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Outcome of the Latarjet Procedure in Recurrent Anterior Shoulder Dislocation

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ABSTRACT:
Recurrent anterior shoulder dislocation, especially in young, active individuals, is often linked to capsulolabral injury and glenoid bone loss. The Latarjet procedure, which transfers the coracoid to the anterior glenoid, offers mechanical stability and is commonly used when significant bone loss is present.
Objective: This study aimed to evaluate the outcomes of the Latarjet procedure in terms of recurrence rate, range of motion, functional recovery, and graft integration in patients with recurrent anterior shoulder instability and glenoid bone loss.
Methods: A prospective cohort study of 42 male patients (aged 19–36) who underwent the Latarjet procedure at Tobruk Medical Center (2016–2021) assessed outcomes over 6 months to 5 years. Key measures included recurrence, Constant-Murley score, range of motion, VAS pain scores, and radiographic graft evaluation.
Results: The recurrence rate was 2.4%, with one traumatic dislocation 10 months post-op. External rotation deficits occurred in 33% of patients, but most regained full range by 18–24 months. Constant-Murley scores were excellent in 38%, good in 33%, and fair in the rest. Most returned to work within 3–7 months (mean 5 months). Radiographs showed successful graft integration, with optimal outcomes seen when grafts were flush or slightly lateral (1–2 mm) to the glenoid rim.
Conclusion: The Latarjet procedure is a reliable treatment for recurrent anterior shoulder instability with glenoid bone loss. It shows low recurrence, improved shoulder function, and few complications when done with proper technique and rehab, supporting its role as a gold standard for high-risk patients.

Keywords: Latarjet procedure, recurrent anterior shoulder dislocation, glenoid bone loss, shoulder instability, coracoid transfer, functional outcomes, range of motion.

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INTRODUCTION

The shoulder joint is unique among the body's joints due to its exceptional range of motion. However, this mobility comes at the cost of stability, making the shoulder the most common site of joint dislocation. During a primary dislocation event, the soft tissue structures that normally constrain the joint are often irreversibly damaged. This damage compromises the shoulder's inherent stability and significantly increases the risk of recurrent dislocations.

The majority of anterior shoulder dislocations are associated with a tearing of the joint capsule and/or the labrum from the anterior rim of the glenoid, a pathology commonly referred to as a capsulolabral injury**.** Among these, the Bankart lesion—a detachment of the anteroinferior labrum from the glenoid—has been observed in approximately 84% to 90% of patients after their first dislocation [2].

Anterior dislocations frequently involve not only soft tissue injury but also bony damage. These include osseous lesions of the humeral head and glenoid cavity. When such bony abnormalities contribute to persistent instability, the condition is termed complex shoulder instability. A prime example is the Hill-Sachs lesion, a posterolateral compression fracture of the humeral head, which has been reported in up to 90% of patients after an initial dislocation and in nearly 100% of those with recurrent episodes [3,4,5]. In addition, glenoid bone loss **i**s present in about 22% of patients after their initial dislocation and in up to 75% of those with recurrent instability [4,6,7,8].

To address recurrent dislocations and restore shoulder stability, various surgical techniques have been developed. These procedures aim either to restore the original anatomy of the joint or to establish an alternative mechanism of stabilization. Among them, arthroscopic Bankart repair has become the most widely used due to its minimally invasive nature and ability to anatomically repair the soft tissue [9]. Despite its popularity, the long-term outcomes of this technique are influenced by several patient-specific factors and may show variable rates of recurrence [10,11].

Balg and Boileau introduced the Instability Severity Index Score (ISIS) as a predictive tool for the success of arthroscopic Bankart repair. Their study revealed that patients with a score of 3 or 4 had a recurrence rate of about 5%, while those with a score of 6 or less had a 10% recurrence rate. Alarmingly, patients with a score higher than 6 had a recurrence rate of 70%, leading the authors to recommend open glenoid bone grafting in such cases [12].

