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Arthroscopy, Volume 41, Issue 5

Greater Postoperative Biceps Tendon Migration After Arthroscopic Suprapectoral or Open Subpectoral Biceps Tenodesis Correlates With Lower Patient-Reported Outcome Scores

B. Forsythe, E.J. Berlinberg

DOI: https://doi.org/10.1016/j.arthro.2024.07.037

Purpose: To assess the relation between tendon migration, as measured by radiostereometric analysis, and patient-reported outcome measures (PROMs) after biceps tenodesis (BT); to determine the likelihood of achieving clinically significant outcomes (CSOs) after BT; and to identify factors that impact CSO achievement.

Methods: Patients undergoing arthroscopic suprapectoral or open subpectoral BT at a single, high-volume academic medical center were prospectively enrolled. A tantalum bead sutured to the tenodesis construct was used as a radiopaque marker. Biceps tendon migration was measured on calibrated radiographs at 12 weeks postoperatively. PROMs (Constant-Murley, Single Assessment Numeric Evaluation [SANE], and Patient-Reported Outcomes Measurement Information System–Upper Extremity [PROMIS-UE] scores) were collected preoperatively and at minimum 2-year follow-up.

Results: Of 115 patients enrolled, 94 (82%) were included (median age, 52 years; median body mass index, 31.4). At a mean follow-up of 2.9 years, the median Constant-Murley, SANE, and PROMIS-UE scores were 33 (interquartile range [IQR], 26-35), 90 (IQR, 80-99), and 47 (IQR, 42-58), respectively. Median tantalum bead migration was 6.5 mm (IQR, 1.8-13.8 mm). There were significant correlations between migration and Constant-Murley score ($r^2 = 0.222$; $\beta = –0.554$ [95% confidence interval (CI), –1.027 to –0.081]; P = .022), SANE score ($r^2 = 0.238$; $\beta = –0.198$ [95% CI, –0.337 to –0.058]; P = .006), and PROMIS-UE score ($r^2 = 0.233$; $\beta = –0.406$ [95% CI, –0.707 to –0.104]; P = .009). On univariable analysis, higher body mass index was associated with achievement of substantial clinical benefit (unadjusted odds ratio [OR], 1.078 [95% CI, 1.007 to 1.161]; P = .038). Greater bead migration was negatively associated with achievement of the minimal clinically important difference (unadjusted OR, 0.969 [95% CI, 0.943 to 0.993]; P = .014) and patient acceptable symptomatic state (unadjusted OR, 0.965 [95% CI, 0.937 to 0.989]; P = .008) on all 3 instruments.

Conclusions: A 1-cm increase in post-tenodesis biceps tendon migration was associated with a decrease in the Constant-Murley, SANE, and PROMIS-UE scores of 6, 2, and 4 points, respectively, at a mean of 2.9 years after surgery. Most patients achieved CSOs for these PROMs by latest follow-up, and greater biceps tendon construct migration was negatively associated with the likelihood of CSO achievement.

Level of Evidence: Level IV, retrospective case series.

BACK

Journal of Shoulder and Elbow Surgery (JSES), Volume 34, issue 5

Early postoperative pain is similar after arthroscopic rotator cuff repair vs. short-stay shoulder arthroplasty: a prospective study

R. Lopez, C. Schiffman

DOI: https://doi.org/10.1016/j.jse.2024.08.031

Background: One of the barriers to counseling patients for shoulder arthroplasty (TSA) is the anticipated pain after surgery. This can be contrasted with the common perception of arthroscopic rotator cuff repair (RCR) surgery being less painful because of the less invasive nature of the procedure. We conducted a prospective study comparing postoperative pain levels and narcotic consumption after TSA to those after RCR.

Methods: This prospective study enrolled 102 patients undergoing short-stay TSA and RCR at a single hospital. Fifty patients underwent RCR and 52 underwent TSA. All participants received a multimodal pain regimen consisting of an interscalene block with liposomal bupivacaine and one of 2 oral pain medication regimens. Patients were provided a daily pain diary to be completed for 14 postoperative days that tracked pain levels, narcotic consumption, and pain location. Patients were excluded for age <40 years, revision surgery, TSA for fracture, history of chronic opioid use, or an inability to adhere to study protocol. Demographics, visual analog scale (VAS) scores, and pain sensitivity questionnaires (PSQs) were collected preoperatively. Primary study outcomes were daily VAS pain scores and narcotic consumption during the 14 days after surgery.

Results: RCR patients were younger (60.6 vs. 68.9 years; $P < .01$), but other demographics, preoperative pain, and PSQ scores were similar between groups. Peak mean VAS pain levels for RCR and TSA each occurred on postoperative day (POD) 2 and were 4.4 ± 3.1 and 5.1 ± 2.7, respectively ($P = .214$). There was no significant difference in VAS pain during the 14-day postoperative period between RCR and TSA patients ($P > .05$) or between anatomic TSA and reverse TSA ($P > .05$). Narcotic usage was greater for RCR patients at POD 7 (0.5 vs. 0.2 tablets; $P = .039$) and 8 (0.5 vs. 0.2 tablets; $P = .015$) compared with TSA patients.

Conclusion: Our study demonstrated that postoperative pain levels do not significantly differ between RCR and short-stay TSA, with greater narcotic usage observed for RCR at 1 week after surgery. These findings support the notion that despite the increased invasiveness of TSA, early postoperative pain is comparable with early pain after RCR.

Level of evidence: Level II, Prospective Cohort Comparison, Prognosis Study

BACK

Outcomes of arthroscopic cortical-button Latarjet procedure with minimum 5-year follow-up

J. Pelletier, H. Barret

DOI: https://doi.org/10.1016/j.jse.2024.08.041

Background: The surgical treatment of anterior shoulder instability with arthroscopic cortical-button Latarjet procedure has been the subject of very few medium and long-term studies. The aim of this study was to analyze the clinical and radiologic results of arthroscopic cortical-button Latarjet procedure with minimum 5 years follow-up.

