

Outcome of Latarjet Procedure in Recurrent Shoulder Dislocation

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Abstract: ***Background:** Recurrence of anterior shoulder dislocation is very chronic disabling condition for which treatment options have been less studied. Patient did not take treatment initially and develop hill sach's lesion and bankart's lesion later. **Materials and Method:** Latarjet procedure is a well known surgical technique designed to treat shoulder instability. In this procedure, coracoid process is transferred to glenoid rim. A cohort formed the basis of retrospective series study that was done in tertiary care medical college and hospitals involving 25 patients treated with latarjet procedure for recurrent anterior shoulder dislocations during April 2022 to November 2022. 23 patients were available for follow up. Clinical outcomes postoperatively were assessed by ROWE and SPADI scores. Standardized anteroposterior and axial radiographs were used to assess the graft position and union. **Results:** No shoulder dislocations or subluxations observed post operatively. Two patients complain of vague pain after surgery. No signs of infection seen in any patients after surgery. There was significant improvement in functional outcomes post operatively. **Conclusion:** Latarjet procedure with adequate physiotherapy and follow up can restore shoulder stability with good functional outcomes.*

Keywords: Shoulder Dislocation, Latarjet Procedure, Rowe and SPADI score

1. Introduction

Multiple types of surgical repairs are available for the recurrent shoulder dislocations. However, soft - tissue repair alone does not seem to be an effective procedure in all cases of recurrent shoulder dislocation [1]. It was concluded by Itoi et al., [2] that in cadavers, bone defects of the glenoid cavity greater than 21% provide the conditions for the force needed for shoulder dislocation to be considerably lower. Application of a bone graft to such defects increases the stability of the joint. Patients with high risk of recurrent dislocation, transposition of the coracoid process to the antero - inferior border of the glenoid cavity is an effective option [1]. First this procedure was described by Latarjet [3] in 1954 and Helfet [4] in 1958. Helfet described this technique that was taught to him by Rowley Bristow approximately 19 years before he published procedure in Bristow's name. Balg and Boileau [1] had provided the instability severity index score for decision making process as to who would benefit from Latarjet procedure. A score of 3 or less associated with a recurrence rate of 5% with arthroscopic stabilization and 6 or less with a 10% recurrence rate; with a score greater than 6, the recurrence rate escalates to 70%. There is an inverse relationship between the amount of bone loss tolerated and the demands placed on the shoulder (i. e., the higher the demand, the less bone loss that is tolerated) Joe F. de Beer [5] put forth the concept of congruent ark modification where the concavity of the coracoid is lined up with the joint surface. Here the coracoid must be secured flush and slightly medial to the glenoid rim. Anterior dislocation of the shoulder is more common in the younger age group. It's been Observed the patients visiting our hospital tend to seek consultation for definite treatment after couple of dislocations. These recurrent shoulder dislocating patients had undergone Later jet's procedure using the concept of congruent ark at our institute. The outcome following Later jet surgery can be divided into primary pertaining to the instability symptoms like subluxations, persistent apprehension and recurrent dislocation events persisting and Secondary outcomes

include functional scoring like Rowe score [6] radiographic osteoarthritis and complication rate. Radiographic osteoarthritis was defined using the Samilson–Prieto classification, [7] Grading is done on basis of mild, moderate and severe osteoarthritis. Outcomes reported by patient are increasingly used to objectively assess subjective data and provide a sense of responsiveness to treatment. The Rowe score was considerably more responsive than the ASES and Constant scores scoring to assess the shoulder function with regards to stability. On the contrary, the VASpain was the least responsive [8].

2. Materials and Methods

A Cohort formed on the basis of post operated Latarjet cases was done in tertiary care SRG hospital and medical college, Jhalawar, India involving 13 patients who underwent Latarjet's procedure. Ethical clearance was obtained from the Institutional Ethics committee. The indication for the later jet procedure was defined with preoperative clinical findings proving recurrence of anterior shoulder instability and confirming the cause of dislocations with radiographs and MRI scans. Patients with associated rotator cuff tears / multidirectional shoulder instability/ injury to the operated limb / previous surgery to the same shoulder or re - surgeries during the follow up were excluded from the study. Patient who could not come for follow - up was excluded from the study. Out of the twenty - five patients 13 were available for follow up. Those with less than 3 anterior dislocation, with bilateral dislocation, with associated rotator cuff tears and patients loss in follow up are excluded. . These patients after an informed consent, underwent the intended surgical procedure. The patient was positioned in 15 to 30 degrees on head end inclination under General anaesthesia. With the arm slightly abducted, a low bra - strap incision was made with a wide subcutaneous dissection to the base of the coracoid. The conjoint tendon was exposed through the delto - pectoral interval. The coraco - acromial ligament and the pectoralis minor was then removed from the lateral and medial side of the coracoid respectively. A sharp curved

