

# Modified Latarjet Procedure for Recurrent Anterior Shoulder Dislocation with Glenoid Bone Deficiency

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## ABSTRACT

**Objective:** To assess the results of patients treated for recurrent anterior shoulder dislocation with glenoid bone deficiency by using the Latarjet procedure.

**Methods:** This is a retrospective study done in the period between April 2014 till February 2016 at the Jordanian Royal Medical Services (JRMS). Thirty patients with recurrent traumatic anterior shoulder dislocation who underwent surgical treatment with modified Latarjet technique were included in the study. Patients were questioned about satisfaction, range of motion and its effect on daily life and were examined for stability and range of motion and complications if present.

**Results:** 27 patients (90%) were satisfied of the surgery with no experience of redislocation. One patient (3.3%) was not satisfied because of axillary nerve injury and two (96.6%) were not so satisfied because of a 15 degree limitation of external rotation. Four patients (13.3%) had a limitation of external rotation ranging from 5-15 degree. All patients returned to their level of activity at three months except the one with nerve injury.

**Conclusion:** The Modified Latarjet procedure is an effective technique for the treatment of recurrent anterior shoulder dislocation particularly with associated glenoid bone loss.

**Key Word:** Glenoid deficiency, Hillsachs lesion, Latarjet Procedure, Shoulder Dislocation.

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## Introduction

Generally, it is well known that the incidence of shoulder instability is about 2%. The most common complication of shoulder dislocation is recurrent dislocation owing to labral detachment or bony pathology in the glenoid and humeral head, which is known as hillsachs lesion. After the first time of anterior dislocation; glenohumeral deficiency either humeral head or glenoid defect or both has been found in up to 70% of the patients. As previously mentioned, Glenoid bone loss is commonly observed in recurrent anterior shoulder dislocation and varies in its extent<sup>(1)</sup> In 2000, Burkhart and De Beer reported a recurrence rate of 4% following arthroscopic Bankart repair for anterior instability in patients without severe bone deficiency,

where are the rate of recurrence was 67% in the presence of severe glenoid deficiency.<sup>(2)</sup> In 1954, Latarjet described a coracoid transfer technique fixed to the anteroinferior margin of the glenoid with screws helpful in cases of glenoid bone loss.<sup>(3-5,11)</sup> The working mechanism was explained by Patte: The effect of conjoint tendon when the arm is in abduction and external rotation acting as a sling that works on anteroinferior capsule and inferior of subscapularis muscle, repair of the coracoacromial ligament (CAL) with the capsule and the bony effect of increasing the glenoid anteroposterior diameter. The objective of this study was to assess the results of patients treated well using modified Latarjet Procedure

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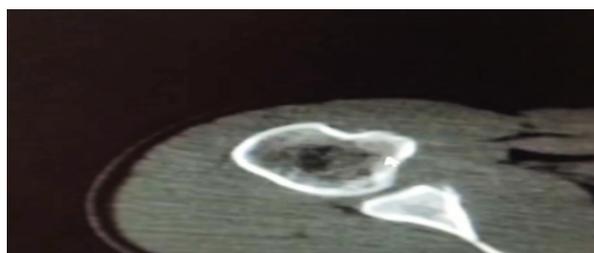
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## Methods

This is a retrospective study carried out in the period between April 2014 and February 2016 at Prince Hashim Military hospital- Jordanian Royal Medical Services. Thirty patients with recurrent traumatic anterior shoulder dislocation, who underwent surgical treatment with modified Latarjet technique, were included in the study. Patients included in this study were not previously operated. CT scan of the shoulder showed anterior glenoid bone deficiency as seen in Figure 1. The operations were carried out for the patients by the arthroscopy and sport injuries specialty team. Patients were followed up in the clinic at periods between three and five months. During follow up, patients were asked about satisfaction, range of motion and its effect on daily life activities and the ability of returning back to the pre traumatic level of sports. Patients were examined for stability, range of motion and any complications.



**Fig.1:** CT scan of left shoulder with glenoid deficiency and hillsachs lesion.

### ***Surgical Procedure***

The modified Latarjet surgical procedure was via a deltopectoral approach with the cephalic vein and deltoid muscle retracted laterally. The arm was placed in external rotation with some abduction to expose the coracoacromial ligament CAL, which was incised 1 cm from its coracoid attachment. The coracohumeral ligament, found beneath the CAL, was then released. In addition to that, the pectoralis minor was released from the coracoids, then the coracoid osteotomy was made from medial to lateral. In order to decorticate the inferior coracoid surface and have a wide cancellous surface for graft healing an oscillating saw was used. Two drill holes were made using a 3.2

mm drill and about 1 cm apart. The location of the subscapularis split was at the junction of the superior two thirds and the inferior one third, the scissors were pushed between the fibers as far as the capsule then opened perpendicular to the direction of the muscle fibers. A 1 to 2 cm vertical incision in the capsule was made at the level of the joint line, allowing placement of a retractor into the glenohumeral joint. The anteroinferior labrum and periosteum were incised and decortication of the anteroinferior surface of the glenoid was done. Using the 2, 7 mm drill, the first hole was created at the 5 o'clock position in the glenoid and a partially threaded screw inserted. The second screw was placed after drilling through the second hole pre-prepared in the coracoids process, as seen in Figure 2.



