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Clinical Outcomes Following the Latarjet Procedure in Contact and Collision Athletes

SS-01

April 14, 8:35 AM

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Introduction: To evaluate the clinical and functional results of contact or collision athletes who underwent a Latarjet for symptomatic instability with glenoid bone loss or failed stabilization surgery, using modern instability outcome measures. Study Design: Case series, Level of evidence, 4

Methods: 61 consecutive contact and/or collision athletes (64 shoulders) treated with an open Latarjet procedure for recurrent anterior glenohumeral instability with significant glenoid bony deficiency and/or failed prior stabilization were retrospectively identified from two surgeons' practices. 42 shoulders (66%) were evaluated at a mean follow-up of 46 months (range: 24-95), with an average age at surgery of 25.9 years (range: 16-47). Primary outcome measures were the Western Ontario Shoulder Instability Index (WOSI), American Shoulder and Elbow Society Questionnaire (ASES), Visual Analogue Scale, and return to sporting activity. IRB approval was granted for this study.

Results: 37/42 shoulders (88%) were perceived as stable to these athletes. Two patients experienced subluxation events at 18 and 24 months after their Latarjet procedures. These 2 patients underwent further surgery including an arthroscopic debridement with biceps tenodesis and the other a revision stabilization Eden-Hybinette procedure, performed at 22 and 29 months after their Latarjets, respectively. Average VAS score was 1.1 and the Average WOSI and ASES scores for 42 shoulders were 76.5% (range: 6.4-100%, +/- 24.4) and 89.9 (range: 21.7-100, +/- 17.3), respectively. 54% (21/39) of athletes returned to preoperative sports level, 18% (7/39) decreased their activity level in the same sport, 13% (5/39) changed sports and 15% (6/39) decreased level and changed sport, or stopped sports altogether.

Conclusion: At a minimum of 2 year follow-up, 72 % of athletes returned to their original sport, whereas 28% had to change sport type or stop sporting activities altogether. In this challenging group of patients, the Latarjet procedure successfully restores stability in 88% of cases; 72% return to pre-operative sport type.

Outcomes of the Remplissage Procedure and Its Effects on Return to Sports: Average Five-Year Follow Up

SS-02

April 14, 8:40 AM

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Introduction: Short-term outcomes for remplissage patients have demonstrated good results. However, limited data is available for longer-term outcomes. Our purpose was to evaluate long-term outcomes and rates of return to sports after remplissage.

Methods: We retrospectively reviewed remplissage patients from 2007-2013. All had preoperative MRIs demonstrated large Hill-Sachs lesions and glenoid bone loss less than 20%. At final follow up, patients had a ROM evaluation and were administered a detailed outcomes survey, which included WOSI and ASES as well as questions regarding sports, employment, physical activities and dislocation events.

Results: Fifty-one shoulders (50 patients) were included. Average age at surgery was 29.8 years (15.0-72.4 years) and average follow up was 60.7 months (25.5-97.6 months). 20% of patients had previous surgery on their shoulder. Average postoperative WOSI scores were 79.5% and average ASES scores were 89.3. Six shoulders had dislocation events (11.7%) postoperatively: three were traumatic, and three atraumatic. Increasing number of preoperative dislocations increased the risk of a post-operative dislocation ($p<0.001$). There was also a trend towards higher postoperative dislocation rates in revision patients ($p=0.062$). Average loss of external rotation was 5.2 degrees ($p=0.13$). 95.5% of patients returned to one or more sports postoperatively at an average of 7.0 months. 81.0% returned to their previous intensity and level of sport. 65.5% (19) of patients who played a throwing sport stated they had problems throwing. 58.6% (17) felt they could not normally wind up throwing a ball. Direct rates of return for overhead sports were basketball 69%, baseball 50% and football 50%.

Conclusion: Remplissage's failure rate was 11.7% at an average of five years, with 96% of patients returning to full sports at an average of 7 months. For throwing sports,

65.5% complain of decreased range of motion during throwing. The results should be considered preoperatively in remplissage candidates who are engaged in throwing sports.

