

Evaluation of Outcomes of Laterjet Anterior Gleno-Humeral Joint Strengthening Procedure in the Management of Recurrent Anterior Shoulder Instability

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Abstract

The shoulder is the most commonly dislocated joint due to its large range of motion and weak bony support (antero inferior weakness). It is estimated that this joint accounts for 50% of all major joint dislocations. The most common complication after a shoulder dislocation is recurrent dislocations. More than 150 surgeries and many modifications have been devised for the treatment of recurrent shoulder dislocation. The ideal surgery renders the shoulder stable without compromising the strength or range of motion. Transfer of coracoid process along with coracobrachialis (vascularised graft) through subscapularis tendon is one of them such as laterjet technique.

Objective: To evaluate the results of the laterjet procedure in patients with anterior recurrent shoulder dislocation who had glenoid bone loss more than 25%.

Method: Total 10 patients (8 male and 2 female) were treated for anterior shoulder instability by laterjet procedure in orthopaedic department of department of orthopaedic, Tripura Medical College & DR BRAM Teaching Hospital, Hapania from JAN 2025 to SEP 2025. All patients were evaluated in respect of range of motion, ROWE and UCLA scale before and after the surgery and also by post-operative radiographic assessment for presence of arthrosis, position and consolidation of graft, screw position. Pre-operative radiograph in Bergeau and AP view also taken to assess the bone loss of glenoid.

Results: ROWE and UCLA scale showed statistically significant improvement in results after laterjet procedure for the treatment of recurrent anterior shoulder dislocation.

Conclusion: Anterior stabilisation of gleno humeral joint by laterjet coracoid transfer triple blocking procedure is an efficient method for recurrent anterior dislocation of shoulder with no re-dislocation, good stability, excellent range of motion and excellent to good subjective outcomes.

Keyword: Glenohumeral Joint, Laterjet, Shoulder Joint, Dislocation, Recurrent Dislocation.

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Introduction

Anterior shoulder instability were treated by bankarts method [1] and popularized by Rowe [2] shows excellent result [2-4] except in antero inferior glenoid bone loss (bankart lesion) [5-7] where 70% failure rate observed[5].

Capsule labral repair is acceptable where anterior glenoid bone loss is <25% of its diameter. More than 25% glenoid bone erosion (inverted pear shaped glenoid) needs restoration of glenoid by bone graft [5]

The force required to dislocate the shoulder is less than 50% when glenoid bone loss >21%. Thus

bone graft increases stability and consequently increases the force needed to dislocate the shoulder [6].

Bone graft to reconstruct the glenoid bone loss can be taken from iliac crest [12] or fragment of coracoid process transferred along conjoint tendon (act as vascularised graft).

The laterjet procedure provides coracoid transfer based on the "triple blocking" principle in the management of anterior shoulder instability. First, the coracoid bone transfer to the inferior portion of glenoid increases the anterior posterior diameter of

the glenoid, prevents subluxation or dislocation of the humeral head. Second, the tendon along with coracoid bone act as a sling strengthening the inferior capsular ligament complex and the subscapularis. Finally, coracoacromial ligament reinforces the inferior capsular ligamentous structure helps in strengthening the capsulolabral complex.

Objective

To evaluate the results of the laterjet procedure in patients with anterior recurrent shoulder dislocation who had glenoid cavity bone loss more than 25%.

Material and Method

In this prospective observational study of 10 patients with recurrent anterior shoulder dislocation managed by laterjet procedure in department of orthopedic, Tripura Medical College & DR BRAM Teaching Hospital, Hapania between JAN 2025 to SEP 2025. All patients were adult with mean age of 27.2 years with history of recurrent anterior dislocation of same shoulder and CT scan revealed >25% anterior glenoid bone loss.

Exclusion criteria

1. Any previous shoulder stabilisation operation.
2. Elderly patients more than 60 years age.
3. Patient with shoulder arthrosis.

Informed written consent from all patients and ethical research committee approval was taken before the study. Standard laterjet technique was used in all patients with predrilling of coracoids bone before coracoids osteotomy.

Post operative rehabilitation protocol:

- 1 -6 week--Passive range of motion achieved
- 6-9 week—active range of motion achieved
- 10-15 week—Improve strength, endurance, neuromuscular control.
- 16-20 week— Return to full work and recreational activities.

Pre-operatively demographic data, constant shoulder score, ROWE shoulder scale and UCLA shoulder scale were assessed in all patients by the operating surgeons team. Jobe's relocation test was also done pre-operatively in all these study cases.

Follow -up in 3weeks, 6 weeks, 3 months, 6 month from the surgery date was done and evaluated for any possible complications. All the abovementioned assessments were done again by the operating surgeon's team at final follow up. Among these 10 patients, 9 male (90%) and 1 female (10%) with mean age of 27.2 years (20-38 years) and the main cause was motor vehicle accident (60%).

Table 1: Demographic Data

Variable		Frequency	Percentage(%)
Gender	Male	9	90
	Female	1	10
Etiology	Motor Vehicle Accident	6	60
	Fall From Height	2	20
	Fall In Sports	1	10
	Others	1	10
Affected Side	Right	9	90
	Left	1	10

Results

Pre-operatively all patients had positive Jobe's relocation test (Aprehension sign) and negative Jobe's relocation test post-operation. Significant improvements in scores were demonstrated after the surgery compared to pre-operational assessment in all cases (P value < 0.001 in all tests). Radiographs showed union of all the grafts and patients reported no incidents of re-dislocation during the follow-up period with excellent subjective outcome.

