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Upper extremity

Arthroscopy, Volume 39, Issue 11

Management of Acute High-Grade Acromioclavicular Joint Dislocations: Comparable Clinical and Radiological Outcomes After Bidirectional Arthroscopic-Assisted Stabilization With the Single Low-Profile Suture Button Technique Versus Double-Suture Button Technique

L. Eckl, P. Vetter

DOI: https://doi.org/10.1016/j.arthro.2023.05.015

Purpose: To compare the 2-year clinical and radiological outcomes of an arthroscopic-assisted bidirectional stabilization procedure using a single low-profile (LPSB) or double-suture button (DSB) technique with additional percutaneous acromioclavicular (AC) cerclage fixation for patients with acute high-grade AC joint dislocation.

Methods: This retrospective cohort study compared male patients aged between 18 and 56 years with acute high-grade AC joint dislocation fixed with either a LPSB or DSB technique. Patients were examined at least 24 months after surgery. Subjective Shoulder Value (SSV), Taft (TF), and Acromioclavicular Joint Instability (ACJI) scores were evaluated. Coracoclavicular difference, ossification, AC joint osteoarthritis, and dynamic posterior translation (DPT) were assessed on bilateral anteroposterior stress radiographs and modified Alexander views. The revision rate due to implant conflict and duration of surgery were reported. Group outcome differences were analyzed using standardized hypothesis tests.

Results: 28 patients aged 39.2 (LPSB) and 36.4 years (DSB) (P = .319; CI: −2.77–8.34) were eligible per cohort. The follow-up was 30.5 (LPSB) and 37.4 months (DSB) (P = .02; CI: −12.73−1.08). LPSB patients rated a significantly higher SSV (93.2% vs 81.9% [DSB]; P = .004). TF and ACJI scores were similar between the groups. Coracoclavicular difference markedly decreased from 12 mm to 3 mm for both cohorts (P < .001). Ossification was identified in over 85% in both cohorts (P = .160; CI −0.77–0.13) and osteoarthritis in 21.4% (LPSB) and 39.3% (DSB) (P = .150). Persistent DPT was found in around 30% for both cohorts (P = .561; CI −0.26–0.48). The revision rates were 0% (LPSB) and 7% (DSB) (P = .491). LPSB surgery was shorter (59.7 vs 71.5 mins [DSB]) (P = .011).

Conclusions: The results of the LPSB and DSB techniques with additional percutaneous AC cerclage fixation showed comparable outcomes with excellent clinical and satisfactory radiological results. The assessment of the subjective patient satisfaction was in favor of the LPSB technique and no postoperative revision event was observed following this procedure.

Level of evidence: Level III, retrospective comparative therapeutic trial.

BACK

Wide Range in Complication Rates Following Elbow Arthroscopy in Adult and Pediatric Patients: A Systematic Review

H.H. de Klerk, L.P.E. Verweij

DOI: https://doi.org/10.1016/j.arthro.2023.04.015

Purpose: To perform a systematic review of complications associated with elbow arthroscopy in adults and children.

Methods: A literature search was performed in the PubMed, EMBASE, and Cochrane databases. Studies reporting complications or reoperations after elbow arthroscopy with at least 5 patients were included. Based on the Nelson classification, the severity of complications was categorized as minor or major. Risk of bias was assessed using the Cochrane risk-of-bias tool for randomized clinical trials, and nonrandomized trials were assessed using the Methodological Items for Non-randomized Studies (MINORS) tool.

Results: A total of 114 articles were included with 18,892 arthroscopies (16,815 patients). A low risk of bias was seen for the randomized studies and a fair quality for the nonrandomized studies. Complication rates ranged from 0% to 71% (median 3%; 95% confidence interval [CI], 2.8%-3.3%), and reoperation rates from 0% to 59% (median 2%; 95% CI, 1.8%-2.2%). A total of 906 complications were observed, with transient nerve palsies (31%) as the most frequent complication. According to Nelson classification, 735 (81%) complications were minor and 171 (19%) major. Forty-nine studies reported complications in adults and 10 studies in children, showing a complication rate ranging from 0% to 27% (median 0%; 95% CI, 0%-0.4%) and 0% to 57% (median 1%; 95% CI, 0.4%-3.5%), respectively. A total of 125 complications were observed in adults, with transient nerve palsies (23%) as the most frequent complication, and 33 in children, with loose bodies after surgery (45%) as the most frequent complication.

Conclusions: Predominantly low-level evidence studies demonstrate varying complication rates (median 3%, range 0%-71%) and reoperation rates (median 2%, range 0%-59%) after elbow arthroscopy. Higher complication rates are observed after more complex surgery. The incidence and type of complications can aid surgeons in patient counseling and refining surgical techniques to further reduce the complication rates.

Level of evidence: Level IV; systematic review of Level I-IV studies.

BACK

Journal of Shoulder and Elbow Surgery (JSES), Volume 32, issue 11

Operative management of rotator cuff tears: identifying disparities in access on a national level

Z.L LaPorte, N.J. Cherian

DOI: https://doi.org/10.1016/j.jse.2023.04.007

Background: The purpose of this study was to identify nationwide disparities in the rates of operative management of rotator cuff tears based on race, ethnicity, insurance type, and socioeconomic status.

Methods: Patients diagnosed with a full or partial rotator cuff tear from 2006 to 2014 were identified in the Healthcare Cost and Utilization Project's National Inpatient Sample database using International Classification of Diseases, Ninth Revision diagnosis codes. Bivariate analysis using chi-square tests and adjusted, multivariable logistic regression models were used to evaluate differences in the rates of operative vs. nonoperative management for rotator cuff tears.

Results: This study included 46,167 patients. When compared with white patients, adjusted analysis showed that minority race and ethnicity were associated with lower rates of operative management for Black (adjusted odds ratio [AOR]: 0.31, 95% confidence interval [CI]: 0.29-0.33; P < .001), Hispanic (AOR: 0.49, 95% CI: 0.45-0.52; P < .001), Asian or Pacific Islander (AOR: 0.72, 95% CI: 0.61-0.84; P < .001), and Native American patients (AOR: 0.65, 95% CI: 0.50-0.86; P = .002). In comparison to privately insured patients, our analysis also found that self-payers (AOR: 0.08, 95% CI: 0.07-0.10; P < .001), Medicare beneficiaries (AOR: 0.76, 95% CI: 0.72-0.81; P < .001), and Medicaid beneficiaries (AOR: 0.33, 95% CI: 0.30-0.36; P < .001) had lower odds of receiving surgical intervention. Additionally, relative to those in the bottom income quartile, patients in all other quartiles experienced nominally higher rates of operative repair; these differences were statistically significant for the second quartile (AOR: 1.09, 95% CI: 1.03-1.16; P = .004).

Conclusion: There are significant nationwide disparities in the likelihood of receiving operative management for rotator cuff tear patients of differing race/ethnicity, payer status, and socioeconomic status. Further investigation is needed to fully understand and address causes of these discrepancies to optimize care pathways.

Level of Evidence: Level III, Case-Control Design Using Large Database Analysis, Epidemiology Study.

