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Management of first time shoulder dislocation

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ABSTRACT

Glenohumeral dislocation is a common emergency department presentation. It is most often a traumatic anterior dislocation and occurs most frequently in young, active male patients. Shoulder instability and further dislocations may occur following primary dislocation, and these are associated with shoulder joint pathology and loss of function. Younger patients are more likely to experience further instability events, while shoulder dislocation is more often a singular event in older patients. There is debate regarding whether first time dislocators should be managed surgically or conservatively. This article discusses the evidence in the literature and current guidelines for the management of first time shoulder dislocation, proposing surgical management for young active patients following a first-time dislocation, most often an arthroscopic labral repair.

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1. Introduction

The glenohumeral joint has the greatest range of movement of all joints in the body. This comes at the expense of being unstable.¹ This is reflected by the frequency of emergency department presentations: glenohumeral joint dislocations are the most common of all large joints with an incidence of 17 per 100,000

per year.² The vast majority are anterior dislocations, and follow a traumatic injury.³ Overall, shoulder dislocations are most commonly seen in athletes, males and in the young.^{4,5}

A first-time anterior dislocation can cause damage to a number of different anatomical components of the shoulder joint. 'Bankart' lesions are the most common: first described in 1923,⁶ this avulsion of the glenoid labrum from the scapular periosteum increases the probability of further anterior instability, and occurs in 86–100% of young patients.⁷ Further damage to the ligaments, specifically the middle and superior glenohumeral ligaments, and labrum may occur as isolated injuries or more frequently in combination with Bankart lesions.² Damage to the posterolateral humeral head caused by impaction with the harder anterior glenoid causes a 'Hill-Sachs lesion' which is seen in 54% of anterior dislocations,⁸ and occurrence

Abbreviations: BESS, British Elbow and Shoulder Society; BOA, British Orthopaedics Association; EFORT, European Federation of National Associations of Orthopaedics and Traumatology.

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increases with frequency of dislocation. Glenoid bone loss is seen in 8%,⁹ and rotator cuff and greater tuberosity fracture are seen more frequently in older patients.⁸ Nerve injury is relatively common with the axillary nerve being affected in 10%, while vascular injury occurs in approximately 2% of anterior dislocations.⁸

Reduced joint stability may result following dislocation, and is especially problematic in young active patients. In 2006, Robinson et al followed 252 patients managed conservatively and demonstrated that 87% of those aged under 20 will re-dislocate, but only 30% of those over 30 years old.¹⁰ A comparison of findings in patients with recurrent instability as compared with primary dislocators demonstrated increased frequency of rotator cuff tears, anterior labral periosteal sleeve avulsion (ALPSA) lesions, intra-articular loose bodies and capsular laxity,¹¹ while another study compared acute instability patients with those with six or more instability events and demonstrated increased rates of glenoid bone loss and ALPSA lesions.¹² These findings suggest that further instability events after primary dislocation may cause progressive damage to the glenohumeral joint.

For patients with ongoing instability unresponsive to conservative management following traumatic dislocation, surgery can be considered. However, there remains a debate in the literature regarding the best management following the first episode of shoulder dislocation. This review aims to examine the literature for current evidence for best practice in the management of first time dislocators, examining national and international guidelines, and briefly discussing our own practice.

2. Initial management of glenohumeral joint dislocation

Initial management of shoulder dislocation is generally regarded to be a closed reduction as soon as is feasible. The combined British Elbow and Shoulder Society (BESS) and British Orthopaedics Association (BOA) guidelines for traumatic anterior shoulder instability describe a pathway for management.³ Dislocations should be reduced in a hospital environment, with no attempt at pre-hospital reduction unless in specific controlled circumstances. Plain radiographs in two views should be acquired before reduction; one should be in the anterior-posterior plane and one in the axial if possible. A Wallace¹³ or lateral scapular view is adequate if an axial view is prevented by pain. This is to confirm the type of dislocation (e.g. anterior/posterior), and also to ensure no other associated bony injury can be seen, such as a tuberosity fracture or humeral neck fracture.

