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Original Research

Acute ligamentous repair of the elbow versus functional treatment of patients with simple elbow dislocation

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ABSTRACT:
Background: Elbow dislocation is the second most frequent type of large joint dislocations in adults. The present study was conducted to compare acute ligamentous repair of the elbow compared to the functional treatment of patients with SED. **Materials & Methods:** 60 patients with elbow dislocation were divided into 2 groups of 30 each. Group I patients were managed with closed reduction of elbow. Group II patients were managed with closed elbow reduction and subsequent reconstruction of torn collateral ligaments. Outcome of the treatment was compared. **Results:** Group I had 20 males and 10 females and group II had 18 males and 12 females. Type of dislocation was posterior seen in 15 in group I and 17 in group II, postero- lateral seen 10 in group I and 11 in group II, postero- medial seen 4 in group I and 1 in group II and lateral seen 1 each in group I and II. Side of dislocation was left side in 16 15 in group I and II respectively, right side seen in 14 and 15 in group I and II respectively. Clinical outcome was excellent seen in 25 in group I and 12 in group II, good in 5 in group I and 15 in group II, fair seen in 2 in group II and poor seen 1 in group II. The difference was significant (P< 0.05). **Conclusion:** Surgical collateral ligaments revision and reconstruction are indicated only for patients with manifestation of elbow instability.
Key words: Collateral ligament, Elbow instability, Surgery.

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INTRODUCTION

The elbow is a very stable joint due to its bony alignment and the support provided by the collateral ligaments and muscles. Elbow dislocation is the second most frequent type of large joint dislocations in adults with an incidence of 5–6 per 100,000 person-years. Most of these dislocations arise due to sports related injuries.[1] Simple elbow dislocation (SED) involves only ligamentous and soft tissue injuries, and treatment results are more favorable compared to complex elbow dislocations that include bony injuries. Standard treatment of SED without manifest instability should involve closed reduction, short-term immobilization of the elbow followed by functional aftercare. This recommendation is supported by many authors, who have reported favorable results after nonsurgical treatment of simple dislocation of the elbow.[2]

Medially the ulnohumeral articulation consists of the trochlea and its reciprocating greater sigmoid cavity. The olecranon forms the posterior and central sections of the cavity, accommodating the triceps insertion at its proximal aspect and continuing as the ulna diaphysis distally.[3] The coronoid process is a fan shaped structure

with 2 discrete articular facets, anteromedial and anterolateral, which are separated by a ridge that runs the length of the greater sigmoid notch. The sublime tubercle is an important element of the medial side of the coronoid where the strong anterior bundle of the medial collateral ligament inserts. Laterally the radial head forms a shallow concave surface that only covers the capitellum over an arc of 90 degrees and so the lateral compartment has greater reliance on soft tissue restraints.[4]

Standard treatment of SED without manifest instability should involve closed reduction, short-term immobilization of the elbow followed by functional aftercare.[5] The present study was conducted to compare acute ligamentous repair of the elbow compared to the functional treatment of patients with SED.

MATERIALS & METHODS

The present study was conducted among 60 patients with elbow dislocation of both genders. All were informed regarding the study and their consent was obtained.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 30 each. Group I patients were managed with closed reduction of elbow. Group II patients were managed with closed elbow reduction and subsequent reconstruction of torn collateral ligaments. Outcome of the treatment was compared. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table II Distribution of patients

Groups	Group I	Group II
Method	Closed reduction	Closed reduction+ repair of torn collateral ligaments
M:F	20:10	18:12

Table I shows that group I had 20 males and 10 females and group II had 18 males and 12 females.