BACK

Radiologically severe osteoarthritis is related to worse clinical outcomes after arthroscopic osteocapsular arthroplasty in primary elbow osteoarthritis at a medium-term follow-up: a retrospective cohort study

S.P. So, J.M. Kwak

DOI: https://doi.org/10.1016/j.jse.2023.05.041

Hypothesis: This study aimed to compare the clinical outcomes after arthroscopic osteocapsular arthroplasty (OCA) at medium-term follow-up according to the radiologic severity of primary elbow osteoarthritis (OA) and assess serial changes in clinical outcomes in each group.

Methods: Patients treated from January 2010 to April 2019 with arthroscopic OCA for primary elbow OA with a minimum of 3 years' follow-up were retrospectively assessed regarding range of motion (ROM), visual analog scale (VAS) pain score, and Mayo Elbow Performance Score (MEPS) preoperatively, at short-term follow-up (3-12 months postoperatively), and at medium-term follow-up (≥3 years after surgery). Preoperative computed tomography was performed to evaluate the radiologic severity of OA using the Kwak classification. Clinical outcomes were compared according to the radiologic severity of OA by their absolute values and the number of patients achieving the patient acceptable symptomatic state (PASS). Serial changes in the clinical outcomes in each subgroup were also assessed.

Results: Of the 43 patients, 14, 18, and 11 were classified as the stage I, II, and III groups, respectively; the mean follow-up duration was 71.3 ± 28.9 months, and the mean age was 56.5 ± 7.2 years. At medium-term follow-up, the stage I group had a better ROM arc (stage I, 114° ± 14°; stage II, 100° ± 23°; and stage III, 97° ± 20°; P = .067) and VAS pain score (stage I, 0.9 ± 1.3; stage II, 1.8 ± 2.1; and stage III, 2.4 ± 2.1; P = .168) than the stage II and III groups without reaching statistical significance, whereas the stage I group had a significantly better MEPS (stage I, 93.2 ± 7.5; stage II, 84.7 ± 11.9; and stage III, 78.6 ± 15.2; P = .017) than the stage III group. The percentages of patients achieving the PASS for the ROM arc (P = .684) and VAS pain score (P = .398) were comparable between the 3 groups; however, the percentage achieving the PASS for the MEPS was significantly higher in the stage I group than in the stage III group (100.0% vs. 54.5%, P = .016). During serial assessment, all clinical outcomes tended to improve at the short-term follow-up. Compared with the short-term period, the ROM arc tended to decrease at the medium-term follow-up whereas the VAS pain score and MEPS overall did not show significant changes.

Conclusion: After arthroscopic OCA, the stage I group showed an overall better ROM arc and pain score than the stage II and III groups at medium-term follow-up, whereas the stage I group showed a significantly better MEPS and higher percentage of patients achieving the PASS for the MEPS than the stage III group.

Level of Evidence: Level III, Retrospective Cohort Comparison, Prognosis Study.

BACK

Tranexamic acid use in arthroscopic rotator cuff repair is an effective and safe adjunct to improve visualization: a systematic review and meta-analysis

C. Han, M. Liu

DOI: https://doi.org/10.1016/j.jse.2023.06.013

Purpose: Although tranexamic acid (TXA) is being increasingly used in orthopedic arthroplasty and lower-extremity arthroscopic procedures, its use in arthroscopic rotator cuff repair (ARCR) is less widely reported. The aim of this study was to evaluate the clinical effectiveness and safety of TXA administration in ARCR.

Methods: A systematic review and meta-analysis of randomized controlled trials was performed to compare clinical outcomes in patients who underwent ARCR with or without TXA. Literature was retrieved using the Cochrane Library, MEDLINE, PubMed, and Embase electronic databases. The primary outcome of this study was visual clarity. Secondary outcomes contained total operative time, postoperative pain score, amount of blood loss, shoulder swelling (change in shoulder circumference), volume of irrigation fluid, number of adjustments of the pump pressure for irrigation, and adverse cardiovascular events.

Results: Seven studies (3 and 4 with level I and II evidence, respectively), which included 272 and 265 patients who underwent arthroscopy with and without TXA, respectively, met the eligibility criteria. Pooled analysis showed significant improvements in visual clarity (mean difference, 9.10%; 95% CI, 4.05-14.15; P = .0004) and total operative time (mean difference, −11.24 minute; 95% CI, −19.90 to −2.57) associated with perioperative TXA application. None of the trials reported adverse events and complications associated with TXA.

Conclusion: The best available evidence indicates that TXA administration could significantly improve arthroscopic visual clarity and effectively save operative time in ARCR without increasing the incidence of adverse events. Furthermore, the optimal dose, route, and timing of TXA application in ARCR surgery remains to be validated by future high-level evidence studies.

Level of Evidence: Level II, Systematic Review and Meta-Analysis.

BACK

Association of obesity with high retears and complication rates, and low functional scores after rotator cuff repair: a systematic review and meta-analysis

Z. Yang, W. Chen

DOI: https://doi.org/10.1016/j.jse.2023.05.030

Background: Obesity influences the outcomes of orthopedic surgeries such as total knee arthroplasty and spinal surgery. However, the effect of obesity on the outcomes of rotator cuff repair is unknown. This systematic review and meta-analysis aimed to examine the effect of obesity on rotator cuff repair outcomes.

Methods: PubMed, EMBASE, Web of Science, and Cochrane Library databases were searched to identify relevant studies published from their inception till July 2022. Two reviewers independently screened titles and abstracts using the specified criteria. Articles were included if they indicated the effect of obesity on rotator cuff repair and the related outcomes after surgery. Review Manager 5.4.1 software was used to perform statistical analysis.

Results: Thirteen articles involving 85,497 patients were included. Obese patients had higher retear rates than nonobese patients (odds ratio [OR] 2.58, 95% confidence interval [CI] 1.23-5.41, P = .01), lower American Shoulder and Elbow Surgeons scores (mean difference [MD]: −3.59, 95% CI: −5.45 to [−1.74]; P = .0001), higher visual analog scale for pain (mean difference: 0.73, 95% CI: 0.29-1.17; P = .001), higher reoperation rates (OR 1.31, 95% CI 1.21-1.42, P < .00001), and higher rates of complications (OR 1.57, 95% CI 1.31-1.87, P = .000). Obesity did not affect the duration of surgery (MD: 6.03, 95% CI: −7.63 to 19.69; P = .39) or external rotation of the shoulder (MD: −1.79, 95% CI: −5.30 to 1.72; P = .32).

Conclusion: Obesity is a significant risk factor for retear and reoperation after rotator cuff repair. Furthermore, obesity increases the risk of postoperative complications and leads to lower postoperative American Shoulder and Elbow Surgeons scores and higher shoulder visual analog scale for pain.

Level of Evidence: Level IV, Meta-Analysis, Prognosis Study.

BACK

A comprehensive comparison and evaluation of surgical techniques for anterior shoulder instability: a Bayesian network meta-analysis

S. Masud, D. Momtaz

DOI: https://doi.org/10.1016/j.jse.2023.07.004

Background: Anterior shoulder instability is a common clinical problem; however, conflicting evidence exists regarding optimal treatment algorithms. We perform a comparative analysis of stabilization techniques used for recurrent anterior shoulder instability to identify the one associated with the lowest rate of recurrent instability. We additionally explore how glenoid bone loss and osseus lesions affect recurrence rates.