Similarly, Burkhart and DeBeer found that certain high-risk groups—particularly those involved in contact sports, with glenoid bone loss exceeding 25%, or with engaging Hill-Sachs lesions—experienced recurrence rates ranging from 6.5% to as high as 89% after arthroscopic stabilization [13].

An alternative and effective surgical solution for complex or high-risk cases is the Latarjet procedure, which involves coracoid transfer to the anterior glenoid to provide a triple-blocking effect—bone block, sling effect of the conjoined tendon, and capsular repair. Ejaz and Muhammad treated 35 patients with the Latarjet technique and reported that, at six months postoperatively, 65.71% had very good outcomes, 22.85% had good outcomes, while only 11.42% experienced fair or poor results. Significant pain reduction and improved shoulder range of motion were also documented [14].

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Given the wide range of surgical outcomes in the literature and the need for procedures tailored to patient-specific variables such as age, activity level, and occupation, further studies are warranted. The purpose of the present study is to evaluate the functional outcomes of the Latarjet procedure at a two-year follow-up in a diverse group of patients with recurrent anterior shoulder dislocation.

MATERIALS AND METHODS

This prospective clinical study was conducted over five years, from July 2016 to June 2021, at Tobruk Medical Center**.** A total of 42 male patients, aged between 19 and 36 years, were enrolled based on their history of recurrent anterior shoulder dislocation and glenoid bone loss greater than 15%**,** as determined by imaging studies. Patients with multidirectional shoulder instability, fracture-dislocations**,** congenital ligamentous laxity, or prior surgical interventions on the affected shoulder were excluded from the study. All enrolled patients underwent a comprehensive clinical examination, which was supplemented by radiological evaluation using anteroposterior (AP) and Stryker notch views**,** as well as magnetic resonance imaging (MRI) to assess both soft tissue and bony involvement in the shoulder joint. Surgery was performed using a standard deltopectoral approach with the patient in the beach-chair position. During the procedure, the coracoid process was harvested and transferred, then fixed flush to the anteroinferior glenoid using two 3.5 mm cortical screws**.** Additionally, capsular reconstruction was performed by incorporating the coracoacromial (CA) ligament to reinforce the anterior capsule, enhancing stability. Postoperative management included sling immobilization for two weeks**,** followed by passive range-of-motion exercises and gradual progressive strengthening**.** Patients were evaluated at regular intervals—6, 12, 24, and 60 months postoperatively—using various clinical and radiological assessments. The main parameters measured included the recurrence of dislocations or subluxations**,** shoulder function as quantified by the Constant-Murley score**,** range of motion in all planes, pain intensity, as measured by the Visual Analog Scale (VAS)**,** time to return to previous activities or occupation, and radiographic assessment of the graft position and integration.

Inclusion Criteria 1. Recurrent Anterior shoulder dislocation. 2. Age average 19- 36 years. 3. No history of previous surgical repair.
Exclusion Criteria 1. Multidirectional instability 2. Fracture dislocations 3. Congenital ligament laxity 4. Neuromuscular disorder.

TABLE 1: Distribution of Patients According to Affected Side.

