

included 37 males and 4 females with an average age of 23 years old. All shoulders were evaluated by three-dimensionally reconstructed computed tomography (3DCT) preoperatively, which confirmed a bony fragment at the anteroinferior portion of the glenoid. The average bone loss against the lower part of the circular glenoid portion was 7.3% (range, 2.1-20.9) as measured by our original calculation method using 3DCT. In all shoulders, a displaced bony fragment, firmly attached to the labroligamentous complex, was separated from the glenoid neck before a reduction and fixation to the optimal position was achieved utilizing suture anchors. All patients were assessed using the Rowe scoring system at a minimum 24 months postoperatively. Results: The Rowe score improved postoperatively in all shoulders ($P < .01$). The average Rowe score at the time of mean follow-up of 31 months (range, 24-47) was 94.3 (range, 40-100) with 40 out of 41 shoulders graded as excellent or good (97.6%). One noncompliant patient experienced a redislocation 3 months postoperatively during soccer play before receiving permission to return to full sports activity. Thirty-eight out of 39 active sports participants returned to their preinjury sports. Conclusions: Arthroscopic bony Bankart repair utilizing suture anchors yields a successful outcome in shoulders with chronic recurrent traumatic anterior glenohumeral instability. This study demonstrates that the bony reconstruction together with the attached labroligamentous complex can bring a favorable outcome even in athletes and also suggests that this technique might obviate the necessity of open bone-grafting in patients with "inverted pear" type glenoid.

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The Capsular Split-Shift Procedure for Anterior-Inferior Shoulder Instability: Long-term Follow-up (SS-31)

The capsular split-shift procedure for anterior-inferior shoulder instability has been performed using suture anchors since 1995. Presented here is the long-term evaluation of 43 patients who had suture anchor repairs with a minimum of 6 year follow-up. Two of these patients could not be located for final follow-up. Of the remaining 41 patients 33 were re-examined and 8 had telephone interviews. All of these patients had a Bankart lesion. The average age was 24. Thirty five patients had suffered full dislocations, 6 patients had feelings of chronic subluxation without a documented dislocation. Three of the dislocators also had posterior instability, i.e.

they had MDI. Repairs were done acutely in 8 patients and delayed 2 months to 13 years in the chronic group. The same technique was used in every case: After complete mobilization of the capsule off of the underlying subscapularis, an inferior split (usually 1 cm) was made from the inferior pole of the glenoid into the axillary pouch. Then No. 1 PDS was inserted into the capsule, threaded through a G2 Mitek anchor and the anchor inserted into the glenoid rim. The sutures and anchors are placed so that they superiorly advance the capsule, opening the split to oppose the glenoid neck. Usually three suture-anchor pairs were employed. Only in the three MDI cases, posterior suture plication was also done. There were no interval closures in this group. There were no recurrences in the acute repair group. In the chronic group there were 3 recurrent dislocations (7.2%) and 2 patients with persistent symptoms of subluxation but without a frank recurrent dislocation (4.8%) yielding a total failure rate of 12%. This is higher than what was found in my previous study with shorter term follow-up (6.9%). One cause of failure in one patient in the dislocation group and in one patient in the subluxation group was a large Hill Sachs lesion. Given what is now known about bone loss and recurrence, if these patients were operated on today, they would have had a bone augmentation procedure in addition to their repair. Eliminating these two patients, the overall failure rate is reduced to 7.3% at minimum 5 year follow-up. All of the patients without a recurrence were satisfied. 90% of athletes with no recurrence returned to their sport but only 74% felt that they had returned to pre-injury levels. 58% of patients recovered full ROM. 32% lost 5°-10° of ER, 10% lost 10°-15° of external rotation. In order to further reduce the recurrence rate, treatment of an interval lesion is now performed in selected cases. The decision to close the interval is based on whether the patient has a positive sulcus sign that does not reduce with external rotation and/or arthroscopic finding of a patulous rotator interval. There have been no short-term recurrences using selected interval closure and elimination of patients with excessive bone loss.

Joseph C. Tauro, M.D.

Hill-Sachs "Remplissage": An Arthroscopic Solution for the Engaging Hill-Sachs Lesion (SS-32)

The purpose of this paper is to present a new arthroscopic approach to a subset of instability patients that present with a combination of bony lesions. These lesions of the glenoid (bony Bankart, fractures, erosion), and humerus (Hill-Sachs) have long been established as significant contributing pathology in recurrent shoulder instability.

