

reduced from 7.8 to 2.9 points. There was progression of osteoarthritis in 10 cases (32.3%), without influence on the ASES score. For elderly patients arthroscopic debridement in combination with biceps tenotomy leads to significant functional improvement.

Arthroscopic debridement is a common treatment option for older patients with low physical demands suffering from irreparable rotator cuff tears. The purpose of this study was to evaluate clinical and radiological results of this procedure at mid- to long-term follow up.

Methods: 31 consecutive patients (av. Age 70.6 years) were retrospectively reviewed an average of 47 months (24 – 69) after arthroscopic debridement of an irreparable rotator cuff tear. Operative treatment included biceps tenotomy in 24 cases (77.4%) while in 4 cases (12.9%) the biceps tendon was already ruptured. No acromioplasty was performed to maintain the coracoacromial arch.

Clinical outcome was assessed by an independent observer with ASES-Scores as well as measurement of abduction strength and elbow flexion strength in comparison to the contralateral side at final follow up. Preoperative and follow up X-Rays were evaluated for acromiohumeral distance and grade of osteoarthritis.

Results: The average ASES Score was significantly improved from 24.0 to 69.8 points at follow up. Scores for pain were reduced from 7.8 to 2.9 points on a 0-10 VAS scale. The age and gender adjusted Constant Score was 72.2%. On a VAS scale from 0-10 satisfaction with the procedure was rated at 7.7. Radiological analysis showed progression of osteoarthritis in 10 cases (32.3%) however this had no influence on the ASES score. Acromiohumeral distance decreased from 8.3 mm to 7.0 mm. Biceps strength was measured at 6.1 kg on the operated and 6.3 kg on the contralateral side. Abduction strength was significantly lower on the operated side at 2.6 kg versus 3.7 kg on the contralateral side. No complication related to the procedure was reported.

Conclusions: For elderly patients with low functional demands arthroscopic debridement in combination with biceps tenotomy is a safe procedure and leads to significant functional improvement without loss of biceps strength. Progression of osteoarthritic changes can not be achieved however no influence on the clinical result could be demonstrated.

Arthroscopic Biceps Tenotomy And Tenodesis For Massive Irreparable Rotator Cuff Tears (SS-27).
Ryan T. Bicknell, MD, MSc, FRCSC, Christopher Chui-nard, MD, Pascal Boileau, MD

Purpose: The purpose of this study was to evaluate outcome following arthroscopic biceps tenotomy or tenodesis for massive irreparable rotator cuff tears associated with biceps lesions.

Methods: This is a retrospective study of 68 consecutive patients (mean age 68 ± 6 years) with 72 irreparable rotator cuff tears treated with arthroscopic biceps tenotomy (39 cases) or tenodesis (33 cases). All patients were evaluated clinically and radiographically at a mean follow-up of 35 months (range, 24-52).

Results: Fifty-three patients (78%) were satisfied. The Constant score improved from 46 to 67 points ($p < 0.001$). Presence of a healthy, intact teres minor on preoperative imaging correlated with increased postoperative external rotation (40 vs. 18° , $p < 0.05$) and higher Constant score ($p < 0.05$). Three patients with a pseudo-paralyzed shoulder did not benefit from the procedure and did not regain active elevation above the horizontal level. By contrast, 15 patients with painful loss of active elevation recovered active elevation. The acromiohumeral distance decreased 1 mm on average, and only one patient developed glenohumeral osteoarthritis. There was no difference between tenotomy and tenodesis (Constant Score 61 vs. 73). A “Popeye” sign was clinically apparent in 24 tenotomy patients (61%), but none were bothered by it. Two patients required reoperation with a reverse prosthesis.

Conclusions: Arthroscopic biceps tenotomy and tenodesis effectively treats severe pain or dysfunction caused by an irreparable rotator cuff tear associated with biceps pathology. Shoulder function is significantly lower if the teres minor is atrophic or fatty infiltrated. Pseudoparalysis or severe cuff arthropathy are contraindications.

Outcome of ‘All Inside’ Arthroscopic Meniscal Repair—Isolated vs. Combined with Anterior Cruciate Ligament Reconstruction (SS-28). Christopher Cao Ninh, MD, Henry Goitz, MD, Christopher Wybo, MD, Peter Leaman, MD

Summary: Age, Gender, Side of surgery, were not significant factors for meniscal repair failure. The overall rate of successful healing of meniscal repairs was 92%. Lateral meniscal repairs fared better than medial meniscal repairs. Concomitant anterior cruciate ligament reconstruction did not have an impact on meniscal repair failure rates.

Purpose: To determine the outcome of all inside arthroscopic meniscal repairs versus arthroscopic meniscal repairs with concomitant arthroscopic assisted anterior cruciate ligament reconstruction.

