depending on the size of the Hill Sachs lesion. Patients completed the ASES, MISS, WOSI, DASH, Rowe, Constant, and VR-12 patient-reported outcomes scores at final follow-up. Patients were asked to score their satisfaction with the outcome of their surgery on a scale of 1 (unsatisfied) to 10 (very satisfied). A sense of apprehension or a subluxation event was categorized as a failure and a dislocation event was categorized as a reinjury. Plain radiographs were independently reviewed for glenohumeral joint space decrease from preoperative films. The presence of OA, failure, and loss of motion were recorded in both groups. Patients were divided into 2 groups by age (<25 years old vs ≥25 years old) for analysis. Results: There were 26 patients in the younger, high risk group (<25 years) and 28 patients in the older patient group (≥25 years of age). The younger group were all males that participated in moderate to vigorous sports as categorized by American College of Sports Medicine, and 88% had traumatic dislocation prior to surgery. There were 2 (3.7%) failures requiring revision surgery and 3 (5.6%) reinjuries requiring surgery. All revisions were in male patients, who participated in high risk sports (baseball, hockey, sailing). At mean 13-year follow-up, all patients in the younger, high risk age group and the older age group returned to sport activities. All patients in the younger, high risk group returned and only 71% (21/28) of patients the older group returned to sport activities at an equal level as prior to injury (p=0.014). No evidence of glenohumeral narrowing was noted on plain radiographs. No differences were seen in outcome scores between the cohorts at follow-up. Conclusion: We report excellent results in both young, high risk and older patients following arthroscopic labral reconstruction with a modified capsular shift at mean 13-year follow-up. The addition of glenoid-based arthroscopic labral reconstruction with a modified inferior capsular shift resulted in low failure rate, high return to sport rate with no loss of motion, and no evidence on plain radiographs of narrowing of the glenohumeral joint.

Category: Shoulder - Instability

Distal Clavicle Versus Traditional and Congruent Arc Latarjet: Comparison Of Surface Area and Glenoid Apposition With 3-Dimensional CT and MRI

Abstract ID# 22570
All Authors:
Billy Insup Kim BA UNITED STATES
Caroline Hudson MD UNITED STATES
Dean C. Taylor MD UNITED STATES
Oke A Anawakwenze MD, MBA UNITED STATES
Jon F. Dickens MD UNITED STATES
Brian Chei-Fai Lau MD UNITED STATES

Summary:
This study reports on the feasibility of 3D MRI for evaluation of distal clavicle and coracoid autograft options in patients with glenohumeral instability.

Data:
Background Limited studies have compared graft-glenoid apposition and glenoid augmentation area between the Latarjet and distal clavicle grafts in glenohumeral stabilization. Additionally, pre-operative planning is typically performed using computerized tomography (CT), and few studies have used 3-dimensional magnetic resonance imaging (3D-MRI) reformations to assess graft dimensions. The purpose of the study was two-fold: 1) compare bony apposition, glenoid augmentation, and graft width among coracoid and distal clavicle bone augmentation techniques and 2) to determine the viability of 3D-MRI to assess bone graft dimensions. Methods Twenty-four patients with recurrent glenohumeral instability and bone loss were included in this study. 3D-CT and 3D-MRI reformations were utilized to measure pertinent dimensions for five orientations of coracoid and distal clavicle autografts: (1) standard Latarjet (SLJ), (2) congruent arc Latarjet (CLJ), and (3) distal clavicle attached by its posterior surface, (DCP) and (4) inferior surface (DCI), and (5) resected end (DCR). Glenoid augment area was defined as the graft surface area contributing to the glenoid. Bone-on-bone apposition was defined as the graft-clavicular contact area for bone healing potential, and graft width was pertinent for fixation technique. Paired t-tests were performed to compare graft sizes between patients and compare 3D-CT vs 3D-MRI measurements. Results CLJ had the largest glenoid augmentation area (mean: 318mm2, sd: 74) while SLJ displayed the most apposition (mean: 318mm2, sd: 74). DCI had the largest graft width (mean: 21mm, sd: 4). Paired t-tests revealed no significant differences between Latarjet methods, whereas distal clavicle grafts varied significantly with orientation. All 3D-CT and 3D-MRI measurements were within 1mm of each other, and only two demonstrated statistically significant difference (coracoid width: 13.03 vs 13.98mm, p=0.010; distal clavicle thickness: 9.69 vs 10.77, p=0.002). 3D-CT and 3D-MRI measurements demonstrated strong positive correlation (r=0.6 and p<0.001 for all dimensions). Conclusion Glenoid augmentation, bone apposition, and graft width can vary with coracoid or distal clavicle graft type and orientation. Differences between 3D-CT and 3D-MRI were small and likely not clinically significant. 3D-MRI is a viable method for pre-operative planning and graft selection in glenoid bone loss.

