

Surgical Treatment of Recurrent Dislocations of the Shoulder According to the Trillat-Latarjet Technique

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Abstract

Original Research Article

A retrospective study was made of 51 patients with recurrent shoulder dislocation for whom the Latarjet surgical procedure was performed at the CHU avicenne hospital in Rabat, from 2010 to 2018. Most cases were young adults with an average of 28 years at the time of the intervention. There was an important predominance of males. Traumatic injury was reported in 96% of cases. Apprehension test was positive in 94.8% of patients, and anterior drawer test in 58.8%. All patients underwent preoperative standard radiographs of the shoulder. The HillSachs lesion (known in French as the malgaigne notch) was identified in 58.8% of cases. Anterior glenoid rim lesions were found in 41.2%. All patients were operated on according to the Latarjet procedure. We have had satisfactory results: 94.2% of patients were completely painless. Shoulder stability was perfect in 46 cases; and quite normal shoulder mobility was restored in 86.3% of patients. Only 3 patients (5.3%) developed postoperative shoulder arthrosis. Totally; 86.3% of good results have been obtained versus 13.7% of moderate or bad results. This study's results are consistent with what is reported in literature underlying the fact that the Latarjet procedure for recurrent dislocation of the shoulder is safe and provides most desirable functional results.

Keywords: Recurrent dislocation – shoulder- Latarjet.

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INTRODUCTION

Dislocation of the shoulder is a loss of permanent contact between the humeral head and the glenoid cavity. Very frequent, it occupies the first rank in dislocations of the body. This is related to the great mobility of the shoulder joint and especially with the absence of concordance between the head and the glenoid cavity. Recurrent dislocation is a fairly common complication of dislocation of the shoulder. It is defined by iterative episodes of dislocations more and more frequent after a first episode, and this often for traumas more and more minimal. The antero-internal forms are by far the most frequent since they represent more than 90% of recurrent dislocations of the shoulder. It is a pathology of the young adult, which can lead to a socio-professional and sports handicap. The treatment of recurrent dislocations of the shoulder is resolutely surgical. It allows the recovery of joint mobility and satisfactory joint stability. The aim of our work is to evaluate the results of the Latarjet technique in the treatment of recurrent dislocation of the shoulder from a series of 51 cases.

METHODES

It is a retrospective work of 51 cases of recurrent dislocations of the shoulder, collected in the trauma department CHU avicenne Rabat, over a period of seven years, from the year 2010 to the year 2018. All patients were surgically treated by coracoid abutment according to Latarjet. We note that the recurrent dislocation of the shoulder is of interest mainly to young adults between 20 and 40 years old with an average of 28 years. We find that the male sex is largely in the majority. There is a predominance of damage to the right side. No case of bilaterality has been listed in our series. None of our patients had personal epilepsy or family ATCDs with recurrent dislocation of the shoulder. 30 patients (58.3%) were athletes at different levels while the remaining 21 patients (41.7%) did not practice any sport. We find that the traumatic context is often found. The reduction of the first dislocation was done in the hospital under general anesthesia for 42 shoulders (82.4%). For the remaining 9 shoulders (17.6%), the reduction was done by the patient himself or the entourage or in the hospital but without general anesthesia. All the shoulders were immobilized by

bandage elbow to the Dujarier type body during 10 days. In all cases, the initial dislocation was not accompanied by associated lesions. The lesional mechanism was direct in the majority of cases. The total number of recidivism was often difficult to specify. The average recurrence was 7, with a maximum of 15 and a minimum of 3 recurrences. The frequency of occurrence of recurrences and apprehension leading to a significant disability in everyday activities, were the main reason for consultation in all patients.

All the patients described very precisely the deformity characteristic of the anterior dislocation of the shoulder and the vicious attitude of the arm in irreducible abduction. Seven patients (13.7%) suffered pain during intense movements. There was no muscle atrophy or deformity in the examined shoulders. Active mobility was normal for all patients compared to the healthy side. The study of articular stability was the crucial time of the clinical assessment. The apprehension test was positive for 48 shoulders (94.8%). The anterior drawer test was positive for 30 shoulders (58.8%). The sulcus test was negative in all patients. In our patients, no involvement of the circumflex nerve or the scapular nerve was noted. All the patients benefited from a standard preoperative radiological assessment made of frontal images (in internal rotation, neutral rotation, and external rotation) and a Bernageau glenoid profile. CT arthrography was performed in three cases. Of the 51 studied shoulders, we found:

- The humeral notch called malgaine notch in 30 cases (58,8%)(figure 3), on the incidences of face in internal rotation.
- The anterior-medial edge in 21 cases (41.2%)
- The delay between surgical treatment and initial dislocation was on average four years, with extremes ranging from 1 year to 12 years.