Methods: This is a monocentric retrospective study including 40 patients who have undergone shoulder stabilization with primary arthroscopic cortical-button Latarjet procedure and been reviewed with minimum 5 years follow-up. The average age at the time of surgery was 26.6 years (16-59; ±10) and 92.5% were sporty individuals. The average Instability Severity Index score was 6 points (2-9; ±1.6). The clinical evaluation involved active range of motion measurement, apprehension test, Rowe and Walch-Duplay scores, Subjective Shoulder Value and Net Promoter Score. Radiologically, evolution of the bone graft and degenerative arthritis of the shoulder joint were analyzed at the last follow-up.

Results: At an average follow-up of 71 months (60-97; ±12), 3 patients (7.5%) experienced recurrence as a dislocation or subluxation, which was responsible for revision in 1 case. Moreover, apprehension persisted in 6 (16%) patients. There were no significant restrictions in recovery of active ranges of motion, including external rotation. Return to sports was effective in 94.6% of cases. The average Rowe and Walch-Duplay scores were 87 points (15-100; ±20) and 88 points (15-100; ±19) respectively. Subjective Shoulder Value was 91% (10-100; ±16) and NET Promoter Score was 9.3 points (5-10; ±1,3). Radiologically, degenerative arthritis occurred in 18.7% of patients, mainly asymptomatic stage 1 (9.4%). Bone healing was acquired in 72% of cases and partial lysis of the bone block in 41%.

Conclusion: At an average follow-up of 6 years, arthroscopic cortical-button Latarjet procedure is effective, enabling return to sport in 95% of cases. Onset of asymptomatic arthritis seems similar to conventional techniques but justifies a longer-term follow-up.

Level of evidence: Level IV, Case Series, Treatment Study

BACK

Arthroscopic Trillat technique for chronic anterior shoulder instability: outcomes at 2-year follow-up in 74 at-risk sports patients

F. Moore, L. Labattut

DOI: https://doi.org/10.1016/j.jse.2024.08.029

Background: Chronic anterior shoulder instability affects a young and athletic population, with a high demand for functional recovery and return to sport. The arthroscopic Trillat dynamic stabilization technique has shown great results at 2 years in terms of stabilization and functional outcomes on the general population. The hypothesis is that it could do so in at-risk for dislocation athletic population for stabilization and return to sport, with results comparable to the reference techniques.

Methods: This is a multicenter retrospective study of Walch-Duplay type 2, 3, and 4 at-risk sports patients treated by arthroscopic Trillat for chronic anterior shoulder instability between January 2012 and January 2021, at a 2-year follow-up. The primary endpoint was the occurrence of dislocation recurrence. Secondary endpoints were subluxation recurrence, functional outcomes, time and level of return to sport, functional scores, bony fusion, and complications.

Results: A total of 74 patients were analyzed, with a mean age of 24.4 years (15-50 years). Sports levels were moderate risk of dislocation Walch-Duplay type 2 for n = 34 (46%), medium-risk Walch-Duplay type 3 for n = 19 (26%), and high-risk Walch-Duplay type 4 for n = 21 (28%). Dislocation recurred in 3 patients (4.1%). All patients (100%) returned to sport, with an average delay of 4.6 months, with 56 (76%) returning to the same previous level. The mean Constant score was 94.5 (79-100), the Rowe score was 94.7 (70-100), the Walch-Duplay score was 90.2 (50-100), and the Shoulder Subjective Value score was 90.5 (65-100). Subgroup analysis of athletes at moderate risk of dislocation recurrence (Walch-Duplay type 2) vs. medium and high risk of dislocation recurrence (Walch-Duplay types 3 and 4) revealed no statistically significant difference. One patient presented with asymptomatic pseudarthrosis.

Conclusion: Arthroscopic Trillat offers highly satisfactory results in the treatment of chronic anterior shoulder instability for athletes regardless of the type of sport practiced and the type of risk according to Walch-Duplay. This simple and quick technique enables a rapid return to sport and at the previous level in the majority of cases. After showing its effectiveness in the general population at 2 years, arthroscopic Trillat offers a reliable alternative to the reference procedures in young athletic patients.

Level of evidence: Level IV, Case Series, Treatment Study

BACK

Knee Surgery, Sports Traumatology, Arthroscopy (KSSTA), Volume 33, Issue 5

Arthroscopic subscapularis augmentation of the classic Bankart repair leads to satisfactory clinical and functional mid-term outcomes in patients with recurrent anterior shoulder instability and less than a subcritical glenoid bone loss

E. Brilakis, N.P. Sachinis

DOI: https://doi.org/10.1002/ksa.12483

Purpose: The long-term failure rate of the arthroscopic Bankart repair may reach unacceptable values, raising the need to augment this classic procedure. Arthroscopic subscapularis augmentation is the tenodesis of the upper part of the subscapularis tendon to the anterior glenoid rim. The aim of the study was to evaluate the mid-term clinical and functional outcomes of patients operated with arthroscopic subscapularis augmentation of the classic Bankart repair due to recurrent anterior shoulder instability.

Methods: This is a retrospective single-centre case series study with prospectively collected data. All patients suffered from recurrent anterior shoulder instability and had glenoid bone loss less than 13.5% of the inferior glenoid diameter (subcritical glenoid bone loss). Patients with greater anterior glenoid bone defect, engaging Hill–Sachs lesions, multidirectional instability or subscapularis insufficiency were excluded. Postoperatively, all patients were evaluated for recurrence and apprehension. The patient's shoulder range of motion and functional scores were recorded.

Results: The final study cohort included 34 patients with a mean age of 29.3 ± 10.2 years. The mean follow-up period was 42.4 ± 10.7 months (range, 24–62 months). Two out of 34 patients (5.8%) experienced a re-dislocation postoperatively, while one additional patient had a subjective feeling of apprehension. External rotation at the last follow-up was lower compared to preoperative values or the healthy side, but only one patient had restrictions in his sporting activities. The functional scores were significantly increased compared to the preoperative values. Twenty-two out of 26 patients (84.6%) returned to the same level of sporting activities, and 30/34 patients (88.2%) were highly satisfied with the results.

