study. Average follow up was 15.6 months (range, 6-32). All underwent postoperative MRIs at an average of 4.5 months (range, 3-10) after surgery. A total of 17 patients (Groups 1) had platelet rich plasma sutured at the repair site. 59% (10 of 17) had persistent tendon defects on MRI. Group 2 included 17 patients without a PRP sutured globule sutured into the tendon repair site (control group). 94% (16 of 17) of Group 2 demonstrated a persistent tendon defect on MRI ($p < 0.01$). There was no significant difference between Groups (1 and 2) for ASES (95.7 and 90.0; $p=0.13$), Rowe (94.5 and 88.5; $p=0.09$), SANE (91.1 and 87.7; $p=0.51$), Simple Shoulder Test (11.3 and 10.9; $p=0.36$), and Constant (89.4 and 83.5; $p=0.16$) scores.

Conclusion: Patients whose arthroscopic cuff repairs included a PRP globule demonstrated fewer retears (56%) than cuff repairs without PRP globules (94%). However, there was no clinical difference using standard outcome measures.

Augmentation of Tendon Healing with Butyric Acid-Coated Suture: Biomechanical Evaluation in a Rabbit Model (SS-09) *Bryan T. Leek, M.D., James P. Tasto, M.D., Michael P. Linn, M.D., Robert Healey, M.S., John P. Brady, M.D., David P. Amiel, Ph.D.*

Introduction: Butyric acid (BA), in the appropriate concentration, has been shown to be angiogenic and to enhance transcriptional activity in tissue. These properties of BA have the potential to augment biologic healing in a repaired tendon. The purpose of this study is to evaluate this possibility through the comparison of biomechanical properties of healing tendons repaired with BA-coated suture versus control suture.

Methods: A rabbit Achilles tendon model was used to evaluate the biomechanical strength of tendon healing at six weeks in twenty-three rabbits repaired either with BA-coated Ultrabraid (Smith & Nephew Endoscopy, Andover, MA) suture ($n=14$), or control Ultrabraid suture ($n=9$). Unilateral tendon defects were created in the middle bundle of the Achilles tendon of each rabbit, which were repaired equivalently with either BA-coated suture or control suture. The samples were harvested at six weeks post-repair and biomechanically tested using Video Dimension Analysis to determine sample stiffness.

Results: At six weeks after repair, the tendon samples repaired with BA-coated suture had significantly increased stiffness relative to the tendons repaired with control suture. The Young's modulus was 84.9 ± 11.5 MPa in the BA group and 58.8 ± 15.2 MPa in the control group ($p<0.05$).

Conclusion: Tendons repaired with BA-coated sutures demonstrated improved biomechanical properties at six weeks in a rabbit model. These findings are encouraging as a relatively simple alteration of suture material may augment early tendon healing to create a stronger repair construct during this time.

A Prospective, Randomized Evaluation of Acellular Human Dermal Matrix Augmentation for Arthroscopic Cuff Repair (SS-10) *F. Alan Barber, M.D., Joseph P. Burns, M.D., Allen Deutsch, M.D., Marc R. Labbe, M.D.*

Introduction: Tendon tears or tissue failures after rotator cuff repair are reported to occur for some age groups in as many as 60%. In an effort to avoid retears, augmentation of the deficient rotator cuff repair with the incorporation of a biologic tissue scaffold has been advocated. The purpose of this study was to prospectively evaluate the effectiveness of arthroscopic acellular human dermal matrix augmentation on rotator cuff repair and to determine whether rotator cuff repair augmentation differs with respect to safety, when compared to standard suture and anchor repair.

Methods: 47 patients were prospectively randomized by means of sealed envelopes opened at the time of surgery to rotator cuff repair with acellular human dermal matrix augmentation (Group I) or repair without augmentation (Group II). In addition, each participating investigator in this multicenter study performed the rotator cuff repairs exclusively by an arthroscopic approach throughout the entire enrolment period. Preoperative and postoperative functional outcome assessments were obtained using the Constant-Murley and American Shoulder and Elbow Surgeons (ASES) scales. MRI evaluation of these repairs was also obtained at 12 months. Patients were followed for a minimum 12 months after surgery. Adverse events were recorded.

Results: There were 24 patients in Group I and 23 in Group II with a mean age of 56 years. 33 were male and 14 female. 32 had acute cuff tears and 15 chronic tears. The Constant-Murley scores were 89.6 (SD 9.4) for Group I and 85.7 (SD 9.9) for Group II. ASES scores were 95.1 (SD 4.8) for Group I and 93.2 (SD 7.9) for Group II. There were no significant differences between the two groups for either the Constant-Murley scores or the ASES scores. One retear was documented by MRI in each group. Adverse events in Group I included recurrent shoulder bursitis and one rotator cuff retear. Group II adverse events included cellulitis in 2, shoulder bursitis, post-traumatic fibrosis, one rotator cuff retear, and a

biceps tendon rupture. No adverse events were attributed to the presence of the matrix grafts.

