

Functional outcomes of modified Bristow procedure in recurrent shoulder dislocation

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Abstract

The glenohumeral joint is the most mobile in humans. Of all the joints 50% of dislocations involve the shoulder, mostly young males. When the first dislocation occurs in a patient under 20 years age the risk for recurrent instability increases to 90%. Many techniques are available to reduce and stabilise the glenohumeral joint; in cases of anterior dislocations one of which is the famous Bristow's procedure, originally described in 1954 by Latarjet. The purpose of this study is was to determine the Functional Outcomes of the modified Bristow procedure. This retrospective review was conducted at Aga Khan University Hospital, Karachi from January 2000- December 2015, comprising patients who underwent the modified Bristow procedure. All patients recruited in the study underwent modified Bristow procedure. A total of 70 patients were included, which comprised of 61(87.1%) males and 9(12.9%) females with a mean age of 31.6 ± 11.0 years. The maximum number of shoulder dislocations occurred primarily due to road traffic accidents in 48 (68.57%) patients while the second highest cause in 13 (18.57%) patients was due to playing sports. The mean number of dislocations before surgery were 3.50 ± 0.5 whereas no patient had an episode of dislocation in the post-operative period. Two patients presented with subluxations but none required further surgical intervention. The Modified Bristow-Latarjet procedure is considered an effective surgical treatment for the recurrent glenohumeral instability of the joint.

Keywords: Shoulder dislocation, modified Bristow's procedure, surgical repair of recurrent dislocation of shoulder.

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Introduction

The glenohumeral joint is the most mobile joint in humans; its wide range of movement and the relatively loose anterior-inferior recess increases the risk for anterior dislocation or subluxation.¹ Out of all joints in the body 50% of all the joint dislocations involve the shoulder,

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mostly in young males. If the first dislocation occurs in a patient below 20 years age, the risk for recurrent instability increases to 90%. In persons older than 40 years of age, the incidence drops sharply to 15-20 %.² The majority of all recurrences occur within the first two years after the first traumatic dislocation.³ Surgical stabilisation of the glenohumeral joint is indicated when recurrent instability causes discomfort.

Many techniques are available to reduce and stabilise the glenohumeral joint in cases of anterior dislocations.⁴ The famous Bristow's procedure, originally described in 1954 by Latarjet⁵ involves an osteotomized coracoid process to be diverted and attached to the anterior inferior aspect of the glenoid rim. Sasibhushana et.al investigated 200 patients in India who underwent this procedure and reported no recurrence of dislocation or subluxation: the difference between preoperative and postoperative range of motion was not significant.⁶ In another study by Lennart et.al, out of the 118 patients who were followed for 15 years, only one had to undergo revision surgery due to instability and the overall satisfaction rate was 98%.³

Arthroscopic techniques have shown to be inferior in terms of postoperative complications in severe bone loss cases (severe bone loss is defined as bone loss of more than 25% cases).⁴ Procedures like Bankart are also practiced at some centres but, in comparison, they are both equally recommended and there is no significant difference between the two procedures in terms of patient satisfaction.³

This case series is presented to assess the functional outcome and complication rate associated with modified Bristow procedures performed at the Aga Khan University Hospital, Karachi.

Case Series

This retrospective review was conducted at Aga Khan University Hospital Karachi from Jan 2000- Dec 2015, comprising patients who underwent modified Bristow procedure for recurrent shoulder dislocation. Patients with revision surgeries and inadequate follow-up were excluded. All patients were operated on and subsequently followed in the clinic by the consultant orthopaedic

surgeon, well-acquainted with the techniques of advanced shoulder reconstruction. The ROWE score for shoulder instability is used to assess the patient's functional outcome at 6 month follow-up visit. It was further stratified to excellent (91-100), good (76-90) and fair (51-75). Surgical complications were categorised as subluxations and dislocation.⁷

This system scores patients based on 3 separate areas—stability, motion, and function—with 1 item for each of these areas. The weightage is such that stability accounts for 50 points, motion for 20 points, and function for 30 points, giving a total possible score of 100 points.

The total number of patients recruited was 70, who underwent a modified Bristow procedure from the period of January 2000 to December 2015 at Aga Khan University Hospital. Majority 61 (87.1%) were males and 09(12.9%) were females with a mean age of 31.66 ± 11.0 years and range from 16 to 61 years. Most of them 60 (85.7%), had their dominant extremity affected involving right-sided recurrent shoulder dislocations and 10 (14.3%) presented with left shoulder dislocations. A maximum number of shoulder dislocations occurred secondary to Road Traffic Accidents 48 (68.57%) patients, 13 (18.57%) dislocations were during playing sports and on 9 (12.85%) occasions it was due to fall from a height. The average time between the first dislocation to surgery was 4.06 ± 1.75 years. Mean number of dislocations before surgery was $3.50 \pm$ times. The mean ROWE score at 6 month follow-up was 96.42 ± 8.72 , 58 (82.9%) patients had excellent scores 10 (14.3%) had good and 2 (2.9%) patients had fair scores. None of the patients had an episode of dislocation post operatively, whereas two patients presented with subluxations but none required further operation. Our patients showed a good postoperative range of shoulder movement, except for a slight decrease in external rotation, which did not impair activities of daily living.

Discussion

This study is a retrospective review of patients with Bristow's procedure. Literature has prospective studies also but the results are comparable.⁸ Literature suggests Bristow's procedure is a better option compared to other procedures like Bankart's procedure.⁹ It provides more satisfaction among patients with figures of 83% in Bristow's and 63% in Bankart's operation. Bristow's procedure shows the insignificant differences in the range of motion; pre and post-procedure just like in our study.¹⁰ One advantage of this study over others is that we mostly have young patients as our sample candidates with a mean age of 30 years. Candidates who are older tend to have other associated disorders like acromioclavicular arthrosis and

impingement disease. These associated conditions can interfere with the surgical results.

In our retrospective review of patients with Bristow's procedure we have brilliant results in terms of ROWE score with mean score of 96.42 ± 8.72 and 82.9% had excellent scores. Our results are comparable to the international literature.

In 1961 Mc Murray explained that joint stability is regained by the dynamic stabilizer function coracobrachialis and biceps tendon. Coracoid fragment functions to provide safe anchor to the above two muscles restoring the stability.¹¹ Complications including recurrences have been reported from soft tissue repair procedures including closed Bankart repairs which again compliments to regain the popularity of Bristow procedure.¹²

Ruci et al in 2015 also investigated the functional outcome for 42 patients managed by modified Bristow procedure for shoulder instability and found excellent results in 64% of patients with mean ROWE score of 90, none of them had re-dislocations on follow up suggesting this technique to have favourable outcome.¹³

Our study sample comprised of young patients with mean age of 31.66 ± 11.0 years thus helping to eliminate the confounding pain attributed to acromio-clavicular arthrosis and impingement.

Conclusion

The case series proved that the modified Bristow procedure is a good surgical treatment for recurrent glenohumeral instability of the joint.

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Conflict of Interest: None.

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