



# The Surgeons' Dilemma: Revision Instability in the Athlete

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Management of the athlete who has failed one or more prior primary shoulder stabilization procedures is a great challenge for the orthopaedic surgeon. With the risk of recurrence of instability being greater in the revision setting, a systematic approach to treat these patients is of great importance. This article will discuss the causes of recurrent shoulder instability, including improper diagnosis, ligamentous laxity, and technical errors and the various treatment options that should be explored. An algorithm for the treatment of athletes with recurrence of instability following a failed primary shoulder stabilization procedure will be presented to help the surgeon in determining the best mode of treatment for their patients. *Oper Tech Sports Med* 22:124-130 © 2014 Elsevier Inc. All rights reserved.

**KEYWORDS** revision instability, shoulder, revision bankart, revision latarjet, revision remplissage, bone graft

Anterior shoulder instability is a common shoulder injury, which can be devastating to an athlete's career. In fact, shoulder stabilization procedures have been shown to shorten the expected career of professional American football athletes by more than 1.5 years.<sup>1</sup> Reports have shown the risk of recurrence in young athletes to be as high as 100% with nonoperative treatment.<sup>2-6</sup> Although stabilization procedures successfully reduce the risk of recurrence in athletes, the procedure is not without complications. Failure rates following stabilization procedures range from 6.7%-13.0% in noncollision athletes, 0%-19.4% in contact athletes, and 9.0%-33.3% in collision athletes.<sup>7-10</sup> Even though this may seem like a bleak outcome for the athlete with shoulder instability, we believe, no different than others, when carefully thought through, stabilization procedures in athletes can return the glory days to many athletes with great success.

In the shoulder without any bony defects, arthroscopic and open Bankart procedures have high success rates in the primary repair setting.<sup>9,11-15</sup> Glenoid bone loss and humeral head defects have been substantiated as important factors for

success of outcomes in anterior instability procedures but even more important to recognize in the shoulder that has failed primary instability procedures. Unrecognized or ignored bone loss of greater than 25% has been indicated as the predominant risk factor for failed anterior stabilization repairs.<sup>16</sup> This bone loss, often seen as an inverted pear-shaped glenoid described by Burkhart and De Beer,<sup>17</sup> has been associated with high recurrence in athletes.<sup>18,19</sup> In the setting of bone loss greater than 25%, the following procedures are considered as viable options for patients: arthroscopic Bankart with bone incorporation, arthroscopic Bankart with internal fixation of the bone fragment, open Bankart repair with bone augmentation (eg, tibial, iliac crest and other allograft sources), open or arthroscopic Latarjet, and soft tissue plication or capsular shift added to the aforementioned procedures as necessary.

Treatment options for the athlete with a failed instability procedure and subsequent recurrent episodes of instability are a great challenge to orthopaedic surgeons. Little has been written about the topic in the past. Meticulous examination and exploration of underlying causative factors contributing to recurrence is of utmost importance to determine the most appropriate course of treatment to revise athletes and get them back on the playing field. It is important when approaching this population to have a true understanding and appreciation of the associated ligamentous laxity, number and type of prior injuries (eg, subluxation vs dislocation events), number and type of prior procedures, and associated soft tissue or bony

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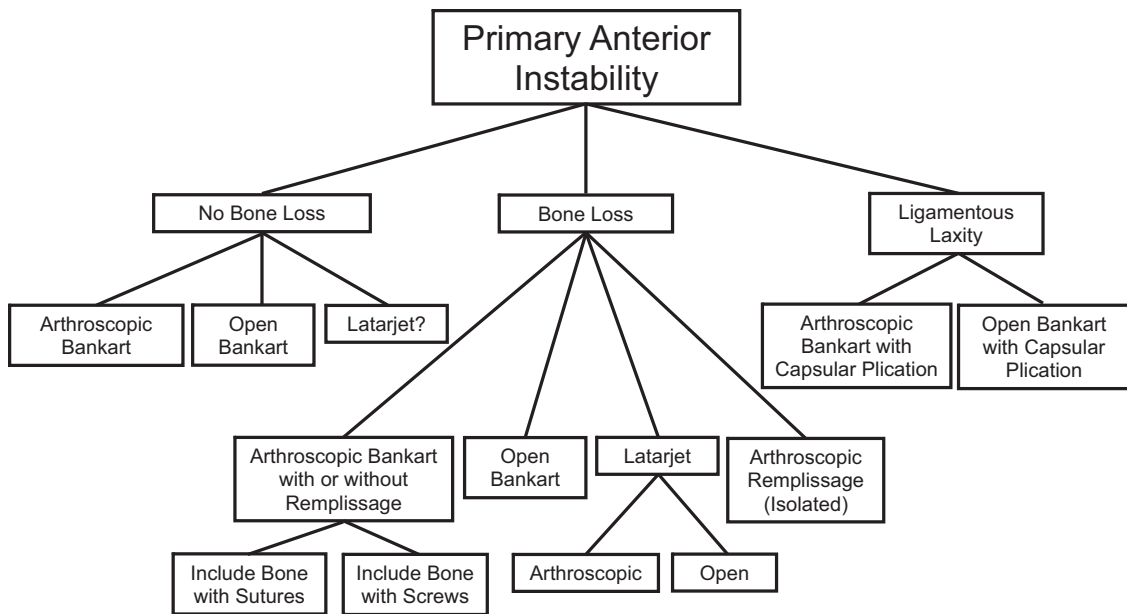


