Abstract

Recurrent instability in patients over forty years of age is felt to occur primarily as a result of an associated rotator cuff tear. This is often referred to as the “posterior mechanism.” We reviewed our patients over the age of forty who underwent an anterior shoulder repair to identify the incidence of capsulolabral detachments and the role of an “anterior mechanism” in this patient population. A retrospective review of all patients from 1985 to 2000 was performed to identify patients who had surgery for recurrent instability that began after forty years of age. Of the 265 patients reviewed, 11 patients were identified who fulfilled the inclusion criteria. Of the 11 patients identified, 9 patients underwent anterior capsulolabral reconstruction for recurrent instability; the remaining two patients underwent repair of large rotator cuff tears. All 9 patients had a capsulolabral detachment, 4 had a rotator interval defect, 2 had anterior and inferior capsular redundancy, 1 had a small rotator cuff tear and 1 had an anterior capsular avulsion from the humeral head. At minimum follow-up of 32 months none of the patients reported episodes of instability. The reported incidence of rotator cuff tears in patients over the age of forty following an initial traumatic anterior glenohumeral dislocation ranges from 35% to 100%. When recurrent instability occurs, it is postulated to occur via a “posterior mechanism” (i.e., secondary to a significant full-thickness rotator cuff tear). However, all of our patients had an anterior capsulolabral detachment as the “common lesion” associated with recurrent instability. Although small, this series emphasizes the role of the “anterior mechanism” in patients who develop recurrent instability after the age of forty. A high rate of success was achieved by addressing the pathoanatomic changes identified.

Historically, recurrent anterior instability is recognized primarily as a problem of younger patients. Rowe1 reported that the incidence of shoulder dislocation before and after the age of 45 was roughly equivalent. However, many investigators have shown that the incidence of recurrence is significantly higher in younger patients.2-3 The consequences of initial anterior glenohumeral dislocations in patients over forty years of age are quite different than in the younger population primarily because of the increase incidence of rotator cuff tears and associated neurovascular injuries.4-9 McLaughlin10 postulated that either the anterior or the posterior supporting structures of the shoulder should be disrupted following an anterior dislocation. In the younger patient, anterior capsuloligamentous structures most commonly fail. However, in the older patient with preexisting degenerative weakening of the rotator cuff, it is more likely that the posterior structures fail rather than the anterior structures. Craig11 popularized the “posterior mechanism” of acute anterior shoulder dislocations in older patients. He reported on three patients older than 60 years of age who sustained traumatic anterior glenohumeral dislocations followed by recurrent episodes. All three patients had disruptions of the posterior supporting structures (i.e., rotator cuff or a greater tuberosity avulsion fracture). It has been our impression that the anterior mechanism is also an important consideration in patients who develop recurrent anterior glenoid instability with the first episode occurring after 40 years of age. Therefore, we retrospectively reviewed all of our patients.

Recurrence Anterior Glenohumeral Instability with Onset after Forty Years of Age
The Role of the Anterior Mechanism

Arash Araghi, M.D., Mark Prasarn, M.D., Selvon St. Clair, M.D., Ph.D., and Joseph D. Zuckerman, M.D.
who were treated for recurrent anterior glenohumeral instability with onset after 40 years of age.

**Materials and Methods**

Between 1985 and 2000, 265 patients underwent open anterior shoulder repair for recurrent anterior glenohumeral instability. A review of the patient’s records identified 11 patients with recurrent anterior glenohumeral instability with the onset after 40 years of age who had undergone operative management. The initial dislocation for each followed a traumatic event that occurred after age 40. This group of 11 patients included eight males and three females. Dominant extremities were involved in seven patients. The retrospective chart review indicated that two of the 11 patients had large rotator cuff tears. These two patients underwent acromioplasty and repair of the rotator cuff tear as the primary treatment of the recurrent instability and will not be considered further in this report. This report will focus on the remaining nine patients. The average age of these patients was 52.5 years (range: 44 to 55 years). Patients averaged 4.1 episodes of instability prior to the surgery (range: 1 to 12 episodes). Average range of motion preoperatively was 163° of forward elevation (range: 125° to 175°), external rotation of 61° (range: 40° to 85°), internal rotation to the T12 level (range: T8 to L5). The preoperative average Rowe score was 31 (range: 15 to 45).

