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The Differences Between Cases With Primary and Recurrent Shoulder Dislocation: A Tertiary Center Study

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Abstract

Objective: The aim of this study is to compare demographic and clinical characteristics of cases with primary and recurrent shoulder dislocations.

Methods: Cases who presented to a tertiary center Emergency Medicine Clinic with shoulder dislocation between January 2013 and December 2016 were evaluated.The cases were divided into two groups as primary (Group 1) and recurrent (Group 2) dislocations.Characteristics such as age, gender, seasonal period, dislocation side, causes of trauma, accompanying additional injuries and treatment modalities were compared between the groups.

Results: 119 cases were included in the study. 64.7% (n=77) of the cases were classified as Group 1, and 35.3% (n=42) as Group 2. There was no difference between Group 1 and Group 2 in terms of age, gender and dislocation side (P values: 0.484, 0.570, 0.251, respectively). Inferior dislocations were more common in Group 1 (n=7/77) compared to Group 2 (n=1/42), and a statistically significant difference was found (p=0.009). Group 2 cases (n=19/42) were found to be more common in the spring than group 1 (n=17/77) (p=0.012). Additional injuries were detected in 8.4% of the cases (n=10/119), 8 of them were in group 1 and 2 of them were in group 2, and there was no statistically significant difference between the groups in terms of additional injury (p=0.491). 11.8% (n=14) of the cases were hospitalized by orthopedics for surgery (open reduction) or closed reduction under general anesthesia. Surgical treatment (open reduction) was applied in 23.8% (n=10/42) in Group 2, and 5.2% (n=4/77) in Group 1, and a statistically significant difference was found between the groups (p= 0.005).

Conclusion: It was found that surgical treatment was preferred more frequently on recurrent dislocations compared to primary dislocations. Therefore, we recommend that cases with a history of primary dislocation should take precautions for trauma during active periods of social life.

Key words: Shoulder dislocation; primary; recurrent; demographic

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Primer ve Rekürren Omuz Çıkıklı Olguların Karşılaştırılması: Bir Tersiyer Merkez Çalışması

Öz

Amaç: Bu çalışmanın amacı, primer ve rekürren omuz çıkıklı olguların demografik ve klinik özelliklerini karşılaştırmaktır.

Yöntemler: Ocak 2013-Aralık 2016 tarihleri arasında omuz çıkığı şikayeti ile üçüncü basamak Acil Tıp Kliniği'ne başvuran olgu

lar değerlendirildi. Olgular primer (Grup 1) ve rekürren (Grup 2) çıkık olmak üzere iki gruba ayrıldı. Yaş, cinisiyet, mevsimsel dönem, çıkık tarafı, travma nedenleri, eşlik eden ek yaralanmalar e tedavi yöntemleri gruplar arasında karşılaştırıldı.

Bulgular: Çalışmaya 119 olgu dahil edildi. Olguların %64,7'si (n=77) Grup 1, %35,3' ü (n=42) Grup 2 olarak değerlendirildi. Grup 1 ve Grup 2 arasında yaş, cinsiyet ve çıkık tarafı açısından fark bulunmadı (Sırasıyla p değerleri: 0.484,0.570,0.251). Grup 1' de (n=7/77), Grup 2' ye (n=1/42) kıyasla inferior çıkıklar daha yaygındı ve istatistiksel olarak anlamlı fark saptandı (p=0,009). Grup 2 olguların (n=19/42) ilkbahar mevsiminde, grup 1' e (n=17/77) göre daha yaygın olarak görüldüğü saptandı (p=0.012). Olguların %8,4' ünde (n=10/119) ek yaralanma saptandı bunların 8' i grup 1 olup 2 olgu grup 2 de yer almaktaydı ve ek yaralanma açısından gruplar arasında istatistiksel olarak anlamlı olarak bir fark bulunamadı (p=0.491). Olguların %11,8'i (n=14) ameliyat (açık redüksiyon) veya genel anestezi altında kapalı redüksiyon için ortopedi tarafından yatırıldı. Grup 2' de %23,8' inde (n=10/42) cerrahi tedavi (açık redüksiyon) uygulanmış olup, Grup 1' de ise %5,2' sinde (n=4/77) uygulandı ve gruplar arası istatistiksel olarak anlamlı fark saptandı (p= 0.005).

Sonuç: Sonuç olarak bu çalışmada rekürren çıkıklarda cerrahi tedavinin daha çok uygulandığı tespit edildi. Bu nedenle daha önce primer çıkık öyküsü olan olguların bir sonraki çıkık gerçekleşmesi durumunda cerrahi müdahalelerin artacağından dolayı sosyal hayatın aktifleştiği dönemlerde travmaya yönelik önlemler almasını önermekteyiz.

Anahtar kelimeler: Omuz çıkığı; primer; rekürren; demografik.