Side	**No**
Rt	22
Lt	20

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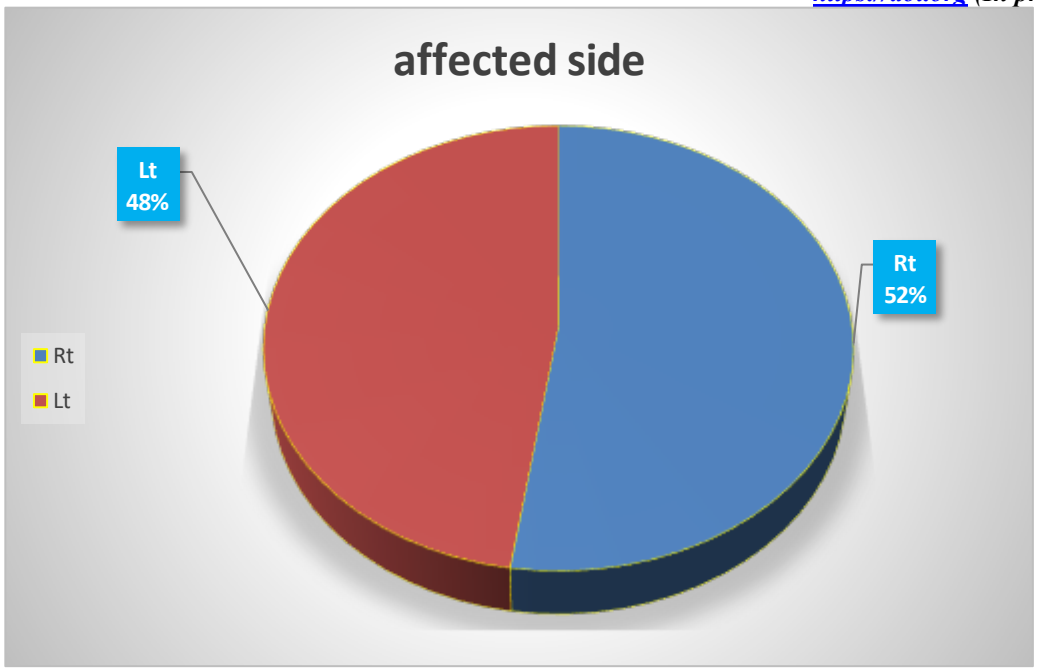

Figure1: Affected Side.

The mean age at the time of surgery was 26.9 and the first episode of dislocation 23.2.The number of recurrences was five to nine for 12 patients(57%),Ten to 14 for five patients(23%) higher than 15 in 4 patients(19%). First dislocation caused by RTA for 19 cases (45%), 23 cases due to falldown (55%). Mean duration of surgery for Latarjet = 120 mins.

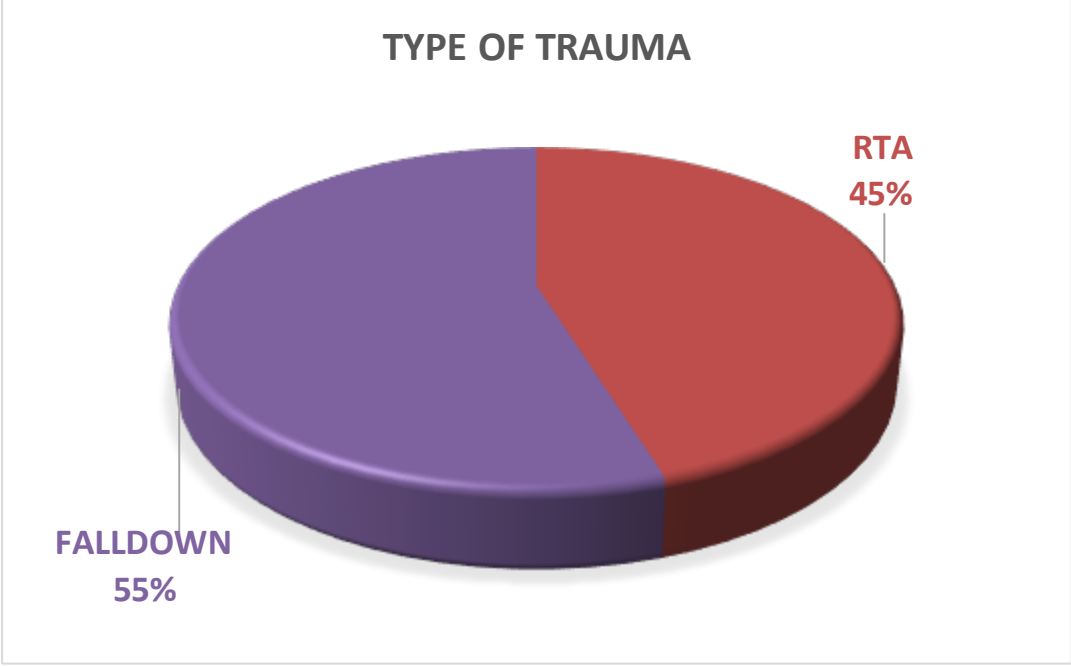

Figure 2: Type of Trauma.