Methods: PubMed, MEDLINE, Embase, and Cochrane databases were searched for clinical studies comparing surgical techniques for anterior shoulder instability. Two team members independently assessed all potential studies for eligibility and extracted data. Each included study underwent a risk of bias assessment using the Cochrane risk of bias summary tool. The primary outcome of interest was the rate of recurrent instability, which underwent a Bayesian network meta-analysis. Additional analyses were performed relating to the degree of glenoid bone loss and the presence of osseous lesions.

Results: Of 2699 studies screened, 52 studies with 4209 patients were included. Patients who underwent open Latarjet demonstrated the overall lowest rate of recurrent instability [log odds ratio (LOR) 1.93], whereas patients who underwent arthroscopic Bankart repair demonstrated the highest (LOR 2.87). When glenoid bone loss was 10% to 20%, open Latarjet had significantly lower recurrent instability (P = .0016) compared to arthroscopic Bankart repair. When glenoid bone loss increased from 0%-10% to 10%-20%, arthroscopic Bankart repair had a significantly increased rate of recurrence (P = .021). In the presence of an engaging Hill-Sachs lesion, both open Latarjet (P = .01) and arthroscopic Bankart with remplissage (P = .029) had significantly reduced recurrence rates compared to arthroscopic Bankart repair. Finally, regardless of procedure, the presence of a Hill-Sachs or bony Bankart lesion was associated with an increased risk of recurrent instability (r = 0.44, P = .0003, and r = 0.40, P = .006, respectively).

Conclusion: The open Latarjet has the overall lowest recurrent instability and significantly lower compared to arthroscopic Bankart repair in the setting of increasing glenoid bone loss. Bone loss between 0% and 10% results in similar outcomes across all procedures.

Level of Evidence: Level III, Meta-Analysis and Review.

BACK

Knee Surgery, Sports Traumatology, Arthroscopy (KSSTA), Volume 31, Issue 11

Types and doses of anti-adhesive agents injected into subacromial space do not have an effect on the clinical and anatomical outcomes after arthroscopic rotator cuff repair

J. Lee, J.P. Yoon

DOI: https://doi.org/10.1007/s00167-023-07519-4

Purpose: Joint stiffness after arthroscopic rotator cuff repair is a major concern for orthopaedic surgeons. Various antiadhesive agents are commonly administered after rotator cuff repair for its prevention. This study aimed to compare the outcomes among patients injected with different types and amounts of anti-adhesive agents after rotator cuff repair. It was hypothesized that the outcomes might differ depending on the use of the anti-adhesive agent and its type and dose.

Methods: A total of 267 patients who underwent arthroscopic rotator cuff repair with or without subacromial injection of anti-adhesive agents were enrolled. The first group (group A; 51 patients) were injected with 3 mL of poloxamer/sodium alginate-based anti-adhesive agent. The second group (group B; 93 patients) were injected with 3 mL of sodium hyaluronate-based anti-adhesive agent. The third group (group C; 82 patients) were injected with 1.5 mL of sodium hyaluronate-based anti-adhesive agent. Finally, the last group (group D; 41 patients) who did not use anti-adhesive agents served as the control. The range of motion (ROM) and pain VAS scores were measured preoperatively and at 5 weeks, 3 months, 6 months, and 1 year postoperatively. Functional outcomes were evaluated using American Shoulder and Elbow Surgeons and Constant scores, whereas cuff integrity was assessed via MRI or ultrasonography at least 6 months postoperatively.

Results: All ROM measurements, pain VAS scores, and functional scores were significantly improved regardless of the use, type, and dose of the anti-adhesive agents. In addition shoulder ROM and rotator cuff healing did not significantly differ among the groups (all n.s.).

Conclusions: No significant differences were found in the clinical and anatomical outcomes according to the type and dose of the anti-adhesive agents subacromially injected after rotator cuff repair.

Level of Evidence: III.

BACK

Arthroscopic capsular release for frozen shoulder: when etiology matters
Delamination of rotator cuff tears impairs healing after repair: a systematic review and meta-analysis

O. Galasso, M. Mercurio

DOI: https://doi.org/10.1007/s00167-023-07561-2

Purpose: No therapeutic intervention is universally accepted for frozen shoulder, and the most effective management to restore motion and diminish pain has yet to be defined. The aim of this study was to investigate functional and psychological outcomes in patients who underwent arthroscopic capsular release for a frozen shoulder.

Methods: A retrospective study with prospective data collection was conducted with 78 patients suffering from frozen shoulder resistance to conservative treatment. Considering the etiology, there were 36 (46.2%) idiopathic, 31 (39.7%) postoperative, and 11 (14.1%) posttraumatic cases. Preoperatively, each patient was evaluated with the range of motion (ROM) assessment and the Constant-Murley score (CMS). At follow-up, the 4-point subjective satisfaction scale (SSS), the ROM assessment, the SF-12 questionnaire, the numerical rating scale (NRS) for the subjective assessment of pain, the CMS and the Hospital Anxiety and Depression Scale (HADS) were assessed.

Results: After a mean follow-up of 54.2 ± 22.3 months, ROM and CMS showed a statistically significant improvement between pre- and postoperative values (all $p < 0.001$). Before surgery, the mean CMS was 36.9% that of sex- and age-matched healthy individuals, and all patients showed a CMS lower than the normative data. At the final follow-up visit, the mean CMS was 99.9% that of sex- and age-matched healthy individuals, and 49 (62.8%) patients showed a CMS equal to or higher than the normative data. The mean increase in the CMS was 56.1 ± 8.3 points. The mean SSS, HADS-A, HADS-D, and NRS were 3.7 ± 0.5, 2.5 ± 1.6, 2.2 ± 1.3, and 2.2 ± 1.0, respectively. All patients returned to their previous level of work and sports activity after 2 and 2.5 months, respectively. The multivariate analysis showed the association between a higher postoperative CMS and the idiopathic etiology of a frozen shoulder ($p = 0.004$, $\beta = 3.971$). No intraoperative complications occurred. Postoperatively, four patients (5.1%) were treated with intra-articular steroid injections to manage residual symptoms. One patient (1.3%) with a postoperative frozen shoulder showed persistent symptoms and underwent a new successful arthroscopic capsular release.

Conclusions: High patient satisfaction and statistically significant ROM and CMS recovery can be achieved after arthroscopic capsular release to manage frozen shoulder. Better functional outcomes are expected when the etiology is idiopathic. Results can help surgeons identify the patients who will most benefit from surgery and should be discussed with the patient.

Level of Evidence: III.

BACK

Delamination of rotator cuff tears impairs healing after repair: a systematic review and meta-analysis

J. Liang, Q. Liang

DOI: https://doi.org/10.1007/s00167-023-07568-9

Purpose: To compare the clinical outcomes and retear rates after rotator cuff repair (RCR) between delaminated and non-delaminated tears.

Methods: This systematic review was conducted according to the preferred reporting items for systematic reviews and meta-analyses guidelines using the PubMed, Cochrane Library, the Web of Science and Embase databases. Only articles on arthroscopic RCR with clinical outcome scores and data on the number of rotator cuff retears and complete healing were included. This study's relevant data were extracted and statistically analyzed. The methodological index for nonrandomized studies was used to assess the risk of bias in the included studies. After conducting a heterogeneity test and sensitivity analysis to determine whether the samples were heterogeneous, the study also detected publication bias. A sub-group test was used to evaluate the influences of the imaging follow-up period on retear rates.

