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Content
October 2021

Upper extremity

Journal of arthroscopy
Volume 37, Issue 10

- Mid-Term Outcomes of Arthroscopically-Assisted Anatomic Coracoclavicular Ligament Reconstruction Using Tendon Allograft for High-Grade Acromioclavicular Joint Dislocations
- Triple-Row Technique Confers a Lower Retear Rate Than Standard Suture Bridge Technique in Arthroscopic Rotator Cuff Repairs
- Preoperative Magnetic Resonance Imaging Accurately Detects the Arthroscopic Comma Sign in Subscapularis Tears
- Randomized Trial of Arthroscopic Rotator Cuff With or Without Acromioplasty: No Difference in Patient-Reported Outcomes at Long-Term Follow-Up

Journal of shoulder and elbow surgery (JSES)
Volume 30, Issue 10

- Preoperative psychometric properties of Patient-Reported Outcomes Measurement Information System Upper Extremity, Pain Interference, and Depression in Bankart repair and rotator cuff repair.
- Effect of arthroscopic shoulder release on shoulder mobility and bone deformity following brachial plexus birth injury: a systematic review and meta-analysis.

American Journal of Sports Medicine (AJSM)
Volume 49, Issue 12

- Bridging Allograft Reconstruction Is Superior to Maximal Repair for the Treatment of Chronic, Massive Rotator Cuff Tears: Results of a Prospective, Randomized Controlled Trial
- Transtendon Suture Bridge Repair of Both-Sided Partial-Thickness Rotator Cuff Tears: Midterm Outcomes
- Arthroscopic Versus Mini-open Rotator Cuff Repair: A Randomized Trial and Meta-analysis
- Clinical and Structural Results of Rotator Cuff Repair Compared With Rotator Cuff Debridement in Arthroscopic Treatment of Calcifying Tendinitis of the Shoulder

Lower extremity

Arthroscopy
Volume 37, issue 10

- Six-Month Outcome Scores Predicts Short-Term Outcomes After Hip Arthroscopy
- Intraoperative Findings and Clinical Outcomes Associated With Arthroscopic Management of Subspine Impingement: A Propensity-Matched, Controlled Study
- Arthroscopic Excision of Intra-Articular Osteoid Osteoma of the Hip: A Case Series
- All-Inside Anterior Cruciate Ligament Reconstruction Using Quadrupled Semitendinosus: Comparable 2-Year Outcomes in Male and Female Patients

Knee Surgery, Sports Traumatology, Arthroscopy (KSSTA)
Volume 29, Issue 10

- Post-operative septic arthritis after arthroscopy: modern diagnostic and therapeutic concepts.

BACK

American Journal of Sports Medicine (AJSM)
Volume 49, Issue 12

- Morphological Changes in the Residual Meniscus After Reshaping Surgery for a Discoid Lateral Meniscus
- Platelet-Rich Plasma Augmentation of Meniscal Repair in the Setting of Anterior Cruciate Ligament Reconstruction
- Kinematic Alterations After Anterior Cruciate Ligament Reconstruction via Transtibial Techniques With Medial Meniscal Repair Versus Partial Medial Meniscectomy
- Association Between Meniscal Allograft Tears and Early Surgical Meniscal Allograft Failure
- Patient-Reported Outcome Scores and Rate of Return to Sport After Hip Arthroscopic Surgery: A Sex-Based Comparison in Professional and Collegiate Athletes
- The Natural Course of Recovery After Hip Arthroscopy for Femoroacetabular Impingement According to the International Hip Outcome Tool–12 and Hip Outcome Score Sports Subscale
- Return to Sports and Minimum 2-Year Outcomes of Primary Arthroscopic Hip Labral Reconstruction for Irreparable Tears in High-Level Athletes With a Propensity-Matched Benchmarking Against a Labral Repair Control Group

Miscellaneous

-

BACK

Upper extremity

Arthroscopy, Volume 37, Issue 10, p3025-3035

Mid-Term Outcomes of Arthroscopically-Assisted Anatomic Coracoclavicular Ligament Reconstruction Using Tendon Allograft for High-Grade Acromioclavicular Joint Dislocations

Nolte, P. C., Ruzbarsky, J. J., Elrick, B. P., Woolson, T., Midtgaard, K. S., & Millett, P. J.

https://doi.org/10.1016/j.arthro.2021.04.035

Purpose
The purposes of this study were to assess clinical and radiographic outcomes of arthroscopically-assisted, anatomic coracoclavicular ligament reconstruction using tendon allograft (AA-ACCR) for the treatment of Rockwood type III-V injuries at minimum 2-year follow-up and to perform subgroup analyses of clinical and radiographic outcomes for acute versus chronic and type III versus type IV-V injuries.

Methods
In this retrospective study of prospectively collected data, patients who underwent primary AA-ACCR for the treatment of type III-V dislocations and had minimum 2-year follow-up were included. Preoperative and postoperative patient-reported outcome scores (PROs) were collected, including American Shoulder and Elbow Surgeons score, Single Numeric Assessment Evaluation score, Short Form–12 Physical Component Summary, Quick Disabilities of the Arm Shoulder and Hand score, and patient satisfaction. Preoperative and postoperative coracoclavicular distance (CCD) was obtained. PROs and CCD were reported for the total cohort and for the subgroups. Complication and revision rates were demonstrated.

Results
In total, 102 patients (10 women, 92 men) with a mean age of 45.0 years (range, 18-73 years) were included. There were 13 complications (12.7%) resulting in revision surgery. After exclusion of revised patients, PROs were available for 69 (77.5%). At mean follow-up of 4.7 years (range, 2.0-12.8 years), all PROs improved significantly ($P < .001$). Median patient satisfaction was 9.0 (interquartile range, 8.0-10.0). Median preoperative to postoperative CCD decreased significantly ($P < .001$). Subgroup analyses revealed significant improvements in all PROs and CCD from preoperative to postoperative for both acute and chronic, and type III and type IV-V dislocations ($P < .05$) with no significant differences in postoperative PROs and satisfaction between ($P > .05$).

Conclusion
AA-ACCR for high-grade acromioclavicular joint injuries resulted in high postoperative PROs and patient satisfaction with significant improvements from before to after surgery in those who did not undergo revision surgery. Furthermore, subgroup analyses revealed that acute and chronic, and type III and type IV-V injuries benefitted similarly from AA-ACCR.

Level of Evidence
Level IV; therapeutic case series.Factors Related to Symptomatic Failed Rotator Cuff Repair

BACK

Triple-Row Technique Confers a Lower Retear Rate Than Standard Suture Bridge Technique in Arthroscopic Rotator Cuff Repairs

Tanaka, M., Hanai, H., Kotani, Y., Kuratani, K., Koizumi, K., & Hayashida, K.

https://doi.org/10.1016/j.arthro.2021.04.045

Purpose
To compare the structural and clinical results between the knotless suture bridge (SB) and triple-row (TR) techniques.

