

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.

Eugene Michael Wolf, M.D., Michael E. Pollack, M.D.

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.

Matthew T. Provencher, M.D., Steven Josh Bell, M.D., Kyle Menzel, M.D., Timothy S. Mologne, M.D.

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

treatment with persistent painful restricted motion. Conservative treatment consisted of oral anti-inflammatory medication, lifestyle modifications to avoid offending activities, and supervised physical therapy. The procedure consisted of manipulation under anesthesia and concomitant arthroscopy to assess and address co-existent pathology. Results: There was 100% follow-up at an average of 17.3 months. There were 8 females and 1 male with an average age of 43.7 years. Radiographs were normal in 8 cases and revealed mild degenerative disease in the one male patient. 8 patients had an intra-articular injection of anesthetic which provided temporary relief of their symptoms. Among 7 MRIs, 2 demonstrated an effusion and 1 revealed evidence of an articuloabral lesion. Among 7 MRAs, 2 demonstrated evidence of labral pathology. None of the studies revealed evidence suggesting adhesive capsulitis. Examination under anesthesia revealed restricted rotational motion in all patients with an average loss of 19.4° external rotation and 5.6° internal rotation. Full range of motion was regained with manipulation. Arthroscopy revealed characteristic findings of adhesive capsulitis including hemorrhagic fibrinous debris within the pericapsular recesses and acetabular fossa. Other co-existent intra-articular pathology was present in 6 cases and included 5 articular lesions, 3 labral tears, and 1 partial disruption of the ligamentum teres. The average preoperative score was 53.7 and postoperative 86.7, representing an average improvement of 28 points (range 6-43). There were no complications. Discussion and Conclusions: Adhesive capsulitis of the hip is not as rare as would be suggested by the paucity of available literature. The clinical characteristics are similar to those commonly attributed to this condition in the shoulder, principally consisting of painful restricted motion and a clear predilection for middle aged females. It may occur with or without associated intra-articular pathology. It is likely that many of these may respond to conservative treatment. Recognizing the existence of this process will assist the physician in counseling patients and structuring a conservative recovery program. Arthroscopy can be beneficial in the treatment of recalcitrant cases but may assume less of a role with improved diagnostic skills essential to implementing a proper management strategy.

J. W. Thomas Byrd, M.D., Kay S. Jones, M.S.N.

Runner's Hip: The Possible Association Between Running and the Development of Degenerative Acetabular Labral Tears (SS-35)

The increasing use of hip arthroscopy has helped delineate intra-articular pathology to a new level. One group

of patients that are prone to hip difficulties is runners. The subtle development of degenerative changes may be a result of the repetitive impact loading associated with running, leading to degeneration accelerated by subtle acetabular deformities and possibly instability. In this series, we present eight cases of acetabular labral tears in high level runners and delineate a common constellation of intra-articular pathology. Materials: From a series of 162 hip arthroscopies, eight high level runners with an average age of 36 (range 19-45) were seen for complaints of increasing hip pain with running with no history of macrotrauma. Medical records, imaging studies, and arthroscopic findings were reviewed. Patients were also administered the WOMAC survey at follow-up. Clinical and radiographic follow-up ranged from 3 to 29 months. Results: All cases were unilateral with respect to the complaints of pain and catching. All of the patients had either run several marathons (4), were triathletes (1), Olympic middle distance runners (1), or had run more than ten miles per week for greater than 5 years (2). All of the patients complained of pain beginning at the start of their runs and progressing in severity with increasing mileage. Two were unable to run altogether as a result of pain. Physical examination was consistent only for pain with forced internal rotation of the affected hip. Plain radiographic analysis revealed no degenerative changes and an average center-edge (CE) angle of 36.7° (range 28°-44°). Six patients underwent preoperative MRI with intra-articular gadolinium. All of these studies revealed anterosuperior labral tears. The two studies without contrast showed no labral tear. All patients underwent hip arthroscopy with labral debridement, with all being in the 10 to 2 o'clock (right hip) region. In six patients, there was also a chondral injury of the acetabular cartilage underlying the labral tear. These lesions were all grade III. In addition, three cases revealed ligamentum teres disruptions. All patients completed the WOMAC scoring scale postoperatively at an average of 9 months (range 3 to 29). The average value was 94. All patients were able to return to their previous running levels. Discussion: The hip joint is exposed to an inordinate amount of force during athletic activities. Few studies have examined the exact role of the labrum in extreme positions, but it is clear that episodic or repetitive maneuvers at the extremes of motion are responsible for some labral pathologies. It is possible that the development of these tears is due to subtle instability which is made worse with the repetitive impact of running, eventually leading to labral tearing and possible ligamentum teres disruption. While this study does not confirm an association between running and the development of labral tears or chondral