**Fig.2:** Later CAL was sutured with the capsule in external rotation

## Results

All patients were male with average age of 24 years. The right shoulder was involved in 16 cases. The average dislocation episodes were 3 and the time of surgery post first dislocation was 1-5 year as shown in Table I. The clinical results are shown in Table II. 27 patient (90%) were satisfied of the surgery. One patient (3.3%) was not satisfied because of axillary nerve injury. Four patients (13.3%) had a limitation of external rotation ranging from 5-15 degree; two of them (6.6%) were not satisfied with a 15 degree limitation of external rotation slightly affecting level of sport and activity. Return to previous level of activity was at three months except the one with axillary nerve injury who is recovering, regained sensation at the glenoid region. On clinical assessment, we had one case (3.3%) with axillary nerve neuropraxia. No radiolocalization cases were

found. Anterior apprehension test to assess stability was negative in all cases. 4 patients

had some limitations of external rotation.

**Table I:** Demographic data of patients

Number of patients	Age (Year)	Gender (M:F)	(Right shoulder: Left shoulder)	Average dislocation episodes	Average time surgery done post first dislocation (year)
30	24.3 ± ( 2.5)	30:0	16:14	3(3-8)	1.3 ± (4.3 )

**Table II:** Findings of the study

General Assessment			Clinical Assessment		
Satisfied with the surgery with no experience of dislocation	Not satisfied	Limitation of external rotation ranging from 5-15 degree	Axillary nerve neuropraxia	radiolocation cases	
27 (90%)	3 (10%)	4 (13.3%)	1 (3.3%)	--	

## Discussion

Laterjet operation was first described by the French surgeon Dr. Michel Latarjet in 1954 and it is considered as the best procedure for treating recurrent shoulder dislocations with bone loss or a fracture of the glenoid.<sup>(2,3)</sup> A lot of modifications of laterjet procedure were reported such as splitting of the subscapularis muscle and repair of CAL to capsule in external rotation led to excellent results in form of stability and excellent range of motion and early return to activities.<sup>(4-6)</sup> the study of Aurich *et al* on sixty patients undergoing modified laterjet showed that accompanied CAL reconstruction improved the shoulder function without redislocation,<sup>(7)</sup> which was in agreement with what was obtained in the current study in the case of CAL repair to the capsule in external rotation. A lot of intraoperative complications of Laterjet could appear such as neurovascular injuries and graft fracture, which could be avoided by proper surgical technique in addition to the complications of intermediate term as nonunion and screw breakage, long term arthritis, and recurrent instability.<sup>(8)</sup> In the present study just one case( 3.3% ) with axillary nerve neuropraxia was obtained which is better than what was previously obtained in Shah *et al* where 78 patients underwent open Latarjet procedures and 5 cases of them( 6.5%) had nerve injuries reported as axillary , radial and musculocutaneous nerves.<sup>(9)</sup> This study also showed no instability or recurrent dislocation,

while 5.8% and 8% recurrent dislocation were previously reported by Mizuno *et al* and Anab *et al* respectively.<sup>(3,9)</sup> Interestingly in this study the surgery yielded 4 patients of the thirty with limited external rotation and two of them were with about 5 degrees which was not affecting their daily life and sport level. On the other hand a decrease in the external rotation in 90degree abduction and forward flexion of 5degrees was previously reported by Cresswell *et al*.<sup>(4)</sup> While Bradley *et al* reported 98% success with no loss of external rotation or dislocation with patient selection and systematic surgical technique.<sup>(1,12)</sup> Regarding the occurrence of arthritis, in our study the follow up period is considered short to check for its appearance. Since in Mizuno *et al* a 20 years follow up period for arthritis was reported, and it was found that 23% has developed mild Arthritis and usually developed in high demand activities and older ages.<sup>(3,13)</sup>

## Conclusion

The result of this study showed that the modified Laterjet procedure is considered as an excellent technique for treating recurrent anterior shoulder dislocation especially with glenoid bone deficiency. Most of the reported complications could be avoided with proper patient selection and meticulous surgical technique.

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