Conclusion: Arthroscopic subscapularis augmentation of the classic Bankart repair reduces the dislocation recurrence rate and leads to satisfactory clinical and functional mid-term outcomes in patients with recurrent anterior shoulder instability and less than a subcritical glenoid bone loss.

Level of Evidence: Level IV

BACK

Effect of neuromuscular control on the shoulder function of patients with healed rotator cuff and those with retear after arthroscopic rotator cuff repair

J.H. Lee, J.S. Park

DOI: https://doi.org/10.1002/ksa.12517

Purpose: To compare functional outcomes such as muscle strength, neuromuscular control and patient-reported outcomes (PROs) between patients with healed rotator cuffs and those with retears after arthroscopic rotator cuff repair (RCR).

Methods: One hundred and nine patients who underwent arthroscopic RCR were included (85 in the healed group, 24 in the retear group). Shoulder muscle strength and neuromuscular control index (acceleration time [AT]) were evaluated using an isokinetic device. PROs were assessed using the pain visual analogue scale (VAS), Simple Shoulder Test (SST), American Shoulder and Elbow Surgeons (ASES) and University of California at Los Angeles (UCLA) scores. Continuous variables were compared using independent t tests. Multiple linear regression analysis was used to identify the influence of the predictor variables on the dependent variable.

Results: The muscle strength and ATs for external rotators (ERs), internal rotators (IRs) and forward flexors as well as PROs including VAS, SST and ASES scores, were not significantly different between the two groups pre- and postoperatively (n.s.). Multiple linear regression analysis revealed that postoperative ATs for the IRs ($p = 0.006$) and ERs ($p = 0.028$) in the operated shoulders were closely associated with the postoperative UCLA score.

Conclusions: Compared with the healed group after arthroscopic RCR, the retear group had no clinically relevant differences in muscle strength, ATs and PROs, including VAS, SST, ASES and UCLA scores. However, postoperative ATs for IRs and ERs in the operated shoulders were a significant predictor of postoperative UCLA scores. Therefore, clinicians and therapists need to be aware of the importance of neuromuscular control in patients who have undergone arthroscopic RCR and prioritize therapeutic exercises to restore neuromuscular control.

Level of Evidence: Level III

BACK

American Journal of Sports Medicine (AJSM), Volume 53, Issue 6

Two-Year Follow-up of a Group-Sequential, Multicenter Randomized Controlled Trial of a Subacromial Balloon Spacer for Irreparable Rotator Cuff Tears of the Shoulder (START:REACTS)

Haque A, Parsons H, Parsons N, et al.

DOI: https://doi.org/10.1177/03635465251326891

Background: The best management of irreparable rotator cuff tears remains uncertain, with multiple new techniques introduced over the past 2 decades. Two options for treatment are arthroscopic debridement and biceps tenotomy, or the subacromial balloon spacer. Early trial results favored the former option, but the 2-year results have not yet been reported.

Purpose/hypothesis: To report the 2-year follow-up outcomes of the START:REACTS trial, investigating the use of a subacromial balloon spacer for irreparable rotator cuff tears of the shoulder.

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

Methods: Eligible participants had an irreparable rotator cuff tear, intrusive symptoms requiring surgery, and previous unsuccessful nonoperative care. Participants were randomized 1:1 to debridement of the subacromial space with biceps tenotomy (debridement only) or the same procedure with the addition of the subacromial balloon spacer (debridement with device). The 12-month primary outcome was previously reported; this article presents the 24-month results. Linear regression models were used to analyze the 24-month data.

Results: Recruitment stopped early at the preplanned interim analysis, with 117 participants in the trial. A total of 99 (85%) participants out of 117 were followed up to 24 months. At 24 months, a significant difference in the Oxford Shoulder Score was not found (95% CI, –7.9 to 0.4; P = .08). The Western Ontario Rotator Cuff score (mean difference, –10.1; 95% CI, –19.5 to −0.8; P = .04) and Patient Global Impression of Change (odds ratio, 0.4; 95% CI, 0.2 to 0.8; P = .015) were found to significantly favor debridement only. The EQ-5D-5L (mean difference, −0.009; 95% CI, −0.107 to 0.088; P = .85) and satisfaction scores (odds ratio, 0.6; 95% CI, 0.3 to −1.2; P = .14) were not significantly different. Complications were evenly matched between groups over 24 months.

Conclusion: Participants continued to show better results in the debridement-only group compared with the group who had debridement with the InSpace balloon. Therefore, we do not recommend the subacromial balloon spacer for the treatment of irreparable rotator cuff tears.

BACK

Outcomes of Latissimus Dorsi Tendon Transfer for Posterosuperior Massive Rotator Cuff Tears and Failed Rotator Cuff Repair

Kany J, Alfredo Miranda L, Duerinckx Q, Leoncio Temoche L, van Rooij F, Grimberg J.

DOI: https://doi.org/10.1177/03635465251330882

Background: Although a recent systematic review found that latissimus dorsi tendon transfer (LDTT) granted comparable outcomes in shoulders with massive rotator cuff tears (mRCTs) versus those with failed rotator cuff repair (RCR), some studies found inferior outcomes after failed RCR.

Purpose/hypothesis: To compare the clinical and functional outcomes, as well as complication rates, of patients who underwent LDTT for the treatment of mRCTs or failed RCR.

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

Methods: The authors retrieved the records of a consecutive series of 258 patients (n = 150, arthroscopically assisted; n = 108, all-arthroscopic) who underwent LDTT by the same senior surgeon between 2014 and 2021. A total of 136 patients underwent LDTT for irreparable posterosuperior mRCTs without previous RCR, whereas 122 underwent LDTT for failed RCR. All intra- and postoperative complications were noted, as well as whether patients required conversion to reverse shoulder arthroplasty. At a minimum follow-up of 24 months, an independent observer collected the range of motion and clinical scores including the Constant score, Subjective Shoulder Value (SSV), Simple Shoulder Test, Activities of Daily Living requiring Active External Rotation (ADLER) score, American Shoulder and Elbow Surgeons (ASES) score, and pain on visual analog scale (VAS).

