Functional Outcome of Latarjet procedure for Traumatic Anterior Shoulder Instability.

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ABSTRACT

Objective: To determine the functional outcome of open Latarjet procedure for traumatic recurrent anterior shoulder instability in young patients

Methods: This descriptive study was conducted in Orthopedics and spine unit Hayatabad Medical Complex Peshawar from 25th January 2018 to 25th December 2021. All adults patients with traumatic recurrent anterior shoulder instability fulfilling the inclusion criteria were treated with open Latarjet Procedure. Functional outcome at two years was assessed with Rowe score and graded as excellent, good, fair and poor. The pre operative and post operative Rowe score was compared and *P* value calculated with paired sample t test. *P* value<0.05 was considered significant.

Results: We operated 35 patients with open Latarjet procedure. All patients were male. The mean age was 29±4.5 years. Right sided Latarjet was performed in 22(62.85%) patients and left in 13(37.14%). At two years follow up the mean Rowe score improved from pre surgery 39±5.1 to 93.7±6.2. (p<0.05). Excellent functional outcome was reported in 20(57.14%) patients and good in 15 (42.85%) patients. No recurrent instability was noted.

Conclusion: Latarjet procedure is a safe and effective treatment option for anterior shoulder instability as excellent and good functional outcome was achieved in majority of our patients.

Keywords: Glenohumeral joint, Instability, Latarjet, Recurrence, Rowe Score.

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INTRODUCTION

The shoulder is the most commonly dislocated joint in the human body with a frequency of dislocation of 1 to 2% in general population and with a recurrence rate of up to 67% has been reported in some cases.[1,2] The incidence of dislocation is three times more common among men.[3] About 90% of shoulder dislocations are anterior.[4] Traumatic injuries account for 95% of all dislocations and higher frequency of recurrence is reported in below 25 years of age.[5] It has been reported that 90% of patients with recurrent instability have glenoid bone abnormalities including bone loss or abnormal contour with Glenoid bone loss accounting for 50% of cases and over half of which the defect was greater than 5% of the glenoid width.[6] Many surgical techniques are used for the treatment of anterior shoulder instability but the ideal surgical technique is still controversial.[7,8] Michel Latarjet, the French surgeon described "Coracoid-Bone Block" technique in 1954 for treating anterior shoulder instability.[9] Studies have shown that Latarjet procedure had lower recurrence rate(<5%) at 10 year follow up and with early return to pre

injury functional activity when compared to Bankart procedure.[10,11] Latarjet procedure both open and arthroscopic is a reliable treatment option for recurrent anterior shoulder instability with similar but low recurrence rate and excellent functional outcome. [12]

The objective of our study was to determine the functional outcome of open Latarjet procedure for traumatic recurrent anterior shoulder instability in young patients

METHODS

We conducted this descriptive study in Orthopedics and spine unit Hayatabad Medical Complex Peshawar from 25th January 2018 to 25th December 2021.We included adult patients of both gender with recurrent anterior shoulder dislocation with isolated glenoid bone loss>25% on CT scan. All patients with atraumatic shoulder dislocation, multi directional instability, rotator cuff tears, neuromuscular paralysis, ipsilateral shoulder fractures, glenohumeral osteoarthritis and revision surgery ware excluded. The study was approved by the Ethical Committee of our hospital. Informed written consent was obtained from all participants. Complete history, physical examination and relevant investigations (Xrays/CT/MRI) were done in all patients.

Surgical Technique

All the surgeries were performed by the principal author who is qualified Orthopedic and sports surgeon. All the surgeries were performed with the same standard Latarjet procedure in all the patients. Preoperatively interscalene nerve block was given to all the patients for post-operative pain control. After general anesthesia while the patient in the supine position the affected shoulder was examined for anterior, posterior, inferior or multidirectional instability and range of motion was evaluated. The patients were then placed in Semi-Beach-chair position with the trunk angled 60° forward. Preoperative antibiotic was given before induction. Standard Deltopectoral approach was used with a skin incision (5-7 cm in length) extending from coracoids tip to axillery crease. Cephalic vein was secured by retracting it away laterally. Dissection was continued down the Deltopectoral interval. Arm was abducted and internally rotated, Coracoacromial (CA) ligament was identified and transected 1cm distal to its attachment on coracoids. A mark was made on coracoid, 2cm away from the tip using a ruler. Coracohumeral ligament was incised. Upper lateral aspect of conjoint tendon was set free. Exposure to the medial aspect of coracoids bone was achieved by adducting and internally rotating the arm. Pectoralis major was released. Oscillating saw was use for coracoids osteotomy from medial to lateral direction. Coracoid bone was decorticated for cancellous bone exposure. Holes were drilled in coracoid bone using 3.2mm drilbit. Subscapularis was exposed about 5cm with the help of scissors and coracoids was pushed beneath the Pectorals Major. Subscapularis was split at the junction of superior 2/3 and inferior 1/3. Glenoid was exposed with the help of osteotome and labral-periosteal flap was made. Using an oscillating saw the anteroinferior surface of glenoid was decorticated. At 5 o'clock position using 3.2mm drill an inferior hole in glenoid was made and coracoid fixed with one or two cancellous screws. The construction was examined in image intensifier and wound was closed in layers and polysling was applied after skin closure.