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Table 2: Type of Trauma.

Type Of Trauma	Number
RTA	19
Fall Down	23

All cases were done under general anesthesia with patient in beach chair position. We used Delto pectoral approach for all cases. (Figure3) Expose the conjoined tendon. In Latarjet technique, the coracoid is sectioned along with the Coracoacromial ligament and osteotomized at its base. Insert the bone block along with the Coracoacromial ligament through the split subscapularis and place it flush to antero-inferior margin of glenoid, keeping the inferior surface of coracoid in contact, repair the Coracoacromial ligament with Capsule.(figure 4) intraoperatively the capsule was redundant in all cases also variable erosion and eburnation of scapular neck were observed. Postoperatively the arm sling was applied for two weeks ,The stitches were removed 15 days postoperative. range of hospitalization was from three to 7 days. The patient was initiate the rehabilitation on the 15^{th} day, which consisted of passive pendulum exercises. From four four-month patient was encouraged to return to occupational activity. The functional outcome was measured using constant-murley score . Minimum follow up period – 6 months. Maximum follow up period 5yrs. which assesses the shoulder function more generally ,including pain, activity level ,range of movement and power.

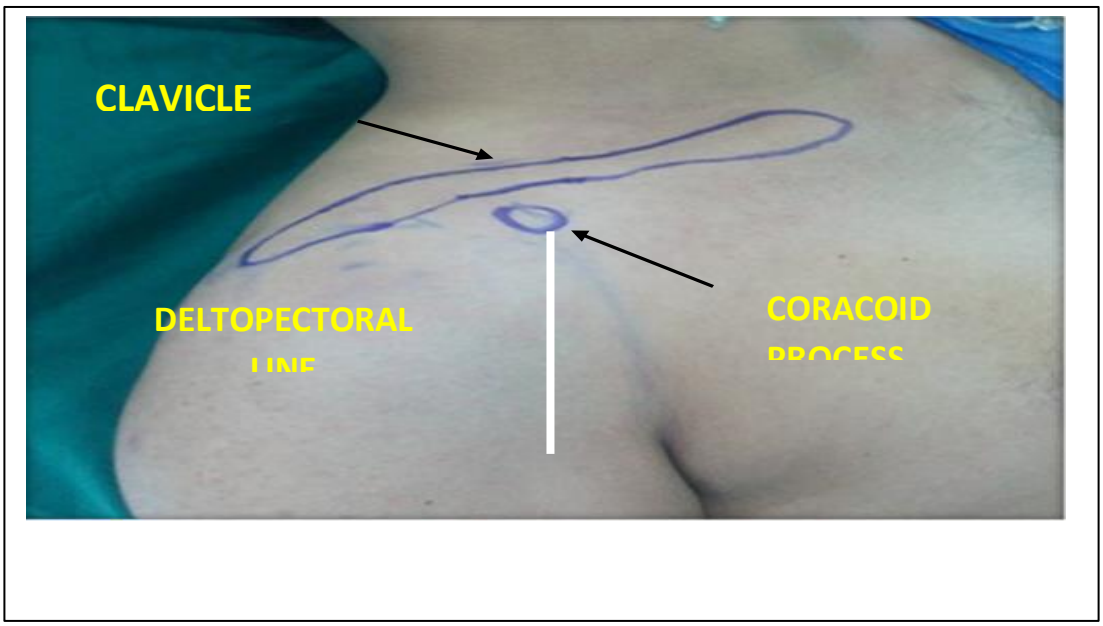

Figure 3: Approach in the later jet procedure

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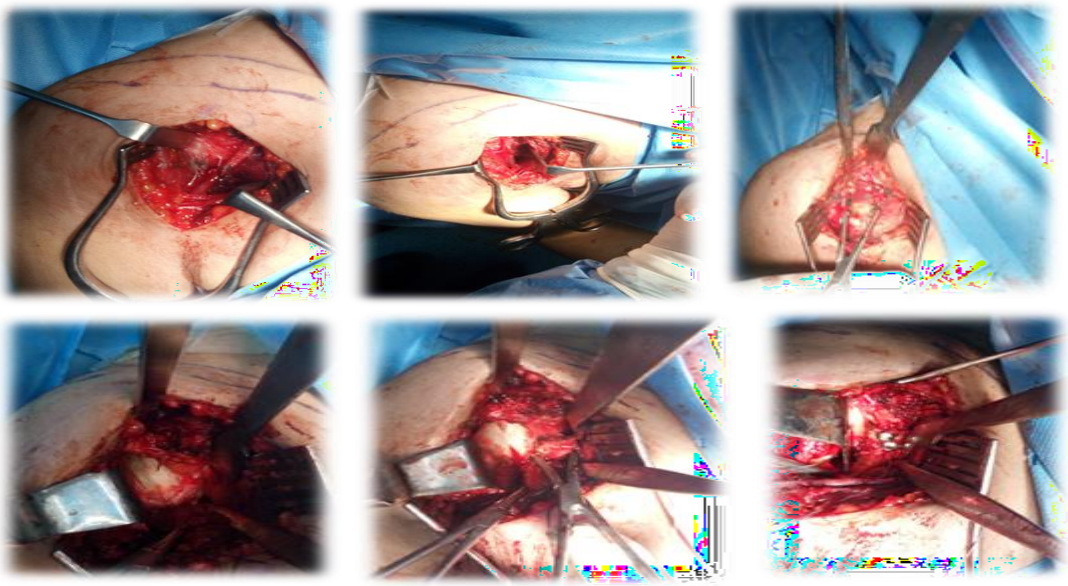

Figure 4: Surgical Steps in the Laterjet Procedure.

Ethical Approval and Consent to Participate.

This study was conducted at Tobruk Medical Center and received ethical clearance from the hospital's Institutional Ethics Committee, which operates by national and international research ethics standards. The research protocol, data collection methods, and consent procedures were reviewed and approved before initiating the study. All procedures performed involving human participants were carried out by the ethical standards of the institutional ethics committee and the principles laid out