluntary instability, rotator cuff tear, and humeral head defect greater than 30%, shoulder fractures, and patients who had previously been treated were excluded. Complete histories, physical examinations, and appropriate investigations were performed on the subjects included.

The procedures were all conducted in the beach chair posture under general anesthetic by the same surgical team using the same surgical method. The deltopectoral technique was adopted, with a vertical incision beginning at the tip of the Coracoid and ending at the axillary fold. A self-retaining retractor was used to generate and maintain a gap between the Deltoid and Pectoralis major muscles. To allow maximal exposure, the upper limb was abducted and externally rotated, and a Hohmann Retractor was placed above the Coracoid. The Coracoacromial Ligament was severed 1cm distal to its attachment on the Coracoid process, and the Coracohumeral Ligament underneath it was severed as well. To assist exposure, the leg was adducted and internally rotated, and the Pectoralis minor was freed from the Coracoid. For 6 weeks following surgery, a cushion sling was used to immobilize the limb and keep it in internal rotation. The patient was encouraged to make vigorous motions with his fingers, wrist, and elbow. All patients were asked to return in two weeks, six weeks, three months, and six months. At the sixth week, three months, and six months, active range of motion and pain were measured. For data analysis, we utilized SPSS version 27. Continuous data was assessed using descriptive statistics such as mean and standard deviation, whereas qualitative data was assessed using frequency and percentages. A comparison of critical outcome variables was performed, and the P value was computed using the paired-t test. A P value of 0.05 was considered significant.

Results

Of the total 42 patients, there were 40 (95.2%) male and 2 (4.8%) female. The overall mean age was 46.8 ± 8.4 years. The right and left-side involvement was found in 32 (76.2%) and 12 (23.8%) respectively. The incidence of poor, fair, good, and very good outcomes was 3 (7.1%), 4 (9.5%), 12 (28.6%), and 23 (54.8%) respectively. There was significant improvement in shoulder motion and reduction in pain after 6th month's follow-up. When age, gender, bouts of dislocation, glenoid bone loss, and side of surgery or hand dominance were all considered, there was no significant difference in prognosis. We reported recurrence in three patients, as well as graft nonunion in two patients, and all were treated with revision. In our series, no neurovascular damage, graft malposition, or fracture

was seen. The baseline characteristics of patients are shown in Table-I. The functional outcomes of Latar jet technique are shown in Table-II.

Table-I Baseline characteristics

Characteristics	Value
Age (years)	46.8±8.4
Gender N (%)	
Male	40 (95.2)
Female	2 (4.8)
Side involved N (%)	
Right	32 (76.2)
Left	12 (23.8)
Rating of outcomes	
Poor	3 (7.1)
Fair	4 (9.5)
Good	12 (28.6)
Very good	23 (54.8)

Table-II functional outcomes of Latar jet technique

Duration	Pain (VAS)	Forward flexion	External rotation	Constant-Murley shoulder score
6 weeks	5.8±0.5	144±8.0°	50±2.8°	70
3 months	4.2±0.5	149±6.9°	69.4±6.1°	78
6 months	1.7±0.6	158±9.5°	77.6±8.5°	88
P-value	0.01	0.03	0.01	0.01

Discussion

The present study mainly focused on the Latar jet technique functional outcome for recurrent anterior shoulder dislocation and found that the Open Latar jet approach, which is a safe and reliable therapeutic option with high functional results, can effectively treat recurrent anterior shoulder dislocation. One of these patients' biggest worries is the unpredictability of their shoulder stability. As a result, the major objective was to avoid future instability, enhance functioning, and decrease complications of both short and long-term. Three independent ways are used for the improvement of mechanical stability in Latarjet repair [13]. The conjoint tendons produced by sling effect of principal stabilizing mechanism, the lower subscapularis dynamic, and coracoid transfer of glenoid concavity providing the long-term stability of glenohumeral.

Cunningham et al. [14] observed that more than 90% of coracoid graft resorption occurred after Latar jet operations. However, because graft resorption did not correspond with functional results, the clinical relevance of this observation is unknown. An VV et al [15] reported that more than 50% patients had developed glenohumeral arthritis while going through undergoing anterior shoulder instability intervention irrespective of surgical technique. Randelli et al. [16] compared the Latar jet's operation versus injury repaired by Bankart's

arthroscopic repair among 186 patients who underwent post-traumatic anterior instability recurrence and found that recurrent instability had lower rates and better Rowe scores during six years follow-up.

Unger [17] discovered equivalent results for arthroscopic and open Latarjet surgery in his systematic study, with the exception that the cost of arthroscopic surgery was twice. Cunningham²⁴ treated 28 patients with arthroscopic Latarjet and 36 with open Latarjet and found that both groups had equal functional outcomes. However, the arthroscopic group had a higher rate of screw misplacement and recurrence than the open group. Shah et al. [18] performed arthroscopic Latarjet on 93 patients and open Latarjet on 93 others. At 6 years, open Latarjet patients had a higher Rowe score and fewer recurrences than arthroscopically treated patients.

Zhu et al [19] reported that osseous erosion and bony Bankart lesions were found in 40% and 50% with recurrent anterior shoulder instability. This indicated that the majority of patients had an osseous lesion. A bony reconstruction procedure was used for cases with glenoid bone loss >25%. These findings were comparable to a previous study [20].

Bessière et al. [21] examined 13 investigations in which the Rowe score was employed and found that the Rowe score had a mean average of 88.5 during the final follow-up. In our study, despite the fact that our patients had a variety of vocations and sought treatment for several dislocations. This mostly aided in patient selection, coracoid graft placement, and effective postoperative rehabilitation. Hurley et al. [22] found that functional outcome was outstanding in cases where bone-block <1 cm medial to glenoid rim and glenoid neck healed by bone-block and below the scapular neck equator.

Conclusion

Recurrent anterior shoulder dislocation can be effectively treated by Open Latarjet technique being a safe and reliable treatment alternative with good functional outcomes. To obtain a favorable functional result, patient selection and surgical technique must be thorough. This treatment is recommended for all patients who have recurrent anterior shoulder dislocation with glenoid bone loss.

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