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Frequency of recurrent dislocation after conservative management of acute traumatic shoulder dislocation

Dr. Muhammad Shahab
Consultant Orthopedic Surgeon, Primary Health Services, Mardan Pakistan

Dr. Faizan Ali Janjua
Pakistan Orthopedic and Cosmetology Center, Islamabad Pakistan

Dr. Sayed Sajjad Ali
Consultant Orthopedic Surgeon, DHQ hospital, Batkhela Pakistan

Dr. Afaq Uddin
Consultant Orthopedic Surgeon, MTI QHAMC, Nowshera Pakistan
Corresponding author email: afaq.6191@gmail.com

Irfan Ahmad
Master in Geriatric Physical Therapy, Clinical Physiotherapist at Din Medical and Cardiac Care Center, Peshawar, Pakistan

Ayaz Uddin
Physiotherapist, Atraf Rehabilitation Center, Al Ain UAE, Pakistan

Abstract---Dislocations of the shoulder are a serious and expensive issue. Younger males are more likely than older men to experience shoulder dislocations, with overall incidence rates ranging between 23.91 and 23.12 per 100,000 person/years. After initial closure reduction and sling immobilization of the traumatic anterior shoulder dislocation, this study will give us the most recent and accurate information about the severity of recurrence of dislocation. Aim: The goal is to determine the frequency of recurrent shoulder dislocation occurs following conservative treatment. Place and Duration: In the Orthopaedics Department, Khyber Teaching Hospital, Peshawar for six months duration from 28/6/2012 to 28/12/2018. Methods: A total of 172 patients were observed during this study. All patients had conservative treatment, which included manual shoulder reduction and three weeks of immobilization with a sling. In order to reduce bias, all treatments were carried out by a consultant orthopedic surgeon with at least seven years of experience, assisted by a senior

postgraduate resident. To check for the recurrence of the dislocation, all patients were instructed to maintain regular follow-up for the following three months. Patients those not come for follow-up were not included in the study. Results: In this study mean age was 38 years with SD ± 11.27. The male patients were 75% and 25% were female patients. 42 patients experienced recurrence, compared to 58% of patients who did not. Conclusion: Our study found that following conservative management of acute traumatic shoulder dislocation in a tertiary care institution, the probability of recurrent dislocation was 42%.

Keywords---acute traumatic, shoulder dislocation, conservative care, recurrent dislocation.

Introduction

Shoulder dislocations are a serious and expensive issue. Younger males are more likely than older men to experience shoulder dislocations, with overall incidence rates ranging between 23.91 and 23.12 per 100 000 person-years[1-2]. The most frequent causes for concern are recurrence rate, soreness, and impossibility to engage in sports. Particularly in populations with a higher recurrence risk, like physically active and young individuals, there is increased interest in determining the optimum course of action for patients with primary shoulder dislocation[3-4]. Additional psychological and financial expenses may be significant when a first-time traumatic anterior shoulder dislocation progresses to recurrent instability[5]. The reported instability rates range from 26% to 100%. Young athletes who sustain a dislocation may benefit from rapid stabilization, according to some authors[6-7]. Others have suggested that this will lead to surgical procedures being performed on people who are not at risk of additional instability. Therefore, improved decision-making about rapid surgical stabilization at the time of the initial dislocation is an objective that patients and the larger society should pursue[8-9]. After a dislocation, the main consequence is a high recurrence rate. Recent research, however, has fundamentally altered both conventional medical wisdom and treatment methods. The potential advantages of stabilizing the shoulder joint in external rotation following an initial anterior dislocation have been shown in clinical and cadaveric studies[10]. Recurrence rates are inversely related to age at the time of the original dislocation, with younger patients having a higher rate of repeated dislocation. Secondary injuries to the articular cartilage, humeral head, glenohumeral ligaments, posterior and anterior capsule, biceps tendon and glenoid accompany acute and recurrent anterior shoulder instability have high recurrence rate. At the time of the initial shoulder dislocation incident, severe injuries typically happen[11].