INTRODUCTION

Shoulder dislocation is the most frequently seen joint dislocation in the body and is the most important cause of shoulder instability[1]. In addition, it is the most mobile and the largest joint in the body. Therefore it is susceptible to trauma because it is one of the most active joints in the body. It takes part in the body's self-protection reflex, leading to frequent injuries[2]. Shoulder dislocations constitute approximately 45% of all joint dislocations and 85% of these are anterior dislocations[3].

Traumatic, atraumatic, micro traumatic, neuromuscular and congenital causes play a role in the etiology of shoulder dislocation. 96% of shoulder dislocations are traumatic (as a result of major trauma) and 4% are atraumatic (spontaneous)[4]. Shoulder instability is divided into two groups as acute and chronic according to the frequency of occurrence. The acute phase can be defined as an instability that manifests itself hours or days after the first (primary) dislocation. Dislocations other than this are defined as chronic. If the dislocation has occurred many times and is unstable, it is called recurrent shoulder dislocation[5,6].

Careful anamnesis and physical examination are very important in the evaluation of cases suspected for glenohumeral instability. The diagnosis of a patient who has applied to the emergency room with acute glenohumeral dislocation can be made with radiographs. Conservative treatment is primarily for dynamic factors. Most cases who have had acute traumatic shoulder dislocation for the first time are treated conservatively. The shoulders are conventionally immobilized for a certain period of time in internal rotation with an arm sling or Velpeau bandage[7]. In recurrent dislocations, surgical treatment is recommended to ensure range of motion and prevent subsequent instabilities[8].

The aim of this study is to compare demographic and clinical characteristics of cases with primary and recurrent shoulder dislocations.

METHODS

In this study, cases who presented to a tertiary center Emergency Medicine Clinic with shoulder dislocation between January 2013 and December 2016 were evaluated. Before the study, approval was obtained from the ethics committee of our university (Ethics committee number: 2018/222).

All cases with traumatic or spontaneous shoulder dislocation alone or accompanied by fracture and/or additional injuries, scanned with the ICD-10 code S40-S49 in the hospital data processing system, were included in the study. The diagnosis of shoulder dislocation was made in combination with clinical examination and imaging. Cases with incorrect ICD-10 code with no shoulder dislocation were excluded from the study. The data was obtained from the files in the hospital archive.

The cases were divided into two groups as primary (Group 1) and recurrent (Group 2) dislocations. Primary dislocation was defined as the first shoulder dislocation in a patient who did not have a shoulder dislocation before, and recurrent dislocation was defined as the dislocation of the same shoulder at least once before. Characteristics such as age, gender, seasonal period, dislocation side, causes of trauma, accompanying additional injuries and treatment modalities were compared between the groups. The dislocation side was evaluated as the right and left shoulder. Treatment modalities were divided into two groups as manual reduction and surgery.

Statistical Analysis

Data were presented as mean ± standard deviation and number (percentage). Chi-square test was used for categorical variables and Student-t test was used for continuous variables. While evaluating the differences between subgroups, Chi-square test was used for the data obtained by counting, and Mann-Whitney U test was used for the data obtained by measurement. OneWay ANOVA (One Way Analysis of Variance) and Kruskal Wallis test were used in multiple groups. SPSS 15.0 program was used for statistical analysis and P value <0.05 was considered significant.

RESULTS

154 cases files were evaluated during the study period. 35 cases with an incorrect ICD 10 code and no shoulder dislocation were excluded from the study. 119 cases were included in the study. 64.7% (n=77) of the cases were classified as Group 1, and 35.3% (n=42) as Group 2. There was no difference between Group 1 and Group 2 in terms of age, gender and dislocation side (P values: 0.484, 0.570, 0.251, respectively). Inferior dislocations were more common in Group 1 (n=7/77) compared to Group 2 (n=1/42), and a statistically significant difference was found (p=0.009). Group 2 cases (n=19/42) were found to be more common in the spring than group 1 (n=17/77) (p=0.012). Spontaneous dislocations were detected in 7 of 77 cases in group 1 and in 24 of 42 cases in group 2. Additional injuries were detected in 8.4% of the cases (n=10/119), 8 of them were in group 1 and 2 of them were in group 2, and there was no statistically significant difference between the groups in terms of additional injury (p=0.491). 11.8% (n=14) of the cases were hospitalized by orthopedics for surgery (open reduction) or closed reduction under general anesthesia. Surgical treatment (open reduction) was applied in 23.8% (n=10/42) in Group 2, and 5.2% (n=4/77) in Group 1, and a statistically significant difference was found between the groups (p= 0.005).

Demographic data and clinical characteristics were compared between the groups (Table I).

Table I: The demographic and clinical differences between the groups.