Methods
This study is a retrospective study and included 212 shoulders with repairable rotator cuff tears treated with the SB technique and 206 shoulders treated with the TR technique. In the TR technique, medial and lateral anchors were placed as they would be for the SB technique, with a middle row anchor added on the edge of footprint to reduce the torn tendons. All patients underwent primary arthroscopic rotator cuff repair and had magnetic resonance imaging 6 months postoperatively to evaluate for retear. Sugaya's classification was used to classify the retear pattern. The function of all patients preoperatively and 2 years postoperatively were assessed by the American Shoulder and Elbow Surgeons shoulder index and the University of California at Los Angeles rating scale.

Results
According to Sugaya's classification, 24 (11.3%), 6 (2.8%), and 20 (9.4%) in SB-treated shoulders and 16 (7.8%), 12 (5.8%), and 8 (3.9%) in TR-treated shoulders, respectively had types 3, 4, and 5. There was a statistically significant greater type 5 retear in SB-treated shoulders ($P = .038$) than in TR-treated shoulders. The average clinical outcome scores at the final follow-up improved significantly relative to those before the surgeries in both groups. There were no statistical differences in the clinical outcome scores at the final follow-up between SB and TR groups.

Conclusions
The use of the TR technique in arthroscopic rotator cuff repair resulted in a lower large-size retear rate when compared with the use of the SB technique. No clinical differences were noted in the outcomes between the 2 groups.

Level of Evidence
Level III, therapeutic, retrospective cohort study.

BACK

Preoperative Magnetic Resonance Imaging Accurately Detects the Arthroscopic Comma Sign in Subscapularis Tears

Atinga, A., Dwyer, T., Theodoropoulos, J. S., Dekirmendjian, K., Naraghi, A. M., & White, L. M.

https://doi.org/10.1016/j.arthro.2021.04.040

Purpose
To assess the accuracy and reliability of routine preoperative magnetic resonance imaging (MRI) in the detection of the comma sign compared with the gold standard of arthroscopic findings.

Methods and Materials
Preoperative MRI exams in consecutive patients undergoing arthroscopic subscapularis tendon repair, over a 5-year time frame, were retrospectively reviewed for full-thickness tears of the subscapularis and supraspinatus tendons, fatty atrophy of the subscapularis and supraspinatus muscles, and status of the long head of the biceps tendon. Each case was also evaluated for presence or absence of a comma sign on MRI. Surgical findings served as the diagnostic standard of reference in determination of a comma sign.

Results
The study cohort included 45 male and 10 female patients (mean age, 56; range, 32-80 years). A comma sign was present at arthroscopy in 19 patients (34.5%). Interclass and intrarater correlation showed 100% agreement in preoperative assessment of a comma sign on MRI. MRI showed an overall accuracy of 83.6% in diagnosis of a comma sign (sensitivity, 63.2%; specificity, 94.4%; positive predictive value, 85.7%; negative predictive value, 82.9%; positive likelihood ratio, 11.37; negative likelihood ratio, 0.39). No statistically significant association was observed between an arthroscopic comma sign and patient demographics or MRI findings of full-thickness rotator cuff tears, muscle fatty atrophy, or long head of the biceps tendon pathology.

Conclusions
MR imaging illustrates excellent reliability and good specificity and accuracy in detection of the arthroscopic comma sign in the setting of subscapularis tendon tearing. Detection of a comma sign on MRI may be important preoperative planning information in the arthroscopic management of patients with subscapularis tendon tears.

Level of Evidence
Level IV, retrospective diagnostic study.

BACK

Randomized Trial of Arthroscopic Rotator Cuff With or Without Acromioplasty: No Difference in Patient-Reported Outcomes at Long-Term Follow-Up

Waterman, B. R., Newgren, J., Gowd, A. K., Cabarcas, B., Lansdown, D., Bach, B. R., … Verma, N. N.

https://doi.org/10.1016/j.arthro.2021.04.041

Purpose
To evaluate long-term patient-reported outcomes and revision surgery after arthroscopic rotator cuff repair with or without acromioplasty.

Methods
Between 2007 and 2011, prospectively enrolled patients undergoing arthroscopic repair for full-thickness rotator cuff tears, with any acromial morphology, were randomized into either acromioplasty or nonacromioplasty groups. Patients with revision surgery, subscapularis involvement, advanced neurologic conditions, or death were excluded. Baseline and long-term follow-up questionnaires, including the American Shoulder and Elbow Surgeons (ASES), Simple Shoulder Test (SST), University of California-Los Angeles (UCLA), Visual Analog Scale (VAS) for pain, and Constant scores were obtained. Rates of symptomatic retear, revision rotator cuff surgery, or secondary reoperation were recorded. Averages with standard deviation were calculated, and t-tests were used to compare outcomes of interest between cohorts.

Results
In total, 69 of 90 patients (76.7%) were available at 92.4 months (± 10.5). There were 23 of 32 patients in the acromioplasty cohort and 24 of 37 patients in the nonacromioplasty cohort. Mean age for the nonacromioplasty cohort was 56.9 (± 7.6) years, whereas acromioplasty was 59.6 (± 6.8) years. Comparison of baseline demographics and intraoperative information revealed no significant differences, including age, sex, Workers' Compensation, acute mechanism of injury, tear size, degree of retraction, and surgical technique (e.g., single- vs. double-row). At final follow-up, there were no statistically significant differences according to ASES (P = .33), VAS pain (P = 0.79), Constant (P = .17), SST (P = .05), UCLA (P = .19), and Short Form-12 (SF-12) (P = .79) in patients with and without acromioplasty. Two patients with acromioplasty (5.6%) and 3 patients without acromioplasty (9.1%) sustained atraumatic recurrent rotator cuff tear with secondary repair (P = .99), and there was no significant difference in retear rates or patient-reported outcome measures by acromial morphology.

Conclusions
This randomized trial, with mean 7.5-year follow-up, found no difference in validated patient-reported outcomes, retear rate, or revision surgery rate between patients undergoing rotator cuff repair with or without acromioplasty.

Level of Evidence
II, prospective randomized controlled trial.

BACK

Journal of Shoulder and elbow surgery, October 2021, volume 30, issue 10, p2225-2230

Preoperative psychometric properties of Patient-Reported Outcomes Measurement Information System Upper Extremity, Pain Interference, and Depression in Bankart repair and rotator cuff repair.

Vadhera, AS, Beletsky, A, Singh H, et al.

DOI: https://doi.org/10.1016/j.jse.2021.02.004

Background
We aimed to examine the preoperative performance of Patient-Reported Outcomes Measurement Information System (PROMIS) Upper Extremity (UE, versions 1.2 and 2.0), Pain Interference (PI, version 1.1), and Depression (version 1.0) testing across multiple orthopedic procedures for the upper extremity and define its susceptibility to preoperative floor and ceiling effects.

Methods
We conducted a retrospective analysis of prospectively collected patient-reported outcome measures using an electronic outcome registry for procedures performed between May 2017 and April 2019. Current Procedural Terminology (CPT) codes were used to examine cohorts for 2 upper-extremity orthopedic procedures: Bankart repair and arthroscopic rotator cuff repair (ARCR). Shapiro-Wilk normality testing was used to assess score distributions for normalcy; given non-normal score distributions, Spearman correlation coefficients were calculated for preoperative patient-reported outcome scores. Absolute floor and ceiling effects were calculated for preoperative time points based on CPT code.