After the first traumatic event, recurrence rates might range from 20% to 94%, mostly dependent on the patient's age. Closed reduction and sling immobilization are traditionally the primary lines of treatment for an anterior dislocation in a previously healthy shoulder. There is debate concerning the ideal immobilization position and duration[12]. Recurrent shoulder dislocation after initial stabilization was estimated to occur in 39% of cases in one meta study and in 32.2% of cases

in another. The goal of the current investigation is to determine whether traumatic anterior shoulder dislocations reoccur following closed reduction and immobilization. As was already indicated, there is debate not only over the best course of treatment—surgical or conservative—but also when to start it because traumatic anterior shoulder dislocation has a significant recurrence rate[13-14]. Furthermore, the high recurrence incidence places additional financial strain on healthcare facilities as well as patients. This study will give us the most recent and up-to-date information about the severity of recurrence of dislocation following first closure reduction and sling immobilization of the traumatic anterior shoulder dislocation because it hasn't been conducted in our setup in the last five years[15]. Other local orthopedic surgeons will be informed of the study's findings, and based on those findings, suggestions for management and further research may be made.

Methods

This study was held in the Orthopaedics Department, Khyber Teaching Hospital, Peshawar for six months duration from 28/6/2012 to 28/12/2018. With the use of the consecutive non-probability sampling technique, 172 patients in all were enrolled.

Inclusion Criteria

- All patients with an acute traumatic anterior shoulder dislocation.
- Both sexes
- Patients must be between the ages of 18 and 60 and must present within 24 hours of the incident.

Exclusion Criteria

- Pathological fractures, as they also require primary pathology to be addressed.
- Humeral shaft fracture as seen on an X-ray.
- Posterior shoulder dislocation.

The aforementioned conditions operate as confounders and, if included, bring bias into the study. Prior to starting the study, the hospital's ethics committee gave its approval. The patient or his or her attendants provided their full, written consent. On pre-structured proforma, all the preoperative and postoperative data were gathered. The investigator gathered all the information. Patients hospitalized to the orthopedic department via casualty and OPD were the subject of the study. A thorough clinical examination and patient history were conducted. Preoperative lab testing and X-rays were performed. According to operational definitions, the diagnosis of anterior shoulder dislocation was made. All patients had conservative treatment, which included manual shoulder reduction and three weeks of immobilization in a sling. In order to reduce bias, all treatments were carried out by a consultant orthopedic surgeon with at least seven years of experience, assisted by a senior postgraduate resident. To check for the recurrence of the dislocation, all patients were instructed to maintain regular follow-up for the following three months. Patients that were unreachable were not included in the

study. The pre-design proforma contained all the data, including age, gender, nature of trauma, duration of trauma, and occupation. The study's results were controlled for confounders and bias using strict exclusion criteria.

SPSS version 22 was used to enter the acquired data into the computer for analysis. Means and standard deviations for numerical variables such age, length of trauma, and length of time the injured upper limb was immobilized after the initial injury were calculated using descriptive statistics. Frequencies and percentages were determined for categorical characteristics such gender, occupation, trauma kind, and recurrence. Recurrence was stratified among age, gender, occupation, type of trauma, duration of trauma and Duration of immobilization of affected upper limb after initial injury to see the effect modification. Chi square analysis after stratification was conducted, and a P value of 0.05 or higher was deemed significant. Tables and figures were used to present all of the results.

Results

In this study;172 patients were included and 117(68%) patients were 18-40 years of age, 55(32%) patients were 41-60 years of age. The mean age was 38 years with SD ± 11.27 (table no 1).

Table I
shows the gender distribution and age group distribution of patients

AGE	FREQUENCY	PERCENTAGE
18-40 years	117	68%
41-60 years	55	32%
Total	172	100%
GENDER	FREQUENCY	PERCENTAGE
Male	129	75%
Female	43	25%
Total	172	100%

Gender distribution among 172 patients was analyzed as 129(75%) patients were male while 43(25%) patients were female. Duration of trauma among 172 patients was analyzed as 119(69%) patients had duration of trauma ≤24 hours while 53(31%) patients had duration of trauma >24 hours. Mean duration of trauma was 24 hours with SD ± 2.03 (table no 2).

Table II
shows the duration of trauma

DURATION OF TRAUMA	FREQUENCY	PERCENTAGE
≤24 hours	119	69%
>24 hours	53	31%
Total	172	100%

Duration of immobilization of affected upper limb after initial injury among 172

patients was analyzed as 120(70%) patients had duration of immobilization of affected upper limb after initial injury ≤ 2 weeks while 52(30%) patients had duration of immobilization of affected upper limb after initial injury >2 weeks. Mean duration of immobilization of affected upper limb after initial injury was 2 weeks with SD ± 2.93 (table no 3).

