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## Functional outcome of modified Boytchev procedure in recurrent shoulder dislocation

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### Abstract

**Objective:** To evaluate functional outcome of recurrent anterior shoulder dislocation by modified Boytchev procedure.

**Materials and Method:** This prospective study was done in 30 patients with recurrent dislocation of the shoulder, treated in the department of Orthopaedics Rajah Muthiah Medical Hospital and Sri Ramachandra Medical centre. The inclusion criteria were patients with recurrent anterior shoulder dislocation with minimum 5 to 8 episodes and age more than 18 years and less than 50 years. The exclusion criteria were fresh dislocation, dislocations with fracture of Coracoid process and patients with ligamentous laxity. The functional statuses of the patients were assessed using the Modified Rowe's Scale.

**Results:** out of thirty patients treated by modified Boytchev procedure 93% of patients had excellent/good outcome. Two patients, who had fair outcome in our study, were due to traumatic dislocation one year following the procedure, which leads to periartthritis of the affected shoulder and restricting abduction and external rotation movements.

**Conclusion:** Modified Boytchev procedure is cost effective and has an easy learning curve. Therefore it is the ideal management in rural area.

**Keywords:** Shoulder dislocation, Boytchev procedure, Rowe's scale, Recurrent dislocation.

### Introduction

The shoulder joint is vulnerable for dislocation due to its shallow glenoid, thin and lax capsule. At any given time only one-fourth of the humeral head articulate with the glenoid. Recurrent shoulder dislocation occurs following a previous original dislocation. There are many methods of correcting a recurrent dislocation by surgery; this itself shows that no single technique is fool proof. <sup>[1, 2]</sup> Some technique treat the anatomical defect, while others correct the capsular pathology and some provide the bone block. But most of the techniques described have distinct disadvantages like immobilisation for several weeks and loss of external rotation. The aim of the study is to evaluate functional outcome of recurrent anterior shoulder dislocation by modified Boytchev procedure. <sup>[3, 4]</sup>

### Materials and Methods

This prospective study was done in 30 patients with recurrent dislocation of the shoulder, treated in the department of Orthopaedics Rajah Muthiah Medical Hospital and Sri Ramachandra Medical centre. The inclusion criteria were patients with recurrent anterior shoulder dislocation with minimum 5 to 8 episodes and age more than 18 years and less than 50 years. The exclusion criteria were fresh dislocation, dislocations with fracture of Coracoid process and patients with ligamentous laxity. The stability of the shoulder joints was evaluated with the patient in upright position by anterior apprehension test, sulcus test, Lachman Test, shift and load test and Jobe's relocation test. <sup>[5]</sup> The radiological evaluation were done by True AP view, Scapular Y view and Axillary view, which includes: West Point View, Stryker Notch View and Internal Rotation View. The functional status of the patients were assessed using the Modified Rowe's Scale. <sup>[6]</sup>

In this study, the age of patients varied from 18 years to 50 years with mean age of 32.4 years. All our patients were male. Twenty-two patients (73%) had recurrent shoulder dislocation in right dominant side and eight patients (27%) had recurrent shoulder dislocation in left non-

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dominant side. The major cause of initial dislocation was fall on out stretched hand in 12 patients (40%), road traffic accident in 10 patients (33%) and trauma while playing in 8 patients (27%). Sixteen patients (53%) were admitted after 2–3 years of initial trauma, 8 patients (27%) were admitted after 3 years of the initial trauma and 6 patients (20%) were admitted after 1 –2 years of the initial trauma. All the cases were operated within 48 hours of admission. Postoperative rehabilitation of the patients were started with the pendulum exercise after 1 week and continued as per our rehabilitation protocol. All patients were followed up at 1 month, 3 months, 6 months, 12 months and then yearly.

**Results**

In our study we have treated thirty patients and followed up for an average of 23 months, in which 20 patients (67%) were followed up for about 21 - 25 months, 6 patients (20%) were followed up for 15 – 20 months and 24patients (13%) were followed up for 26 – 30 months.

**Table 1:** Functional outcome as per Modified Rowes scale.

Grades	No. Of Patients	Percentage
Excellent	20	66
Good	8	27
Fair	2	7
Poor	0	0

In our study, out of thirty patients treated by modified Boytchev procedure 93% of patients had excellent/good outcome as per table 1. Our complications were tabulated in table 2. We had only two redislocated patients.

**Table 2:** Complication

Complications	No of Patients	Percentage
Infection	0	0
Redislocation	2	7
Nerve injury	0	0
Coracoid process fracture	0	0
Screw problem	0	0
Restriction of movements in any plane	6	20

**Discussion**

The most common causes of recurrent shoulder dislocation were Bankart lesion, Hill and Sachs lesion and posttraumatic laxity of the subscapularis. [7-9] many procedures have been described for recurrent anterior shoulder dislocation. The disadvantages of these procedures are prolonged immobilization and restriction of external rotation, hence compromising the shoulder stability and functions. Even though arthroscopic Bankart repair is a procedure well accepted it needs a lot of surgical expertise and experience and expensive equipments. This procedure is relatively simple and since it involves no cutting of important structure or opening of the joint, full range of external rotation is achieved. This procedure creates a dynamic sling mechanism, which in turn provides immediate stability to the shoulder, thereby enabling for immediate rehabilitation of the shoulder joint. [10]

In study done by G. B. Ha Eri *et al.* [11], out of 26 patients, 22 patients were males and 4 were females and belongs to the age group 16 years to 39 years with mean age 22 years. In 2001, Chatterjee *et al.* [8] proposed a study with 48 patients of age group 18 years to 35 years with mean age 24.5 years. In which 46 patients were males and 2 patients were females. In

our study we have thirty patients with recurrent anterior shoulder dislocation of the age group 18 years to 50 years with mean age of 32.4 years. And all the patients were males. In study done by N. D. Chatterjee *et al.* in 2001 with 48 patients, all the patients gave the history injury around shoulder, 2 patients were epileptic and one patient had generalized joint laxity, with the minimum of 4 episodes of dislocations and maximum of 500 episodes during the period of 12 to 72 months. In our study with thirty patients, 12 patients had history of fall on out stretched hand, ten patients had road traffic accident and eight patients gave history of trauma while playing. The minimum numbers of dislocation were 5 and maximum of 15 episodes during the period of 12 to 60 months.

In evaluating the final results, modified Rowe’s criteria was taken which involves postoperative function, pain, stability and motion of the involved shoulder joint and the patients were graded accordingly into excellent, good, fair and poor categories. N. D. Chatterjee *et al.* Study had 48 patients, 5 patients lost the follow-up and the results were excellent in 42 shoulders and one patient showed the poor result. In our study, we had 66% of patients as excellent, 27% were graded as good and 7% patients had fair outcome. Two patients, who had fair outcome in our study, were due to traumatic dislocation one year following the procedure, which leads to peri arthritis of the affected shoulder and restricting abduction and external rotation movement to less than 20%. In our study with 30 patients, all patients were followed up for a period varied from 15 months to 30 months (average 23 months). In which six patients had loss of abduction and external rotation less than 20° and 2 patient has redislocation.

**Conclusion**

Modified Boytchev procedure is cost effective and has an easy learning curve. Therefore it is the ideal management in rural area. We find the technique of modified Boytchev procedure is a suitable method achieving good results and technically less demanding procedure for recurrent anterior shoulder dislocation.

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