Conclusion: No differences in Constant-Murley, ASES scores, or MRI demonstrated cuff retears were observed at a minimum of 12 months follow-up. Adverse events were more common in the control group than the augmented rotator cuff repairs.

A Comparison of Short Term Functional Outcomes in Patients Undergoing Revision Arthroscopic Repair of Massive Rotator Cuff Tears With and Without Arthroscopic Suprascapular Nerve Release (SS-11) *Mark R. Zunkiewicz, M.D., Felix H. Savoie III, M.D., Larry D. Field, M.D., Michael J. O'Brien, M.D.*

Introduction: This study was designed to compare early functional outcomes in patients undergoing revision arthroscopic repair of massive rotator cuff tears retracted medial to the glenoid with Goutallier Grade 3B atrophy with and without arthroscopic release of the suprascapular nerve at the suprascapular notch. We hypothesized that patients undergoing concomitant nerve release would have more favorable functional outcomes at final follow-up as compared to those not undergoing release.

Methods: Twenty patients between the ages of 42 and 74 years (12 male, 8 female) underwent arthroscopic repair of a massive rotator cuff tears with concomitant arthroscopic release of the suprascapular nerve from June 2007 to December 2008. The Modified UCLA Shoulder Rating Scale for each patient was obtained both preoperatively and at final follow-up. These scores were compared to a similar group of twenty patients (age range 45-78 years; 14 male, 6 female) undergoing arthroscopic repair of massive rotator cuff tears without suprascapular nerve release during the same time period. Average time to final follow-up for all patients was 16.45 months (range 6-26 months). All procedures were performed and/or supervised by the senior attending surgeon (F.H.S.)

Results: Modified UCLA Shoulder Rating Scale scores improved in both groups. Eighteen of twenty patients who underwent suprascapular nerve release were satisfied and recovered at least two grades of strength according to the Modified UCLA Shoulder Rating Scale. Pain scores also improved at least two grades in all patients in this group. In the comparison group, sixteen of twenty patients were satisfied. Strength improved an average of one grade and pain improved an average of one grade.

Conclusion: Our results demonstrate that patients undergoing release of the suprascapular nerve at the suprascapular notch at the time of revision repair of a massive rotator cuff tear retracted medial to the glenoid with Goutallier Grade 3B atrophy had significantly better functional outcomes. Although the indications for suprascapular nerve release are undetermined at present, this procedure improves the success rate in this group of patients.

Conservative or Arthroscopic Treatment of First Time Traumatic Anterior-Inferior Shoulder Dislocation in Adolescents – Prospective Results after 36 Months (SS-12) *Rico Listringhaus, Dr., Roderich Heikenfeld, Dr., Georgios Godolias, Prof. Dr.*

Introduction: The purpose of this study was to compare the results of conservative or arthroscopic treatment of first time traumatic anterior-inferior shoulder dislocation in adolescents. Does arthroscopic stabilization lead to a lower recurrence rate than conservative treatment in this group of patients?

Methods: 33 patients aged between 15 and 18 years who had a first time traumatic anterior-inferior dislocation of their shoulder were suggested for arthroscopic stabilization. MRI proved damage of the anterior-inferior capsule-labrum complex (Bankart lesion) in all cases. In 18 cases the patients and their parents agreed to surgical treatment and were treated with an arthroscopic stabilization of the capsule-labrum complex with absorbable suture anchors. 15 patients who denied the surgical procedure obtained conservative treatment using a sling in the initial posttraumatic phase. Patients were followed prospectively after 12, 24 and 36 months using the Rowe score. A redislocation during follow up was rated as a failure of the treatment.

Results: 30 shoulders were completely evaluated, 16 in the arthroscopic and 14 in the conservative group. There were 3 redislocations in the arthroscopic group (1 with adequate trauma, 2 without trauma). 10 shoulders in the conservative group had an redislocation. Rowe Score in the arthroscopic group increased from 58 preop to 86, 88 and 89 at last follow up, in the conservative from 59 to 85, 86 and 88 respectively. 16/18 patients of the surgical group rated their result as good or excellent compared to 5 in the conservative group.

Conclusion: We found a lower rate of recurrence rate and a higher patient satisfaction by arthroscopic treatment. The crucial point might be the anatomical reconstruction of the damaged anterior-inferior capsule-labrum complex. Nevertheless in this young group of patients the recurrence rate after arthroscopic stabilization is higher compared to adult patients.