Results
A total of 488 patients were included across the Bankart repair cohort (n = 109; mean age, 29.3 ± 12.5 years) and ARCR cohort (n = 379; mean age, 57.5 ± 9.5 years). In the Bankart repair cohort, the PROMIS PI score demonstrated strong correlations with the American Shoulder and Elbow Surgeons score (r = −0.63), Constant score (r = −0.75), PROMIS UE score (r = −0.75), and Veterans RAND-6 Domain score (r = −0.61). The PROMIS Depression score (r = 0.23 and r = 0.17, respectively), Short Form 12 Mental Composite Scale score (r = 0.34 and r = 0.11, respectively), and Veterans RAND 12-item health survey Mental Composite Scale score (r = 0.44 and r = 0.15, respectively) exhibited poor correlations with the PROMIS PI and UE scores. In the ARCR cohort, the PROMIS PI score demonstrated a good correlation with the PROMIS UE score (r = 0.61). The Constant score (r = 0.58 and r = 0.67, respectively), Veterans RAND 12-item health survey Physical Composite Scale score (r = 0.58 and r = 0.47, respectively), and Veterans RAND-6 Domain score (r = 0.67 and r = 0.53, respectively) exhibited good correlations with the PROMIS PI and UE measures. No significant absolute floor or ceiling effects were observed for the PROMIS instruments except the PROMIS Depression measure: An absolute floor effect was noted for both the Bankart repair (n = 12, 30%) and ARCR (n = 38, 14.7%) groups.

Conclusion
The PROMIS PI and UE instruments perform favorably compared with legacy outcome instruments in patients receiving Bankart repair, as well as those undergoing ARCR. Furthermore, in both populations, the PROMIS Depression instrument exhibits absolute floor effects whereas the PROMIS PI and UE instruments fail to demonstrate any absolute floor or ceiling effects.

Level of evidence
Validation of Outcome Instruments

BACK

Effect of arthroscopic shoulder release on shoulder mobility and bone deformity following brachial plexus birth injury: a systematic review and meta-analysis.

Vuvu TM, Dorniol, M, Le Nen, D, et al.

DOI: https://doi.org/10.1016/j.jse.2020.12.021

Background
Specific information to guide clinical practice is lacking for the effects of arthroscopic release on bone and joint deformities, as well as the additional benefits of tendon transfer, in children with brachial plexus birth injury. The aims of this study were (1) to evaluate changes in shoulder mobility and bone and joint deformity, (2) to evaluate the effect of release with and without tendon transfer on the same outcomes, and (3) to evaluate the perioperative and long-term complications.

Methods
We conducted a systematic review and meta-analysis. Four databases were searched using relevant inclusion and exclusion criteria from inception until May 2020. The quality of articles was evaluated using the Methodological Index for Non-randomized Studies (MINORS) scale. Data regarding patients, interventions, and clinical and radiologic outcomes were reported.

Results
Thirteen articles were included: 6 of low quality and 7 of moderate quality separated into 17 studies (266 children). The mean follow-up duration was 32.4 months (standard deviation, 15.2 months). Arthroscopic release significantly improved the Mallet score (standardized mean difference [SMD], 3.1 [95% confidence interval (CI), 1.5-4.7]; P < .001) and passive external rotation (SMD, 3.6 [95% CI, 2.3-4.9]; P = .02). The percentage of humeral head anterior (SMD, 1.3 [95% CI, 0.7-1.9]; P = .003) and glenoid retroversion (SMD, 1.4 [95% CI, 0.9-2]; P = .01) also improved. Descriptive analysis of the data suggested that concomitant tendon transfer further improved mobility. Recurrence of internal-rotation contracture was reported in 8 of 157 children.

Discussion
This systematic review showed that arthroscopic release effectively improves both shoulder mobility and bone deformity, with few complications in young children with brachial plexus birth injury. As such, it seems reasonable to propose a stepwise approach starting with a release without transfer.

Level of evidence
Level IV, Systematic Review

BACK

American Journal of Sports Medicine (AJSM), Volume 49, Issue 12

Bridging Allograft Reconstruction Is Superior to Maximal Repair for the Treatment of Chronic, Massive Rotator Cuff Tears: Results of a Prospective, Randomized Controlled Trial

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First Published September 8, 2021; pp. 3173–3183

https://doi.org/10.1177/03635465211039846

Background: Despite advances in surgical techniques, the use of maximal repair to treat large or massive rotator cuff tears results in a high retear rate postoperatively. Currently, no randomized controlled trials have compared the outcomes of maximal repair with interposition dermal allograft bridging reconstruction.

Hypothesis: We hypothesized that large or massive rotator cuff tendon tears reconstructed using bridging dermal allograft would have better clinical outcomes 2 years postoperatively, as measured using the Western Ontario Rotator Cuff (WORC) index, than would those receiving the current gold standard treatment of debridement and maximal repair alone. We also expected that patients treated via bridging reconstruction using dermal allograft would have fewer postoperative failures as assessed using postoperative magnetic resonance imaging scans.

Study Design: Randomized controlled trial; Level of evidence 1.

Methods: A sample size of 30 patients (determined using a priori sample size calculation) with massive, retracted rotator cuff tears were randomly allocated to 1 of 2 groups: maximal repair or bridging reconstruction using dermal allograft. All patients completed questionnaires (WORC and Disabilities of the Arm, Shoulder and Hand [DASH]) preoperatively and postoperatively at 3 months, 6 months, 1 year, and 2 years. The primary outcome of this study was the WORC index at 2 years. Secondary outcomes included healing rate, progression of rotator cuff arthropathy, and postoperative acromiohumeral distance in both groups.

Results: Patients treated via bridging reconstruction using dermal allograft had better postoperative WORC and DASH scores (23.93 ± 24.55 and 15.77 ± 19.27, respectively) compared with patients who received maximal repair alone (53.36 ± 31.93 and 34.32 ± 23.31, respectively). We also noted increased progression to rotator cuff arthropathy in the maximal repair group with an increased retear rate when compared with the reconstruction group (87% and 21%, respectively; $P < .001$). The acromiohumeral distance was maintained in the reconstruction group but significantly decreased in the maximal repair group.

Conclusion: Rotator cuff bridging reconstruction using a dermal allograft demonstrated improved patient-reported outcomes as measured using the WORC index 2 years postoperatively. This technique also showed favorable structural healing rates and decreased progression to arthropathy compared with maximal repair.

BACK

Transtendon Suture Bridge Repair of Both-Sided Partial-Thickness Rotator Cuff Tears: Midterm Outcomes

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First Published September 14, 2021; pp. 3202–3211

https://doi.org/10.1177/03635465211034503

Background: Among symptomatic partial-thickness rotator cuff tears (PTRCT) indicated for surgery, both-sided (concurrent articular and bursal side) PTRCT are rarely reported and discussed in the literature. Without clinical data on and definite guidelines for treating these rare partial tears, appropriate management cannot be expected.

Purpose: To calculate the prevalence of both-sided PTRCT and to evaluate clinical outcomes after arthroscopic transtendon suture bridge repair of both-sided PTRCT at a minimum 3-year follow-up.

Study Design: Case series; Level of evidence, 4.