Figure 1 An algorithm for the treatment of primary anterior shoulder instability.

pathology. Our algorithm understands the risks and most appropriate procedure to yield a predictable outcome in the athlete with recurrent instability (Figs. 1 and 2).

This article explores the primary causes of failure for primary repair procedures and evaluates the evidence for treatment options in the athlete that has failed 1 or more previous stabilization procedures and continues to have subluxation or dislocation episodes with our recommendations for success.

### Reasons for Failure of Primary Repair

Despite the many successes reported for instability procedures, failures do occur. For the collision or contact athlete, a dislocation episode is likely the defining factor for a failed procedure, whereas, pain, stiffness, and weakness may be perceived as failure in the noncontact or overhead athlete.<sup>20</sup>

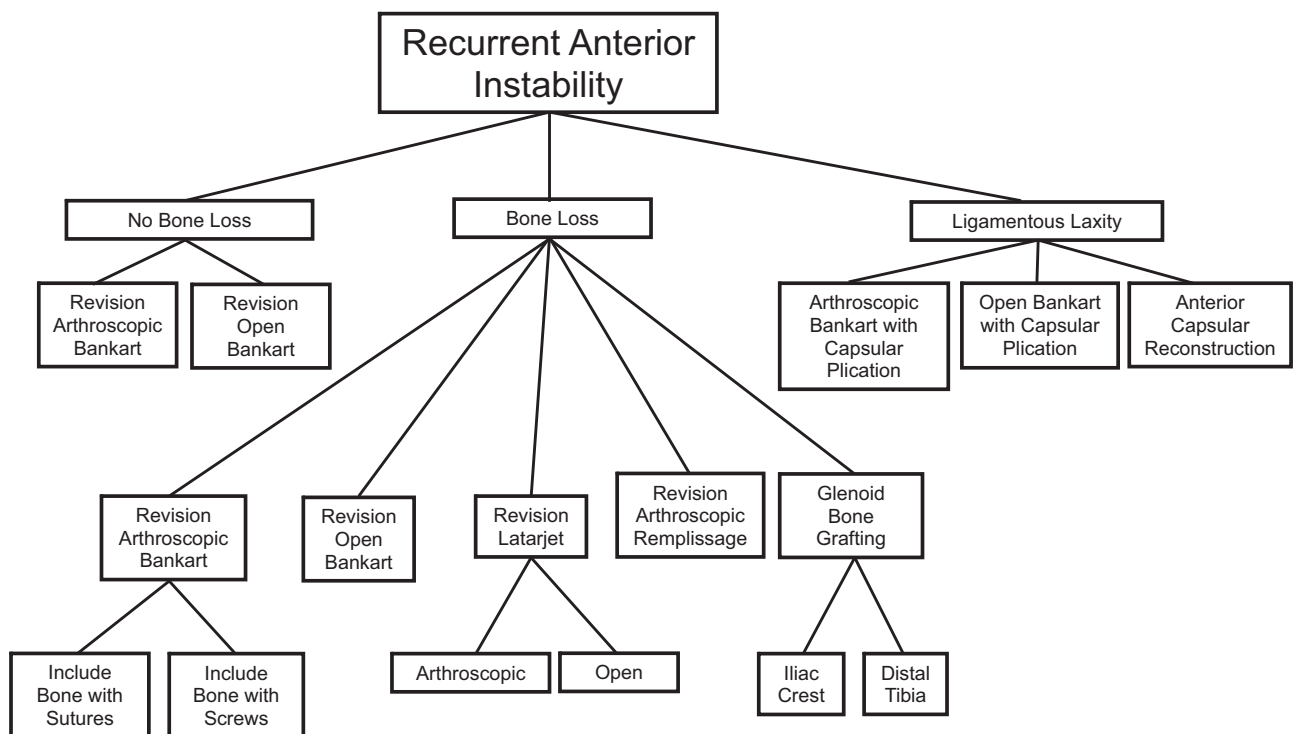


Figure 2 An algorithm for the treatment of anterior shoulder instability in patients who have failed a primary shoulder stabilization procedure.

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