in the Declaration of Helsinki (1964) and its subsequent amendments. Particular attention was given to ensuring the confidentiality, safety, and autonomy of all participants. Before enrollment, all participants were provided with detailed verbal and written information about the study's objectives, procedures, benefits, and potential risks. Informed written consent was obtained from each participant. Participation was entirely voluntary, and participants were assured of their right to withdraw at any stage without any consequences to their ongoing medical care. All collected data were anonymized and securely stored to protect participant confidentiality.

RESULTS

The patients had follow-up time of 5 years, regarding joint stability; we obtained 95% of good results (41/42) and 5% of bad results (1/42). The only case of recurrence presented dislocation 10 months after surgery, after a sudden movement caused by lifting heavy objects. The patient did not suffer any restriction in their activities, and was returning to work 6months after surgery. The apprehension test was negative on all shoulders, including who suffered of recurrence. Eight patients complained of mild pain (38%). Seven patients (33%) lost >40 degree of external rotation, one with good range of external rotation (5%). In addition, three patients had limitation of movements (14%). No patient presented local or distance vasculonervous changes. The limitation of external rotation ranged from 0° to 70°, the limitation of internal rotation ranging from 0° to 40°. But during 18 to 20 months period, there is significant improvement in the range of external rotation. Functional

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outcome based on constant murley score was excellent in eight patients (38%), another14 patients was divided between good and fair outcome. Returning to work ranging from (3-7months) mean time of retuning was 5months. Follow up radiographs showed that the coracoid process was flush with the glenoid plane (figs 8A and 8B).

A B

Figure 5 : Range of movements at twelve-month post-operative- a) abduction, b) External rotation with abduction of limb.