Results: At a minimum follow-up of 2 years after LDTT, no significant differences were noted between shoulders treated for mRCTs versus failed RCR in terms of rates of conversion to reverse shoulder arthroplasty (3% vs 3%, respectively), LDTT tear (8% vs 10%), or other complications (10% vs 11%). Shoulders treated for mRCTs had significantly better outcomes than those treated for failed RCR, in terms of ASES score (75.8 ± 19.5 vs 65.6 ± 24.2, respectively; P = .002), ADLER score (26.3 ± 5.7 vs 24.8 ± 6.4; P = .003), SSV (72.3 ± 19.8 vs 63.6 ± 24.0; P = .004), and pain on VAS (1.8 ± 2.0 vs 2.7 ± 2.7; P = .018) but not in terms of Constant score (69.2 ± 13.4 vs 66.4 ± 16.3, P = .520) and range of motion (P = .360-.700). Multivariable analysis confirmed that ASES score was worse for shoulders with previous RCR (β, −9.90; 95% CI, −15.94 to 3.86; P = .001) and that Constant score was better for men (β, 3.91; 95% CI, −0.06 to 7.88; P = .044).

Conclusion: At a minimum follow-up of 24 months, LDTT granted better outcomes for the treatment of mRCTs than of failed RCR, notably in terms of activity and pain.

BACK

Risk Factors for Recurrent Instability After Arthroscopic Bankart Repair in Pediatric and Adolescent Patients: A Systematic Review

Warner T, Kay J, McInnis S, Heyworth BE.

DOI: https://doi.org/10.1177/03635465241267022

Background: While risk factors for recurrent instability (RI) after arthroscopic Bankart repair (ABR) for anterior glenohumeral instability (aGHI) have been well established in adult populations, there is much less evidence in pediatric and adolescent patients, despite being the most affected epidemiologic subpopulation.

Purpose/hypothesis: To identify the clinical, demographic, radiologic, and operative risk factors for RI after ABR for aGHI in pediatric and adolescent patients.

Study Design: Systematic review; Level of evidence, 4.

Methods: This systematic review was performed according to the PRISMA guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). Three databases (PubMed, Embase, and Ovid [MEDLINE]) were searched from data inception to July 5, 2023, using the terms “pediatric,”“shoulder instability,” and “Bankart repair,” allowing data on patients with age up to 19 years. The Methodological Index for Non-randomized Studies tool was used to assess the quality of included studies.

Results: Eleven studies met the criteria, with 767 patients (770 shoulders) with a mean age of 16.4 years (range, 12-19; 18% female). The pooled RI rate was 28%, and the revision aGHI surgery rate was 20%. The following risk factors were identified for RI after ABR, in descending order of frequency of identification, in terms of number of studies: younger age and greater glenoid bone loss, as well as the presence and/or greater size of a Hill-Sachs lesion (HSL) (2 studies each), followed by off-track HSL, >1 dislocation before index surgery, overhead and/or contact sports participation, larger anterior labral tear size, loss of glenoid retroversion, greater number of anchors used, lower postoperative patient-reported outcome scores (PROs), nonunion after bony Bankart repair, and absence of concomitant remplissage (1 study each).

Conclusion: In pediatric and adolescent patients with aGHI, the most common risk factors identified for RI after ABR were younger age, greater glenoid bone loss, and the presence and greater size of an HSL. Other risk factors included >1 dislocation before index surgery, participation in overhead and/or contact sports, larger anterior labral tear size, loss of glenoid retroversion, greater number of anchors used, lower postoperative PROs, nonunion after bony Bankart repair, and absence of concomitant remplissage.

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Lower Extremity

Arthroscopy, Volume 41, Issue 5

Arthroscopic Autologous Iliac Crest Grafting With an Adjustable-Loop Suspensory Device Yields Favorable Outcomes for Anterior Shoulder Instability With Glenoid Defects

W. Yu, D. Wu

DOI: https://doi.org/10.1016/j.arthro.2024.07.035

Purpose: To evaluate the clinical and radiologic outcomes of the arthroscopic autologous iliac crest grafting (AICG) procedure with an adjustable-loop suspensory fixation device in the treatment of anterior shoulder instability with glenoid bone defects.

Methods: A retrospective review was conducted on the patients who underwent arthroscopic AICG with an adjustable-loop suspensory fixation device from January 2017 to December 2020. Patients with traumatic anterior shoulder instability, significant glenoid bone defects, and a minimum follow-up of 24 months were included. Patient-reported outcomes, including the Oxford Shoulder Instability Score (OSIS), the Rowe score, the Walch-Duplay score, the Constant score, and the visual analog scale score, were compared preoperatively and postoperatively. Radiologic assessments using computed tomography were performed before and after the procedure. Additional data on active range of motion, recurrence events, and complications were recorded.

Results: A total of 42 patients were included in the study, with a mean follow-up time of 35.2 months, ranging from 25.1 to 55.9 months. Mean preoperative OSIS, Rowe score, Walch-Duplay score, and Constant score significantly improved from 24.4 ± 7.2, 25.0 ± 9.0, 25.2 ± 9.8, 87.5 ± 7.1 to 42.4 ± 4.9, 92.4 ± 8.1, 87.9 ± 8.3, and 93.6 ± 4.5 at the last follow-up, respectively. All patients exceeded the minimal clinically important difference for OSIS, Rowe, and Walch-Duplay scores. The graft union rate was 100%, and the glenoid area increased significantly from 82.5% preoperatively to 100.1% at the final follow-up. No patient experienced a recurrence of instability. Two recorded complications included one case of dysesthesia around the donor site and one case of postoperative shoulder stiffness.

Conclusions: The outcomes of the arthroscopic AICG procedure, which uses an adjustable-loop suspensory fixation device, demonstrated stable bone graft fixation, high rates of graft integration, favorable clinical results, and a low incidence of complications. Moreover, the remodeling of the graft during the follow-up period significantly restored the width and concavity of the inferior glenoid, contributing to the overall recovery.