Results: Ten eligible articles were identified with 2,061 patients (925 in the delaminated group and 1,136 in the non-delaminated group). The meta-analysis demonstrated that delamination was significantly associated with higher retear rates (P = 0.026; odds ratio = 1.873, 95% confidence interval 1.079–3.252; I2 = 51.6%) with an imaging follow-up period of > 1 year and lower rates of complete healing (P = 0.036; odds ratio = 0.659, 95% confidence interval 0.446–0.973; I2 = 9.0%) in patients after rotator cuff repair. However, no significant differences were observed between the two groups based on American Shoulder and Elbow Surgeons score, Constant score, visual analog scale score, external rotation, internal rotation, or forward elevation.

Conclusions: This meta-analysis found that delamination was significantly associated with higher retear rates with imaging follow-up period of > 1 year, and lower rates of complete healing. In addition, the preoperative and postoperative clinical scores and shoulder joint range of motion were similar between patients with delaminated and non-delaminated tears.

Level of Evidence: Level IV.

BACK

American Journal of Sports Medicine (AJSM), Volume 51, Issue 13

Beach-Chair Versus Lateral Decubitus Positioning for Primary Arthroscopic Anterior Shoulder Stabilization: A Consecutive Series of 641 Shoulders

B.G. Yow, A.B. Anderson

DOI: https://doi.org/10.1177/03635465231200251

Background: There are limited data comparing the beach-chair (BC) versus lateral decubitus (LD) position for arthroscopic anterior shoulder stabilization.

Purpose: To identify predictors of instability recurrence and revision after anterior shoulder stabilization and evaluate surgical position and glenoid bone loss as independent predictors of recurrence and revision at short- and midterm follow-ups.

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

Methods: A consecutive series of 641 arthroscopic anterior stabilization procedures were performed from 2005 to 2019. All shoulders were evaluated for glenohumeral bone loss on magnetic resonance imaging. The primary outcomes of interest were recurrence and revision. Multivariable logistic regression models were used to assess the relationships of outcomes with age, position, glenoid bone loss group, and track.

Results: A total of 641 shoulders with a mean age of 22.3 years (SD, 4.45 years) underwent stabilization and were followed for a mean of 6 years. The overall 1-year recurrent instability rate was 3.3% (21/641) and the revision rate was 2.8% (18/641). At 1 year, recurrence was observed in 2.3% (11/487) and 6.5% (10/154) of BC and LD shoulders, respectively. The 5-year recurrence and revision rates were 15.7% (60/383) and 12.8% (49/383), respectively. At 5 years, recurrence was observed in 16.4% (48/293) and 13.3% (12/90) of BC and LD shoulders, respectively. Multivariable modeling demonstrated that surgical position was not associated with a risk of recurrence after 1 year (odds ratio [OR] for LD vs BC, 1.39; P = .56) and 5 years (OR for LD vs BC, 1.32; P = .43), although younger age at index surgery was associated with a higher risk of instability recurrence (OR, 1.73 per SD [4.1 years] decrease in age; P < .03). After 1 and 5 years, surgical position results were similar in a separate multivariable logistic regression model of revision surgery as the dependent variable, when adjusted for age, surgical position, bone loss group, and track. At 5 years, younger age was an independent risk factor for revision: OR 1.68 per SD (4.1 years) decrease in age (P < .05).

Conclusions: Among fellowship-trained orthopaedic surgeons, there was no difference in rates of recurrence and revision surgery after performing arthroscopic anterior stabilization in either the BC or the LD position at 1- and 5-year follow-ups. In multivariable analysis, younger age, but not surgical position, was an independent risk factor for recurrence.

BACK

Arthroscopic Repair of Large Subscapularis Tear Over the First Facet

S.C. Kim, H.G. Kim

DOI: https://doi.org/10.1177/03635465231203702

Background: Long-term studies on arthroscopic repair of large subscapularis (SSC) tears over the first facet with or without supraspinatus (SSP) tear are limited.

Purpose: To assess the structural and clinical outcomes of arthroscopic repair of large SSC tears using magnetic resonance imaging (MRI) and identify the factors related to SSC retear and poor outcomes.

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

Methods: This study involved 109 patients (84.0 ± 36.2 months of follow-up) who underwent arthroscopic repair of large SSC tears (Yoo and Rhee classification type III [n = 81] or IV [n = 28]) between 2011 and 2019. All patients underwent MRI at 6.1 ± 0.4 months after surgery, and 79 of 109 patients (72.5%) were followed up over 7 years. Clinical outcomes (active range of motion, functional scores, and belly press strength) and final poor clinical outcomes (reoperation, osteoarthritic change, and poor clinical outcome) were recorded. SSP tear size, rotator cuff atrophy and fatty infiltration (Goutallier classification), SSC tendon integrity (intact, intermediate, definite tear), and SSP tendon integrity (Sugaya classification) were evaluated by MRI.

Results: The overall SSC retear rate was 8.3% (9/109) (type III, 2/81 [2.5%]; type IV, 7/28 [25.0%]; P < .001). SSC Goutallier grade 4 showed a higher retear rate than grade 3 (7/33 [21.2%] vs 2/33 [6.1%]; P = .149). A large SSP tear (in millimeters) (odds ratio [OR], 1.5; P = .003), SSC Goutallier grade 4 (OR, 10.8; P = .047), and SSP Goutallier grade 3 or 4 (OR, 0.02; P = .013) were independent factors for SSC retear. Clinical outcomes, except for external rotation, were poorer in patients with SSC retear than in those without retear. Final poor clinical outcomes were observed in 27 of 79 patients (34.2%); female sex (OR, 7.7; P = .007), SSC retear (OR, 8.2; P = .025), and SSP retear (OR, 4.7; P = .031) were independent factors.

Conclusion: Arthroscopic repair of large SSC tears has shown promising structural outcomes for type III tears but not type IV tears. SSC retear was affected by SSC atrophy, as well as SSP tear size and atrophy. Approximately one-third of the final poor clinical outcomes could be predicted, and SSC retear, SSP retear, and female sex were associated with long-term poor clinical outcomes, underscoring the importance of carefully selecting patients for arthroscopic repair of large SSC tears.

BACK

Prevalence, Timing, Locational Distribution, and Risk Factors for Heterotopic Ossification After Elbow Arthroscopy

H. Ben, E. Kholinne

DOI: https://doi.org/10.1177/03635465231198862

Background: Arthroscopic techniques aim to reduce complications and accelerate recovery of the elbow after treatments for posttraumatic stiffness, arthritis diseases, lateral epicondylitis, ligament reconstruction, and elbow trauma. However, data on the true prevalence and characteristics of heterotopic ossification (HO) formation after elbow arthroscopy are limited.

Purpose: To investigate the prevalence, timing, locational distribution, and risk factors of HO after elbow arthroscopy.

Study Design: Cohort study; Level of evidence, 4.

Methods: Data on 205 patients undergoing elbow arthroscopy by a single senior elbow surgeon at a single institution between May 2011 and January 2022 were retrospectively reviewed. The patients were evaluated at 2 weeks, 8 weeks, 6 months, and then annually after surgery or more frequently if HO developed, with a minimum of 1 year of postoperative follow-up. Postoperative anteroposterior and lateral elbow radiographs were taken at 2 weeks to rule out fracture and at 8 weeks to identify HO. The clinical outcomes were evaluated based on the pain visual analog scale; the shortened version of the Disabilities of the Arm, Shoulder and Hand score; Mayo Elbow Performance Score; and the Single Assessment Numeric Evaluation scores before and after surgery. Bivariate logistic regression analyses were used to determine factors affecting HO prevalence.