Table III
shows the duration of immobilization of affected upper limb after initial injury

Duration of immobilization	FREQUENCY	PERCENTAGE
≤2 weeks	120	70%
>2 weeks	52	30%
Total	172	100%

Occupation among 172 patients was analyzed as 38(22%) patients had were employees, 60(35%) patients were workers, 52(30%) patients were students, 22(13%) patients were house wife. (table no 4).

Table IV
shows the occupation of patients

OCCUPATION	FREQUENCY	PERCENTAGE
Employee	38	22%
Worker	60	35%
Student	52	30%
House wife	22	13%
Total	172	100%

Type of trauma among 172 patients was analyzed as 124(72%) patients had trauma due to RTA while 48(28%) patients had trauma due to fall. (table no 5).

Table V
shows the type of trauma among patients

TYPE OF TRAUMA	FREQUENCY	PERCENTAGE
RTA	124	72%
Fall	48	28%
Total	172	100%

Recurrence among 172 patients was analyzed as 72(42%) patients had recurrence while 100(58%) patients didn't had recurrence. (table no 6)

Table VI
shows the recurrence rate among patients

RECURRENCE	FREQUENCY	PERCENTAGE
Yes	72	42%

No	100	58%
Total	172	100%

Discussion

Dislocations of the shoulder are a serious and expensive issue. Younger males are more likely than older men to experience shoulder dislocations, with overall incidence rates ranging between 23.91 and 23.12 per 100 000 person-years. The most frequent causes for concern are the frequency of recurrence, pain, and impossibility to engage in sports. Finding the best course of action for patients with primary shoulder dislocations is of growing interest, particularly in groups with higher recurrence risks, like young, physically active adults[15-16]. According to our study, the mean age was 38 years, with an SD of 11.27. Patients made up 75% male patients and 25% female patients. 52 patients experienced recurrence while 58% of patients did not.

Similar findings were shown in Shah FA et al study, in which 18 total patients (14 male and 4 female), with 32 years of mean, who met the inclusion criteria for traumatic anterior shoulder dislocation were treated with close reduction under general anesthesia and sling immobilization, followed by a supervised physical therapy programme[17-18]. Patients underwent routine clinical follow-up for at least two years to determine whether or not recurrent dislocation had emerged. The majority (75%, n=6) of the eight (47%) patients with recurrent shoulder dislocations were under 30 years old[19]. Patients who were younger than 22 years old at the time of their first dislocation had shorter (12–16 week) re-dislocation intervals and more dislocations overall (3-5). Recurrent dislocations occurred more frequently in patients with Bankart lesions (62.5 percent, n=5).

In conclusion, close reduction and immobilization in a sling used in non-operative treatment of traumatic anterior dislocation of shoulder result in a high rate of recurrent dislocation. Patients under the age of thirty had a higher likelihood of experiencing recurrent shoulder dislocation than patients over the age of thirty. Similar findings were found in a study by Old's M et al, where the pooled estimate of recurrent shoulder dislocation after initial stabilization was reported to be 39%, and in a study by Longo UG et al56, where the frequency of recurrence was reported to be 32.2% of cases[20-21].

Recurrence was also possible in older people, particularly in women, and there was a 30–40% chance of it. Another study found that the most important prognostic factor for shoulder recurrence, which affected 64% of patients under the age of 20 and 6% of those over the age of 40, was age. Kralinger and Golser also demonstrated that immobilization and physical therapy do not lower the risk of recurrence. Age between 21 and 30 years was the only factor linked to recurrence[22-23]. Additionally, they recommended that due to the elevated risk of recurrence, individuals in this age group who engage in high-risk sports activities undergo primary surgical stabilization. In another study, 76 individuals (14 female and 62 male) between the ages of 15 and 39 were randomly assigned to receive either conservative care (n = 39) or surgical repair (n = 37). 56% of patients who received conservative treatment experienced recurrence at least two

years later, compared to 3% of patients who underwent surgical surgery (P =.005)[24-25].

Conclusion

Our study found that following conservative management of acute traumatic shoulder dislocation in a tertiary care institution, the probability of recurrent dislocation was 42%.

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