Level of Evidence: Level IV, retrospective case series

BACK

Female and Male Patients Achieve Similar Improvement, Outcomes, and Survivorship After Hip Arthroscopy With Labral and Capsular Repair for Femoroacetabular Impingement Syndrome at Minimum 10-Year Follow-Up

J.H. Larson, O. Kaizi

DOI: https://doi.org/10.1016/j.arthro.2024.05.035

Purpose: To evaluate the effect of patient sex on 10-year patient-reported outcomes (PROs) and survivorship after hip arthroscopy (HA) for femoroacetabular impingement syndrome (FAIS).

Methods: Patients who underwent primary HA for FAIS with minimum 10-year follow-up from January 2012 to December 2013 were retrospectively reviewed. Female patients were propensity-matched to male patients in a 1:1 ratio by age and body mass index. PROs and rates of minimal clinically important difference (MCID) and patient-acceptable symptom state (PASS) achievement were compared between cohorts. Rate of reoperation-free survivorship was compared between sexes.

Results: One hundred twenty-two female patients (age: 36.2 ± 12.3 years) were matched to 122 male patients (age: 35.7 ± 11.3 years, P = .594) at an average follow-up of 10.4 ± 0.4 years. There were no differences in any preoperative demographic characteristics between the groups (P ≥ .187). Both groups demonstrated significant improvement in every PRO measure between the preoperative and 10-year postoperative time points (P < .001). The magnitude of improvement was similar between the groups for all PRO measures (P ≥ .139). At 10 years, female patients trended toward greater MCID achievement for the Hip Outcome Score-Activities of Daily Living subscale than male patients (72.7% vs 57.3%, P = .061), with otherwise similar MCID achievement rates. Female patients trended toward significantly lower Hip Outcome Score-Sports Subscale PASS achievement (65.4% vs 77.1%, P = .121) with otherwise similar PASS achievement rates between the groups (P ≥ .170).

Conclusions: Female and male patients experienced similar improvement in PROs at 10-year follow-up. MCID and PASS achievement rates were predominantly similar between sexes. Survivorship did not differ between groups. Long-term success can be expected for appropriately indicated patients undergoing HA for FAIS, regardless of sex.

Level of Evidence: Level III, retrospective cohort study

BACK

Primary Hip Arthroscopy Is Associated With Earlier Achievement of Substantial Clinical Benefit Compared With Revision Hip Arthroscopy for Femoroacetabular Impingement Syndrome

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DOI: https://doi.org/10.1016/j.arthro.2024.06.047

Purpose: To compare time to achievement of clinically significant outcomes (CSOs) between patients undergoing primary and revision hip arthroscopy (HA) for femoroacetabular impingement syndrome.

Methods: Patients undergoing primary and revision HA for femoroacetabular impingement syndrome with complete 6-month, 1-year, and 2-year Hip Outcome Score-Activities of Daily Living (HOS-ADL) and Sport Subscale (HOS-SSS) were identified. Revision patients were propensity matched 1:4 to primary patients with HA, controlling for age, sex, and body mass index (BMI). Time to achievement of minimal clinically important difference and substantial clinical benefit (SCB) were compared alongside cumulative CSO achievement at 6, 12, and 24 months. Hazard ratios (HRs) for predictors of earlier CSO achievement were identified with multivariate Cox regressions.

Results: Fifty patients with revision HA were propensity-matched to 200 patients with primary HA of similar age, sex, and BMI. Patients with primary HA demonstrated a greater prevalence of regular preoperative physical activity (87% vs 59%, $P < .001$). Patients with primary HA showed significantly greater SCB achievement for HOS-ADL at 6, 12, and 24 months ($P < .001$) and significantly greater SCB achievement for HOS-SSS at 12 and 24 months ($P \leq .001$) compared with patients with revision HA. Patients with primary HA achieved SCB for HOS-ADL ($P < .001$) and HOS-SSS ($P = .015$) quicker than patients with revision HA. Predictors of earlier CSO achievement included preoperative PRO score (HR 0.98-1.02, $P \leq 0.007$), lower BMI (HR 0.97, $P = .038$), presence of physical activity (HR 1.51, $P = .038$), and absence of revision status (HR 0.52-0.56, $P \leq .019$).

Conclusions: Patients with primary HA showed a quicker time to SCB achievement for HOS-ADL and HOS-SSS compared with patients with revision HA. Preoperative PRO score, lower BMI, regular physical activity, and primary HA status predicted earlier CSO achievement.

Level of Evidence: Level III, retrospective comparative series.

BACK

Preoperative Hip Injection Response Does Not Reliably Predict 2-Year Postoperative Outcomes After Hip Arthroscopy for Femoroacetabular Impingement

L. Pepic, A.R. Markes

DOI: https://doi.org/10.1016/j.arthro.2024.07.025

Purpose: To determine whether response to preoperative local anesthetic or corticosteroid intra-articular injections can predict 2-year postoperative outcomes in patients undergoing hip arthroscopy for femoroacetabular impingement syndrome (FAIS).

Methods: We performed a retrospective analysis of patients undergoing hip arthroscopy for FAIS at a single institution from 2014 to 2020. Patients who underwent preoperative intra-articular hip injections were classified based on injection type (local anesthetic or corticosteroid) and whether they experienced pain relief after injection (responders or nonresponders). Responders were matched 2:1 to nonresponders by age, body mass index, and sex. Patient-reported outcomes (PROs) including the Hip Disability and Osteoarthritis Outcome Score (HOOS), 12-Item Short-Form Health Survey (SF-12) Mental Component Summary score, SF-12 Physical Component Summary score, and visual analog scale pain score were collected preoperatively and 2 years postoperatively. Mean score change and minimal clinically important difference (MCID) achievement were calculated and compared between groups.