All our patients benefited from an intervention by coracoidian abutment according to the technique of Latarjet. The approach was always delto-pectoral (Figure-1) with discision of the subscapular muscle. The coracoidal abutment has been implanted on the antero-inferior edge of the glenoid cavity (Figure-2), its

outer edge is flush with the cartilaginous coating of the glenoid without exceeding it.

The fixing of the abutment was ensured by screwing. 46 stops (90.2%) were fixed by a single screw (Figure-4) and 5 stops (9.8%) were fixed by 2 screws (Figure-5).

All patients benefited from a bandage bandage at Mayo Clinic type body during the first week. Post-operative rehabilitation assisted by a physiotherapist was performed in all patients.

Sepsis, neurological complications, and upper extremity phlebitis were not noted in postoperative patients.

RESULTS

The objective clinical evaluation was assessed according to the ROWE rating, which assigns: 50 points for stability, 30 points for function and 20 points for mobility. Results on pain are perfect, since 94.2% of patients complained of no pain and only 2 shoulders (3.9%) presented intense pain, and one shoulder (1.9%) was painful in everyday activities. Stability was perfect in 46 cases (90.2%) The sign of apprehension was present in 4 cases (7.8%). Only one patient (2%) reported the notion of subluxation. Mobility was measured as a percentage of the opposite side. The overall score depends on the movements that have been measured: internal rotation, external rotation, the arm in adduction and abduction, and anterior elevation in the plane of the scapula. Normal mobility was restored in 44 cases (86.3%). The decrease in mobility focused on external rotation. Only a patient has been exempted from intense work because of pain and instability. The others have returned to their former functions, We got the results according to the ROWE rating : 86.3% good and excellent results, 11.7% of average results, 2% poor results, Radiological Results: the abutment was perfect (flush) in 48 cases (94.1%). (Figure-6) we found a single case of lysis of the abutment. we found two cases of posterior overflow of the screws .We did not find any non-union. We noted 3 cases of patients with stage I postoperative osteoarthritis of Samilson.



Fig-1: Installation and delto-pectoral approach

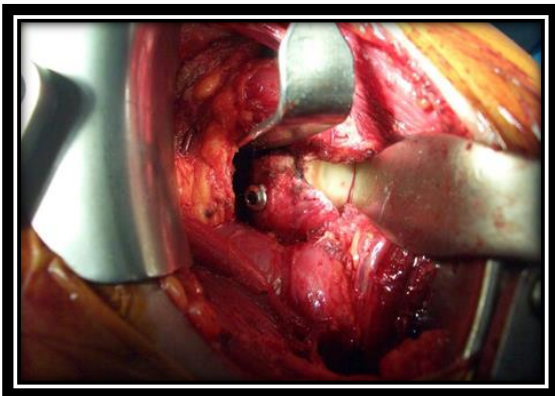


Fig-2: Implantation of the coracoid abutment on the antero-inferior edge of the glenoid



Fig-3: Notch of malgaine on CT image

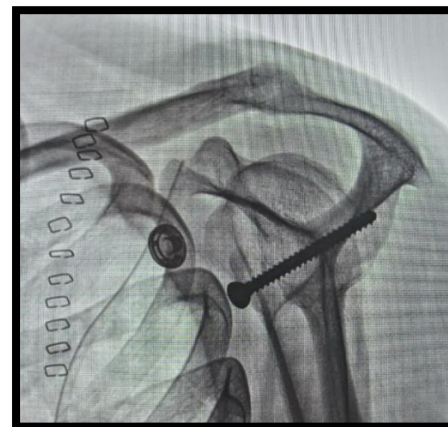
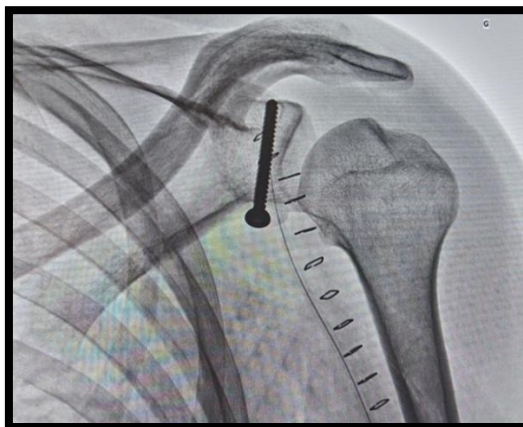


Fig-2: Fixation of the abutment by a screw (face/profil)

