additional meniscal repair or LET. (Fig.1 Right) The in situ force of the ACL and ACL graft under both anterior and simulated pivot-shift loading was not different between five conditions of the ACL and the meniscus (p<0.05). Conclusion: Either additional meniscus repair or LET in addition to the ACL reconstruction was required to restore normal knee kinematics in the ACL and lateral meniscous torn knee. When encountering unreparable lateral meniscus tear in ACL injured knee, LET might be considered in addition to ACL reconstruction.

Category: Knee - Lateral Extraarticular Tenodesis

Clinical Outcomes And Return To Sport After Revision Acl Reconstruction With Lateral Extraarticular Tenodesis: Comparison To A Control Group At A Minimum 2-Year Follow-Up

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Summary:
High risk patients with revision ACL reconstruction using quadriceps tendon autograft and lateral extraarticular tenodesis do just as well as lower risk controls.

Data:
Introduction: High rates of clinical failure and graft rupture remain a problem with isolated ACL reconstruction (ACLR) in at-risk populations. There is therefore a renewed enthusiasm for lateral extra-articular tenodesis (LET) which provides additional extra-articular restraint to better control anterolateral rotational laxity in at-risk cases including revision ACLR. There is a lack of high quality comparative evidence to support this rationale. The purpose of this study is to compare clinical outcomes and return to sport in patients who undergo revision ACL reconstruction with LET compared to those without LET (control group).

Methods: All patients who underwent revision ACL reconstruction with and without LET between January 2018 and February 2020 were queried at our institutional registry. The LET group was compared to the control group (revision ACLR without LET) and followed for a minimum of 24 months post-surgery to evaluate patient reported outcome measures, satisfaction, return to sports, rate of reoperation, and psychological readiness for return to sport (using the ACL-Return to Sport after Injury Scale, ACL-RSI). Results: A total of 81 patients with a mean follow-up of 2.75 years were included. LET group contained 37 patients (76% female) with a mean age of 26.6 years and BMI of 23.5 kg/m2 compared to 44 patients (80% female) with mean age of 28.2 years and BMI of 26.9 kg/m2. There were no significant differences between the LET and control groups with respect to mean post-operative PROMIS Pain Interference (47.7 vs 48.3, p=0.46) and PROMIS Mobility scales (53.3 vs 52.9, p=0.97). In addition, there were no differences in post-operative IKDC (78.9 vs 78.3, p=0.45), Marx (7.9 vs 7.2, p=0.64), or SANE (73.1 vs 74.2, p=0.38) scores. The same held true with regards to post-operative ACL-RSI scores between the groups (43.3 vs 50.1, p=0.38).

Return to play rates after revision ACLR were similar in the LET group compared to the control group (55% vs 45%, p=0.40) with similar confidence to play their pre-injury sport (scale out of 100, 58.2 vs 56.2, p=0.82). Conclusion: Satisfaction and patient reported outcome scores after revision ACL reconstruction are good with or without LET. While both groups have similar rates of return to play and reoperation at greater than 2-year follow-up, these results suggest the addition of LET to revision ACLR may provide similar outcomes in high-risk patients when compared to isolated revision ACL reconstruction.

Category: Knee - Lateral Extraarticular Tenodesis

Clinical Outcomes and Failure Rates in Patients Undergoing Revision ACLR With or Without Modified Lemaire Lateral Extra-Articular Tenodesis

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Summary:
A retrospective analysis of patients who underwent revision ACL reconstruction with or without lateral extraarticular tenodesis (LET) identified similar failure rates between groups; however, patients who had an additional LET demonstrated statistically significant improvements in activities of daily living and sport and recreation KOOS subdomain scores at a minimum 2 year follow up.

Data:
Introduction: Revision anterior cruciate ligament reconstruction (R-ACLR) represents a technically demanding procedure leading to lower clinical outcomes and reduced patient satisfaction compared to primary ACL reconstruction. The addition of lateral extra-articular tenodesis (LET) has been demonstrated to lower primary ACL reconstruction failure rates. The purpose of this study was to report a retrospective analysis of patients who underwent R-ACLR with or without LET with a minimum of 2 years follow-up. The hypothesis was that the addition of LET leads to higher patient-reported outcomes (PROMs) and a decrease in failure rate compared to isolated ACLR. Methods: Seventy-four patients with a minimum of 2 years follow-up (range 24-120 months), who had a high-grade positive pivot shift test under anesthesia (≤2) were included. Postoperative radiographic measurements included medial posterior tibial slope (PTS) angle, lateral femoral condylar ratio (LFCR), and osteoarthritis (OA) grade. Knee Injury and Osteoarthritis Outcome Score (KOOS) and the International Knee Documentation Committee (IKDC) Subjective Knee Form were collected. Failure criteria were defined as residual positive pivot test =2 during clinical assessment, objective knee instability symptoms, and/or postoperative MRI exam showing a complete graft tear. An ANCOVA was used to compare PROMs between groups, adjusted for patient age, study site and length of follow-up. Statistical significance was set at p<0.05 for all analyses. Results: Thirty-nine patients underwent isolated R-ACLR (mean age (SD): 29.2 ± 12.2) and 35 had an additional LET (24.6 ± 7.4). A first R-ACLR was performed in 84.6% vs 82.8% respectively. Autologous extensor mechanism was the most common graft utilized (71.7% vs 85.7%). One stage revision ACLR was performed in most cases (69.5%). Radiographic analysis showed a similar incidence of postoperative OA changes (KL grade =2) without a significant difference between the groups (43.6% vs 48.6% p = 0.67). The medial PTS’ (mean ±SD) (9.6 ± 3.1 vs 8.5 ± 1.8 p = 0.05) and LFCR (mean ±SD) (0.64 ± 0.03 vs 0.66 ± 0.1 p = 0.24) measurement preoperatively were not significantly different. PROMS were higher in the LET group with KOOS ADL (93.5 ± 2.0 vs 97.2 ± 1.6; 0.03*) and KOOS Sport (63.0 ± 3.6 vs 74.3 ± 3.8; 0.049*) subdomains reaching statistical significance, with the latter reaching a minimum clinically important difference threshold. No other differences were found in the other KOOS subdomains or IKDC. No postoperative complications were found related to the addition of LET fixation on the lateral femoral condyle. Failure rates were not significantly different between the groups (12.8% vs 11.4% p = 0.99). Conclusion: Revision ACLR with additional LET showed a similar failure rate compared to isolated R-ACLR in patients presenting with high-grade rotary laxity following failed ACLR. Clinical outcomes suggested better functional results in the LET group with significantly higher activities of daily living, and sport and recreation KOOS subdomain scores. Additional studies should be performed with higher numbers of patients to investigate the potential protective effect of LET in revision ACLR patients.

Category: Knee - Lateral Extraarticular Tenodesis

Biomechanical Contribution Of The Anterolateral Complex In ACL-Reconstructed And ACL-Deficient Knees During Simulated Activities Of Daily Living

Abstract ID# 21756

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Summary:
The purpose of this study was to examine the contributions of the ACL during ‘in vitro’ clinical laxity tests and simulated ADL movements and the results of this study provides further evidence that an ACL procedure should be considered in ACL injured knees with high grade rotational laxity.

Data: