RESEARCH PAPER

Analysis of new method for reduction of acute anterior shoulder dislocation: A technique without sedation, traction or assistance.

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ABSTRACT

Background and objectives: Shoulder dislocation is the most frequent joint dislocation seen in the emergency departments worldwide. Various techniques have been described in the literature, among these L Prakash method is a safe and reliable technique which does not require sedation and assistance. This study is to assess the success rate and complication rate of this method.

Methods: This was a prospective study at Shar Teaching Hospital, Sulaimani, Iraq, during September 2025 to March 2026. L. Prakash (LPR) reduction technique was performed on 49 patients. Variables like gender, age, side of dislocation, first time or recurrent dislocation, reduction attempts, reduction time, successful or not, complication or not recorded. Descriptive statistics (mean, median, percentage) were used to summarize the data. The success rate and complication rate (%) were calculated. Linear correlation was performed to detect any association between age and reduction time.

Result:48 (98%) were male and 1 (2%) was female, mean age was (30.57±8), The majority of patients had a first-time dislocation (37, 75.5%), and 12 patients had a recurrent shoulder dislocation (24.5%) had. The success rate of this technique in anterior shoulder dislocation is 95.9% (47/49), and 4.1% failure rate. Majority of dislocations were reduced in the first attempt which is 45 (91.8%), the complication rate in this technique was 0%. average time needed for dislocation reduction was 4 minutes.

Conclusion: L Prakash method is an effective, reliable and safe technique for reduction of anterior shoulder dislocation in conscious and co-operative patients.

Keywords: Orthopedic Procedures, Shoulder Joint, Shoulder Dislocation, Shoulder Injuries

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1. INTRODUCTION

The glenohumeral joint is one of the most mobile joints in the human body and has a very large range of motion which is therefore easily dislocates in the general population the rate of glenohumeral dislocations reported is from 2% to 8%. [1-5] Shoulder dislocation is the most frequent joint dislocation seen in the emergency departments worldwide, accounting for over half of all dislocation cases, with anterior dislocation being the most common type. [6-12]

Over 20 various techniques have been described in the literature involving closed reduction,[13] with the majority utilizing only traction and which can lead to considerable discomfort, patient anxiety and physician fatigue. They frequently require sedation, support and can be at risk of developing iatrogenic fractures and neurological vascular injuries.[14-17]

The ideal reduction technique is easy, effective, requires minimal help and is not associated with pain or complications. [18] But, traditional techniques like Hippocratic and Kocher do not always meet these criteria. [19,20]

Inspired by his clinical practice, Dr. L. Prakash (LPR) devised an innovative technique for shoulder dislocation reduction requiring no traction, sedation or assistance. [21] This study is designed to evaluate the efficacy and risk of LPR reduction technique.

2. METHODOLOGY

2.1 Study design

This was a prospective single arm clinical study.

2.2 Study setting and duration

The study was done at Shar Teaching Hospital, Sulaimani, Iraq, during September 2025 to March 2026.

2.3 Study population

Patients with anterior shoulder dislocation presenting to the emergency department of Shar hospital.

2.3.1 Inclusion criteria

The study included patients aged 18 years or older who are able to give consent with isolated acute anterior shoulder dislocations confirmed by Xray. Both first-time and recurrent dislocations presenting within 24 hours were eligible.

2.3.2 Exclusion criteria

Exclusion criteria included any patient younger than 18 years, posterior dislocation or inferior subluxation, habitual dislocations, hypotonic disuse, associated fractures (e.g., of the humeral head or neck), polytrauma cases that cannot sit comfortably, and patients need immediate surgical intervention.

2.4 Sample size

All patients presenting with shoulder dislocation who met the eligibility criteria during the study period were included in the study, resulting in a total sample of 49 patients.

2.5 Ethical Considerations

Kurdistan Higher Council of Medical Specialists Ethics Committee approved this study under the (Issue No.: 2160, Date: 14/9/2025). Written informed consent was obtained from all participants before doing the technique and data collection.

2.6 Study Procedures

The diagnosis of anterior shoulder dislocation was established through clinical examination and anteroposterior radiography of the shoulder. A thorough neurovascular examination was performed before reduction to exclude any associated neurovascular injury. Analgesia like Paracetamol 10 mg/mL solution for intravenous infusion or Diclofenac sodium 75 mg/3 mL solution for injection was administered to all patients; however, none required procedural sedation. Demographic data such as age, sex, mechanism of injury, and side of dislocation, time needed for reduction were collected.

After obtaining informed consent, patients were positioned in a sitting posture, and the L. Prakash (LPR) reduction technique was performed. A maximum of two reduction attempts were allowed, with a 5-minute interval between attempts. Successful reduction was confirmed by both clinical assessment and post-reduction anteroposterior radiography. A repeat neurovascular examination was performed after reduction to identify any procedure-related complications.

If reduction could not be achieved using the LPR technique after two attempts, the patient was transferred to the operating theatre, where shoulder reduction was performed under sedation using an alternative reduction method.

2.7 L Prakash method

The patient is advised to sit on a chair or stand and his/her back touching the chair or a wall to fix the scapula. Elbow was flexed to 90° and forearm supported, and the wrist was kept in a neutral position. The first time, no shoulder abduction or adduction was done. The shoulder was then passively and slowly externally rotated until the maximum external rotation was reached as shown in figure 1.The critical step of the LPR technique has been done for about 2-3 minutes. The patient was encouraged to talk during this time as a way to decrease anxiety and promote muscle relaxation. Next, with the arm externally rotated, the arm was slowly adducted across the body until the elbow was close to the opposite shoulder as presented in figure 2. Last but not least, some gentle internal rotation was done so the hand could reach the other shoulder. (Figure 3) Shoulder reduction was usually smooth and quiet (no click or clunk).



Figure 1. External rotation of shoulder



Figure 1. Adduction while externally rotated



Figure 3. internal rotation of shoulder

2.8 Statistical analysis

Data analysis was done by IBM SPSS Statistics version 25. Descriptive statistics (mean, median, percentage) were used to summarize the data. The success rate and complication rate (%) were calculated. Linear correlation was performed to detect any association between age and reduction time. A p-value ≤ 0.05 was considered statistically significant.

3. RESULT

A total of 49 patients participated, 48 (98%) were male and 1 (2%) was female, age of them ranges from 21 to 62 years with a mean of (31.09±8.87). Demographic and clinical parameters of the patients are shown in Table 1. The right shoulder was the most common site of involvement (34 cases; 69.4%) and the left shoulder was involved in 15 cases (30.6%). The majority of patients had a first-time dislocation (37, 77.5%), and 12 patients (24.5%) had a history of recurrent shoulder dislocation.

Table 1. Baseline characteristics of the study participants.

Variable		Value n (%)
Number of participants		49
Age	mean ± standard deviation	31.09 ± 8.87
	range	21 – 62
Gender	Male	48 (98%)
	Female	1 (2%)
Side of dislocation	Right shoulder	34 (69.4%)
	Left shoulder	15 (30.6%)
Type of dislocation	First-time dislocation	37 (75.5%)
	Recurrent dislocation	12 (24.5%)

In table 2, the outcome of L Prakash technique is shown, in which the success rate of this technique in anterior shoulder dislocation is 95.9% (47/49), and 4.1% failure rate. Majority of dislocations were reduced in the first attempt which is 45 (91.8%), the complication rate in this technique was 0%. The average time needed for dislocation reduction was 4 minutes.

Table 2. Characteristics and outcomes of the reduction procedure.

Variable		Frequency (n)	Percentage (%)
Success of the technique	Successfully reduced	47	95.9
	Failed to reduce	2	4.1
Number of	Reduced after one	45	91.8

attempts	attempt		
	Reduced after two attempts	2	4.1
	Not reduced	2	4.1
Complication	Yes	0	0
	No	49	100
Reduction time	Mean± SD	241.76 ± 53	
	Range	160 - 340	

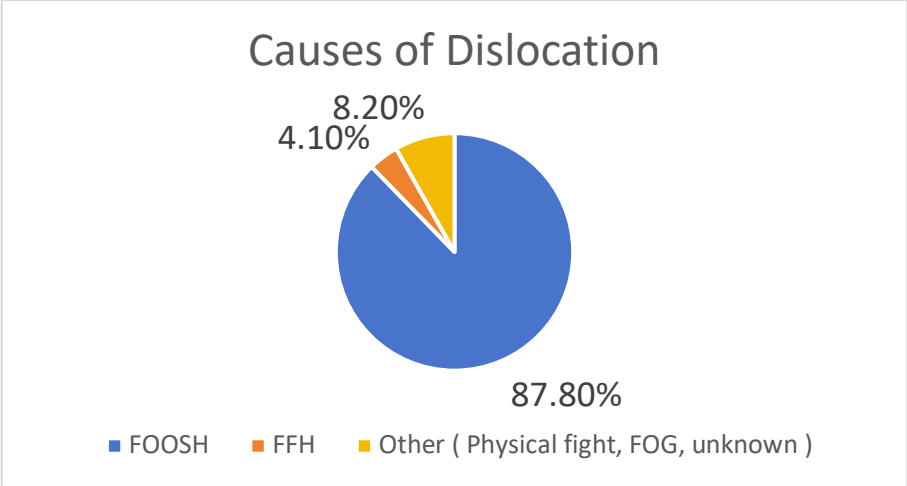


Figure 4. Mechanism of injury among patients with anterior shoulder dislocation

The mechanisms of injury that resulted in anterior shoulder dislocation in the study participants are shown in Fig. 6. The most common mechanism was fall on outstretched hand (FOOSH), making up 87.8% of cases. 4.1% were due to fall from height (FFH) injuries. While the remaining other 8.2% were caused by physical fights, sudden movement and unknown causes.

A correlation analysis was performed to assess the association between age and reduction time. As age was not normally distributed, Spearman's rank correlation was used. There was no statistically significant correlation between age and reduction time (Spearman's $\rho = 0.056$, $p = 0.753$), indicating no significant association between age and reduction time.

4. DISCUSSION

Numerous techniques for closed reduction of shoulder are available and there's no standard method for shoulder dislocation, among these Prakash's method first described in 2016 has now proven to be a useful technique in the reduction of anterior shoulder dislocations in different clinical situations. L. Prakash was the first to describe the Prakash reduction method, he done the study on 147 patients and found that there were no procedure-related complications and got 100% success rate.[21] The technique has many benefits: it has a high success rate; is quick; requires no traction or sedation; does not require much assistance; and has a low risk of complications.

The Prakash method has been widely accepted since its introduction since it is easy to perform and can be easily adopted by junior residents. Thus, its efficacy and safety has been assessed in the treatment of anterior shoulder dislocation in several studies.

The Prakash method in the present study had an overall success rate of 95.9%, which is a very successful method for the management of anterior shoulder dislocations. This finding is comparable to those reported in previous studies.

A study made in Pakistan in 2021 by Ullah I et al. has shown success rate of 90% on 30 patients with first time anterior shoulder dislocation.[23] While a study in Turkey by Kuru et al. has shown success rate of 94.7%[24] and a study in India by Barwar et al. recorded 98% success rate both studies included first-time and recurrent dislocations.[25] The high success rate of previous studies, along with the 95.9% success rate in the present study, confirms the effectiveness and reliability of the Prakash method in anterior shoulder dislocation reduction.

In this study, 91.8% of patients had successful shoulder reduction achieved on first attempt and 4.1% needing a second attempt for shoulder reduction, and the remaining 4.1% was not reduced. In the study by Barwar et al. 90% of patients were successfully reduced at first attempt, with 8% needing a second attempt.[25] The high rate of success of the first attempt is clinically significant because the return to the reduction position more than once may be more challenging if the patient becomes more uncomfortable, anxious and/or less co-operative due to pain and muscle spasm. First pass reduction, therefore, may help to improve patient comfort and to minimize additional manipulation.

An additional good news piece we found was that there were no complications in our study. There were no iatrogenic fractures or neurovascular injury observed. Likewise, the studies published assessing this technique have also shown no significant complications,[23-25] lending credibility to this reduction technique if it is performed correctly.

5. CONCLUSION AND LIMITATION

Finally, the L Prakash method is an effective, reliable and safe technique for reduction of anterior shoulder dislocation in conscious and co-operative patients. Anterior shoulder dislocation is sometimes difficult to reduce, however, and it is crucial that the clinicians be ready to use other methods if they are needed. A drawback of our study is that patients with recurrent anterior shoulder dislocations were included. In order to draw a more accurate conclusion about the efficacy of Prakash reduction, only patients with first time dislocations should have been studied. In addition, long-term follow-up is required to assess outcomes and recurrence rates especially following successful reduction.

Author Contribution Statement

Author G.J.M.A. was responsible for conceptualization, methodology, investigation, data curation, formal analysis, writing – original draft. While author O.A.R.B. done methodology, validation, supervision, writing – review & editing.

Ethical Statement

Patient consent was obtained for applying the method and for using the photographs in our study. All procedures were according to ethical standards of the Declaration of Helsinki. Kurdistan Higher Council of Medical Specialists Ethics Committee approved this research under (Issue No.: 2160, Date: 14/9/2025).

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AI Declaration

The authors used Chat-GPT to make a graphical abstract.

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Conflicts of interest

The authors have no conflicts of interest to declare in publishing this article.

Data Availability Statement

The raw data for the findings of this study is available from the corresponding author upon reasonable request.

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