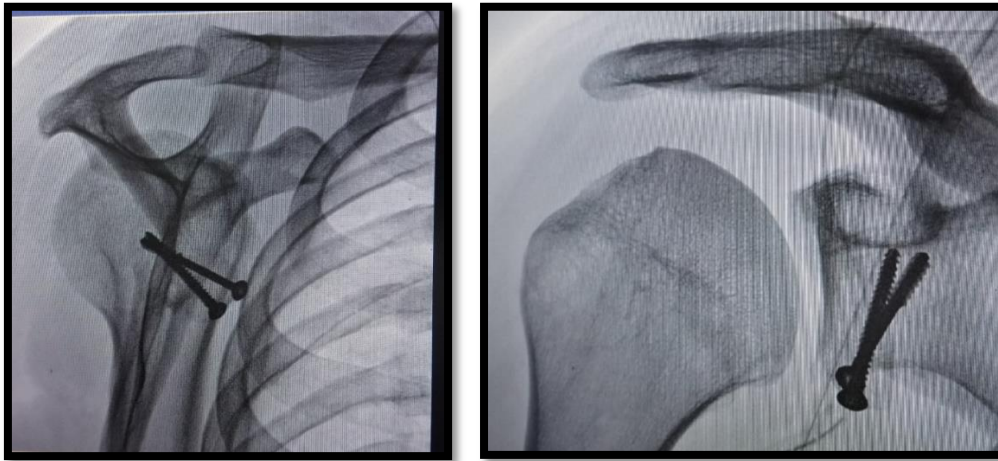


Fig-3: Fixation of the abutment by two screws (face/profile)

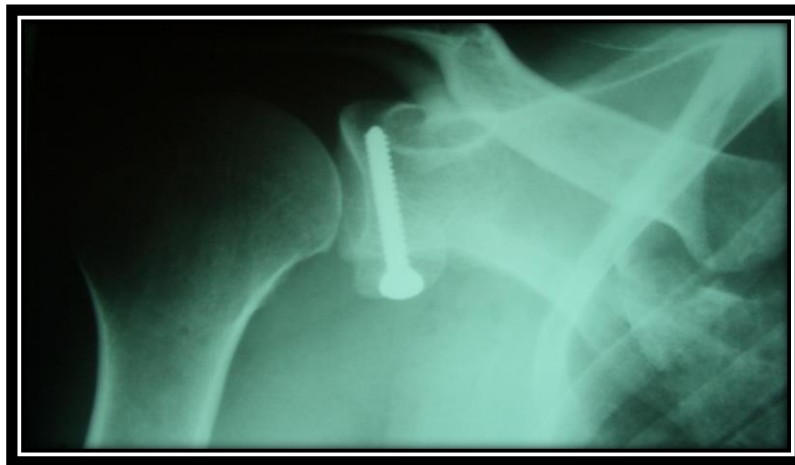


Fig-4: Consolidation of the coracoid abutment

DISCUSSION

Several authors [1-3] insist on the predominance of recurrent dislocation of the shoulder in the male sex, so it represents 2/3 in general. Recurrent dislocation of the shoulder is a condition of the young adult, as its frequency decreases with age. The mean age at the time of the intervention was for [4, 5] between 26.5 and 35 years. Our results match that of the literature. Thus, the average age at the time of the intervention was 28 years old. The dominant side is the most frequently found, it represents 2/3 in general in [6, 7] this is easily explained by the circumstances of occurrence of luxation accidents: sports or professional gestures, but the condition can be bilateral. In our series, the dominant side was the most affected (65%), with no bilateral involvement. The initial dislocation is most often of traumatic origin generally occurring during a sports accident [8, 9]. The initial dislocation was traumatic in our series in 96% of cases, during a sports activity in 58, 3% of cases, and atraumatic in only 4%. The reduction of any dislocation of the shoulder should be done under general anesthesia, with good muscular relaxation [10, 11], this makes it possible to avoid any aggravation of the lesions and to reduce

the rate of the recurrences. In our series 82.4% of patients underwent a reduction under general anesthesia. Immediate immobilization allows a good healing of the capsuloligamentary elements, the absence or the insufficiency of immobilization plays an important role in the genesis of the recurrences. Most authors advocate a duration of immobilization of three weeks [12-14]. In our series all the patients were immobilized during a period of 10 days. Rehabilitation should always be performed after a first episode of traumatic dislocation because it prevents recurrence. In the BINET series [15], specialized rehabilitation was performed in 2/3 of the patients in the immediate aftermath. In our series, all patients received rehabilitation after the first dislocation.

Recurrences after a first dislocation usually occur during trauma less in significant months sometimes even during sleep [16-18]. They are less and less painful and closer and closer. The reductions were either spontaneous or easier without general anesthesia.

Clinical Analysis

We compared our results with those of authors who used the Latarjet method to treat recurrent dislocations of the shoulder.