If closed reduction is appropriate, neurovascular status should be recorded beforehand. Reduction is often first attempted under sedation in the emergency department but may require general anaesthesia. Two radiographic views are then acquired post-reduction, and neurovascular status recorded again.

In our practice, closed reduction is performed under sedation in the Emergency department. The reduction technique preferred is longitudinal traction in the line of the scapula, with counter traction used if necessary. We do not recommend the use of any rotational movement in reduction, especially in patients over 50 years old, due to the possibility of causing an iatrogenic injury, such as a proximal humeral fracture.

3. Post-Reduction management

Following glenohumeral joint relocation there is debate regarding the appropriateness of surgical management: who requires surgery, and when, as well as the type of surgery performed.

3.1. Conservative management

There is some debate about whether immobilisation in external or internal rotation is most effective. Itoi et al. demonstrated that

when the shoulder was placed in external rotation, the displacement of a labral tear was reduced on MRI, suggesting this could cause improved healing and therefore reduce recurrence.¹⁴ However, other studies have demonstrated that the position of immobilisation to be equivocal, with no significant reduction in recurrence in external versus internal rotation.¹⁵

A survey of BESS members in 2009 showed that time scale of immobilisation of a young patient (aged less than 25 years old) varies considerably between surgeons, who opted for 0–6 weeks.¹⁶ This brings into question the efficacy of immobilisation following dislocation, and some studies have investigated recurrence rates and found no difference when comparing immobilisation for a prescribed period of time as opposed to immobilising to patient comfort.^{17,18} Further, older patients achieve maximal recovery when mobilised as soon as possible following an instability event.⁷

In our own practice, patients are often sent home in a simple shoulder immobilising sling in internal rotation from the Emergency Department following uncomplicated closed reduction. The images of all patients sustaining dislocations are then reviewed by a consultant orthopaedic surgeon, and triaged to appropriate follow-up, be this primary physiotherapy or to see a shoulder specialist surgeon within the next week. At this point, a decision is made about the requirement of a sling, and the management of the dislocation.

3.2. Surgical management

There has been a recent trend in the literature towards offering surgery to young first time dislocators. In 2002, 35% of British upper limb surgeons would offer surgery to these patients if aged 17–25 years old, while in 2009 68% would offer this surgery.¹⁶

A longitudinal study of over 250 first time dislocators in Sweden over the course of 25 years was conducted by Hovelius et al.⁹ They demonstrated that patients under 22 have 51% recurrence within 2 years, while only 33% felt their shoulder had become stable. In patients over 40 years of age shoulder dislocation is more likely to be a singular event.⁸ Sachs et al studied a population of 131 dislocators for an average of four years.¹⁹ Of the 90 patients aged under 40 years old, 39 (43%) had one or more further dislocations, with 37 (95%) of these involved in contact sports or jobs requiring reaching above the chest or head. Only four (10%) of those aged over 40 years old had a recurrent dislocation, none requiring surgery. It has therefore been suggested that a “watch and wait” strategy may be justified in the older population, and given their different sequelae of injuries they require a different treatment pathway as compared with the younger dislocators.⁷ While older patients are less likely to have further instability, rotator cuff injuries are far more common.

Repair of these concomitant injuries in the acute setting in this group of patients can improve pain, stability and patient satisfaction.²⁰ BESS guidelines reflect this, suggesting urgent radiological assessment using ultrasound or magnetic resonance imaging if appropriate in patients over 40 years old.³

The impact of further instability events in young patients must be taken into account when considering the possibility of surgical management. Hovelius et al argue that 65% of their young (up to 22 years old) patients with dislocations had spontaneously stabilised by 25 year follow-up, and suggested that stabilising all patients under the age of 25 would result in at least 30% being unnecessary operations.⁹ However, this only takes into account shoulder stability as an outcome. Other studies show faster return to baseline activity for both civilians and to service for military personnel.²¹

First time dislocators are more likely to undergo arthroscopic labral repairs and/or capsular plication, while recurrent dislocators are more likely to require open Bristow-Laterjet procedures and

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