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Treatment Approach to Acute Shoulder Dislocation: Educational Corner

Amin Khanjani[1], Alireza Moharrami[1], Nima Hosseini Zare[1], Mir Mansour Moazen Jamshidi[1], Amir Hosein Mafi[1], Milad Salehi[1], Seyed Mohammad Javad Mortazavi[2,*]

[1]Resident, Joint Reconstruction Research Center, Tehran University of Medical Sciences, Tehran, Iran
[2]Fellow, Joint Reconstruction Research Center, Tehran University of Medical Sciences, Tehran, Iran
[3]Professor, Joint Reconstruction Research Center, Tehran University of Medical Sciences, Tehran, Iran

*Corresponding author: Seyed Mohammad Javad Mortazavi; Joint Reconstruction Research Center, Tehran University of Medical Sciences, Tehran, Iran. Tel: +98-2161192767,

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Background

A dislocated shoulder may be caused by a traumatic injury or a weakened capsular ligament. A variety of conditions can negatively impact patients with shoulder dislocations by affecting their stabilizing structures (1). Dislocated shoulders are caused by traumatic events in 95% of cases, and atraumatic events in 5% of cases. To determine the true cause of a dislocation, it is essential to distinguish the type and severity of the event. This information is necessary when determining the treatment (1-3). A shoulder dislocation occurs in 1.7% of the population over their lifetime (4). This amounts to 24 per 100000 people per year in the United States (1). In over 95% of shoulder dislocations, the humerus is displaced anteriorly (5).

Shoulder Anatomy

Between an upper arm bone and a shoulder blade is the shoulder joint, shaped like a ball. Only a quarter of the head of the joint (caput humeri) is in contact with the joint (cavitas glenoidalis). As a result of this design, the shoulder is able to move widely, but this is why it also wears out over time and axle luxation is so common. The glenohumeral ligaments, the joint capsule, the rotator cuff muscles, and the bony cartilaginous anatomy of the shoulder contribute to shoulder stability. Ligaments and the capsule complex are the main stabilizing structures at the shoulder joint. A dislocated anterior shoulder involves several ligaments, but the inferior glenohumeral ligament is the most important and most commonly injured. Those structures can be injured through a tear in the ligament capsule from its bony attachment, resulting in a stretch injury. Shoulder instability may also result from tears in the rotator cuff. The shoulder contains four rotator cuff muscles (supraspinatus, infraspinatus, subscapularis, and teres minor). The ligaments and the bones under them are known as the glenohumeral joints. Even with intact glenohumeral ligaments, large rotator cuff tears can cause shoulder instability. It is also possible to develop shoulder instability if the nerve that controls the shoulder muscle is injured, in particular the axillary nerve.

Therapeutics

It is vital to achieve adequate muscular relaxation in order to reduce shoulder dislocation. Usually, an experienced clinician can perform a successful reduction without any analgesia or sedation. In the event that these initial attempts are not successful, the clinician may proceed to using intra-articular analgesia (usually 10 ml of 1% lidocaine infiltrated by a lateral approach into the joint), since it has been shown to be a safe and effective treatment option. Alternatively, sedation [intravenous (IV) benzodiazepines (BZDs) and/or nitrous oxide and oxygen] with or without analgesia (major opioids) could be used (6).

In traditional management, the arm was immobilized in a sling with the shoulder in adduction and internal rotation (IR) for 3 weeks. Currently, both the duration of immobilization and the position of the arm are controversial. According to Kiviluoto et al. in 1980 (7), the classical study included patients with shoulder dislocations under 30 years of age. After one week of immobilization, the recurrence rate was 50% in 26 cases, but it was 22% in 27 cases after three weeks of immobilization. The duration of immobilization in IR appears not to affect recurrent instability, as more recent evidence indicates (8).

Itoi et al.'s study, which exposed 198 patients to either IR or external rotation (ER) for three weeks, found the ER immobilization group to have a significantly lower recurrence rate (26% vs. 42%). Patients younger than 30 years of age benefited most from immobilization in the ER position (9). Researchers have shown in cadaveric specimens and in magnetic resonance imaging (MRI) studies that immobilization after reduction might improve healing of resulting labral tears. The position of the ER after reduction did not decrease the incidence of recurrence in large randomized controlled trials (10). Cochrane systematic review assessed these and other reports and concluded that there was not enough evidence to suggest a specific immobilization protocol (11).

It has become increasingly controversial to use this traditional approach in the management of glenohumeral dislocations due to the high recurrence rate observed, as high as 92-96 percent in young active patients (12).

Three main reasons are given in the literature for the recommendation of immediate stabilization over conservative treatment: (a) the young athletic population has an unacceptable recurrence rate, (b) recurrent instability is associated with soft tissue and bone damage, and (c) there is a clear improvement in quality of life associated with surgery (13).

In a prospective study of 223 patients with first time shoulder dislocations over a 25-year period, Hovelius and

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Saeboe discovered significant shoulder arthropathy 25 years after the first episode. In patients who had suffered from more than one dislocation (40%) compared to a single episode (18%), arthropathy was more prevalent (14). The study by Buscayret et al. examined osteoarthritis (OA) in patients with anterior shoulder dislocations and found similar results. In addition, they found that the rate of postoperative OA also increased as the number of instability episodes increased (15). Recent studies have found that arthroscopic stabilization reduces the rate of recurrence of dislocation when compared to non-operative treatment (16, 17).

Conclusion

Dislocation of the shoulder occurs mostly due to trauma. Many patients need to relocate their joints in the emergency room. Dislocated shoulders should be treated with diagnostic modalities such as arthroscopy, MRI, and others after relocating them. It is possible that recurrent dislocations, labral lesions, and OA may result from a missed shoulder injury. Therefore, evaluating the shoulder joint following a dislocation is crucial.

Conflict of Interest

The authors declare no conflict of interest in this study.

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