Results: The matched cohort included 126 total patients (42 nonresponders and 84 responders; 74.6% female sex; age [mean ± standard deviation], 30.9 ± 9.9 years; body mass index, 24.7 ± 3.7) with no differences in demographic or radiographic hip variables. Both groups showed significant 2-year postoperative score improvements across all PROs, except the SF-12 Mental Component Summary score, which remained unchanged. There was no difference in mean score change or MCID achievement across all PROs between the corticosteroid injection responder and nonresponder groups. In the local anesthetic group, MCID achievement was similar across all PROs, except the visual analog scale pain score, which showed a greater percentage of MCID achievement among local anesthetic nonresponders (89.5%) than in responders (55.0%, P = .03). Significant ceiling effects were most readily apparent within the injection responder group, with greater percentages of patients achieving maximal 2-year postoperative survey scores (HOOS-Activities of Daily Living, 36.9%; HOOS-Pain, 19.0%; HOOS-Quality of Life, 15.5%; and HOOS-Sport, 32.1%).

Conclusions: Response to preoperative injection with either corticosteroid or local anesthetic did not predict 2-year outcomes after hip arthroscopy in patients with FAIS.

Level of Evidence: Level III, retrospective matched-cohort study.

BACK

Social Determinants of Health Disparities Increase 5-Year Revision Rates but Not Postoperative Complications After Primary Hip Arthroscopy

S.M. Gillinov, Z.L. LaPorte

DOI: https://doi.org/10.1016/j.arthro.2024.07.038

Purpose: To investigate the impact of social determinants of health (SDOH) disparities on 30-day emergency department (ED) visits, 90-day postoperative complications, and 5-year secondary surgery rates after primary hip arthroscopy using a large national database.

Methods: A national administrative claims database was used to identify patients who underwent primary hip arthroscopy with femoroplasty, acetabuloplasty, and/or labral repair between 2015 and 2022. Queries were performed to identify patients who experienced any SDOH disparities, including economic, educational, environmental, or social disparities; those experiencing SDOH disparities within 1 year prior to primary hip arthroscopy were matched 1:1 by age, sex, Elixhauser Comorbidity Index score, diabetes, obesity, and tobacco use to patients not experiencing any lifetime SDOH disparities. The odds of 90-day complications and 30-day ED visits were compared using multivariable logistic regression. Rates of 5-year revision hip arthroscopy and of any secondary surgery (revision hip arthroscopy or total hip arthroplasty) were compared by Kaplan-Meier analysis.

Results: A total of 3,383 primary hip arthroscopy patients who experienced SDOH disparities were matched 1:1 to a control cohort of 3,383 patients who did not experience SDOH disparities (age of 41.0 years and 79.6% female sex in both cohorts). The odds of adverse events after arthroscopy were low and did not differ between the SDOH cohort (1.51%) and no-SDOH cohort (1.57%, P = .09). Additionally, there was no difference in the odds of 30-day ED visits between the SDOH cohort (5.65%) and no-SDOH cohort (4.79%, P = .10). The rate of 5-year revision hip arthroscopy was significantly greater among patients experiencing SDOH disparities (5.4% vs 4.1%, P = .02); however, there was no difference in the rate of any secondary surgery between cohorts (11.8% vs 10.4%, P = .10).

Conclusions: Patients experiencing SDOH disparities had similar odds of postoperative complications and ED visits after primary hip arthroscopy but greater rates of 5-year revision hip arthroscopy compared with a matched-control cohort of patients not experiencing SDOH disparities.

Level of Evidence: Level III, retrospective case-control study

BACK

Both Hamstring and Quadriceps Tendon Autografts Offer Similar Functional Outcomes After Arthroscopic Anterior Cruciate Ligament Reconstruction in Patients Aged 50 Years or Older

A.Meena, L. Farinelli

DOI: https://doi.org/10.1016/j.arthro.2024.06.044

Purpose: To compare the outcomes of hamstring tendon (HT) and quadriceps tendon (QT) autografts for anterior cruciate ligament (ACL) reconstruction in patients aged 50 years or older in terms of patient-reported functional outcomes, graft failure rates, complications, return to sports activity, and sports preference.

Methods: Between 2010 and 2022, prospectively collected data were obtained from an institutional database. Patients aged 50 years or older who underwent primary arthroscopic ACL reconstruction with either HT or QT autograft and had a minimum 2-year follow-up were included. Patients with concomitant meniscal, cartilage, and medial collateral ligament injuries were also included. Patients undergoing revision ACL reconstruction, those undergoing primary ACL reconstruction with a graft other than HT or QT autograft, and those with contralateral knee injuries or ipsilateral osteoarthritis (Ahlbäck stage ≥2) were excluded. Patients were evaluated in terms of the Lysholm knee score, Tegner activity level, and visual analog scale (VAS) score for pain before injury and at 2-year follow-up, as well as graft failure, QT rupture, and return to sport. The Mann-Whitney test was used to analyze unpaired samples, whereas the Friedman test was used to analyze variables over time. The $\chi 2$ statistic test was used to determine differences in categorical data between groups.

Results: The number of patients in the QT and HT groups was 85 and 143, respectively. In the QT and HT groups, the mean age was 54.4 years (range, 50-65 years) and 56.4 years (range, 50-65 years), respectively, and 49% and 51% of patients were men, respectively. The 2 groups did not differ significantly in terms of age, sex, time from injury to surgery, and concomitant injuries. No significant differences in preinjury patient-reported outcome measures, consisting of the Lysholm score, Tegner activity level, and VAS pain score, were found between the 2 groups ($P > .05$). At the 2-year follow-up, the Lysholm knee score, Tegner activity level, and VAS pain score improved to preinjury levels and no significant differences in preinjury and 2-year follow-up functional scores were noted between the 2 groups ($P > .05$). Furthermore, at the 2-year follow-up, the Lysholm score and VAS pain score did not show significant differences ($P = .390$ and $P = .131$, respectively) between the QT and HT groups. Similarly, no differences in Tegner activity level were observed between the HT and QT groups at the 2-year follow-up. No significant differences in terms of the minimal clinically important difference were detected between the 2 groups for the Lysholm knee score ($P = .410$) and Tegner activity level ($P = .420$). The 2 groups did not differ in terms of patients' percentage of sports participation at baseline and at the 2-year follow-up ($P > .05$). A significant decrease ($P = .01$) in participation in skiing/snowboarding was reported in the HT group at the 2-year follow-up compared with baseline (116 patients [81%] vs 98 patients [69%]). No case of graft failure or QT rupture was reported in either group.