A B

Figure 6: Range of movements at twenty-four months post-operative- a) 90 degrees in abduction, b) 120 degrees with abduction of limb.

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Table 3: Distribution of patients according to return to work

RETUN TO WORK	NO OF PATIENT
3M	6
4M	10
5M	12
6M	10
7M	4

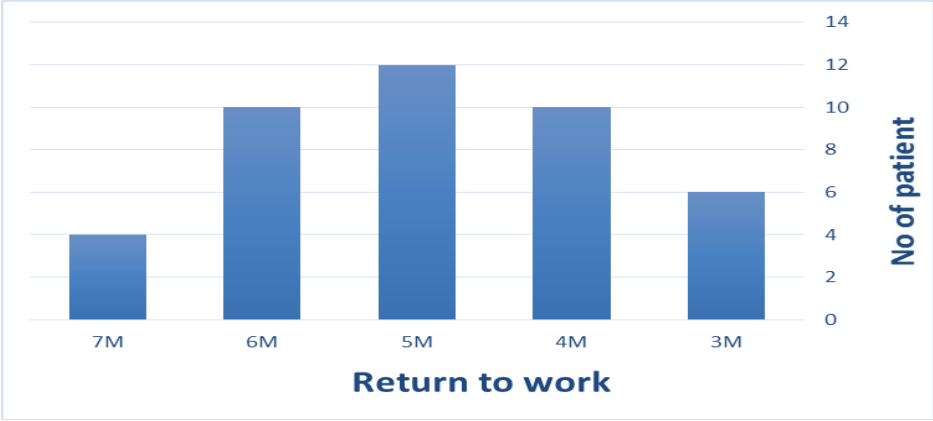

Figure 7: Return to work

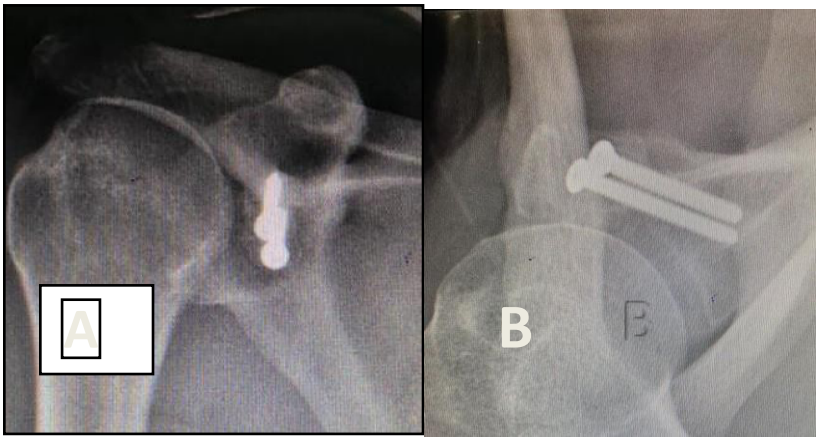

Figure 8: A)anteroposterior, B) axial radiographs of a shoulder with the correct position of the coracoid process.

