The Value of Arthroscopy Before an Open Modified Latarjet Reconstruction

Paolo Arrigoni, M.D., David Huberty, M.D., Paul C. Brady, M.D., Ian C. Weber, M.D., and Stephen S. Burkhart, M.D.

Purpose: The purpose of this study was to identify the presence of intra-articular pathology in patients undergoing shoulder arthroscopy immediately before modified Latarjet reconstruction for recurrent anterior instability with bone deficiency. **Methods:** The records of 33 consecutive patients who underwent shoulder arthroscopy immediately before the modified Latarjet reconstruction were analyzed. Arthroscopy was performed just before the open procedure to identify and treat intra-articular pathology that would otherwise have been missed or not well treated during the routine open anterior approach to the shoulder. **Results:** In 24 of 33 cases (73%) associated pathologic lesions were identified and addressed arthroscopically (lesions not likely to have been discovered and treated optimally during the open deltopectoral approach). We identified and addressed 21 type 2 SLAP lesions (64%) as well as 1 posterior Bankart lesion, 2 loose bodies, 2 rotator cuff tears, and 2 localized areas of grade 4 chondromalacia. **Conclusions:** Arthroscopic examination before modified Latarjet reconstruction is recommended because it allows the surgeon to identify and arthroscopically address associated pathologic entities that are present in over two thirds of the cases. **Level of Evidence:** Level IV, therapeutic case series. **Key Words:** Latarjet procedure—Shoulder instability—Arthroscopy—SLAP lesion.

It is clear that traumatic dislocation of the shoulder can produce a wide variety of pathologic lesions including classic ligament and labrum disruption (Bankart lesion), glenoid and humeral bone defects, biceps insertion injury, and cartilage defects with resultant loose bodies. The evolution of shoulder arthroscopy has enhanced our recognition and understanding of the resulting pathology. Multiple reports based on shoulder arthroscopy have documented the types and percentage of pathologic lesions found in the shoulders of individuals who have sustained at least 1 anterior shoulder dislocation.[1-5] Several studies have suggested that by addressing all of the intra-articular pathology encountered during arthroscopic treatment, recurrent shoulder symptoms can be diminished and patient results improved.[1-3]

Previous reports indicate that anterior instability can be reliably and successfully treated with arthroscopic techniques. However, a recent study has shown a high failure rate for those patients treated with arthroscopic Bankart repair in the face of significant glenoid bone deficiency (>25% bone loss of the inferior glenoid diameter) or engaging Hill-Sachs lesions.[6] For this subgroup of patients with recurrent anterior instability and significant bone deficiency, the modified Latarjet reconstruction has been shown to be a reliable and successful treatment.[7,8]

Our study series is exclusively formed by patients with recurrent traumatic anterior instability with imaging suggestive of significant bone deficiency (inverted-pear glenoid and Hill-Sachs lesions). We hypothesized that the level of trauma from recurrent or

From The San Antonio Orthopaedic Group (P.A., D.H., P.C.B., S.S.B.) and Department of Orthopaedic Surgery, University of Texas Health Science Center at San Antonio (I.C.W., S.S.B.), San Antonio, Texas; Oregon Orthopedics and Sports Medicine Clinic (D.H.), Oregon City, Oregon; and Tennessee Orthopaedic Clinics (P.C.B.), Knoxville, Tennessee, U.S.A.

S.S.B. is a consultant for Arthrex, Naples, Florida.

Address correspondence and reprints requests to Stephen S. Burkhart, M.D., 540 Madison Oak Dr, Suite 620, San Antonio, TX 78258, U.S.A. E-mail: ssburkhart@msn.com

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severe dislocations that is necessary to produce large bone defects is likely to result in associated intra-articular pathology.

