

Editorial Commentary: Natural History of Shoulder Dislocation—Is Recurrence Our Only Metric?



Abstract: The natural history of a traumatic anterior glenohumeral dislocation has been the subject of significant study, often with differing results depending on the population studied. Most studies have focused on recurrent dislocation as the primary outcome of interest, whereas metrics such as subluxation, return to athletics, and patient-reported outcome scores are also available in limited studies. The known risk factors for recurrence include young age and male gender. Surgical stabilization should be considered in populations at higher risk of recurrence and has been shown in Level I studies to result in reduction of recurrence and improvement in patient-reported outcomes.

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The natural history of the traumatic anterior glenohumeral dislocation has been the subject of study for many decades. However, the results have often been disparate and appear to be a reflection of the characteristics of the population studied. The general consensus in the literature is that male gender and young age (<20 years) are significant risk factors for recurrent instability.

Wasserstein et al.¹ report this month on the “true recurrence rate” and risk factors using a systematic review of available prognostic prospective studies in the literature. They are applauded on performing a quality scientific investigation of the available data and are appropriately self-critical of the limitation of their review due primarily to the quality of the data available. Of the 15 studies used, 6 were performed before 2000 (1950 to 1993). Fourteen of the studies combined included 2,126 patients, whereas 20,719 additional patients in the analysis were from a single study.² This study was performed by many of the same authors as the systematic review and was performed using coding data to determine initial dislocation as well as recurrent dislocation requiring manual reduction in a formal health care setting. Studies using large administrative datasets such as this have the strength of great numbers but have significant methodologic limitations. Unfortunately, this single study accounted for 90% of the pooled patients in this systematic review and had a reported recurrent dislocation rate of 19%. The 14

other studies had a range of 21% to 88% and a pooled recurrence rate of 41%. I would challenge this use of 19% as the “true” rate of recurrence after initial shoulder dislocation in a general population.

The authors of this systematic review have appropriately selected available prospective cohort studies. Yet, many data also exist among randomized controlled trials, and the surveillance of these studies may be superior to other study designs. One recent systematic review reported recurrence rates among nonoperatively treated initial anterior dislocations of 46% at 2 years and 58% at longer-term follow-up.³ The inclusion of these data may warrant consideration.

Another stated limitation of the study of Wasserstein et al.¹ was the differing definitions of recurrence. Some studies used radiographic evidence of a dislocation event, whereas others counted patient-reported subluxation events as well as anterior apprehension on examination. These differing definitions beg the question: What are the important metrics after an initial shoulder dislocation? Most studies in the literature, as shown in the review of Wasserstein et al., focus on recurrent dislocation. However, the absence of this outcome may not represent a successful outcome. Patients may choose to cease participation in athletics or overhead work because of the sensation of instability or fear of dislocation, and they may never have a recurrent event yet not be considered to have a successful outcome. Patients may also have chronic recurrent subluxation events and not meet the definition of recurrence in many articles yet not be considered to have a successful outcome. Three randomized controlled trials comparing surgical stabilization with nonoperative

treatment have all shown superior patient-reported outcome scores, irrespective of the measure tested, among the surgical arms: Bottoni et al.⁴ reported superior Single Assessment Numeric Evaluation scores in the surgical group, Kirkley et al.⁵ reported superior Western Ontario Shoulder Instability scores in the surgical group, and Jakobsen et al.⁶ reported superior Oxford scores in the surgical group. The study by Jakobsen et al. reported a good or excellent Oxford score in only 25% of the non-surgically treated arm despite only observing a recurrent dislocation rate of 56%. These data suggest that relying solely on the metric of recurrent dislocation is simply not enough—we can do better than this now.

Wasserstein et al.¹ are commended on this study for confirming the risk factors of male gender (odds ratio [OR], 2.68) and patient age less than 20 years (OR, 12.76). In addition, the finding of a greater tuberosity fracture (OR, 3.8) conferring increased risk is extremely helpful, given that these typically occur in older patients who are at a lower risk because of age and activity level. The risk of recurrence among young male patients in this pooled analysis approached 80%. This is also the population at greatest risk of initial instability^{2,7} and the population comprising the best candidates for consideration of surgical stabilization.

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References

1. Wasserstein DN, Sheth U, Colbenson K, et al. The true recurrence rate and factors predicting recurrent instability after nonsurgical management of traumatic primary anterior shoulder dislocation: A systematic review. *Arthroscopy* 2016;32:2616-2625.
2. Leroux T, Wasserstein D, Veillette C, et al. Epidemiology of primary anterior shoulder dislocation requiring closed reduction in Ontario, Canada. *Am J Sports Med* 2014;42:442-450.
3. Brophy RH, Marx RG. The treatment of traumatic anterior instability of the shoulder: Nonoperative and surgical treatment. *Arthroscopy* 2009;25:298-304.
4. Bottoni CR, Wilckens JH, DeBerardino TM, et al. A prospective, randomized evaluation of arthroscopic stabilization versus nonoperative treatment in patients with acute, traumatic, first-time shoulder dislocations. *Am J Sports Med* 2002;30:576-580.
5. Kirkley A, Griffin S, Richards C, Miniaci A, Mohtadi N. Prospective randomized clinical trial comparing the effectiveness of immediate arthroscopic stabilization versus immobilization and rehabilitation in first traumatic anterior dislocations of the shoulder. *Arthroscopy* 1999;15:507-514.
6. Jakobsen BW, Johannsen HV, Suder P, Sojbjerg JO. Primary repair versus conservative treatment of first-time traumatic anterior dislocation of the shoulder: A randomized study with 10-year follow-up. *Arthroscopy* 2007;23:118-123.
7. Zacchilli MA, Owens BD. Epidemiology of shoulder dislocations presenting to emergency departments in the United States. *J Bone Joint Surg Am* 2010;92:542-549.