Methods: Among symptomatic PTRCT that required arthroscopic surgery (765 patients) between March 2008 and December 2014, 178 both-sided partial tears were confirmed arthroscopically, and arthroscopic transtendon suture bridge repair was performed in 100 patients enrolled in our study after exclusion criteria were applied. The presence of concurrent articular and bursal side partial tears was confirmed via arthroscopy, with Ellman grade >2 on either the bursal or the articular side of these both-sided partial tears. Without tear completion, transtendon suture bridge repair was performed in all cases. Clinical outcomes including clinical scores and range of motion were evaluated at a mean of 5.3 ± 1.4 years (range, 3-8 years). Follow-up magnetic resonance imaging (MRI) was performed at 6 to 12 months (mean ± SD, 11 ± 5.20 months) after surgery to evaluate the tendon integrity (Sugaya classification) of the repaired rotator cuff.

Results: The mean age was 57.5 ± 7.8 years, and 65% of patients were women. Mean preoperative American Shoulder and Elbow Surgeons, University of California Los Angeles, Simple Shoulder Test, and Constant-Murley outcome scores of 52 ± 14, 19 ± 4, 6 ± 2, and 69 ± 10 significantly improved postoperatively to 94 ± 5, 33 ± 2, 11 ± 1, and 93 ± 5, respectively ($P < .001$). Mean forward flexion, abduction, external rotation, and internal rotation improved significantly from 148°± 31°, 134°± 39°, 22°± 13°, and L2 preoperatively to 154°± 17°, 151°± 60°, 29°± 14°, and T10 postoperatively, respectively ($P < .001$). The retear rate on follow-up MRI scans was 2%. As per Sugaya classification on postoperative MRI scans, type 1 healing was found in 29%; type 2, in 60%; type 3, in 9%; and type 4, in 2%.

Conclusion: Among all symptomatic PTRCT that required surgery, both-sided PTRCT were more common than expected. Arthroscopic transtendon suture bridge repair of these both-sided PTRCT showed satisfactory clinical outcomes at a minimum 3-year follow-up.

BACK

Arthroscopic Versus Mini-open Rotator Cuff Repair: A Randomized Trial and Meta-analysis

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https://doi.org/10.1177/03635465211038233

Background: Patients with complete rotator cuff tears who fail a course of nonoperative therapy can benefit from surgical repair.

Purpose: This randomized trial compared mini-open (MO) versus all-arthroscopic (AA) rotator cuff repair.

Study Design: Randomized controlled trial; Level of evidence, 1.

Methods: Patients with rotator cuff tears were randomized to undergo MO or AA repair at 9 centers by 23 surgeons. The primary outcome (Western Ontario Rotator Cuff Index [WORC]) and secondary outcomes (American Shoulder and Elbow Surgeons [ASES] score, Shoulder Pain and Disability Index [SPADI] pain subscale, 12-Item Short Form Health Survey [SF-12], reported medication use, adverse events), as well as measurements of range of motion and strength, were collected at 1 month before surgery; at 2 and 6 weeks postoperatively; and at 3, 6, 12, 18, and 24 months postoperatively. A blinded radiologist evaluated rotator cuff integrity on magnetic resonance imaging (MRI) at baseline and 1 year. Intention-to-treat analysis of covariance with the preoperative WORC score, age, and tear size as covariates assessed continuous outcomes. Sex differences were assessed. A meta-analysis synthesized the primary outcome between MO and AA repair with previous trials.

Results: From 954 patients screened, 411 were ineligible (276 because of recovery with physical therapy), 449 were screened at surgery (175 ineligible), and 274 completed follow-up (138 MO and 136 AA). The AA and MO groups were similar before surgery. WORC scores improved from 40 preoperatively to 89 (AA) and 93 (MO) at 2 years, for an adjusted mean difference of 3.4 (95% CI, –0.4 to 7.2). There were no statistically significant differences between the AA and MO groups at any time point. All secondary patient-reported outcomes were not significantly different between the MO and AA groups, except the 2-year SPADI pain score (8 vs 12, respectively; P = .02). A similar recovery in range of motion and strength occurred in both groups over time. MRI indicated minimal improvement in muscle relative to fat (AA: n = 3; MO: n = 2), with most worsening (AA: n = 25; MO: n = 24) or remaining unchanged (AA: n = 70; MO: n = 70). Opioid use was significantly reduced after surgery (from 21% to 5%). The meta-analysis indicated no significant standardized mean difference between groups in the primary outcome across all pooled studies (standardized mean difference, –0.06 [95% CI, –0.34 to 0.22]).

Conclusion: Both AA and MO rotator cuff repair provide large clinical benefits, with few adverse events. There is strong evidence of equivalent clinical improvements.

BACK

Clinical and Structural Results of Rotator Cuff Repair Compared With Rotator Cuff Debridement in Arthroscopic Treatment of Calcifying Tendinitis of the Shoulder

Olaf Lorbach, MD, PhD*, Alexander Haupert, MD, Catharina Berger, MD, Matthias Brockmeyer, MD

First Published September 16, 2021; pp. 3196–3201

https://doi.org/10.1177/03635465211037690

Background: Arthroscopic treatment of calcifying tendinitis of the shoulder reveals good to excellent results. However, whether the tendon needs to be repaired after removal of the calcific deposit or simply debrided remains unclear.

Purpose: To evaluate the structural and clinical results after arthroscopic calcific deposit removal with additional rotator cuff repair or rotator cuff debridement.

Study Design: Cohort study; Level of evidence, 3.

Methods: A total of 44 patients (46 shoulders) were enrolled in this retrospective cohort study with a mean follow-up of 58.4 months. Patients underwent arthroscopic removal of a calcific deposit and bursectomy after failed nonoperative treatment. A total of 22 patients received additional rotator cuff repair irrespective of the degree of debridement (the repair group), whereas 22 patients received a simple rotator cuff debridement without additional repair (the debridement group). Groups were comparable in sex, age, and size and consistency of the deposits according to the Gärtner and Bosworth classifications. Clinical evaluation was performed by the Constant score, Simple Shoulder Test, American Shoulder and Elbow Surgeons (ASES) score, and numerical rating scales for pain, function, and satisfaction. In 29 patients (14 in the debridement group and 15 in the repair group), additional magnetic resonance imaging at follow-up was performed to evaluate the structural results using the Sugaya classification.

Results: All patients were satisfied with the results of surgery; 100% of the repair group and 95.7% of the debridement group reported they would undergo the surgical procedure again. Comparison of the clinical results showed significantly better results in the repair group versus the debridement group for the Constant score (86.2 vs 80.6, respectively; P = .04), the ASES score (98.3 vs 88.9; P = .004), the Simple Shoulder Test (11.6 vs 10; P = .005), and the numerical rating scales for pain (0.1 vs 0.8; P = .007), function (9.6 vs 8.8; P = .008), and satisfaction (9.8 vs 9.1; P = .036). Comparison of the postoperative tendon integrity showed 80% Sugaya grade I in the rotator cuff repair group and 64% Sugaya grade II in the debridement group, with a statistically significant difference in favor of the repair group (P = .004). Postoperative clinical evaluation revealed no positive O'Brien tests in the repair group, whereas approximately one-third of the debridement group showed a positive O'Brien test during examination.