Methods: A retrospective review of 117 consecutive 'all inside' arthroscopic meniscal repairs using a single suture technique from 1993 to 2006 by a single surgeon identified 53 isolated repairs and 64 in combination with ACL reconstruction. All tears were 2 cm or greater. Age averaged 30 years (range: 13-65). Outcomes of age, gender, and medial vs. lateral sidedness were also studied. Meniscal repair failure was defined as recurrence of pain at the repair site.

Results: At an average follow-up of 38 months, there were 9 failures (7.7%). The average time to failure was 24 months (range: 3-108), with 6 requiring surgical intervention. Three failed in the ACL group (4.6%) and 6 in the non ACL group (12.9%), with no statistical difference between the two groups ($p=0.12$). Medial tears were more prevalent than lateral tears, 74% versus 26%. All repair failures were medial. Age greater than 40 was not significant for failure ($p=0.26$). Side and gender were also not statistically significant ($p=0.22$ and $p=0.23$, respectively).

Conclusions: In this study, age, gender, 'sidedness', were not significant factors for meniscal repair failure. The overall rate of successful healing of meniscal repairs was 92%. Lateral meniscal repairs fared better than medial meniscal repairs. Age and concomitant anterior cruciate ligament reconstruction had no impact on outcome.

Bony Fixation of the Torn Meniscus – A New 'All-Inside' Surgical Technique (Preliminary Results) (SS-29). *Henry T. Goitz, MD, Christopher Ninh, MD*

Summary: This paper discusses the bony fixation of anterior horn meniscal tears that allow for an expedited post op rehabilitative course. This technique never before described.

Purpose: Multiple surgical techniques have been described to repair torn meniscus, all of which require soft tissue healing and thereby delay an early post operative return to sport/activity as outlined in most rehabilitative protocols. Herein, we describe an 'all inside' meniscal repair technique that allows immediate bony fixation of the torn meniscus and immediacy of weight bearing, allowing and an 'accelerated' rehabilitation post op.

Methods: One hundred seventeen consecutive patients who underwent 'all inside' meniscal repairs by a single surgeon were retrospectively reviewed. Of these, 7 exhibited unstable anterior horn tears that were arthroscopically repaired using an 'all inside' suture anchor repair technique. Average age of 42 (range: 16-66).

Results: All preoperative meniscal symptoms resolved. One patient with a preoperative knee contracture required a post operative manipulation/arthroscopic de-

bridement; this 'second-look' revealed a completely healed meniscus. All patients were happy with their outcomes and would have this procedure performed again.

Conclusions: This new, arthroscopic repair technique employs suture anchors for anterior horn meniscal tears. All patients are allowed immediate weight bearing and a progressive 'accelerated' rehab program.

Arthroscopic-Assisted Surgery for Tibial Plateau Fractures (SS-30). *Yi-Sheng Chan, MD/Associate Professor, Chung-Hsun Chang, MD, Chih-Hao Chiu, MD, Yang-Pin Lo, MD, Alvin Chao-Yu Chen, MD, Li-Jen Yuan, MD, Kuo-Yao Hsu, MD*

Summary: Arthroscopically assisted surgery for tibial plateau fractures gives better results and it provides the precise diagnosis with adequate treatment at one-stage surgery. Undoubtedly the superior clinical results also depend upon the experienced and skillful arthroscopic technique.

Purpose: The purpose of this study is to evaluate the clinical and radiological outcome of the patients with tibial plateau fractures treated by arthroscopic-assisted surgeries after 2- to 10-year follow-up.

Methods: Fifty-four patients with tibial plateau fractures treated by arthroscopically assisted surgeries were enrolled in the prospective study. According to Schatzker's classification, the fractures types were: 1 type I (2%), 21 type II (39%), 4 type 3 (7%) and 10 type 4 (19%), 8 type 5 (15%), 10 type 6 (19%). Average age at operation was 48 years (range, 12-88 years). Mean follow up period was 87 months (range 28-128 months). The clinical and radiological outcomes were determined according to Rasmussen's system.

Results: Mean postoperative Rasmussen score was 28.4 (range, 19-30). Overall 44 (81%) patients were rated as excellent, 8 (15%) as good, 1 (2%) as fair and 1 (2%) as poor. Secondary osteoarthritis appeared in none of injured knees but 10 (19%) traumatic osteoarthritis were reported. There were no complications directly associated with arthroscopy in any of the 54 patients. There was 89% excellent and good results radiologically (33% excellent and 56% good). All of the 54 fractures were united. Preoperative fracture depression average 13.7 mm (range, 3-80 mm). Fracture depression at the final follow average 2 mm (range, 0 -9 mm).

Conclusions: Arthroscopically assisted surgery for tibial plateau fractures gives better results and it provides the precise diagnosis with adequate treatment at one-stage surgery. Undoubtedly the superior clinical results