

## RECURRENT ANTERIOR DISLOCATION OF SHOULDER TREATED BY LATARJET PROCEDURE

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### Abstract

**Background:** Anterior shoulder instability is common among young athletic population. Non operative and arthroscopic treatment has high rates of recurrence. Latarjet procedure described in 1954 (coracoid transfer) which is used to treat recurrent anterior shoulder instability in patients with bony glenoid loss and/or failed previous stabilization surgery. The aim was to know the outcome of procedure. **Materials and Methods:** Our study is a prospective study conducted from June 2022 to June 2023, involving 15 patients. All patients diagnosed with Recurrent anterior shoulder dislocation were treated with Latarjet procedure. In this procedure coracoid process transplantation over the neck of the scapula through the subscapularis tendon against the neck of the glenoid, the coracoid process flat was laid with help of screw fixation was secured between coracoid to scapular neck. **Result:** In this study 12 male and 3 female were included with average age 38.5 years. Dominant side were 10 and non-dominant side were 5. Increase in Rowe score was seen during follow up. **Conclusion:** Latarjet is optimal treatment option for recurrent anterior shoulder instability with less failure rate.

## INTRODUCTION

Shoulder joint is the most common joint dislocated in human body. Incidence of anterior instability of shoulder joint is around 22 dislocations per 100000 individuals per year in developing countries.<sup>[1]</sup> It is very common in young people like sports players, labor workers etc. Treatment of instability is essential to avoid prevalence of osteoarthritis of shoulder joint. Anterior glenohumeral instability is a common clinical entity, particularly among young athletic populations, who have been reported to have shoulder instability at rates up to 2.8% per year.<sup>[2]</sup> 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 joint in the majority of cases are provided by various structures of soft tissue instead of bony contact.<sup>[3,4]</sup> This might lead to the predisposition of

joint dislocation during trauma and providing the motion a wide range.

Most patients come to us after prolonged period of traditional treatments in which, repeated dislocations will lead to marked alteration in normal anatomy of the humeral head, the glenoid rim, capsule, surrounding ligaments, and the labrum.<sup>[5]</sup> Anatomical repairs, such as Bankart repair aim at repairing the torn glenoid labrum back to its position over glenoid rim. Isolated capsulolabral arthroscopic repair is advised for the treatment of glenohumeral instability with glenoid bone loss of less than 15–20% but with glenoid bone loss exceeding 20–25% non-anatomic procedure like bone transfer surgeries is recommended.<sup>[6,7]</sup>

**Latarjet Procedure:** This procedure was first described in 1954 by Latarjet<sup>[8]</sup> for the treatment of recurrent dislocation of the shoulder. Essential feature of this procedure was transplantation of the coracoid process to the neck of the scapula through the subscapularis tendon. The coracoid process flat was laid with its posterior surface against the neck of the glenoid. The author used screw to secure fixation of coracoid to the scapular neck. It is an efficient procedure for the treatment of anterior glenohumeral joint laxity.<sup>[7]</sup> With good results, the

Latarjet procedure is used along with arthroscopic technique and is now being considered as the preferred treatment option for recurrent instability in high-risk contact athletes, even in the presence of mild bony insufficiency.<sup>[8,9]</sup>

Non-operative therapy has yielded good outcomes, however recurrent shoulder dislocation has been documented in 90% of patients managed conservatively.<sup>[10]</sup> 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.<sup>[11]</sup>

#### Objectives

- To Describe functional outcomes
- To know the role of primary laterjet procedure in recurrent anterior shoulder instability

## MATERIALS AND METHODS

Our study is a prospective study conducted from June 2022 to Jun 2023, involving 15 patients with a mean age of 34 years, with 12 male patients and 3 female patients. Dominant side were 10 and non-dominant side were 5. All the patients with Recurrent anterior dislocation of shoulder were treated in our hospital (KBNIMS, Kalaburagi), with open Latarjet procedure. All routine laboratory investigations were done and found to be normal. On plain X-rays shoulder anterior dislocation of shoulder was present. Same was seen on multislice CT. The procedures were all conducted in the beach chair posture under general anaesthesia and C-ARM guidance. The deltopectoral technique was adopted, with a vertical incision beginning at the tip of the Coracoid and ending at the axillary fold was made. Deltoid and Pectoralis major muscles were dissected. To visualize properly the upper limb was abducted and externally rotated. The Osteotome was used for taking coracoid process from its base. Coracoid was then predrilled using 2 parallel k wires and 3.2 - mm cannulated drill holes. A split was then made through the subscapularis at junction of its superior and middle thirds. A lever retractor was placed medial to the glenoid rim and capsulotomy done. The exposure was completed by inserting a humeral head retractor into the joint. The bed of the glenoid bone loss made flat and decorticated. Then the coracoid was rotated about its long axis. Concavity of coracoid was lined up with joint surface. It was placed flush with or slightly medial to the glenoid rim using a bone holder, ensuring that the inferior part of the graft also overlies bone and is not placed too inferior. The glenoid was secured with two 4 - mm distally threaded screws after drilling the glenoid with 3.2 mm cannulated drill. The screws were then alternately tightened. Washers may or may not be used. Flat headed cannulated cancellous screws are used in this procedure. Bone block healing is most important for the outcome of Latarjet procedure. Two sutures were placed on edge of original glenoid

around the screws and used to repair the capsule. The skin was closed in layers maintaining haemostasis throughout the procedure.