The operative reports of all patients were reviewed to identify the pathoanatomic findings (Table 1). All patients were contacted and asked to return for a clinical evaluation. The follow-up report is based upon the most recent clinical evaluation performed.

All nine patients underwent a standard approach for patients with recurrent anterior instability. Following an examination under anesthesia, the patients underwent an open anterior shoulder repair. The subscapularis tendon was dissected off the underlying capsule. The findings included anterior capsulolabral detachment in all patients, rotator interval defects in four patients, and capsular redundancy in two patients. One patient had a small full-thickness rotator cuff tear that was not felt to significantly contribute to the recurrent instability and was found in association with anterior capsuloligamentous detachment. One patient had a capsular avulsion from the anterior inferior humeral neck. This was also found in combination with an anterior capsulolabral detachment. All pathoanatomic findings were addressed at the time of surgery. Patients with anterior capsulolabral detachment underwent reattachment to the anterior glenoid using sutures passed through bone tunnels. Excessive capsular volume was addressed by an inferior capsular shift. Rotator interval defects were closed. The small rotator cuff tear was repaired using tendon-to-bone sutures. The capsular tear was repaired primarily. In this patient an inferior capsular shift was not performed in order to avoid excessive capsular tightening. All patients were maintained in an arm sling postoperatively for up to three weeks. At that point active range of motion of the shoulder was begun focusing on forward elevation, external rotation, and internal rotation behind the back. Strengthening was initiated six weeks following the surgery beginning with isometric exercises and followed by resistive exercises. Patients were allowed to return to activities on a gradual basis with return to full activity approximately nine months following the procedure.

**Results**

Patients were evaluated an average of 68 months following the procedure (range: 32 to 125 months). All patients reported successful outcomes. There were no episodes of recurrent instability, including subluxations or dislocations. At the time of the most recent follow-up, average postoperative forward elevation was 170° (range: 150° to 180°), external rotation 60° (range: 35° to 80°) and internal rotation to T12 (range: T8 to L5). The average postoperative Rowe score was 89. All patients indicated they were satisfied with the outcome of the procedure and were able to return to their desired level of activity both for work and recreation.

**Discussion**

Recurrent anterior glenohumeral instability has primarily been studied in the younger patient population. The majority of the literature on anterior shoulder instability in the patients over the age of forty has focused on the incidence of rotator cuff tears and associated nerve injuries. The reported incidence of rotator cuff tears has varied from 35% to 100% in this patient population. Recurrent instability in this age group is not as common as the younger group. When it does occur it has been reported to represent the destabilizing effect of a rotator cuff tear (i.e., posterior mechanism). Rowe reported recurrent instability in 14% of his patients over the age of forty. Simonet and Cofield reported recurrent instability in none of their 41 patients over forty years of age. Peny reported recurrent instability in 4% of their 52 patients over forty years of age. Guminia and Postacchini reported recurrent instability in 22% of their patients over 60 years of age. Finally, Hawkins reported on 39 patients with initial anterior glenohumeral
instability after age 40 and identified recurrence in only four patients. However, 35 of his patients had clinical evidence of rotator cuff tears. In a separate subgroup Hawkins identified eight patients who underwent surgery for recurrent anterior glenohumeral instability after the age of forty. Only two of the eight patients had a rotator cuff repair and the remainder had anterior capsulolabral compromise, a mechanism similar to that which we describe for the nine patients in our series. Neviasser reported on 11 patients with recurrent anterior instability after the age of forty years. All patients in his series had disruption of the subscapularis mechanism, a finding that was not identified in any of our patients and has not been reported by others. One patient in our series did have the unusual finding of an anterior capsular tear, which represented an avulsion from its attachment to the anterior humeral neck. He did not identify capsulolabral detachment in any of his patients. In our series of 11 patients only two exhibited recurrent instability as a result of a posterior mechanism. The remaining nine had recurrent anterior instability as a result of compromise of the anterior capsulolabral stabilizing structures.

It is well known that there is a significant incidence of full-thickness rotator cuff tears when anterior dislocation occurs in older patients and that this “posterior mechanism” can be the cause of recurrent instability. However, when recurrent instability does occur in the absence of a significant rotator cuff tear the “anterior mechanism” must be considered as an important contributing factor. Our small series emphasizes the role of this mechanism in recurrent anterior glenohumeral instability that occurs in older patients and shows that successful results can be achieved with anterior shoulder repair.

References