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DISCUSSION

The results of this study provide strong support for the efficacy of the Latarjet procedure in the management of recurrent anterior shoulder instability associated with glenoid bone loss**.** The recurrence rate observed in our cohort was 2.4%**,** which is notably low and compares favorably to existing literature, where recurrence rates for high-risk groups typically range from 3% to 7% [1, 2]. This low recurrence rate further emphasizes the robustness of the Latarjet procedure, particularly in patients with significant glenoid bone loss. The findings align with previous studies that have reported similar outcomes, confirming the procedure's role as a gold standard in such challenging cases [3, 4]. A common complication associated with shoulder surgeries, particularly the Latarjet procedure, is a deficit in external rotation. In our cohort, this was observed in 33% of patients, with 7 patients losing more than 40 degrees of external rotation. This loss of motion is typically attributed to the subscapularis split required during the procedure. Similar findings have been reported in other studies, where external rotation deficits were noted following coracoid transfer surgeries [5, 6]. While this deficit is a well-documented phenomenon, it can be mitigated with structured physiotherapy focusing on rotator cuff strengthening and scapular stabilization, as suggested by Boileau et al. (2012) [7]. Early and consistent rehabilitation can reduce the long-term effects of these motion restrictions, thereby enhancing functional recovery. Proper graft positioning has been identified as a critical factor in ensuring the success of the procedure. In our study, grafts placed flush or 1–2 mm lateral to the glenoid rim yielded excellent outcomes, which is consistent with prior biomechanical studies [8, 9]. Accurate anatomical placement of the graft is crucial to prevent complications such as graft displacement or failure, which can result in recurrent instability. Surgeons must carefully avoid overhanging the graft and ensure that the tendon tensioning is appropriate, as both factors have been shown to affect the long-term success of the procedure [10]. The importance of precise graft placement has been emphasized by multiple authors, including Patel et al. (2013), who reported that slight deviations in graft position can lead to poorer outcomes and higher recurrence rates [11]. One of the key findings of our study was the absence of severe complications, further reinforcing the safety and effectiveness of the Latarjet procedure when performed by experienced surgeons. The absence of complications such as infection, nerve injury, or vascular compromise is consistent with the findings of other large-scale studies, which have reported that complications in this procedure are relatively rare when performed in centers with high volumes of shoulder surgeries [12]. Despite the positive outcomes observed, there are several limitations to this study that should be considered. One of the primary limitations is single-surgeon bias, which could affect the generalizability of the results. Additionally, our cohort consisted exclusively of male patients, which may limit the applicability of the findings to female populations, as differences in shoulder anatomy and healing potential between genders may exist. Furthermore, we did not assess glenoid arthropathy using computed tomography (CT)**,** which is a potential limitation in evaluating the full extent of bony pathology, as CT scans provide more detailed information on glenoid bone loss and the presence of bone defects compared to standard radiographs or MRI [13]. Despite these limitations, the 5-year clinical outcomes in this study demonstrate the high reliability and effectiveness of the Latarjet approach for treating recurrent anterior shoulder instability, particularly in patients with significant glenoid bone loss. These results are consistent with the growing body of evidence supporting the procedure's long-term success and its role as a reliable option in challenging cases of shoulder instability.

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CONCLUSION

The findings of this study further confirm the efficacy of the Latarjet procedure in managing recurrent anterior shoulder dislocations, especially in patients with significant glenoid bone loss. With a low recurrence rate of 2.4%, our results align with existing literature that reports recurrence rates ranging from 3% to 7% for high-risk patients. The Latarjet procedure demonstrates excellent outcomes in terms of joint stability, graft integration, and functional recovery, solidifying its position as a gold standard in managing complex shoulder instability. Although the procedure is associated with a loss of external rotation in some patients, this can be mitigated with structured rehabilitation, as supported by previous studies. Proper graft placement is crucial to achieving optimal outcomes, as demonstrated by our results, which showed excellent outcomes with grafts placed flush or slightly lateral to the glenoid rim. Furthermore, the absence of severe complications in our study underscores the safety of the Latarjet procedure when performed by experienced surgeons. Despite some limitations, including single-surgeon bias and the exclusion of female patients, the five-year follow-up results from this study provide strong evidence for the reliability and long-term success of the Latarjet procedure in addressing recurrent anterior shoulder instability with glenoid bone loss. These findings contribute to the growing body of literature supporting this approach as a robust option for managing challenging shoulder instability cases.