Results: Thirteen (12 male, 1 female) of 205 (6.3%) patients developed HO, with 10 (76.9%) with HO that formed on the medial compartment of the elbow. Ten (76.9%) patients were diagnosed at 8 weeks after arthroscopic surgery, 1 (7.7%) at 6 months after surgery, and 2 (15.4%) at 12 months after surgery. HO was not found at 2 weeks after surgery in any patient. The mean follow-up time was 3.5 years (range, 1.0-11.8 years). Eleven asymptomatic patients were treated nonoperatively, and 2 symptomatic patients underwent HO excision arthroscopically or had a combination of open surgery and arthroscopy. Age was a protective factor for HO formation (odds ratio [OR], 0.953; 95% CI, 0.910-0.999; P = .047). The risk factors for HO formation were tourniquet time (OR, 1.042; 95% CI, 1.019-1.065; P < .001) and surgical time (OR, 1.026; 95% CI, 1.011-1.041; P < .001).

Conclusion: Among 205 patients who underwent elbow arthroscopy, HO was a minor complication of elbow arthroscopy, with a prevalence rate of 6.3%, and was usually located on the medial compartment of the elbow. Although the presence of HO may not affect the clinical outcomes in most patients, it should be carefully monitored for a minimum of 8 weeks postoperatively. Younger age, longer tourniquet time, and longer surgical time contributed to HO formation after elbow arthroscopy.

BACK

Journal of Bone and Joint Surgery (JBJS), Volume 105, Issue 21+22

No Upper Extremity Abstracts

BACK

Clinical Orthopaedics and Related Research (CORR), Volume 481, Issue 12

No Upper Extremity Abstracts

BACK

Bone and Joint Journal (BJJ), Volume 105-B, issue 12

No Upper Extremity Abstracts

BACK

Lower Extremity

Arthroscopy, Volume 39, Issue 11

Workers' Compensation Patients Undergoing Hip Arthroscopy for Femoroacetabular Impingement Syndrome Experience Worse Mid-Term Outcomes but Similar Return-to-Work: A Propensity-Matched Analysis at 5-Year Follow-Up

N. Horner, R.S. Chapman

DOI: https://doi.org/10.1016/j.arthro.2023.03.023

Purpose: To investigate mid-term patient-reported outcomes (PROs) and return-to-work for workers' compensation (WC) patients undergoing primary hip arthroscopy (HA) for femoroacetabular impingement syndrome (FAIS) versus propensity-matched, non-WC controls and to determine whether achievement rates of minimal clinically important difference (MCID) and patient-acceptable symptom state (PASS) differ between these populations.

Methods: A retrospective cohort study was conducted on WC patients who underwent primary HA for FAIS from 2012 to 2017. WC and non-WC patients were propensity matched on a 1:4 basis by sex, age, and body mass index (BMI). PROs were compared preoperatively and at 5 years postoperatively, employing the Hip Outcome Score Activities of Daily Living (HOS-ADL) and Sports-Specific (HOS-SS) subscales, modified Harris Hip Score (mHHS), 12-item international Hip Outcome Tool (iHOT-12), and visual analog scales (VAS) for pain and satisfaction. MCID and PASS were calculated using published thresholds for these measures. Preoperative and postoperative radiographs and the presence and timing of return to unrestricted work were evaluated.

Results: Forty-three WC patients were successfully matched to 172 non-WC controls and followed for 64.2 ± 7.7 months. WC patients demonstrated lower preoperative scores for all measures ($P \leq .031$) and worse HOS-ADL, HOS-SS, and VAS pain scores at 5-year follow-up ($P \leq .021$). There were no differences in MCID achievement rates or magnitude of change between preoperative and 5-year postoperative PROs ($P \geq .093$); however, WC patients achieved PASS at lower rates for HOS-ADL and HOS-SS ($P \leq .009$). 76.7% of WC and 84.3% of non-WC patients returned to work without restrictions ($P = .302$) at 7.4 ± 4.4 versus 5.0 ± 3.8 months, respectively ($P < .001$).

Conclusions: WC patients undergoing HA for FAIS report worse preoperative pain and function than non-WC patients and experience worse pain, function, and PASS achievement at 5-year follow-up. However, they demonstrate similar MCID achievement and magnitude improvement between preoperative and 5-year postoperative PROs, and return to work without restrictions at a similar rate to non-WC patients, although they may take longer to do so.

Level of Evidence: Level III, retrospective cohort study.

BACK

Increased 90-Day Readmissions and Complications Following Hip Arthroscopy in Centers With Low Surgical Volume in New York State

D.S. Shankar, C.C. Lin

DOI: https://doi.org/10.1016/j.arthro.2023.03.026

Purpose: To (1) classify surgical centers in New York State by volume of hip arthroscopies performed, (2) calculate rates of readmissions and complications by center volume, and (3) identify socioeconomic predictive factors for readmissions and complications following hip arthroscopy.

Methods: Patients who underwent hip arthroscopy at New York State health care facilities from 2010 to 2020 were retrospectively identified using the New York Statewide Planning and Research Cooperative System (SPARCS) database. Hip arthroscopic procedures were identified using the following Current Procedural Terminology codes. Surgical center volumes were classified into 3 categories: low (<85th percentile), medium (85th-95th percentile), and high (>95th percentile). Incidence of readmissions and complications within 90 days was abstracted from SPARCS. Neighborhood socioeconomic status was quantified using the U.S. Area Deprivation Index. Multivariable logistic regression was used to determine whether center volume and other socioeconomic variables were independent predictors of outcomes.

Results: In total, 50,252 patients who underwent hip arthroscopy were identified in SPARCS from 2010 to 2020. Of these patients, 13,861 (27.6%) underwent surgery at low-volume centers, 11,757 (23.4%) at medium-volume centers, and 24,634 (49.0%) at high-volume centers. Minorities, publicly insured patients, and patients from lower socioeconomic status neighborhoods made up a larger proportion of cases seen by low-volume centers versus high-volume centers ($P < .001$). Patients in the low-volume group experienced significantly greater 90-day rates of readmissions ($P < .001$) and all-cause complications ($P < .001$) than the other groups. Furthermore, high-volume centers were independently associated with lower odds of readmission (odds ratio 0.57, $P < .001$) and all-cause complications (odds ratio 0.73, $P < .001$) versus low-volume centers.

Conclusions: Low-volume surgical centers are associated with increased readmission and complication rates following hip arthroscopy, independent of other socioeconomic factors such as age, sex, race, insurance status, and neighborhood socioeconomic status.

Level of evidence: Level III, retrospective comparative prognostic trial.

BACK

Hip Arthroscopy Trends: Increasing Patient Out-of-Pocket Costs, Lower Surgeon Reimbursement, and Cost Reduction With Utilization of Ambulatory Surgery Centers

J. Tiao, K. Wang

DOI: https://doi.org/10.1016/j.arthro.2023.03.027

Purpose: To (1) report on trends in immediate procedure reimbursement, patient out-of-pocket expenditures, and surgeon reimbursement in hip arthroscopy (2) compare trends in ambulatory surgery centers (ASC) versus outpatient hospitals (OH) utilization; (3) quantify the cost differences (if any) associated with ASC versus OH settings; and 4) determine the factors that predict ASC utilization for hip arthroscopy.