Characteristics	Group 1 (n=77, 64,7%)	Group 2 (n=42, 35,3%)	P value
Age	32,64±19.69	30.31±15.84	0.484
Gender			
Male	66	38	0.570
Female	11	4	
Type			
Anterior	69	41	0.157
Posterior	1	-	1.00
Inferior	7	1	0.009
Causes of Trauma			
Falls	56	12	<0,001
Traffic Accident	2	0	0,539
Sports Injuries	9	4	1,000
Others	3	2	1,000
Season			
Spring	17	19	0.012
Summer	22	8	0.279
Autumn	24	10	0.325
Winter	14	5	0.481
Dislocation Side			
Right	44	19	0.251
Left	33	23	
Extra Injury			
Yes	8	2	0.491
No	69	40	
Treatment			
Operation	4	10	0.005
Manual Reduction	73	32	

DISCUSSION

Demographic and clinical characteristics of cases with primary and recurrent shoulder dislocations were compared in this study. It was determined that dislocations occurring in the inferior location were more common in primary dislocations, recurrent dislocations were more common in the spring, and surgical treatment was mostly applied in recurrent dislocations.

A complex joint, shoulder joint consists of the glenohumeral joint, acromioclavicular joint, sternoclavicular joint, and scapulothoracic joint[9]. Glenohumeral dislocation is the most common joint dislocation in the body and is the most important cause of shoulder instability[1]. At the same time, it is the most mobile and the largest joint in the body, therefore it is susceptible to trauma because it is one of the most active joints in the body[2].

In many studies, one of the most important factors in determining the risk of recurrent dislocation is the age at which primary shoulder dislocation occurs[1,4,10]. In a study where Rowe et al.[4] followed 488 cases for 20 years, they found a recurrence rate of 83% in cases under 20 years of age and 16% above the age of 40. Similarly, Te Slaa et al.[10] found this rate as 64.40% under 20 years of age and 4% over the age of 20. When the literature was evaluated, we could not find a study comparing primary and recurrent dislocations in terms of age, gender and dislocation side. 42 (35.3%) of the cases in this study had recurrent dislocations, and no difference was found between primary and recurrent dislocations in terms of age, gender and dislocation side.

In a study comparing 33 primary and 111 recurrent dislocations, anteroinferior dislocations in the primary and recurrent groups were reported as 22 (66.6%) and 109 (98.1%), respectively. The incidence of anteroinferior dislocation was higher in recurrent cases than in primary cases[11]. When the literature was evaluated, no other study evaluating the location of primary and recurrent dislocations could be found. In the present study, cases were evaluated as anterior, inferior and posterior dislocations, and it was found that inferior dislocations were more common in primary dislocations, contrary to

the literature. We believe that this may be associated with the way the trauma occurs.

In the literature on shoulder dislocations, no study evaluating the relationship between shoulder dislocation cases and seasonal distribution was found. In this study, it was found that recurrent dislocations were more common in the spring than primary dislocations. We believe that this may be associated with temperature distribution. In addition, the fact that people spend more time outdoors and engage in more activities due to the increase in air temperature, and higher trauma exposure can also be a factor.

In studies evaluating additional injuries in the literature, Rowe et al.[4] reported additional pathology in 15% of the cases. Taş et al.[12] found additional pathology in 11.5% of the cases. In this study, additional pathology was found in 10 cases, and no statistically significant difference was found between the groups according to the literature.

In studies evaluating the causes of traumatic shoulder dislocation, it was found that an average of 75% of the shoulder dislocations were due to falls and almost all shoulder dislocations in women were due to falls. In men, sports injuries and traffic accidents have been identified as other important causes in addition to falls[1,12,13]. In this study, falls were the most common cause of trauma in both groups. Although the primary reason for recurrent dislocations is spontaneous dislocations, the most common traumatic cause with primary dislocations is falls.

In a study in which 33 cases with primary traumatic anterior shoulder dislocation were examined, closed reduction was applied to 17 of the cases and open reduction was applied to 16 cases[14]. While Kroner et al.[15] applied closed reduction to 85.5% of the cases and followed them as outpatients, 18.6% of the cases were hospitalized after closed reduction under surgery or general anesthesia. Apart from these, there are many treatment methods and techniques defined in cases with shoulder dislocation[16]. In this study, 105 of the cases were followed up as outpatients after closed reduction in consistent with the literature. The remaining 14 cases were hospitalized by orthopedics for surgery (open reduction) or closed reduction under general anesthesia. Ten of fourteen cases that underwent open reduction were in the recurrent dislocation group. Surgical treatment was more common in recurrent dislocations than primary dislocations.

CONCLUSION

It was found that the inferior location was more common in primary dislocations compared to recurrent dislocations, while recurrent dislocations were seasonally more frequent in the spring, and surgical treatment was preferred more frequently on recurrent dislocations compared to primary dislocations. Therefore, we recommend that cases with a history of primary dislocation should take precautions for trauma during active periods of social life.While the likelihood of surgical interventions will increase, another dislocation occurs.

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Ethics Committee Approval: Before the study, approval was obtained from the ethics committee of our university (Ethics committee number: 2018/222).

Declaration of Conflicting Interests: The authors declare that they have no conflict of interest.

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