Operative Morbidity

According to the different series studied [19, 20] we find that the rate of operative complications varies from 7 to 8.6%. These complications can be infectious (sepsis), neurological (brachial plexus lesions) or vascular (phlebitis of the upper limb).

In our series, there are no cases of sepsis, neurological lesions or phlebitis of the upper limb.

Stability

	Vander-Maren (15)	SOO (30)	Our serie
Perfect	66%	79%	90,2%
Apprehension	30%	17,6%	7,8%
Recurrent	3%	1,4%	2%

RESULTS OF STABILITY IN THE LITERATURE

The stability analysis shows that the results of our series are comparable to those of the literature. The recurrence rate is low, the possible causes of this recurrence are pseudarthrosis, fractures and lysis of the graft.

	Walch (76)	Leving (18)	Mole (47)	Our (%)	série
Serie	356	52	82	51	
Excellent	38	33	33	31,4	
good	38	41	41	54,9	
medium	17	22	22	11,7	
poor	7	4	4	2	

Radiological Analysis

Non-Unions

In our series we did not note non-union of the abutment. The occurrence of this pseudarthrosis may be related to the use of a single cortical screw, with the synthesis by a single screw and with the screw stop "standing".

Glenohumeral Osteoarthritis

	Vander-Maren	Collin	SOO 1999	Picard	Notre série
Absent	85%	90%	64%	80%	94,2%
Arthrosis I	12%	6%	27,5%	15%	5,8%
Arthrosis II	3%	-	7%	5%	-
Arthrosis III	-	4%	1,5%	-	-

The Pain

	SOO (37)	Notre série
Absent	69%	94,2%
Forced movements everyday life	26%	3,9%
	5%	1,9%

Comparison between the pain results of our series and that of the SOO. 94.2% of patients do not complain of any pain, this rate is very favorable and comparable to the rates of the series of the literature [21, 22].

Mobility

In our series, normal mobility is restored in 86.3% of cases. The decrease in mobility has mainly focused on external rotation, as in literature studies [23-25]. According to the literature this decrease is related to:

- The operating attitude vis-à-vis the sub-scapular, and external rotation is normal in case of dissociation and it is reduced in case of section of the upper half and even more reduced in case of complete section. The existence of postoperative osteoarthritis.
- The existence of an abutment protruding intra articularly in the horizontal plane.

The Overall Results

86.3% of cases had good and excellent overall objective results. Our functional results of Latarjet's intervention are quite satisfactory and fit with those of other series of the literature.

The Lysis Of The Abutment:

In our series we noted a case (2%) of lysis of the abutment. This rate remains very low compared to the rates revealed in the literature [26, 27]. This is because the size of our series remains small compared to the series of the literature.

Osteoarthritis

The frequency of osteoarthritis is variously appreciated in the literature. The factors of osteoarthritis according to NEN [28] are:

- Age at surgery: the older the patient during stabilization, the greater the risk of osteoarthritis.
- The number of dislocations: the frequency of osteoarthritis seems to increase with the number of preoperative recurrences.
- The rate of osteoarthritis increases with hindsight.
- The external rotation deficit is an arthrogenic factor.
- The existence of a rupture of the cap.

- Preoperative osteoarthritis is correlated with postoperative osteoarthritis

The Results Objectives

The comparison of the results of the coracoid stopper with other surgical techniques is made on a series of 500 patients operated for a recurrent dislocation of the shoulder [29] sharing as follows:

- 365 cases treated by LATARJET technique
- 53 cases treated by the intervention of BANKART
- 46 cases treated by capsular screwing
- 45 cases treated by the costal abutment

We noticed that the best results were obtained in the Latarjet technique and the costal abutment.

Stability	Bankart technique	Capsular screwing	Cost abutment	Latarjet technique
Excellent (%)	24	43	42	38
Good (%)	38	22	36	38
Medium (%)	24	0	18	7
Poor (%)	14	15	4	7

Comparison of the overall objective result of the different techniques [30]

The objective scores of our series are very satisfactory, so we had 86.3% good results against 13.7% means and bad result.

CONCLUSION

The treatment of recurrent dislocation of the shoulder is surgical. Our study shows, and this according to the data of the literature, that the technique of Latarjet allows to restore a normal mobility in the majority of the cases and good antalgic results. Complications are rare, such as lysis of the stop, osteoarthritis or recurrence of dislocation.

Our results are satisfactory, since 86.3% have good results, against 13.7% means and bad. The intervention of Latarjet is an effective method, of easy and fast realization allowing to act on the physiopathological factors of dislocations.

Conflicts of Interest: The authors do not declare any conflict of interest.

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