Methods: The cohort for this descriptive epidemiology study was any patient over 18 years identified in the IBM MarketScan Commercial Claims Encounter database who underwent an outpatient hip arthroscopy, identified by Current Procedural Terminology codes, in the United States from 2013 to 2017. Immediate procedure reimbursement, patient out-of-pocket expenditure, and surgeon reimbursement were calculated, and a multivariable model was used to determine the influence of specific factors on these outcome variables. Statistically significant *P* values were less than .05, and significant standardized differences were more than 0.1.

Results: The cohort included 20,335 patients. An increasing trend in ASC utilization was observed (*P* = .001), and ASC utilization for hip arthroscopy was 32.4% in 2017. Patient out-of-pocket expenditures for femoroacetabular impingement surgery increased 24.3% over the study period (*P* = .003), which was higher than the rate for immediate procedure reimbursement (4.2%; *P* = .007). ASCs were associated with $3,310 (28.8%; *P* = .001) reduction in immediate procedure reimbursement and $47 (6.2%; *P* = .001) reduction in patient out-of-pocket expenditure per hip arthroscopy.

Conclusions: ASCs provide a significant cost difference for hip arthroscopy. Although there is an increasing trend toward ASC utilization, it remains relatively low at 32.4% in 2017. Thus, there are opportunities for expanded ASC utilization, which is associated with significant immediate procedure reimbursement difference of $3,310 and patient out-of-pocket expenditure difference of $47 per hip arthroscopy case, ultimately benefiting healthcare systems, surgeons, and patients alike.

Level of Evidence: Level III, retrospective comparative trial.

BACK

Patient-Specific Variables Associated with Failure to Achieve Clinically Significant Outcomes After Meniscal Allograft Transplantation at Minimum 5 Year Follow-Up

K.R. Wagner, J.T. Kaiser

DOI: https://doi.org/10.1016/j.arthro.2023.03.031

Purpose: To determine the improvements in patient-reported outcome measures (PROMs) necessary to achieve minimal clinically important difference (MCID), patient-acceptable symptomatic state (PASS), and substantial clinical benefit (SCB) after primary meniscal allograft transplantation (MAT) at a minimum of 5-year follow-up, while identifying variables predictive of achieving clinically significant outcomes (CSOs).

Methods: A retrospective review was performed to identify patients undergoing primary MAT at a single institution from 1999 to 2016. Lysholm, International Knee Documentation Committee (IKDC), and Knee Injury and Osteoarthritis Outcome Score (KOOS) subscales were collected before surgery and at a minimum of 5-year follow-up. A distribution-based approach was used to calculate MCID, whereas an anchor-based approach was used to calculate SCB and PASS. Multivariate logistic regression was performed to determine factors associated with CSO achievement.

Results: A total of 202 patients undergoing MAT (56% medial, 44% lateral) were included with a mean follow-up of 9.8 ± 4.1 years, age of 29.7 ± 8.5 years, and body mass index (BMI) of 26.5 ± 4.7. Thresholds for achieving MCID, PASS, and SCB, respectively, at a minimum 5-year follow-up for Lysholm (10.3, 74.5, 32.5), IKDC (12.1, 55.6, 29.1), and KOOS subscales questionnaires (Pain [11.0, 70.7, 25.1], Symptoms [11.0, 60.8, 19.6], Activities of Daily Living [10.5, 90.3, 17.9], Sport [16.2, 47.4, 37.5], and Quality of Life [13.6, 40.5, 37.3]) were calculated. Reduced odds of achieving MCID were associated with higher preoperative PROM scores, BMI, patient age, concomitant osteotomy, male sex, and worker's compensation (WC) status. Reduced odds of achieving PASS were associated with lower preoperative PROM scores, higher BMI (particularly ≥30), patient age, and WC status. Reduced odds of achieving SCB were associated with higher preoperative PROM scores and WC status.

Conclusions: This study established the MCID, PASS, and SCB at 5-year minimum follow-up for the Lysholm score, IKDC, and KOOS subscales in patients who underwent MAT. Increased BMI and patient age, male sex, performance of concomitant osteotomy, WC status, and preoperative PROM scores were associated with failure to achieve CSOs after primary MAT at a minimum of 5-year follow-up.

Level of Evidence: Level IV, therapeutic study, retrospective case series.

BACK

Cartilage Degeneration of the Lateral Compartment of the Knee at Second-Look Arthroscopy Is Associated With Deterioration of 10-Year Clinical Outcomes After Opening-Wedge High Tibial Osteotomy

K. Kumagai, S. Yamada

DOI: https://doi.org/10.1016/j.arthro.2023.03.032

Purpose: To identify the arthroscopic findings associated with deterioration of 10-year clinical outcomes after opening-wedge high tibial osteotomy (OWHTO) in patients with knee osteoarthritis.

Methods: A total of 114 consecutive knees of 91 patients with knee osteoarthritis who underwent OWHTO between 2007 and 2011 were retrospectively reviewed. Of these patients, those who underwent second-look arthroscopy and were followed up for a minimum of 10 years were enrolled. The Knee Society Score (KSS) and hip-knee-ankle angle were assessed. Cartilage status was graded at the time of osteotomy (first look) and plate removal (second look) according to the International Cartilage Repair Society (ICRS) grading system. The KSS knee subscale score and function subscale score were assessed separately, and on the basis of the changes in each of these scores from 1 to 10 years postoperatively and the minimal clinically important difference (MCID), the patients were divided into 2 groups: deteriorated (deterioration of score ≥ MCID) and non-deteriorated (deterioration of score < MCID).

Results: Sixty-nine knees were included in this study. The mean knee score improved continuously from 48.7 ± 11.3 preoperatively to 86.8 ± 10.3 at 1 year ($P < .001$), 87.5 ± 9.9 at 5 years ($P < .001$), and 86.5 ± 10.5 at 10 years ($P < .001$) postoperatively. The mean function score also improved continuously from 62.5 ± 12.1 preoperatively to 90.7 ± 12.9 at 1 year ($P < .001$), 91.6 ± 12.1 at 5 years ($P < .001$), and 88.5 ± 13.1 at 10 years ($P < .001$) postoperatively. Three knees underwent conversion to total knee arthroplasty within 10 years postoperatively. The deteriorated KSS group showed significantly progressed ICRS grades in the lateral compartment compared with the non-deteriorated KSS group. The ICRS grade in the lateral compartment at second-look arthroscopy was identified as the only significant factor associated with both knee score deterioration (odds ratio, 4.89; $P = .03$) and function score deterioration (odds ratio, 3.91; $P = .03$) on multivariable logistic regression analysis.

Conclusions: The presence of cartilage degeneration of the lateral compartment of the knee at second-look arthroscopy is associated with deterioration of long-term clinical outcomes after OWHTO.

Level of Evidence: Level IV, therapeutic case series.

BACK

Journal of Shoulder and Elbow Surgery (JSES), Volume 32, issue 11

No Lower Extremity Abstracts

BACK

Knee Surgery, Sports Traumatology, Arthroscopy (KSSTA), Volume 31, Issue 11

Semitendinosus tendons are commonly contaminated with skin flora during graft harvest for anterior cruciate ligament reconstruction

C. Offerhaus, V. Jaecker

DOI: https://doi.org/10.1007/s00167-023-07522-9

Purpose: To investigate the rate of bacterial contamination of semitendinosus (ST) tendons during graft harvest in anterior cruciate ligament reconstruction (ACLR), in order to precisely specify the underlying pathogens and obtain data on their susceptibility to potential antibiotics.