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REFERENCES

1. Yang NP, Chen HC, Phan DV, et al. Epidemiological survey of orthopedic joint dislocations based on nationwide insurance data in Taiwan, 2000–2005. BMC Musculoskelet Disord. 2011;12:253. doi:10.1186/1471-2474-12-253
2. Liu SH, Henry MH. Anterior shoulder instability. Curr Rev. Clin Orthop Relat Res. 1996;(323):327–37.
3. Provencher MT, Frank RM, Leclere LE, et al. The Hill-Sachs lesion: diagnosis, classification, and management. J Am Acad Orthop Surg. 2012;20(4):242–52. doi:10.5435/JAAOS-20-04-242
4. Taylor DC, Arciero RA. Pathologic changes associated with shoulder dislocations: arthroscopic and physical examination findings in first-time, traumatic anterior dislocations. Am J Sports Med. 1997;25(3):306–11. doi:10.1177/036354659702500306
5. Calandra JJ, Baker CL, Uribe J. The incidence of Hill-Sachs lesions in initial anterior shoulder dislocations. Arthroscopy. 1989;5(4):254–7. doi:10.1016/0749-8063(89)90138-2
6. Hill HA, Sachs MD. The grooved defect of the humeral head: a frequently unrecognized complication of dislocations of the shoulder joint. Radiology. 1940;35:690–700.
7. Lynch JR, Clinton JM, Dewing CB, Warme WJ, Matsen FA 3rd. Treatment of osseous defects associated with anterior shoulder instability. J Shoulder Elbow Surg. 2009;18(2):317–28. doi:10.1016/j.jse.2008.10.013
8. Piasecki DP, Verma NN, Romeo AA, Levine WN, Bach BR Jr, Provencher MT. Glenoid bone deficiency in recurrent anterior shoulder instability: diagnosis and management. J Am Acad Orthop Surg. 2009;17(8):482–93. doi:10.5435/00124635-200908000-00002
9. Zhang AL, Montgomery SR, Ngo SS, Hame SL, Wang JC, Gamradt SC. Arthroscopic versus open shoulder stabilization: current practice patterns in the United States. Arthroscopy. 2014;30(4):436–43. doi:10.1016/j.arthro.2013.12.013
10. Castagna A, Markopoulos N, Conti M, Delle Rose G, Papadakou E, Garofalo R. Arthroscopic Bankart suture-anchor repair: radiological and clinical outcome at minimum 10 years of follow-up. Am J Sports Med. 2010;38(10):2012–6. doi:10.1177/0363546510372614
11. Bessière C, Trojani C, Carles M, Mehta SS, Boileau P. The open Latarjet procedure is more reliable in terms of shoulder stability than arthroscopic Bankart repair. Clin Orthop Relat Res. 2014;472(8):2345–51. doi:10.1007/s11999-014-3550-9
12. Balg F, Boileau P. The instability severity index score: a simple pre-operative score to select patients for arthroscopic or open shoulder stabilisation. J Bone Joint Surg Br. 2007;89(11):1470–7. doi:10.1302/0301-620X.89B11.18962
13. Burkhart SS, De Beer JF. Traumatic glenohumeral bone defects and their relationship to failure of arthroscopic Bankart repairs: significance of the inverted-pear glenoid and the humeral engaging Hill-Sachs lesion. Arthroscopy. 2000;16(7):677–94. doi:10.1053/jars.2000.17715
14. Ahmad E, Basit MA, Shakeel M, Hamid MS, Jalal SF, Hanif MM. Outcome of Latarjet procedure for recurrent anterior shoulder dislocation. J Pak Orthop Assoc. 2021;33(2):81–6.
15. Giles JW, Degen RM, Johnson JA, Athwal GS. The Bristow and Latarjet procedures: why these techniques should not be considered synonymous. J Bone Joint Surg Am. 2014;96(16):1340–8. doi:10.2106/JBJS.M.00627
16. Samilson RL, Prieto V. Dislocation arthropathy of the shoulder. J Bone Joint Surg Am. 1983;65:456–60.

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17. Edouard P. Relationship between strength and functional index scores after shoulder stabilization surgeries. Ann Phys Rehabil Med. 2010;53:499–510.
18. Shah AA, Butler RB, Romanowski J, Goel D, Karadagli D, Warner JJ. Short-term complications of the Latarjet procedure. J Bone Joint Surg Am. 2012;94(6):495–501.

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