Category: Shoulder - Instability

Evaluation of External Rotation After Combined Bankart Repair And Remplissage for Anterior Shoulder Instability With Off-Track Hill-Sachs Lesion and Subcritical Glenoid Bone Loss <20%

Abstract ID# 22086
All Authors:
Mohammad Mahmoud Mahmoud Haikal MBChB, MSc(Orth) EGYPT
Ahmed El-Sayed El-Tantawy MD, PhD, Prof EGYPT
Tarek Ahmed Mohamed Aly MD, PhD, Prof EGYPT
Mahmoud Abdel-Monem El-Rosasy MD, PhD, Prof EGYPT
Ettore Taverna MD ITALY Martyn Snow FRCS UNITED KINGDOM

Summary:
Hill-Sachs interval, number of anchors used in capsulotenodesis and time after operation are possible predictive factors of limitation of external rotation after combined Bankart repair and remplissage for anterior shoulder instability with off-track Hill-Sachs lesion and glenoid bone loss <20%. Data:
Purpose: Bankart repair and Remplissage (BRR) has been advocated for anterior shoulder instability with off-track Hill-Sachs lesion (HSL) and subcritical glenoid bone loss (<20%). The purpose of this study was to evaluate the functional results after BRR, with particular focus on external rotation (ER). Methods: 41 anterior shoulder instability patients with off-track HSL and glenoid bone loss <20% were treated with BRR and followed for a median of 23 months. Functional outcome was assessed using the American Shoulder and Elbow Surgeons score (ASES) and the Western Ontario Shoulder Instability Index (WOSI). Shoulders range of motion (ROM) was assessed and compared to the opposite side including forward flexion (FF), external rotation at the side (ERs), external rotation in abduction (ERa) and internal rotations in abduction (FFa). Patient demographics, sports participation, number of dislocations, duration of instability, length of follow up, glenoid track, Hill-Sachs interval, number of anchors used in capsulotenodesis and time after operation were recorded in correlation with the results. Results: All patients showed marked improvement in the post-operative WOSI and ASES scores compared to preoperative status by a mean difference of 46.1% ± 19.5 and 29.2 ± 13.3 respectively. The mean reduction in ERs, ERa, FF and IFA were (22.5% ± 18.0), (15.09% ± 8.2), (2.46% ± 1.92) and (10.12% ± 6) respectively. ERs limitation was significantly associated with time of final follow up (P<0.001, r=−0.711). HSI (P<0.001, r=−0.752), number of dislocations (P=0.013, r=−0.385), sport participation (P=0.010) and number of remplissage anchors (P=0.004). ERa limitation was significantly associated with time of final follow up (P<0.001, r=−0.569), number of remplissage anchors (p=0.003). Regression analysis revealed 3 significant predictive factors for ER limitation including time of final follow up, HSI and number of anchors. Conclusion: BRR results in good functional outcomes in patients with less than 20% glenoid bone loss and an off-track HSL. The results suggest that postoperative limitation in ER decreases overtime. Particular consideration and appropriate counselling should be undertaken in patients with large HSI and when more than one anchor for capsulotenodesis is anticipated due to an increased risk of ER limitation.

Category: Shoulder - Instability

Open Latarjet Using One-Screw Fixation Achieves a High Rate of Graft Fusion

Abstract ID# 23115
All Authors:
Antoine Catteeuw MD BELGIUM
Philippe Landreau MD UNITED ARAB EMIRATES

Summary:
One-screw fixation in the Latarjet procedure is an alternative to double screw fixation. It allows a high rate of fusion at 3 months. This technique can be used safely particularly if the surgeon judges that there is a risk of graft fracture like in