Conclusion: Arthroscopic removal of calcific deposits with rotator cuff debridement or cuff repair showed good to excellent clinical and structural midterm results. However, patients who underwent additional repair of the tendon defect had significantly better clinical results as well as better structural results in terms of tendon integrity.

BACK

Lower Extremity

Arthroscopy, Volume 37, Issue 10, P3081-3087

Six-Month Outcome Scores Predicts Short-Term Outcomes After Hip Arthroscopy

Lin, C. C., Colasanti, C. A., Bloom, D. A., & Youm, T.

https://doi.org/10.1016/j.arthro.2021.03.046

Purpose
To determine whether early patient-reported outcome improvements in the 6 months after surgery are predictive of achieving a patient acceptable symptomatic state (PASS) at 2 years.

Methods
A prospectively collected database was retrospectively reviewed. Inclusion criteria included patients ≥18 years of age, Tönnis grade 0 or 1 changes, radiographic imaging consistent with femoroacetabular impingement or labral pathology, a primary diagnosis of symptomatic femoroacetabular impingement for which they underwent primary hip arthroscopy, and baseline, 6-month, and 2-year modified Harris Hip Score (mHHS) scores. Revision cases were excluded. Receiver operating characteristic curve analysis was conducted to determine whether 6-month change in mHHS was a predictor for achieving PASS at 2 years.

Results
There were 173 patients (mean age: 39.8, 61.8% female) included within the study. Patients who do not achieve the minimal clinically important difference (MCID), defined as a change of 8 points in mHHS, by 6 months (n = 21) tended to have significantly lower mHHS scores at 1 year and 2 years compared with those who did (n = 152). Only 52% of patients who did not achieve MCID by 6 months achieved MCID by 2 years (vs 98% for those that did) and only 24% achieved PASS by 2 years (vs 88% that did). Using the MCID as a cutoff for improvement in mHHS at 6 months results in a 96% sensitivity but 47% specificity for predicting PASS achievement at 2 years. Using 24 points of improvement in mHHS as a cutoff at 6 months improves sensitivity and specificity to 81% and 80%, respectively.

Conclusions
Early improvement in mHHS scores is associated with 2-year outcomes. Patients who do not achieve MCID within 6 months of surgery have a high rate of not achieving PASS at 2 years.

Level of Evidence
IV, case series study

BACK

Intraoperative Findings and Clinical Outcomes Associated With Arthroscopic Management of Subspine Impingement: A Propensity-Matched, Controlled Study

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https://doi.org/10.1016/j.arthro.2021.03.057

Purpose
(1) To investigate intra-articular damage in the hip joint associated with subspine impingement (SSI); (2) to evaluate clinical outcomes of arthroscopic treatment of hips with SSI; and (3) to compare the findings and outcomes to a control group without SSI.

Methods
Eligible patients had arthroscopic treatment for femoroacetabular impingement (FAI) concurrent with SSI between January 2015 and December 2017. Inclusion criteria consisted of preoperative and minimum 2-year patient-reported outcomes and preoperative measurements for Tönnis, lateral center edge angle, and alpha angle. Included patients were propensity-matched in a 1:3 ratio to patients who had FAI without SSI. Patient-reported outcomes were compared between groups. Minimal clinically important difference was calculated for modified Harris Hip Score (mHHS) and Hip Outcome Score-Sports Specific Subscale (HOS-SSS).

Results
Fifty SSI cases were matched to 150 patients who had FAI without SSI. A greater proportion of the SSI cohort required labral reconstruction (P = .010). The size and locations for labral tears and chondral defects were comparable between groups (P > .05). Both groups demonstrated similar minimum 2-year outcomes for mHHS (P = .103), Nonarthritic Hip Score (P = .200), HOS-SSS (P = .119), visual analog scale (P = .231), international Hip Outcome Tool-12 (P =.300), Short Form-12 Mental (P = .426), Short Form-12 Physical (P = .328), Veterans RAND 12-Item Health Survey, Mental (P = .419), and Veterans RAND 12-Item Health Survey, Physical (P = .316). The percentage of patients achieving minimal clinically important difference for mHHS and HOS-SSS was similar (P > .05). Survivorship was 96.0% and 98.7% for the SSI and control cohorts at 2 years, respectively.

Conclusions
Arthroscopic treatment of hips with SSI with subspine decompression and concomitant treatment of labral tears and FAI yielded significant improvement in patients' outcomes, which compared favorably with the control group. SSI may correlate with more complex labral tears, not amenable to repair, and complete tears of the ligamentum teres. Other findings, such as location and size of intra-articular damage, were similar between the cohorts.

Level of Evidence
III, case–control study.

BACK

Arthroscopic Excision of Intra-Articular Osteoid Osteoma of the Hip: A Case Series

Dai, L., Zhang, X., Mei, Y., Gao, G., Huang, H., Wang, C., … Wang, J.

https://doi.org/10.1016/j.arthro.2021.03.060

Purpose
To identify the clinical features of intra-articular osteoid osteoma (OO) of the hip, to evaluate the clinical effect of arthroscopic excision for intra-articular OO, and to summarize the characteristics of revision cases of hip OO and the revision surgery under arthroscopy in these cases.

Methods
We retrospectively reviewed the data of 25 patients who underwent arthroscopic excision of hip OO. The case series included 10 patients who underwent revision surgery. Lesion location, presenting symptoms, and symptom duration were analyzed; postoperative improvement was assessed using the modified Harris Hip Score (mHHS) and International Hip Outcomes Tool (iHot-12) score. We examined the reasons for revision surgery and the characteristics of OO progression after the first surgery.

Results
The most common presenting symptom was groin pain that was relieved by nonsteroidal anti-inflammatory drugs (NSAIDs). Varying degrees of limitation of range of motion (ROM) were present in all patients. The osteosclerosis around the tumor nest on computed tomography (CT) scan is a characteristic radiographic feature in this disease. However, the classic radiographic feature was apparent on plain x-rays in only 2 of 25 patients. As a kind of efficient radiological method, magnetic resonance imaging (MRI) can help in distinguishing OO from femoroacetabular impingement (FAI), as the latter is characterized by a large effusion and bone marrow edema at the atypical site of impingement. For the patients who had only 1 arthroscopic resection, the mean (± standard deviation) mHHS and iHot-12 scores were 70.30 ± 9.06 (range 51 to 86) and 75.07 ± 7.69 (57 to 88), respectively. At last follow-up, the mean scores were 98.30 ± 2.15 (94 to 100) and 97.76 ± 2.04 (94 to 100). For revision cases, the mean mHHS and iHot-12 scores were 68.55 ± 3.77 (60 to 72) and 67.88 ± 5.39 (56 to 76). At last follow-up, the mean scores were 97.11 ± 2.47 (94 to 100) and 95.22 ± 1.78 (94 to 100). In the present study, 24 of 25 patients (96%) reached the minimal clinically important difference (MCID) of mHHS, and 21 of 22 patients (95.2%) reached the MCID of iHot-12. Among the revision patients, the most common misdiagnosis at first surgery was FAI. Another feature is that a wrong diagnosis or incomplete intra-articular OO resection can stimulate the tumor and cause an inflammatory reaction and rapidly progressive OA, necessitating prompt revision surgery for complete removal. The degree of joint degeneration was related to the time since the first operation.