Methods: In a prospective study, a total of 59 consecutive patients undergoing primary ACLR were recruited from one centre. No patient had history of previous surgery to the knee or showed clinical signs of infection. Four tissue samples of harvested ST tendons for anterior cruciate ligament (ACL) autografts (case group; ST) were examined for evidence of bacterial colonisation and compared to four tissue samples of the native ACL as negative controls (control group; ACL). Three of the respective samples were subjected to cultural microbiological examination and one to 16S rRNA-PCR. Antibiotic susceptibility testing was performed for each pathogen that was identified.

Results: A total of 342 samples were analysed by culture. Significantly more patients showed a positive culture of the ST (33.9%; n = 20/59) compared to 3.4% of patients (n = 2/59) with positive culturing of the ACL ($p < 0.0001$). Including 16S rRNA-PCR, in a total of 42.4% (25/59) of patients, bacteria were detected in at least one ST sample either by PCR and/or culture. All species found (n = 33) belong to the typical skin flora with Staphylococcus epidermidis (39.4%; n = 13/33) being the most common species, followed by Staphylococcus capitis (24.2%; n = 8/33). All tested isolates (n = 29) were susceptible to vancomycin (29/29, 100%), 69% (n = 20/29) to oxacillin and 65.5% (n = 19/29) to clindamycin.

Conclusions: ST autografts for ACLR were commonly contaminated with skin commensal bacteria during harvest. One-third of the isolates showed resistance to typical perioperative intravenous antibiotics, whereas all isolates were sensitive to vancomycin. Therefore, routine prophylactic decontamination of all hamstring autografts before implantation should be recommended, preferably with topical vancomycin.

Level of Evidence: Level III.

BACK

Similar outcomes after anterior cruciate ligament reconstruction in paediatric and adult populations: a 1-year follow-up of 506 paediatric operations in Denmark

M.O. Madsen, S. Warming

DOI: https://doi.org/10.1007/s00167-023-07530-9

Purpose: To present 1-year results after all paediatric anterior cruciate ligament (ACL) reconstructions in Denmark (5.9 M inhabitants) for the 10½ year period, 1 July 2011 to 31 December 2021.

Methods: All children who had an ACL reconstruction were enrolled. They were asked to complete Pedi-IKDC preoperatively and at 1-year follow-up. Independent observers performed pivot shift test and instrumented laxity assessment preoperatively and at 1-year follow-up.

Results: The median age of the 506 children (47.2% girls) was 14.3 years (9.3–15.9). The Pedi-IKDC score increased from preoperatively 61.6 ± 15.8 (mean ± SD) to 85.9 ± 13.0 at 1-year follow-up ($p < 0.0001$). There were concomitant injuries (to meniscus and/or cartilage) in 49.9%, but these children had preoperative and follow-up Pedi-IKDC scores similar to the scores for children with isolated injury to ACL (n. s.). Instrumented anterior laxity was 4.3 ± 1.4 (mean ± SD) mm preoperatively and 1.4 ± 1.4 mm at follow-up ($p < 0.0001$). Preoperatively, 3% had no pivot shift whilst this was the case for 68% postoperatively ($p < 0.0001$). Twenty-five children (5.6%) had 4 mm instrumented laxity or more relative to the unoperated knee at follow-up. Two patients (0.4%) had an operatively treated deep infection, three (0.5%) were operated on for reduced range of motion and two (0.4%) had a revision ACL reconstruction.

Conclusion: ACL reconstruction resulted in a clinically meaningful increase in Pedi-IKDC, an improved instrumented stability, a reduction in the grade of pivot shift and the complication rate was low at 1-year follow-up. The risk of graft insufficiency at 1-year follow-up was the same as in an adult population.

Level of Evidence: Level II.

BACK

Femoral nerve block using lower concentration ropivacaine preserves quadriceps strength while providing similar analgesic effects after knee arthroscopy

T. Zhang, T. Zhang

DOI: https://doi.org/10.1007/s00167-023-07549-y

Purpose: Femoral nerve block (FNB) is widely used in patients undergoing knee arthroscopy. However, the most commonly used concentration of ropivacaine (0.2% or above) may cause an unexpected decrease in the muscle strength of the quadriceps. Therefore, a lower concentration of ropivacaine (0.1%) for FNB was administered to investigate the effect on quadriceps strength and postoperative pain after knee arthroscopy.

Methods: This was a double-blind, randomized, controlled trial (ChiCTR2000041404). A total of 83 patients scheduled for elective knee arthroscopy were randomized to receive 0.1% or 0.2% ropivacaine for FNB under ultrasound guidance. The primary outcomes were quadriceps strength and numerical rating scale (NRS) pain score. Quadriceps strength was measured before surgery and 6 h and 24 h after surgery, while NRS score was recorded before surgery, at the postanaesthesia care unit (PACU), and 6 h and 24 h after surgery. Multiple linear regression tests were used to compare the differences in quadriceps strength and NRS score between the two groups. Two-factor analysis of variance, using the factors group and time of measurement, was used for repeated NRS scores. Secondary outcomes included knee mobility, side effects, patient satisfaction, and length of hospital stay.

Results: The mean (SD) quadriceps strength at 6 h after surgery was 7.5 (5.7) kg for the 0.1% ropivacaine group and 3.0 (4.4) kg for the 0.2% ropivacaine group. The mean difference adjusted for baseline characteristics was − 5.2 (95% CI − 7.2 to − 3.1) kg ($P < 0.001$). There was no significant difference between the two groups in quadriceps strength at 24 h after surgery. The mean differences in the average NRS score and maximum NRS score in the PACU were − 0.6 ($P = 0.008$) and − 1.0 ($P < 0.001$), respectively. There was no significant difference in NRS score at 6 h or 24 h after surgery. Two-factor analysis of variance showed no significant difference in the interaction factors of time and group for average NRS score and maximum NRS score.

Conclusions: Compared with 0.2% ropivacaine, 0.1% ropivacaine for FNB preserved quadriceps strength at 6 h after knee arthroscopy while providing similar analgesic effects.

Level of Evidence: Level I.

BACK

Combined anterior cruciate ligament revision with reconstruction of the antero-lateral ligament does not improve outcome at 2-year follow-up compared to isolated acl revision; a randomised controlled trial

O.G. Sørensen, P. Faunø

DOI: https://doi.org/10.1007/s00167-023-07558-x

Purpose: It is essential to obtain rotational stability of the knee after anterior cruciate ligament reconstruction (ACL-R) and it is suggested that a supplementary reconstruction of the antero-lateral ligament (ALL-R) may supports this. Theoretically, ALL-R may be particularly advantageous to support revision of failed ACL-Rs. It was hypothesized that ACL revision combined with ALL-R will result in superior outcome compared to isolated ACL revision.

Methods: The study was designed as a randomized controlled trial. Patients eligible for first time ACL revision were randomized to either isolated ACL revision (− ALL group) or ACL revision combined with a single-stranded allograft ALL-reconstruction (+ ALL group). Patient reported outcomes and function were evaluated at two-year follow-up by KNEES-ACL, KOOS, and Tegner activity scale. Objective knee laxity was evaluated at one-year follow-up using an instrumented Rolimeter test, the pivot shift test, and a manual Lachman test.