All patients were followed in OPD at 2 weeks, one month and then every 3rd months for two years. Supervised physiotherapy was started at 2 weeks. At 3rd months and onwards clinical examination included range of motion and Apprehension test. Radiographs were done to confirm that the lateral aspect of coracoid graft position lied within 1 mm of the glenoid and was considered acceptable flush position. The functional outcome was assessed with Rowe score.[13] The Rowe score covers shoulder function(50 points),pain(10 points),shoulder stability(30 points) and shoulder range of motion(10 points).The score is graded as excellent(100 to 90 score),good(89 to 75 score),fair(74 to 51 score) and poor(≤50 score).

The data was analysed with SPSS version 24.Quantitative variables were expressed as mean±SD while qualitative variables as frequency and percentages. The pre operative and post operative Rowe score was compared and *P* value calculated with paired sample t test. *P* value<0.05 was considered significant. Data was presented in table where necessary.

RESULTS

In this study the total number of patients were 35. All patients were male. The mean age was 29±4.5 years. Right sided Latarjet was performed in 22(62.85%) patients and left in 13(37.14%). The aetiolgy of initial dislocation was motorbike accident in 22(62.8%) and sports injury in 13(37.14%).The mean follow up period was 29.4± 5.5 months(range 25.3±5.5 to 31.1±4.4 months). The pre operative mean Rowe score was 39±5.1. Gradual improvement of functional outcome as indicated by increased

Rowe score was noted in the post operative follow up period (as shown in table I) with significant improvement at two year follow up with Rowe score of 93.7±6.2 ($p<0.005$) Excellent functional outcome was reported in 20(57.14%) patients and good in 15(42.85%) patients. No fair or poor outcome was noted. Data stratification and comparison revealed no significant difference in functional outcome in terms of age, injury side and frequency of pre operative recurrent dislocation($p>0.05$). Superficial surgical site infection was reported in 03(8.57%) patients and resolved with antibiotics and dressing. No recurrent instability was noted. No radiographic glenohumeral osteoarthritis was reported.

Table I: Comparison of pre operative and post operative Rowe score.

Preoperative mean Rowe Score	39±5.1								
Postoperative mean Rowe Score	**3rd month**	**6th month**	**9th month**	**12th month**	**15th month**	**18th month**	**21th month**	**24th month**	***P* value**
	49±8.8	51±5.4	78±9.3	82±2.3	88±7.1	89±8.4	90±2.2	93.7±6.2	0.001

DISCUSSION

In this study we operated 35 patients with open Latarjet procedure with mean age was 29±4.5 years. At two years follow up the mean Rowe score improved from pre surgery 39±5.1 to 93.7±6.2 post surgery(*P*<0.05). Excellent functional outcome was reported in 20(57.14%) patients and good in 15(42.85%) patients. When we searched the literature we found many studies on open Latarjet procedure but the outcome was assessed with different scoring system and only few studies assessed the outcome with Rowe scoring system. Da-Silva[14] treated 52 patients with Latarjet and reported Rowe score of 90.6 at 22 months follow up with excellent and good results in 82.7% patients. Mizuno and Denard[15] treated 68 patients with mean age 29.4 years and reported improvement of Rowe score from preoperative 37.9 to 89.6 at 20 years follow up. Riederer[16] treated 46 patients with open Latarjet procedure and noted that at one year significant improvement of Rowe score from 31.7 to 98.1 occured($p<0.001$).Bessiere[17] treated 93 patients with open Latarjet and 93 with arthroscopic Bankart repair. At four years follow up the Open Latarjet group had statistically higher Rowe score than arthroscopic Bankart repair(78 versus 68,$p=0.018$). Rollick[18] conducted a systematic review and compared open Latarjet, open Bankart repair and arthroscopic Bankart repair in 1652 patients with mean follow up of 5 years. The mean Rowe score was 87.9 in open Latarjet,87.1 in open Bankart and 85.5 in arthroscopic Bankart.

In our study superficial surgical site infection was reported in 03(8.57%) patients but resolved with antibiotics and dressing. No recurrent instability was noted. No radiographic glenohumeral osteoarthritis was reported. Gupta[19] documented complication rate of Latarjet in 15 to 30% of cases and varied from neurovascular injury, malposition, fracture, non union or osteolysis of the graft, screw breakage, recurrent instability and glenohumeral osteoarthritis.

Our study had descriptive design, small sample size and exclusively young male patients. Further trials are recommended to include both gender and all ages to further verify the usefulness of open Latarjet procedure.

CONCLUSION

Latarjet procedure is a safe and effective treatment option for anterior shoulder instability as excellent and good functional outcome was achieved in majority of our patients.

Conflict of Interest: None

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