Conclusion
OO of the hip joint typically presents with pain and limited joint activity. Misdiagnosis as FAI or synovitis is common, and CT scan is very helpful for accuracy diagnosis. Arthroscopic excision appears to be an effective method for the treatment of OO of the hip joint.

Level of Evidence
IV, case series.

BACK

All-Inside Anterior Cruciate Ligament Reconstruction Using Quadrupled Semitendinosus: Comparable 2-Year Outcomes in Male and Female Patients

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https://doi.org/10.1016/j.arthro.2021.03.077

Purpose
To determine 2-year functional outcomes using an all-inside quadrupled semitendinosus anterior cruciate ligament (ACL) reconstruction technique in male and female patients.

Methods
A total of 100 patients who underwent quadrupled semitendinosus all-inside hamstring ACL reconstruction by a single surgeon were enrolled. Patient-reported outcome scores collected preoperatively and postoperatively included visual analog scale, Veterans Rand 12-Item Health Survey (VR-12; Physical and Mental), Marx Activity Scale, Knee Injury and Osteoarthritis Outcome Scores (KOOS), and Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).

Results
A total of 100 ACL reconstructions comprising 62 female, and 38 male patients were included in this study. Mean graft diameter was 9.4 mm in female and 9.8 mm in male patients (range, 9-11). Outcome scores demonstrated improvement from preoperative to 2-year postoperative respectively: visual analog scale pain 3.18, 1.07, VR-12 physical 36.35, 52.64, VR-12 mental 53.96, 54.65, KOOS pain 59.17, 89.03, KOOS symptoms 52.64, 80.79, KOOS Activities of Daily Living 69.38, 95.4, KOOS Sport 28.97, 81.25, KOOS Quality of Life 27.54, 71.56, WOMAC Pain 71.56, 92.65, WOMAC Stiffness 60.55, 84.13, and WOMAC Function 69.38, 95.4. Marx activity score decreased from baseline (10.98) to 2 years' postoperatively (8.75). At 2 years, patient expectations were met or exceeded with regards to pain (94%), motion and strength (91%), normal function of daily living (95%), and return to sport (79%).

Conclusions
Anatomic all-inside quadrupled semitendinosus ACL reconstruction improves functional outcomes similarly to previous studies between baseline and clinical follow-up at 1-year and 2-years postoperatively and is comparable in both male and female patients.

Level of Evidence
Level III, retrospective comparative study.

BACK

Knee Surgery, Sports Traumatology, Arthroscopy, October 2021, volume 29, issue 10, pages 3149–3158.

Post-operative septic arthritis after arthroscopy: modern diagnostic and therapeutic concepts.

Voss, A., Pfeifer, C.G., Kerschbaum, M. et al.

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Purpose
Septic arthritis is a significant complication following arthroscopic surgery, with an estimated overall incidence of less than 1%. Despite the low incidence, an appropriate diagnostic and therapeutic pathway is required to avoid serious long-term consequences, eradicate the infection, and ensure good treatment outcomes. The aim of this current review article is to summarize evidence-based literature regarding diagnostic and therapeutic options of post-operative septic arthritis after arthroscopy.

Methods
Through a literature review, up-to-date treatment algorithms and therapies have been identified. Additionally, a supportive new algorithm is proposed for diagnosis and treatment of suspected septic arthritis following arthroscopic intervention.

Results
A major challenge in diagnostics is the differentiation of the post-operative status between a non-infected hyperinflammatory joint versus septic arthritis, due to clinical symptoms, (e.g., rubor, calor, or tumor) can appear identical. Therefore, joint puncture for microbiological evaluation, especially for fast leukocyte cell-count diagnostics, is advocated. A cell count of more than 20.000 leukocyte/µl with more than 70% of polymorphonuclear cells is the generally accepted threshold for septic arthritis.

Conclusion
The therapy is based on arthroscopic or open surgical debridement for synovectomy and irrigation of the joint, in combination with an adequate antibiotic therapy for 6–12 weeks. Removal of indwelling hardware, such as interference screws for ACL repair or anchors for rotator cuff repair, is recommended in chronic cases.

Level of evidence
IV.

BACK

American Journal of Sports Medicine (AJSM), Volume 49, Issue 12

Morphological Changes in the Residual Meniscus After Reshaping Surgery for a Discoid Lateral Meniscus

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Background: Arthroscopic reshaping surgery is the first treatment option for a symptomatic discoid lateral meniscus (DLM) to preserve the peripheral rim. However, the degree of postoperative morphological change in the residual meniscus is unclear.

Purpose/Hypothesis: The purpose of this study was to measure the meniscus after reshaping surgery for a DLM, to verify when the morphological change occurred, and to examine the related risk factors. The hypothesis was that the residual meniscal width would decrease throughout the postoperative course.

Study Design: Case-control study; Level of evidence, 3.

Methods: We retrospectively reviewed the medical records of patients who underwent reshaping surgery for a symptomatic DLM and had undergone follow-up for ≥2 years. Magnetic resonance imaging (MRI) was routinely performed preoperatively and at 3, 6, 12, and 24 months postoperatively, and the width, height, and extrusion of the residual meniscus were measured. According to the width of the midbody on final MRI scans, we compared the preoperative and postoperative data for the preserved group (≥5 mm) and decreased group (<5 mm). The associated risk factors for a decreased meniscal width (<5 mm) of the midbody were analyzed on final MRI scans.

Results: We included 61 knees of 54 patients in this study. The mean age at the time of surgery was 11.7 years. The intraobserver and interobserver reliabilities of the midbody width were 0.937 and 0.921, respectively. The width of the anterior horn, midbody, and posterior horn decreased significantly from 3 to 24 months after surgery (from 9.1 to 8.6 mm [P < .001], from 7.5 to 6.1 mm [P < .001], and from 9.5 to 8.9 mm [P = .001], respectively). Meniscal extrusion of the midbody did not change significantly (from 1.2 to 1.5 mm; P = .062). Overall, 46 knees (n = 20/32 in the preserved group and n = 26/29 in the decreased group) had longitudinal tears that required meniscal repair. Clinical outcomes did not differ significantly between the 2 groups. Multivariate logistic analysis showed that intrameniscal degeneration (odds ratio, 4.36; P = .023) significantly increased the risk of a decreased meniscal width.

Conclusion: The width of the anterior horn, midbody, and posterior horn decreased significantly from 3 to 24 months after surgery. In particular, the average decrease rate of the midbody was 19%. No clinical difference was seen in patients with a decreased width and height or with peripheral extrusion. Increased intrameniscal signals on preoperative MRI scans were associated with an increased risk of a decreased meniscal width. Surgeons should consider this result to determine the amount of resection.

BACK

Platelet-Rich Plasma Augmentation of Meniscal Repair in the Setting of Anterior Cruciate Ligament Reconstruction

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Background: The increasing incidence of anterior cruciate ligament (ACL) and meniscal injuries has led to strong interest in discovering new methods to enhance the biological healing response of these tissues. Platelet-rich plasma (PRP) contains various growth factors associated with a positive healing response, but few existing clinical studies are available to determine the risks and benefits of these therapies.