Conclusions: Arthroscopic ACL reconstruction using HT or QT autografts in athletically active patients aged 50 years or older provides satisfactory patient-reported functional outcomes and allows recovery of the preinjury level of activity.

Level of Evidence: Level III, retrospective cohort study

BACK

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Journal of Shoulder and Elbow Surgery (JSES), Volume 34, issue 5

No Lower Extremity Abstracts

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Knee Surgery, Sports Traumatology, Arthroscopy (KSSTA), Volume 33, Issue 5

Lack of validated patient-reported outcome tools persists in paediatric and adolescent hip arthroscopy—A systematic review

A.M. Ade-Conde, B. Amoyaw

DOI: https://doi.org/10.1002/ksa.12603

Purpose: This systematic review aimed to (1) identify commonly used patient-reported outcome (PRO) tools in paediatric hip arthroscopy and (2) assess whether the PROs used in this population have been formally validated.

Methods: Two systematic searches of MEDLINE, Embase and CENTRAL, from inception to 31 March 2024 and 22 August 2024, respectively, followed the Preferred Reporting Items for Systematic Reviews and Meta-analyses guidelines. The first search identified PRO instruments used in studies on hip arthroscopy in patients aged 19 and under. The second focused on the clinimetric properties of these tools in paediatric hip arthroscopy. PRO utilization was stratified by pathology, trends over time and publication type. Use of the Consensus-based Standards for the Selection of Health Measurement Instruments tool, and a descriptive analysis, were planned to assess the eligible clinimetric studies.

Results: Fifty-seven studies were included, identifying 10 hip-specific and 5 nonspecific PROs. The second search did not identify any clinimetric studies on these tools used in paediatric patients. The most commonly reported hip-specific PRO were the modified Hip Harris Score (n = 48), the Hip Outcome Score–Sport-Specific Subscale (n = 25) and the Non-Arthritic Hip Score (n = 20). Hip arthroscopy was used to treat over seven different conditions, with femoroacetabular impingement being the most common (n = 41, 77%). Between 2005 and 2024, the variety of hip-specific PROs increased, with seven new ones introduced by 2019–2024. Additionally, this study found a relatively equal distribution of outcomes across presentation abstracts and manuscripts.

Conclusion: The key finding of this study is the ongoing lack of hip-specific PRO tools in the paediatric hip arthroscopy literature, with reliance on adult-derived instruments. The absence of clinimetric studies and heterogeneity in PRO use emphasises the need for standardized, paediatric-specific tools. Developing and validating such instruments should be prioritized to ensure accurate, age-appropriate outcome assessment and care.

Level of Evidence: Level III

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American Journal of Sports Medicine (AJSM), Volume 53, Issue 6

Postoperative Pain and Opioid Usage With Combined Adductor Canal and IPACK Block Versus Isolated Adductor Canal Block After Anterior Cruciate Ligament Reconstruction With a Bone–Patellar Tendon–Bone Autograft: A Single-Center Randomized Controlled Trial

Rao N, Triana J, Avila A, et al.

DOI: https://doi.org/10.1177/03635465251328609

Background: Efforts to decrease pain, improve early rehabilitation, and reduce opioid consumption have prompted a focus on peripheral nerve blocks for pain management after anterior cruciate ligament reconstruction (ACLR). The commonly used adductor canal block (ACB) might not provide sufficient postoperative pain control because of its lack of coverage of the posterior aspect of the knee. The addition of the IPACK (interspace between the popliteal artery and the capsule of the posterior knee) block, which targets this area, to the standard ACB could potentially provide better pain control after ACLR over the current standard of care.

Purpose/hypothesis: The purpose of this study was to compare and analyze postoperative pain, satisfaction, and opioid demand between the standard ACB and a combination of an ACB and IPACK block in patients undergoing ACLR with a bone–patellar tendon–bone (BTB) autograft. It was hypothesized was that the addition of the IPACK block would substantially improve early postoperative pain control and minimize opioid use.

Study Design: Randomized controlled trial; Level of evidence, 2.

Methods: A total of 102 patients undergoing ACLR with a BTB autograft at a single institution were recruited. Patients were randomly assigned to receive either the ACB alone or the ACB plus IPACK block. Patients were contacted at 24 hours (postoperative day [POD] 1), 48 hours (POD 2), 72 hours (POD 3), and 1 week to assess postoperative pain scores, opioid consumption, and satisfaction with their postoperative pain control. Intergroup comparative analysis was performed using a t test or nonparametric test for continuous variables and the chi-square test for categorical variables. Opioid usage was reported as morphine milligram equivalents (MME).

Results: The final analysis included 96 patients, with 47 in the control group (ACB) who received only the ACB and 49 in the experimental group (IPACK) who received the ACB and an additional IPACK block. The cohort was composed of 60.4% male patients with a mean age of 28.40 ± 7.51 years (range, 18-55 years) and a mean body mass index of 25.67 ± 4.84 kg/m2. There were no statistically significant differences between the groups with respect to age, body mass index, or sex ($P > .05$). Patients in the IPACK group reported significantly lower opioid usage than those in the ACB group on POD 1 (mean, 6.1 [interquartile range (IQR), 4.5-7.7] vs 10.7 [IQR, 8.6-13.0] MME, respectively; $P < .001$), POD 2 (mean, 7.3 [IQR, 5.2-9.5] vs 12.5 [IQR, 10.0-15.0] MME, respectively; $P = .001$), and POD 3 (mean, 4.2 [IQR, 2.8-5.5] vs 9.4 [IQR, 7.1-12.0] MME, respectively; $P < .001$). The visual analog scale for pain score on POD 1 (mean, 67.7 [IQR, 62.0-73.0] vs 55.2 [IQR, 48.0-63.0], respectively; $P = .024$) and POD 3 (mean, 54.9 [IQR, 48.0-63.0] vs 44.4 [IQR, 37.0-51.0], respectively; $P = .037$) was statistically higher in the ACB group compared with the IPACK group. On POD 1, patient satisfaction was higher in the IPACK group than in the ACB group (mean, 7.3 [IQR, 6.6-8.0] vs 5.6 [IQR, 4.8-6.4], respectively; $P = .001$). No statistically significant differences were observed between groups on POD 7. On regression analysis, IPACK block ($\beta = -13.0$; $P = .03$) and male sex ($\beta = -9.9$; $P = .024$) were significant negative predictors for opioid use on POD 1. The association of reduced opioid use in the IPACK group persisted on POD 2 ($\beta = -12.0$; $P = .019$) and POD 3 ($\beta = -15.0$; $P < .001$).