Results: A total of 103 patients were enrolled with 49 patients randomized to the + ALL group and 54 patients in the − ALL group. There were no differences at baseline between groups regarding age, gender, body mass index, preoperative patient reported outcome scores and concomitant meniscus or cartilage injury. The ACL revision was performed with an allograft in 10 patients (20%) in the + ALL group and 8 patients (15%) in the -ALL group. At follow-up there was no significant difference between the groups in patient reported outcome scores and clinical knee laxity.
Conclusion: Supplementary ALL-R does not improve subjective outcome of first time ACL revision at two-years and clinical knee stability at one-year follow-up compared to isolated ACL revision.

Level of Evidence: Level I.

BACK

High body mass index is not a contraindication for an arthroscopic ligament repair with biological augmentation in case of chronic ankle instability

K. Guiraud, G.A. Nunes

DOI: https://doi.org/10.1007/s00167-023-07557-y

Purpose: Obesity remains frequently mentioned as a contraindication for lateral ankle ligament repair. The aim of the study was to compare the clinical results of an arthroscopic lateral ligament repair with biological augmentation between patients with a body mass index (BMI) of more than 30 and less than 30.

Methods: Sixty-nine patients with an isolated lateral ankle instability were treated with an arthroscopic anterior talofibular ligament (ATFL) repair with biological augmentation using the inferior extensor retinaculum (IER). Patients were divided into two groups according to their BMI: ≥ 30 (Group A; n = 26) and < 30 (Group B; n = 43). Patients were pre-and post-operatively evaluated, with a minimum of 2 years follow-up, and using the Karlsson Score. Characteristics of the patients, complications, ankle instability symptoms recurrence, and satisfaction score were recorded.

Results: In group A, the median Karlsson Score increased from 43.5 (Range 22–72) to 85 (Range 37–100) at follow-up. Complications were observed in seven patients (27%). Nineteen patients (73%) reported that they were “very satisfied”. One patient (4%) described persistent ankle instability symptoms. In group B, the median Karlsson Score increased from 65 (Range 42–80) to 95 (Range 50–100) at follow-up. Complications were observed in four patients (9%). Thirty-three patients (77%) reported that they were “very satisfied”. Two patients (5%) described persistent ankle instability symptoms. Pre-operative and at last follow-up Karlsson Score, results were significantly different between the two groups. There was no significant statistical difference in favour of satisfaction score, complications and recurrence of ankle instability between the two groups.

Conclusion: ATFL repair with biological augmentation using IER gives excellent results for patients with BMI ≥ 30. Compared to patients with BMI < 30, they present a slightly lower preoperative and postoperative Karlsson score, however, with a similar satisfaction rate, but are at higher risk of transient superficial peroneal nerve dysesthesia.

Level of Evidence: Level III.

BACK

American Journal of Sports Medicine (AJSM), Volume 51, Issue 13

Utility of 3D Planning Software in Understanding Residual Proximal Femoral Deformity for Planning of Revision Hip Arthroscopy

A.D. Carbone, O.N. Prabhavalkar

DOI: https://doi.org/10.1177/03635465231198051

Background: During the early evolution of femoroacetabular impingement (FAI) treatment, undercorrection of femoral deformity was a leading cause of hip arthroscopy failures. As the pendulum has swung, overresection of femoral deformity has increased in prevalence as a cause of persistent hip pain after arthroscopy. Computed tomography (CT) scans are increasingly being used in hip arthroscopy for preoperative planning purposes and may allow for improved 3-dimensional (3D) assessment of complex femoral deformities after previous femoroplasty.

Purpose: To assess whether CT scans provide additional utility over standard radiographs in understanding proximal femoral morphology in patients being evaluated for revision hip arthroscopy after previous femoroplasty in the setting of FAI.

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

Methods: Preoperative CT scans and standard radiographs were obtained in 80 patients who underwent revision hip arthroscopy for FAI. The anteroposterior and Dunn radiographic views were used to assess patients for residual proximal femoral deformity and were compared with the CT scan views using a commercially available software program. Determinations of underresection were made using alpha angle, while overresection was determined according to a previously described technique. Chi-square tests were performed to determine statistical significance between radiographic and CT classifications of overresection, underresection, and concomitant over- and underresection. A kappa value was calculated to determine the agreement between measurements on the radiographs and CT scans.

Results: There were 30 patients (37.5%) for whom the CT scans revealed information about femoral morphology that was not detected on the radiographs. The kappa value of agreement was 0.28 between CT and radiographic measurements. Underresected cams were detected in 30 patients (37.5%) on CT scans versus 17 patients (21.3%) on radiographs (P = .024). Overresected cams were detected in 31 patients (38.8%) on CT scans versus 14 patients (17.5%) on radiographs (P = .0049). Concomitant areas of under- and overresection were detected in 12 patients (15.0%) on CT scans versus 3 patients (3.8%) on radiographs (P = .027).

Conclusion: CT scans with 3D planning software may be more sensitive than traditional radiographic views at detecting aberrant proximal femoral anatomy in the setting of failed FAI surgery. The use of 3D planning software may be considered as an adjunctive tool to better understand complex deformity in the proximal femur for the planning of revision hip arthroscopy.

BACK

Association of Postless Distraction in Hip Arthroscopy With Decreased Postoperative Groin Numbness

C.W. Parkes, J. Featherall

DOI: https://doi.org/10.1177/03635465231201607

Background: To compare rates of postoperative numbness in patients undergoing hip arthroscopy for femoroacetabular impingement syndrome (FAIS) with postless distraction and perineal post distraction methods.

Purpose: To compare rates of postoperative numbness in patients undergoing hip arthroscopy for femoroacetabular impingement syndrome (FAIS) with postless distraction and perineal post distraction methods.

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

Methods: A retrospective review of prospectively collected data was performed on patients who underwent hip arthroscopy for FAIS, with postless distraction and perineal post distraction methods. Medical records were reviewed for patient characteristics, radiographic data, and operative data. Traction force data were collected on all patients prospectively using a previously validated method. Data on postoperative numbness (presence/absence and regionality) were collected prospectively at routine postoperative follow-ups (6-week and 3-month postoperative clinic visits).

Results: Overall, 195 patients were included, with 94 patients (mean age, 30.4 years) in the postless distraction cohort and 101 patients (mean age, 31.9 years) in the post distraction cohort. The overall numbness rates were 29 of 94 (30.9%) in the postless distraction group and 45 of 101 (44.6%) in the post distraction group (P = .068). Rates of postoperative groin numbness were 1 of 94 (1.1%) in the postless distraction group and 19 of 101 (18.8%) in the post distraction group (P < .001). Multivariate analysis for postoperative groin numbness demonstrated post distraction (odds ratio [OR], 16.5; P = .022) and traction time (OR, 1.7; P = .020) to be statistically significant variables. In subgroup analysis of the post distraction group, traction time (P = .015), but not holding (P = .508) or maximum traction force (P = .665), reached statistical significance in patients who developed postoperative groin numbne

Conclusion: Postless distraction hip arthroscopy demonstrated a statistically significantly lower rate of groin numbness rates in comparison with a traditional perineal post distraction method. In the post distraction group, traction time was significantly higher in patients who developed postoperative groin numbness than in those who did not.

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