Purpose: To determine the effects of intraoperative PRP on postoperative knee function and complications at 2 years after ACL reconstruction with meniscal repair.

Study Design: Cohort study; Level of evidence, 3.

Methods: A retrospective matched case-control study was conducted between 2013 and 2017 using a single surgeon database of 1014 patients undergoing primary ACL reconstruction with concomitant meniscal repair, resulting in 324 patients (162 PRP patients and 162 control patients) who met the study criteria. Patients were matched by age, sex, graft type, and meniscal injury. The Single Assessment Numeric Evaluation (SANE) was administered at 2 years, and injury surveillance was conducted. Secondary outcomes included the time to return to activity (months), self-reported knee function (International Knee Documentation Committee [IKDC] score), functional performance testing (knee range of motion, single-leg balance, single-leg hopping, agility testing), and postoperative complications (graft failure, infection, loss of motion [requiring repeat arthroscopy for lysis of adhesions], venous thrombosis, etc). Univariate models were used for between-group comparisons, and alpha was set at .05 for all analyses.

Results: No differences were found in SANE knee function scores between the PRP and matched-control groups at 2 years (91.6 ± 11.2 vs 92.4 ± 10.6, respectively; P = .599). Additionally, no differences were reported between groups for self-reported function (IKDC score, 87.6 ± 13.3 vs 88.1 ± 12.6; P = .952), functional performance testing (P > .05), and timing of return to activity (7.8 ± 1.9 vs 8.0 ± 1.9 months; P = .765). The PRP group demonstrated a higher rate of postoperative knee motion loss compared with the control group (13.6% vs 4.6%; P < .001). No other differences were observed in postoperative complications (P > .05).

Conclusion: The added use of intraoperative PRP did not improve self-reported knee function, functional performance, and timing of return to activity for patients undergoing ACL reconstruction with meniscal repair. Furthermore, the use of PRP may have negative consequences for regaining knee range of motion after surgery. On the basis of these data, surgeons should cautiously consider the application of PRP when planning surgery for intra-articular injuries of the knee.

BACK

Kinematic Alterations After Anterior Cruciate Ligament Reconstruction via Transtibial Techniques With Medial Meniscal Repair Versus Partial Medial Meniscectomy

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Background: The treatment strategies for meniscal injuries during anterior cruciate ligament (ACL) reconstruction remain a topic of debate.

Hypothesis: After ACL reconstruction, knee kinematics would be affected by different medial meniscal treatment (partial medial meniscectomy [PMM] and medial meniscal repair [MMR]).

Study Design: Controlled laboratory study.

Methods: A total of 161 patients underwent primary single-bundle ACL reconstruction and simultaneous medial meniscal treatment. Of these, 32 patients were eligible to participate in the kinematic assessment at 24.8 ± 1.7 months after surgery. Patients were divided into 2 groups: (1) those who underwent MMR (Group MMR; n = 18) and (2) those who underwent PMM (Group PMM; n = 14). Twenty healthy participants (Group Intact) were recruited who were comparable in age, body mass index, and sex. The kinematic parameters were collected using an optical tracking system during treadmill gait. Range of motion and kinematic parameters at key events during the gait cycle were compared between the 3 groups. The primary outcomes were the differences in adduction/abduction and internal/external rotation.

Results: Patients in Group PMM walked with increased adduction as compared with those in Group Intact during the early stance phase ($P = .003$; $\eta 2 = 0.172$) and midstance phase ($P = .003$; $\eta 2 = 0.167$). In terms of internal/external rotation, patients in Group PMM walked with significantly larger tibial external rotation when compared with Group MMR by approximately 3.4° to 3.7° (loading response: $P = .026$, $\eta 2 = 0.090$; midstance: $P = .035$, $\eta 2 = 0.093$) and Group Intact ($P = .028$; $\eta 2 = 0.095$) in the early stance phase. In addition, there was significantly increased anterior tibial translation in Groups MMR and PMM compared with Group Intact.

Conclusion: ACL reconstruction (via transtibial technique) with concurrent PMM demonstrated larger adduction and external tibial rotation at 24 months of follow-up during level walking.

Clinical Relevance: Patients undergoing different medial meniscal treatment strategies in the presence of ACL reconstruction showed distinct knee kinematics. These results suggest that MMR is strongly recommended during ACL reconstructive surgery to reduce the abnormal kinematics close to that of the ACL-intact condition.

BACK

Association Between Meniscal Allograft Tears and Early Surgical Meniscal Allograft Failure

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Background: Meniscal allograft transplantation (MAT) has become a viable treatment option for patients with symptomatic meniscal deficiency. Some patients experience early surgical meniscal allograft failure attributed to causes that have not yet been sufficiently clarified.

Purpose: To evaluate the prevalence, types, and distribution of arthroscopically confirmed meniscal allograft tears and the associated effect on surgical meniscal allograft survival.

Study Design: Cohort study; Level of evidence, 3.

Methods: Patients undergoing MAT with a minimum 2-year follow-up were retrospectively reviewed. Descriptive and surgical data were collected. Type and location of arthroscopically confirmed meniscal allograft tears were recorded and compared between medial and lateral allografts and suture-only and bone block fixation. A survival analysis was conducted to evaluate the effect of meniscal allograft tears on surgical meniscal allograft survival.

Results: This study included 142 patients (54% male; mean ± SD age, 29.6 ± 10.4 years) with a mean follow-up of 10.3 ± 7.5 years. The prevalence of meniscal allograft tears was 32%, observed at a median of 1.2 years (interquartile range, 2.8 years) after MAT. The posterior horns were most frequently affected, followed by the posterior roots, midbodies, anterior horns, and anterior roots. The most frequently observed tear types were root tears (43%), followed by longitudinal, horizontal, radial, complex, bucket-handle, and meniscocapsular separation tears. A statistically significant association was found between meniscal allograft tear types and fixation techniques (P = .027), with root tears predominant after suture-only as compared with bone block fixation (57% vs 22%). Patients with meniscal allograft root tears were a mean of 5.4 years (95% CI, 1.6-9.2 years; P = .007) younger than were patients without root tears. The 1-year surgical meniscal allograft survival rate was significantly lower for torn versus intact meniscal allografts (75% vs 99%; P < .001).

Conclusion: Meniscal allograft root tears were predominant, associated with younger patient age, and more often observed when using versus the bone block fixation technique. Torn meniscal allografts were associated with early surgical graft failure when compared with intact meniscal allografts, resulting in a significantly lower 1-year survival rate.

BACK

Patient-Reported Outcome Scores and Rate of Return to Sport After Hip Arthroscopic Surgery: A Sex-Based Comparison in Professional and Collegiate Athletes

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Background: No studies have compared outcomes and return to sport (RTS) after hip arthroscopic surgery between matched groups of male and female athletes with a minimum 2-year follow-up.

Purpose: (1) To report minimum 2-year postoperative patient-reported outcome (PRO) scores and the RTS rate for elite female athletes undergoing hip arthroscopic surgery for femoroacetabular impingement (FAI) and (2) to compare clinical results with a matched control group of elite male athletes.