BACK

Conclusion: The results of this study suggest that the addition of an IPACK block to an ACB leads to reduced opioid consumption, improved pain control, and higher satisfaction with pain control acutely after ACLR with a BTB autograft.

BACK

Simultaneous Versus Staged Bilateral Hip Arthroscopy for Femoroacetabular Impingement: Minimum 2-Year Outcomes With a Unilateral Control Group

Foo GL, Brick MJ, Bacon CJ.

DOI: https://doi.org/10.1177/03635465251328605

Background: One-fifth of patients with femoroacetabular impingement (FAI) have bilateral symptoms. Performing bilateral hip arthroscopy on the same day minimizes the overall rehabilitation period compared with staged bilateral surgery, but most studies of outcomes from simultaneous surgery are in small cohorts.

Purpose/hypothesis: The purpose was to compare clinical outcome and revision rates between patients undergoing simultaneous bilateral, staged bilateral, and unilateral arthroscopic surgery for FAI from a large single-surgeon cohort. It was hypothesized that there would be no between-group differences.

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

Methods: Simultaneous bilateral, staged bilateral, and unilateral primary hip arthroscopy procedures between June 2005 and December 2020 were identified. Patient-reported outcome measures including the 12-item International Hip Outcome Tool (iHOT-12) score, Non-Arthritic Hip (NAH) score, and Hip Disability and Osteoarthritis Outcome Score (HOOS) were collected preoperatively and at regular intervals postoperatively. Two-year follow-up scores were analyzed if they were available, or later follow-ups if they were not. Subsequent surgery rates were recorded utilizing a compulsory national joint replacement registry.

Results: A total of 196 patients (392 hips) in the simultaneous bilateral and 111 patients (222 hips) in the staged bilateral groups were compared with 1529 patients in the unilateral group. The median duration between staged surgeries was 62 days (range, 14-350 days), and demographic characteristics were similar for those having simultaneous and staged procedures. Two-year minimum postoperative scores in all 3 groups were significantly improved from preoperative scores ($P < .001$). Improvements were similar between groups for all scores apart from HOOS-Sports ($P = .03$) and HOOS–Quality of Life ($P = .03$), which improved less in the staged compared with the other 2 groups, and for HOOS–Quality of Life only, which attained a lower follow-up score for staged (mean, 63.1 ± 24.7) compared with simultaneous (mean, 69.8 ± 22.7) procedures ($P = .04$ for post hoc pairwise comparison). For the iHOT-12 score ($P = .04$), HOOS-Sports ($P = .02$), and HOOS-QoL ($P = .02$), a lower proportion of patients receiving staged compared with other procedures achieved minimally important clinical differences. No differences between groups in revision or arthroplasty conversion rates adjusted for follow-up time were observed.

Conclusion: Patients undergoing simultaneous bilateral arthroscopy for FAI achieved similar 2-year follow-up outcomes compared with staged and unilateral arthroscopy and performed better than the staged group in Sports and Quality of Life subscales of the HOOS.

BACK

Analyzing the Association of the Area Deprivation Index on Patient-Reported Outcomes in Patients Undergoing Hip Arthroscopy

Cruse JJ, Shaikh HJF, Brodell JD, et al.

DOI: https://doi.org/10.1177/03635465251316432

Background: Hip arthroscopy is a valuable tool through which intra- and extra-articular hip pathologies may be addressed, with the goal of improving pain and function while preventing osteoarthritis progression. Little data are available regarding the effect of social determinants of health on hip arthroscopy outcomes.

Purpose/hypothesis: To determine if a patient's lived environment is associated with better or worse postoperative outcomes using the area deprivation index (ADI).

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

Methods: Patients undergoing hip arthroscopy between January 1, 2015, and June 30, 2022, at a single institution were identified using Current Procedural Terminology codes. Patients' zip codes were utilized to identify ADI measures. Patients were divided into quartiles of ADI, and the most deprived (ADIHigh) and least deprived (ADILow) quartiles were compared. Pre- and postoperative Patient-Reported Outcomes Measurement Information System (PROMIS) scores for the Pain Interference (PI), Physical Function (PF), and Depression domains were obtained. For the PF and PI domains, the minimal clinically important difference (MCID) was defined using an anchor-based approach using previously established cutoffs. For the Depression domain, the MCID was defined using a distribution-based approach and calculated as one-half of the standard deviation of the preoperative PROMIS score. Multivariable logistic regression models were estimated to characterize the association of the ADI with MCID attainment along PROMIS domains.

Results: A total of 170 patients were included in the analysis of the ADIHigh (n = 85) and ADILow (n = 85) cohorts. Age, body mass index, smoking status, and race did not significantly vary between groups. No significant differences in MCID attainment were observed at any time point in the PF, PI, or Depression domains. However, the ADIHigh cohort had higher mean PI (worse) scores compared with the ADILow cohort at the preoperative, 1-year, and final follow-up (mean, 2.52 years) time points. In multivariable logistic regression analyses, ADI was not associated with the odds of MCID attainment.

Conclusion: For patients undergoing hip arthroscopy, increased social disadvantage measured by the ADI was not associated with the odds of MCID attainment in any PROMIS domain. This information provides guidance for care providers, researchers, and policymakers to seek and identify other mechanisms that may affect outcomes after hip arthroscopy.

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Clinical Orthopaedics and Related Research (CORR), Volume 483, Issue 5

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