Table II Comparison of parameters

Variables	Parameters	Group I	Group II	P value
Type of dislocation	Posterior	15	17	0.05
	Postero- lateral	10	11	
	Postero- medial	4	1	
	Lateral	1	1	
Side of dislocation	Left side	16	15	0.82
	Right side	14	15	

Table II, graph I shows that type of dislocation was posterior seen in 15 in group I and 17 in group II, postero-lateral seen 10 in group I and 11 in group II, postero- medial seen 4 in group I and 1 in group II and lateral seen 1 each in group I and II. Side of dislocation was left side in 16 15 in group I and II respectively, right side seen in 14 and 15 in group I and II respectively.

Graph I Comparison of parameters

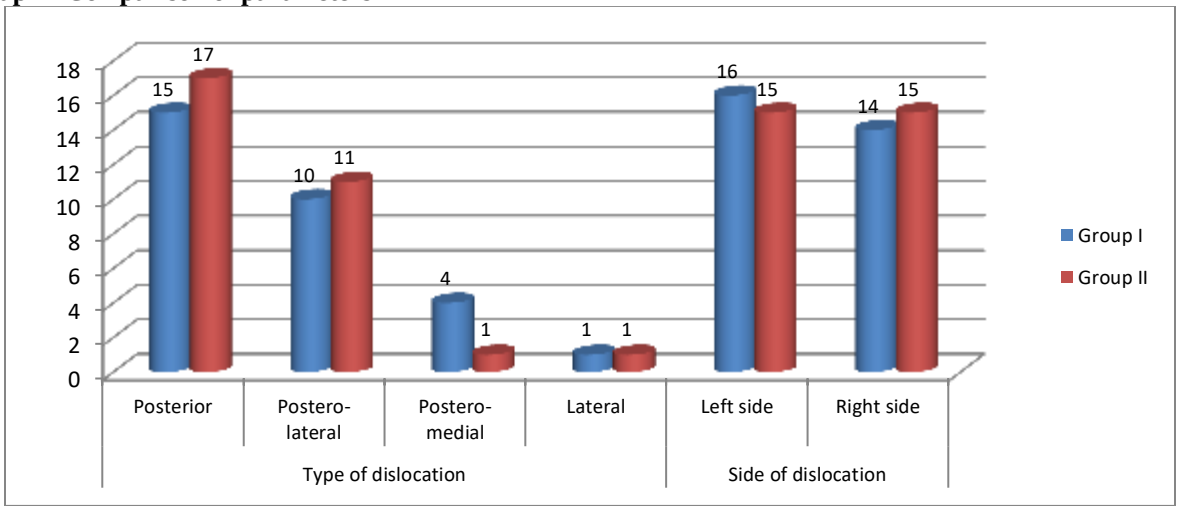
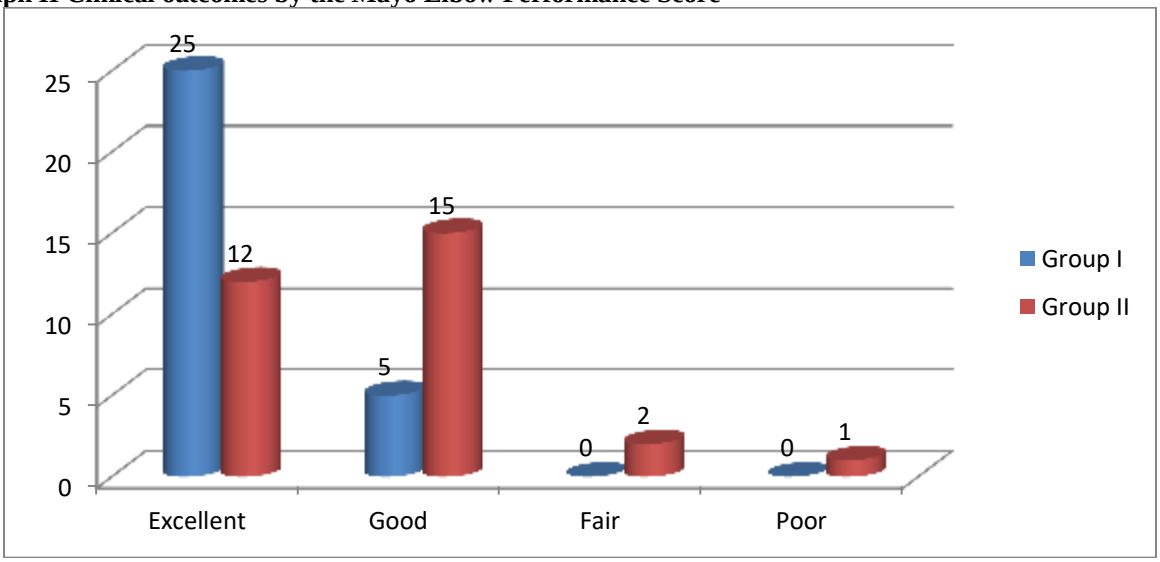