Interestingly, several long-term studies on classic Latarjet procedure outcomes show clinically significant percentages (12%) of fair and poor results.[9] It is possible that unrecognized and unaddressed intra-articular pathology (such as SLAP or posterior Bankart lesions that are located in areas of the joint that are not easily visualized through a deltopectoral approach) could have influenced these results. Several authors have proposed the assessment of the degree of bone loss based on imaging studies.[10-12] Arthroscopy has been recommended as a confirmatory step to determine whether a Latarjet procedure is indicated.[6-8] For that reason, we always perform arthroscopy before opening the shoulder for a modified Latarjet reconstruction.

The purpose of this study was to identify and quantify the associated lesions that were found and treated arthroscopically in patients with recurrent anterior instability who underwent a modified Latarjet reconstruction. The null hypothesis was that associated pathologic lesions would be identified in at most 10% of patients undergoing diagnostic arthroscopy immediately before open modified Latarjet reconstruction for recurrent instability and bone deficiency.

METHODS

From January 2000 to April 2006, the senior author performed 33 consecutive Latarjet procedures on 33 patients. Patients were selected as potential candidates for this procedure based on a history of recurrent traumatic anterior dislocation and imaging suggestive of bone deficiency. The bone defects were evaluated with 5 standard radiographic views (anteroposterior view, anteroposterior view in external rotation, axillary view, outlet view, and 30° caudal tilt view for the acromioclavicular joint), with magnetic resonance imaging, and with 3-dimensional computed tomography scans. In each case the patient had an arthroscopic examination done in the lateral decubitus position before the open procedure (which was done in the beach-chair position). The patient remained under general anesthesia for the duration of the 2 procedures.

The joint was arthroscopically explored with particular attention to the labrum and the cuff. If a SLAP lesion or a complete rotator cuff tear was found, it was repaired with suture anchors as described elsewhere.[13-15] We used 1 anchor per centimeter of labral disruption. Loose bodies tended to rest in the axillary recess and were easily located and removed. The areas of localized high-grade chondromalacia (grade 4) were debrided and the subchondral bone stimulated by careful curettage.

During the arthroscopic examination, the amount of anteroinferior glenoid bone loss was quantified. This was done by introducing a hooked probe with incremental marks through the posterior portal, while looking from the anterosuperolateral portal.[6] We measured the distance from the bare spot to the glenoid rim both anteriorly and posteriorly and thus calculated the percentage of bone loss from the inferior glenoid diameter. A dynamic arthroscopic examination (with the traction sleeve and the weights removed) was then performed to assess whether an engaging Hill-Sachs lesion existed. A positive finding was noted if the humeral bone defect engaged the anterior rim of the glenoid in a functional position of abduction and external rotation. If the glenoid bone loss was over 25% (determining an "inverted-pear" pattern)[6-8] or if an engaging Hill-Sachs lesion was present, then the indication for a modified Latarjet procedure was confirmed. At this point, after all intra-articular pathology had been addressed, the arthroscopic portion of the procedure was completed and the portals closed. The patient was repositioned to a beach-chair position and re-prepped for the open portion of the procedure. The modified Latarjet procedure was then performed through a standard deltopectoral approach. The technique for the modified Latarjet reconstruction has previously been described.[7,8]

A retrospective case series was gathered by reviewing the senior surgeon's (S.S.B.) operative experience by Current Procedural Terminology code referenced against the operative reports. This was a consecutive series of patients who underwent arthroscopy and open modified Latarjet reconstruction for recurrent anterior instability. These patients all had imaging suggestive of significant bone deficiency. All of the patient medical records and related materials were available for analysis. A summary of the data is reported (Table 1).

A statistical analysis was conducted to assess the incidence of associated intra-articular lesions in the patients with recurrent anterior instability and bone deficiency. The binomial test of proportions was used to determine whether the observed rate was greater than 10%, with $P < .01$ considered statistically significant. The null hypothesis is based on the precept that there is minimal benefit of arthroscopy if lesions are detected in a trivial number of cases ($\leq$10%).