Study Design: Cohort study; Level of evidence, 3.

Methods: Data on all consecutive female athletes who underwent primary hip arthroscopic surgery performed at our institution between March 2009 and July 2018 were collected. Patients were eligible if they underwent hip arthroscopic surgery for labral tears or FAI and participated in collegiate or professional athletics within 1 year of surgery. Minimum 2-year postoperative PRO scores were collected for the modified Harris Hip Score (mHHS), Nonarthritic Hip Score (NAHS), Hip Outcome Score–Sport-Specific Subscale (HOS-SSS), and visual analog scale (VAS) for pain as well as RTS status. The percentages of patients achieving the minimal clinically important difference (MCID) and patient acceptable symptomatic state were recorded. These patients were matched to elite male athletes for comparison.

Results: A total of 73 female hips were included, with a mean follow-up of 65.1 ± 27.9 months. They demonstrated a significant improvement from preoperatively to latest follow-up on the mHHS, NAHS, HOS-SSS, and VAS ($P < .05$). When outcomes were compared with a control group of male athletes, female athletes demonstrated lower preoperative scores, similar postoperative scores, and a significantly greater magnitude of improvement (delta value) on the mHHS, NAHS, and VAS. Female athletes also achieved the MCID at higher rates than did male athletes for the HOS-SSS (85.1% vs 70.0%, respectively; $P = .035$) and NAHS (79.1% vs 62.9%, respectively; $P = .037$). RTS rates among patients who attempted were similar between the 2 groups (female: 75.4%; male: 83.1%; $P = .409$).

Conclusion: Elite female athletes undergoing primary hip arthroscopic surgery for FAI demonstrated a significant improvement in PRO scores and a high RTS rate. Female athletes exhibited a greater improvement in PRO scores (mHHS, NAHS, VAS) and achieved the MCID (HOS-SSS, NAHS) at higher rates compared with a control group of male athletes.

BACK

The Natural Course of Recovery After Hip Arthroscopy for Femoroacetabular Impingement According to the International Hip Outcome Tool–12 and Hip Outcome Score Sports Subscale

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Background: A paucity of literature exists regarding trajectories of functional and sports-specific recovery after hip arthroscopy for femoroacetabular impingement syndrome (FAIS).

Purpose: To determine if subgroups of patients exist based on the recovery trajectory of patient-reported outcomes (PROs) after hip arthroscopy for FAIS in the short-term period and to determine clinical predictors for these subgroups of patients.

Study Design: Case-control study; Level of evidence, 3.

Methods: A prospectively maintained repository was queried for patients who had undergone primary hip arthroscopy for the treatment of FAIS between January 2012 and May 2018. Patients who completed the preoperative, 1-year, and 2-year International Hip Outcome Tool–12 (iHOT-12) or the Hip Outcome Score Sports Subscale (HOS-SS) were included. The latent class growth analysis (LCGA) and growth mixture models (GMMs) were used to identify subgroups of patients based on trajectories of recovery for the iHOT-12 and the HOS-SS utilizing preoperative, 1-year, and 2-year follow-ups. LCGA and GMM models using 1 to 6 classes for each PRO were performed, and the best-fit model for each PRO was selected. After final model selection, a multivariable multinomial logistic regression was performed, with the largest class being the reference group to determine clinical predictors of subgroup membership.

Results: A total of 443 and 556 patients were included in the iHOT-12 and HOS-SS analyses, respectively. For the iHOT-12, we identified the following 3 subgroups: early progressors (70%), late regressors (22.3%), and late progressors (7.7%). Predictors of late regression were workers' compensation status, psychiatric history, preoperative chronic pain, and lower preoperative iHOT-12 scores; and late progressors were less likely to participate in sports. For the HOS-SS, we identified the following 4 subgroups: early progressors (47.7%), late regressors (17.4%), late progressors (6.8%), and steady progressors (28.1%). Predictors of less favorable recovery trajectories (late regressors and late progessors) were older age, male sex, back pain, psychiatric history, preoperative chronic pain, greater alpha angle, and lower preoperative HOS-SS scores.

Conclusion: Using the growth mixture modeling, 3 natural courses of health-related quality of life (early progression, late regression, and late progression) and 4 natural courses of recovery of athletic function (steady progression, late regression, late progression, and early progression) were identified. Preoperative psychiatric conditions, chronic pain, workers' compensation status, and lower iHOT-12 scores were predictive of less than favorable trajectories of recovery according to the iHOT-12, and male sex, older age, back pain, preoperative narcotic use, and lower preoperative HOS-SS were predictors of less favorable recovery trajectories according to the HOS-SS.

BACK

Return to Sports and Minimum 2-Year Outcomes of Primary Arthroscopic Hip Labral Reconstruction for Irreparable Tears in High-Level Athletes With a Propensity-Matched Benchmarking Against a Labral Repair Control Group

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Background: Labral reconstruction has shown promise for the treatment of irreparable labral tears in high-level athletes. The literature is scarce regarding outcomes and timing of return to sports (RTS) in these patients.

Purpose: (1) To report minimum 2-year patient-reported outcome (PRO) scores and RTS characteristics for high-level athletes undergoing primary labral reconstruction for irreparable labral tears and (2) to compare clinical results with a matched control group of athletes undergoing labral repair.

Study Design: Cohort study; Level of evidence, 3.

Methods: Data were prospectively collected and retrospectively reviewed for high school, college, and professional athletes who underwent a primary arthroscopic labral reconstruction between January 2010 and June 2018. Minimum 2-year PROs were compared for the modified Harris Hip Score (mHHS), Nonarthritic Hip Score (NAHS), and Hip Outcome Score–Sport Specific Subscale (HOS-SSS), as well as the visual analog scale (VAS) pain score, patient satisfaction, and RTS. The percentages of patients achieving the Patient Acceptable Symptom State (PASS) and minimal clinically important difference (MCID) for the mHHS (PASS, >74 points; MCID, >8 points) and HOS-SSS (PASS, >75 points; MCID, >6 points) were also recorded. These patients were propensity score matched in a 1:3 ratio to other high-level athletes undergoing labral repair.

Results: A total of 17 high-level athletes with primary arthroscopic labral reconstruction were included with a median follow-up time of 37.1 months (95% CI, 37.2-60.3 months). They demonstrated significant improvement from preoperatively to the latest follow-up for mHHS, NAHS, HOS-SSS, and VAS for pain ($P < .05$). Further, patients achieved PASS/MCID for mHHS at high rates (PASS, 84.2%; MCID, 68.4%). Athletes were able to return to sport-specific training at a median of 3.33 months (95% CI, 3.07-4.71 months) and RTS at a median of 6.2 months (95% CI, 5.08-11.98 months). Fourteen (82.4%) of reconstructions and 29 (82.8%) of repairs either returned to sport or decided not to do so for reasons unrelated to the hip. PROs, RTS rate, and PASS/MCID rates were similar between the labral reconstruction group and a control labral repair group ($P > .05$).

Conclusion: Primary arthroscopic labral reconstruction for irreparable labral tears was associated with significant improvement in PROs and high rates of RTS in high-level athletes. These results were comparable with those of a control group of athletes undergoing labral repair.

BACK

Miscellaneous

BACK