osteotomy was used for taking the coracoid process from its base. The coracoid was then predrilled with 2 parallel k wires and 3.2 - mm cannulated drill holes. A split was then made through the subscapularis at the junction of its superior and middle thirds. A lever retractor was placed medial to the glenoid rim. The 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. The coracoid was then rotated about its long axis. The concavity of the coracoid was lined up with the 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. Two sutures were placed on the edge of the original glenoid around the screws and used to repair the capsule. The skin was closed in layers maintaining haemostasis throughout the procedure. Postoperative rehabilitation was aimed at protecting the construct and allowing osseous healing. After surgery, 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 was allowed after 6 weeks. Serial radiographs were taken to assess osseous healing. Once radiographic healing of the coracoid graft was visualized, active strengthening was allowed. Radiographs were taken and scoring was done on 12th and 24th month follow up

3. Results

The mean age of the patients was 33 years in the age group of 21 - 52 years and the follow up was for 24 months. The reason for the first dislocation was a traumatic/sporting/ fall on outstretched hand in all the cases except one person who was an epileptic. Seventeen patients had their dominant hand (15 right, 2 left side) affected. None of the twenty - four patients who underwent the surgery had dislocation post - surgery. No patients reported having subluxations, or apprehension. In relation to shoulder mobility, we observed that the external rotation of the operated limb was restricted by 5 to 10 degrees than those of the uninjured limb. Pain was the most common complain but bearable without medications by the end of 3 weeks

According to Rowe score, 10 patients (77%) had excellent result and the remaining 3 patients (23%) had good result at the end of 24 months. There was significant statistical difference in the Rowe scoring in all the follow ups.

4. Discussion

This study was conducted to find out the functional outcome following the Latarjet procedure in a tertiary care hospital. Our patients in South India tend to seek consultation following multiple shoulder dislocations. Unpredictability with their shoulder stability is considered as one of the main concerns among these patients. Hence the primary goal was to prevent recurrence of instability, improve functionality

and reduce short and long - term complications. LaserJet repair mechanically restores stability by three distinct mechanisms [10]. 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. In our study none of the patients had dislocation/ subluxation or any apprehension when compared to An V Vet. al, [11] who reported a significantly lower postoperative recurrent instability rate in the Latarjet cohort (11.6%) compared with the Bankart cohort (21.1%). Our patients did not have 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, [12] who reported short - term complications. They performed their study at Massachusetts General Hospital/Harvard Medical School, Boston between Jan 2015 and 2010, on 45 patients and all complications resolved except 2 patients who had axillary nerve neuropraxia. Zhu et al, [13] reported that some degree of coracoid graft resorption occurred greater than 90% after Latarjet procedures. However, the clinical significance of this finding remains unclear because graft resorption did not correlate with functional outcomes. Natalie c. Rollick et. al, [14] reported that regardless of surgical procedure, nearly half of patients having surgery for anterior shoulder instability will develop radiographic glenohumeral arthritis. Bessière et al., [15] conducted a retrospective study on 186 patients for recurrent post - traumatic anterior instability with Bankart's arthroscopic repair of the injury versus Latarjet's operation with a mean follow - up of six years, and concluded that the second group presented better Rowe scores and lower rates of recurrent instability. Eoghan T. Hurley et al., [16] from Ireland reviewed 13 studies where Rowe score were used in 6 research papers. The outcome of Rowe score had a mean average of 88.5 (n = 353) at final follow - up. In our study, in spite of our patients with various occupations and seeking treatment after multiple dislocations over mean span of about 2 years (ranging from 1 year to 5 years duration), we found that none of them had poor or fair outcome based on Rowe scoring. This mainly contributed to the selection of patients, placement of the coracoid graft and efficient postoperative rehabilitation. Hovelius L et al., [17] concluded that optimum results are obtained if the bone - block heals to the neck of the glenoid and the position of the boneblock is less than one centimetre medial to the glenoid rim and below the equator of the scapular neck. The follow up of patients for two years duration may not be adequate to identify long term complications like resorption of coracoid graft and glenohumeral arthritis using radiography. This forms the limitation of our study.

5. Conclusion

Good and excellent results were attained from Rowe functional outcome scoring following Latarjet procedure in this study. This was due to proper patient selection, proper technique in relation to surgery and adequate postoperative rehabilitation. We feel that the union of the coracoid to the glenoid in an optimal

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