Several authors have recognized the presence of anterior glenoid rim deficiencies in shoulder instability, as well as their role in producing failures of shoulder stabilization procedures. Although less attention has been focused on the significance of the Hill-Sachs lesion, its role in producing recurrent dislocations has been recognized since the article by Broca and Hartman in 1894. Recurrent dislocators with the combination of glenoid loss and Hill-Sachs lesion (engaging Hill-Sachs lesion) have been a difficult group to treat and have proved to be recalcitrant to most open and the best of arthroscopic surgical approaches. This has been the subject of recent publications, the conclusion of which was that in the presence of the combination of a glenoid defect and Hill-Sachs lesion, the Latarjet procedure is recommended. Our arthroscopic technique, Arthroscopic Hill-Sachs Remplissage (Fr.: to fill in, or to fill up), shows promise as the first arthroscopic technique to attempt to specifically address the engaging Hill-Sachs lesion. This arthroscopic transfer of the posterior capsule and infraspinatus tendon into the Hill-Sachs lesion effectively converts the lesion into an extra-articular one and prevents engagement of the lesion on the glenoid rim. It is analogous to an arthroscopic repair of a partial-thickness rotator cuff repair. Over a one-year period, fourteen of forty-two patients with recurrent shoulder instability were felt to have the combination of these lesions and underwent this procedure. Thus far, all fourteen patients treated in this manner have maintained stable shoulders without any unusual loss of motion in any plane. A second look arthroscopy in one patient eight months post op, showed the tenodesed tissue intact. The offending fixation device was removed. It is no longer being used and had been replaced with a suture anchor technique. We believe it is an anatomic, lesion specific and minimally invasive approach to a significant subset of recurrent dislocators who would otherwise have to undergo a more invasive open procedure. Although initially successful, further studies are necessary to refine our indications and address the efficacy of this arthroscopic approach.

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Arthroscopic Treatment of Posterior Shoulder Instability: Results in 35 Patients (SS-33)

Objectives: Posterior shoulder instability is a diagnostic challenge and a poorly understood clinical problem. Due to the complexity and relative infrequency of diagnosis, several surgical techniques have been described to treat this disorder. The purposes of this study are to retrospectively evaluate arthroscopic posterior shoulder stabilization using a suture-anchor fixation technique, and to

evaluate multiple preoperative and intraoperative variables as predictors of outcome. **Materials and Methods:** Thirty-five patients who underwent posterior arthroscopic shoulder stabilization with either suture anchors and/or suture plication from October 1999 through December 2002 were reviewed. All but one was male, all but one were active duty military, and the mean age was 25.5. Seven had failed prior surgical intervention. Demographic data was obtained, to include duration of symptoms, number and type of conservative modalities, preoperative evaluation of shoulder range of motion, translation, and instability testing. Shoulder outcomes rating scores were determined using the American Shoulder and Elbow Surgeons Rating Scale (ASES), the Western Ontario Shoulder Instability Index (WOSI), the Subjective Patient Shoulder Evaluation, and the Single Assessment Numeric Evaluation (SANE). **Results:** Mean follow-up was 25 months. Overall, symptoms were improved and outcomes scores rated as good or excellent in 31 of 36 shoulders. Preoperative versus postoperative range of motion examination demonstrated improved values for flexion (172° vs. 165°, $P > .05$) and abduction (168° vs. 158°, $P > .05$). The amount of posterior translation averaged +3.4 (range 3+ to 4+) preoperatively versus +1.1 postoperatively (range 0+ to 2+), $P < .001$. There were five failures in the group medically separated from the military. **Conclusions:** The arthroscopic treatment of posterior shoulder instability is an effective means to improve symptoms associated with recurrent posterior subluxation of the shoulder. Careful attention to surgical technique and an understanding of the underlying pathology are critical for success.

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Adhesive Capsulitis of the Hip (SS-34)

It is postulated that adhesive capsulitis of the hip is more common than suggested by published literature, which recounts only a few isolated cases, and that this condition shares many of the same characteristics seen in the shoulder. The purpose of this study is to report the findings of the first clinical case series on this condition. **Methods:** Since 1993, all patients undergoing hip arthroscopy have been prospectively assessed. This database currently consists of over 500 consecutive cases. In 1999, adhesive capsulitis was first recognized as a causative factor in patients with recalcitrant hip pain. Since then, 9 patients have been identified with this condition that have achieved at least 1 year follow-up and represent the substance of this report. The indication for arthroscopy was disabling symptoms refractory to conservative