Methods: Clinical data was selected for patients with posterior shoulder instability that had undergone posterior stabilization (open or arthroscopic) or posterior osseous augmentation (distal tibia or iliac crest). Three fellowship-trained surgeons from two institutions contributed patients. Pre-operative CT data was collected for all patients. The axial cuts were segmented and reformatted in three-dimensions for glenoid analysis using Osirix. From this three-dimensional model, the following was calculated: percent bone loss (Nobuhara), total arc of the defect (degrees), and a clock-face description (start point, stop point, and average or direction). Pearson correlation coefficients were performed using significance of p

Results: Fifty shoulders from 50 patients were reviewed. Fourteen patients (average age 30 years; 93% male) had evidence of posterior glenoid bone loss and were included for evaluation. Defects on average involved 13.7±8.6% of the glenoid (range, 2-35%). The average start time (assuming all right shoulders) on the clock face was 10 o'clock ± 40 minutes and stopped at 6:30 ± 25 minutes. The average direction of the defect pointed toward 8:15 ± 25 minutes. The percent bone loss correlated with the total arc of the defect (Pearson: 0.93, p

Conclusion: Posterior bone loss associated with posterior glenohumeral instability is typically directed posteriorly at 8:15 on the clock. As defect get bigger, this direction moves more posterosuperior. This information will help guide clinicians in understanding the typical location of posterior bone loss aiding in diagnosis, cadaveric models, and treatment.

Loss of Anterior Stability of Shoulder Across a Range of Motion Due to Combined Bony Defects: A Cadaveric Study

SS-09

Thursday, April 23 at 9:40 AM

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Introduction: Previous studies have analyzed only the effects of isolated glenoid or humeral head defects at limited arm positions. Literature data suggests that instability might vary for envelop of motion. The aim of this study was to evaluate the effect of combined bony lesions on shoulder instability through varying glenohumeral positions.

Methods: Experiments were performed at glenohumeral abduction angles (ABD) of 20°, 40°, and 60° and external rotations (ER) of 0°, 40°, and 80° for 18 specimens. The glenoid was translated in a posterior direction in order to cause an anterior dislocation under a 50N load. Translational distance and medial-lateral displacement, along with horizontal reaction force were recorded for every trial. Three different pathways were chosen (4 levels of glenoid defect and 5 levels of humeral defect) to maximize defect combinations.

Results: At 20° ABD and 0° ER, % intact translations were 69.0± 9.7, 64.3±12.9, 64.9±11.1, 66.7±8.8, 69.3±13.9 for humeral defect sizes of 0%, 6%, 19%, 31%, 44% with a 20% glenoid defect, respectively. However, at a functional position of 60° ABD and 80° ER these values were significantly decreased ($p < 0.05$) for humeral head defects to 48.6±24.2, 26.6±25.2, and 1.6±3.6, respectively. Increasing glenoid defect size reduced translation values independent of changes in arm-position.

Conclusion: This study demonstrated that a smaller glenoid defect size of 10% combined with a 19% humeral head defect, can lead to a significant instability. Additionally, it was shown that a significant glenoid defect would lead to loss of translation independent of changes in the arm position. However, the loss of stability from a humeral head defect would lead to loss of translational stability significantly at a functional arm position of increased abduction and external rotation rather than a resting arm position. This rotational dependency of a humeral head defect further leads to a magnified instability during combined defects.

Comparison of Arthroscopic and Open Latarjet With Learning Curve Analysis

SS-10

Thursday, April 23 at 9:45 AM

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Introduction: Although the promoters of arthroscopic Latarjet have advocated many theoretical advantages, the learning curve is still arduous, strewn with pitfalls and serious complications. The purpose of this study was to compare arthroscopic and open Latarjet performed by a single shoulder surgeon and analyse the learning curve.

Methods: Comparative analysis of arthroscopic and open Latarjet procedures performed by a single shoulder specialist surgeon between 2008 and 2014 and analysis of the learning curve of arthroscopic Latarjet, based on a patient database including parameters such as patient characteristics, ISIS scores, operative time, peroperative and postoperative complications, graft and screws positioning, and preoperative and postoperative Walch-Duplay scores.

Results: 57 patients were included in the study, 21 in the arthroscopic group and 36 in the open group, with a mean follow-up time of 6.6 months. Mean age was 26.6 years old and was similar in both groups, along with age, sex ratio, and preoperative ISIS score. Operative time and postoperative complication rate in the arthroscopic group were double that of the open group, while screw position was significantly more accurate in the open group. Postoperative Walch-Duplay score was 85.5 in the arthroscopic group and 90.7 in the open group, and the mean gain compared to preoperative scores was higher in the open group (63 versus 41.5). Learning curve of arthroscopic Latarjet analysis yielded many trends in terms of peroperative conversions, complications and outcome