Biomechanical Comparison of a Hill-Sachs Reduction Technique and Remplissage: The Potential Benefits of Anatomic Reconstruction

SS-03

April 14, 8:45 AM

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Introduction: Hill-Sachs reduction represents a potential alternative treatment method to remplissage. The purpose of this study is to biomechanically compare the stabilizing effects of a Hills-Sachs reduction technique and remplissage procedure, in a complex instability model.

Methods: This was a comparative cadaveric study of 6 shoulders. For the Hills-Sachs lesion, A unique model was used to create a 30% defect, compressing the subchondral bone while preserving the articular surface in a more anatomic fashion. Also a 15% glenoid defect was made. The Hill-Sachs lesion was reduced through a lateral cortical window with a bone tamp, and the subchondral void was filled with Quickset (Arthrex) bone cement to prevent plastic deformation. Five scenarios were tested; intact specimen, bipolar lesion, Bankart repair, Remplissage with Bankart repair and Hill-Sachs reduction technique with Bankart repair. Translation, dislocation events and range motion were recorded.

Results: For all 6 specimens no dislocations occurred after either Remplissage or the reduction technique. Total translation with a 40N force at 90 degrees of external rotation (ER) was 5.1 mm following remplissage and 4.4 mm following the reduction technique, in comparison to the bipolar lesion at 11.1mm ($p<0.001$). Similarly, with a 40N force at 90 degrees of ER, total anterior-inferior translation was 5.9mm for remplissage and 4.7 mm for the reduction technique, in comparison to the bipolar lesion at 11.6 mm ($p<0.001$). Average ER for the remplissage was 125.2 degrees and 128.4 degrees for the reduction technique ($p=0.83$).

Conclusion: Similar joint stability was seen following both procedures, though remplissage had 3.2-degree loss of ER in comparison. While not statistically significant, any ER loss may be clinically detrimental in overhead athletes. Overall, the reduction technique is a more anatomic alternative to the Remplissage procedure with similar ability to prevent dislocation in a biomechanical model, making it a viable treatment option for engaging Hill-Sachs lesions.

Effect of Sagittal Rotation on Axial Glenoid Width and Version: CT Scan Analysis in the setting of Anterior Bone Loss

SS-04

April 14, 8:50 AM

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Introduction: As standard 2-dimensional (2D) CT scans of the shoulder are often aligned to the body as opposed to the plane of the scapula/glenoid, the 3-dimensional (3D) anatomy of the glenoid may be distorted, and result in inaccurate measurements of glenoid width, version, and degree of GBL. The purpose of this study was to determine the effect of sagittal rotation on axial anterior-posterior (AP) glenoid width measurements in the setting of GBL.

Methods: A total of 44 CT scans from patients with a minimum of 10% anterior GBL were reformatted utilizing open-source DICOM software Osirix MD (version 2.5.1 65-bit) multi-planar reconstruction (MPR). Patients were grouped according to degree of anterior GBL: I) 10-14.9% (N=8), II) 15-19.9% (N=18), and III) >20% (N=18). The uncorrected (UCORR) and corrected (CORR) images were assessed in the axial plane at 5 standardized cuts and measured for AP glenoid width. When the measured AP width of the UCORR scan was less than that measured on the CORR scan, the AP width of the glenoid was considered underestimated, and the degree of GBL was considered overestimated.

Results: For Groups I and III, the UCORR scans underestimated the axial AP width in cuts 1 and 2, while in cuts 3-5, the axial AP width was overestimated. In Group II, the axial AP width was underestimated, while in cuts 2-5, the axial AP width was overestimated. Overall, AP glenoid width was consistently underestimated in Cut I, the most caudal cut, while AP glenoid width was consistently overestimated in cuts 3-5.

Conclusion: Uncorrected 2D CT scans inaccurately estimate glenoid width and the degree of anterior GBL and the findings of this study suggest a role for the utilization of corrected 3D reconstructions to allow more accurate measurements of the glenoid in order to accurately define the anatomy and quantity of GBL.

Critical Findings on MR-Arthrogram in Posterior Shoulder Instability Compared to an Age-Matched Controlled Cohort

SS-05

April 14, 8:55 AM

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