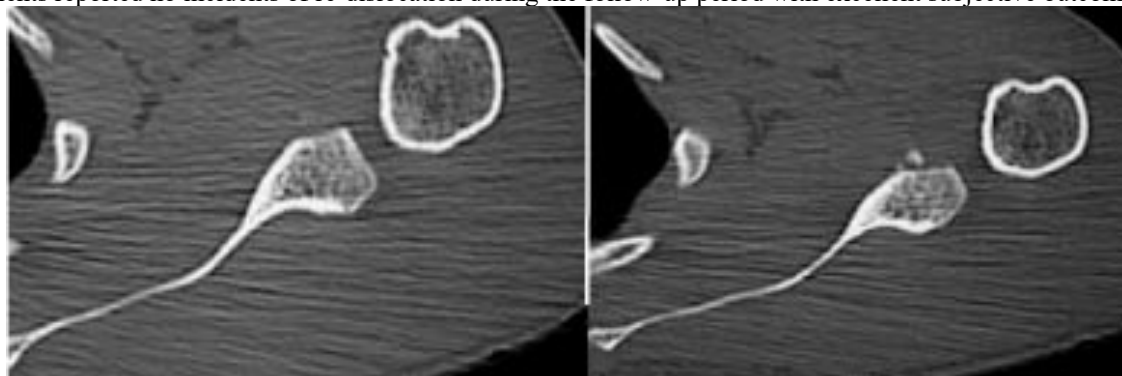


Figure 1: CT scan showing anterior glenoid bone defect



Figure 2: Post operative x ray showing proper placement of the bone graft and screws.

Table 2: Constant Shoulder Score in Patients Managed by Laterjet Surgery

Result	Before Surgery		After Surgery	
	Frequency	Percentage	Frequency	Percentage
Excellent	0	0	8	80
Good	1	10	2	20
Fair	2	20	0	0
Poor	7	70	0	0

Table 3: Rowe Shoulder Score in Patients Managed By Laterjet Surgery

Result	Before Surgery		After Surgery	
	Frequency	Percentage	Frequency	Percentage
Excellent	0	0	9	90
Good	0	0	1	10
Fair	2	20	0	0
Poor	8	80	0	0
Excellent-90-100, Good- 70-89, Fair- 40-69, Poor- <39				

Table 4: UCLA Shoulder Score In Patients Managed By Laterjet Surgery

Result	Before Surgery		After Surgery	
	Frequency	Percentage	Frequency	Percentage
Excellent	0	0	7	70
Good	2	20	2	20
Fair	1	10	1	10
Poor	7	70	0	0
Excellent->8, Good- >6, Fair- >4, Poor- >3				

Table 5: Comparison of Different Tests In Patients Managed By Laterjet Surgery

Tests	Before Surgery	After Surgery	P Value
Constant Shoulder Score	53.5	90.0	<0.001
Rowe Shoulder Score	48.0	93.5	<0.001
Ucla Shoulder Score	52.9	89.0	<0.001

Table 6: Range of Movement in Operative Shoulder and Normal Shoulder

Table of Range of Movement in Operative Shoulder and Normal Shoulder						
Movement	N	Mean	SD	Minimum	Maximum	P Value
ELEV(O)	10	164.4	5.3	155	170	<0.001
ELEV(N)	10	173.5	9.2	160	180	
MR(O)	10	7.23	1.36	T5	T10	<0.001
MR(N)	10	6.82	0.86	T5	T12	
LR(O)	10	68.2	13.20	40	80	<0.001
LR(N)	10	73.8	9.96	50	90	
LR ABD(O)	10	89.93	10.62	74		<0.001
LR ABD(N)	10	114.46	11.5	80	130	
O-Operative Side, N- Normal Side, ELEV-Elevation, MR- Medial Rotation, LR- Lateral Rotation, SD- Standard Deviation						

Among these 10 patients, 1 patient developed restricted lateral rotation and abduction most probably because that patient did not attend regular post-operative rehabilitation programme.



Figure 3: Shows Acceptable Range of Shoulder Movement



Figure 4: Full Range of Shoulder Movement

Discussion

In our study, 90% patients diagnosed as anterior shoulder instability were males in their twenties and 60% patients sustained injuries in motor vehicle accident. Latarjet procedure shows excellent post-operative stability of shoulder joint with increased range of motion and lesser post-operative complications.

In other studies, 80% primary shoulder dislocation due to sport injuries where only 4% sustained motor vehicle accident [8]. This discrepancy may be due to high-rate motor vehicle accidents.

Our study showed positive jobs relocation test in all patients preoperatively which is similar to other studies [3,9,10,16] but negative result were found in all patients after surgery in our assessment where other studies revealed 2-33% positive jobs relocation test after surgery [3,9,10,16,19].

Hart et al. [12] reported the score of 56 according to Constant shoulder score and Allain et al. [10] reported the score of 51 according to Rowe shoulder score before operation indicating similar levels of disability as demonstrated in this study.

The dramatic improvement of the shoulder function after the operation similar to the results seen in the other studies. After operation, Constant shoulder

score was reported as high as 84 to 95% [9,10,14,16] and Rowe shoulder score 90 to 93% [10,14]. In our study, Constant and Rowe shoulder scores after operation were 90 and 93.5 respectively.

Latarjet procedure has known possible complications such as re-dislocation, recurrence of instability [10,20], non-union [9], implant failure [9], and arthritis [19,20]. In our series no such complication noticed may be due to the short term follow-up.

Limitations

1. Short time follow up which is not enough to diagnose long term complications.
2. Outcome not compared with control group.
3. Small study group.

Conclusion

Latarjet anterior shoulder stabilisation triple blocking procedure is an efficient method for management of anterior shoulder instability due to glenoid bone loss. This method also provides joint stability (no case of re-dislocation) along with excellent range of movement and excellent to good subjective outcome. This method invariably shows an easy rehabilitation, early mobilisation, low rate of re-operation and complications.

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