Table III Clinical outcomes by the Mayo Elbow Performance Score

Outcome	Group I	Group II	P value
Excellent	25	12	0.02
Good	5	15	
Fair	0	2	
Poor	0	1	

Table III, graph II shows that clinical outcome was excellent seen in 25 in group I and 12 in group II, good in 5 in group I and 15 in group II, fair seen in 2 in group II and poor seen 1 in group II. The difference was significant (P< 0.05).

Graph II Clinical outcomes by the Mayo Elbow Performance Score



DISCUSSION

The elbow is the second most commonly dislocated joint in adults. Simple dislocations have been described as those where there is no concomitant fracture other than small periarticular avulsions under 2 mm in diameter.[6] Where larger fragments are present it is classified as a fracture dislocation.[7] The annual incidence of simple elbow dislocations is approximately 5.21 per 100,000 persons, slightly more frequent than fracture dislocations with a 53% male predominance.[8] Falling from a standing height is the most common mechanism of injury (56%) while sporting activities accounted for 44% of elbow dislocation.[9] The present study was conducted to compare acute ligamentous repair of the elbow compared to the functional treatment of patients with SED.

In present study, group I had 20 males and 10 females and group II had 18 males and 12 females. Krticka et al[10] in their study 54 adult patients with SED without manifest instability treated in tertiary hospital. 28 patients were treated conservatively. Closed elbow reduction was followed by short-term plaster splint and active rehabilitation. Twenty six patients underwent closed elbow reduction and subsequent reconstruction of torn collateral ligaments. Postoperatively, plaster splint was applied followed by rehabilitation. Patients who were treated conservatively reached statistically significant better scores in Quick Disability Arm Shoulder Hand, Oxford Elbow Score, and Mayo Elbow Performance Score. Functional conservative treatment resulted in a higher range of motion. The complication rate was higher in the group of surgically treated patients.

We observed that type of dislocation was posterior seen in 15 in group I and 17 in group II, postero- lateral seen 10 in group I and 11 in group II, postero- medial seen 4 in group I and 1 in group II and lateral seen 1 each in group I and II. Side of dislocation was left side in 16 15 in group I and II respectively, right side seen in 14 and 15 in group I and II respectively. Iordens et al[11] in their multicenter randomized clinical trial also compared results between patients with SED treated with functional therapy, and they reached mean Quick DASH score = 4.0 which was worse than in our CG, where it was 2.5.

We found that clinical outcome was excellent seen in 25 in group I and 12 in group II, good in 5 in group I and 15 in group II, fair seen in 2 in group II and poor seen 1 in group II. O'Brien et al[12] published results of acute repair of the radial ulnohumeral ligament after

SED in high demand patients. They achieved the following results in 14 operated patients who were young active patients. The mean MEPS was 99.6 and all returned to their preinjury level of function with no restrictions or instability. Final ROM averaged −3° of full extension to >130° of flexion. These results are more favorable than our SG, the difference could be contributed to their selection of young, active and motivated patients. Arthroscopic technique is also well and safely used for the treatment of post-traumatic changes after SED.

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that surgical collateral ligaments revision and reconstruction are indicated only for patients with manifestation of elbow instability.

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