**Post operative care:** Post operatively, a shoulder immobilizer was maintained for 3 weeks. Active motion of the fingers, hand, and elbow was encouraged, but shoulder range of motion was restricted to pendulum exercises. Resisted elbow flexion and external rotation allowed after 6 weeks. Serial radiographs were taken to assess osseous healing. Once radiographic healing of the coracoid graft observed, active strengthening was allowed. Outcome of surgery is evaluated using 1) ROWE scoring which has 3 parameters- Instability, range of motion and function. 2) Visual analogue score (VAS) for assessment of pain.

#### Inclusion Criteria

- Recurrent anterior shoulder dislocation
- Age >16 years
- Diagnosis confirmed by X-Ray, CT/MRI
- No prior treatment before admission

#### Exclusion Criteria

- Patients with epilepsy
- Shoulder fractures
- Arthritis of shoulder

**Statistical Data Analysis:** Statistical data was analyzed by IBM SPSS 20.0 version software. Collected data were spread on excel sheet and prepared master chart. Through the master chart tables were prepared. For quantitative data analysis mean and standard deviations were calculated and un-paired t-test was applied for statistical significant, for qualitative data analysis chi-square yates' correction test was applied for statistical significance. P-value less than 0.05 considered as significant.

## RESULTS



**Figure 1: MRI Of a Patient Shoulder showing Anterior dislocation of shoulder with Glenoid loss**

Of the 15 patients, in the age group ranging from 16-52 years with mean age of 35 years. Among 15 patients, 12 were males and 3 females. Dominant side were 10 and non-dominant side were 5. Among 15 patients, 9 had Road traffic accident, 2 had self fall and 4 had sports injury in our study. 8 patients were smokers in the study.



**CT Of a Patient Shoulder showing Anterior dislocation of shoulder with Glenoid loss**

All cases were followed up every week for the first month, twice weekly till 4 months, and once every month for 6 months.

**Table 1: Rowe score in patients at different follow-up periods.**

	Follow up	Mean	SD	P value
ROWE	Pre op	23	8.5	-
ROWE	1 month	53.56	9	<0.0001
ROWE	3 month	57.36	6.6	<0.0001
ROWE	6 month	93.80	0.90	<0.0001

**Table 2: Visual Analog scale in patients at different follow-up periods.**

	FOLLOW UP	MEAN	SD	P VALUE
VAS	Pre op	6.9	0.91	-
VAS	1 month	3.5	0.55	<0.0001
VAS	3 month	1.08	0.93	<0.0001
VAS	6 month	0.12	0.39	<0.0001

## DISCUSSION

Most patients with recurrent anterior dislocation glenoid bony deficiency are treated with Latarjet procedure.<sup>[12]</sup>

Latarjet repair mechanically restores stability by three distinct mechanisms.<sup>[13]</sup> The primary stabilizing mechanism, the “sling effect”, provided by the conjoint tendons, the dynamic by the lower subscapularis and glenoid concavity by the coracoid transfer, which contributes a significant portion of glenohumeral stability.<sup>[14]</sup>

Outcome are assessed pre op, at 1month ,3month and at 6 months.

In each follow up there was increase in ROWE score till 6months. which was statistically significant ( $p < 0.0001$ ).

VAS score decreased gradually in each subsequent follow up showing reduction in pain and improved functionality.



**Figure 3: a- Pre OP Xray, b- Immediate Post OP Xray, c- Post op Xray Week 10.**



**Figure 4: a-Pre-OP Xray, b- Post OP Xray**

Latarjet procedure has many advantages like less surgical site pain , smaller scar , speedy rehabilitation and early return to work.<sup>[15]</sup>

Latarjet procedure is effective as there were no post operative recurrence of dislocation after the procedure in our study. Range of movements improved in subsequent follow ups. Bone block healed in all cases at average of 3months.

In our study none of the patients had any immediate complications like infection, hematoma, intraoperative graft fracture, graft malposition, mal - union, non - union, hardware complications like screw breakage and neurovascular injury when

compared with Shah et al, who reported short - term complications.<sup>[16]</sup>

As our study period is less and includes very less patients, we cannot comment about long term complications like arthritis.

## CONCLUSION

Primary Latarjet procedure for recurrent shoulder dislocation is very effective alternative procedure as it improves the range of motion, least recurrence of dislocation and least complications.

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