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Anterolateral Ligament Reconstruction Protects the Repaired Medial Meniscus: A Comparative Study of 383 ACL Reconstructions with a Minimum Follow-Up of Two Years

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Summary:

Combined ACLR and ALLR is associated with a significantly lower rate of failure of medial meniscus repairs when compared to those performed at the time of isolated ACLR.

Abstract:

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Objectives

The prevalence of osteoarthritis after successful meniscal repair is significantly less than the rate that is observed after failed meniscal repair. The aim of this study was to determine whether the addition of anterolateral ligament reconstruction (ALLR) confers a protective effect on medial meniscal repair performed at the time of anterior cruciate ligament reconstruction (ACLR).

Methods

Retrospective analysis of prospectively collected data was performed to include all patients who had undergone primary ACLR with concomitant posterior horn medial meniscal repair between January 2013 and August 2015. ACLR autograft choice was either bone-patellar tendon-bone (B-PT-B), quadrupled hamstring tendon (4HT) or quadrupled semitendinosus tendon (4ST) graft with or without ALLR. At the end of the study period, all patients were contacted to determine if they had undergone re-operation and if so the operative notes were reviewed to determine the status of the medial meniscus. Student t-test and chi-square test were used to compare demographic data. A Kaplan-Meier survival curve (with failure of meniscal repair as the endpoint) was plotted and Cox proportional hazards regression model was used to perform multivariate analysis.

Results

383 patients (mean age 27.4 ± 9.2 years) with a mean follow-up of 37.4 months (range 24-54.9 months) were

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included. 194 patients underwent an isolated ACLR and 189 underwent a combined ACLR+ALLR. At final follow up there was no significant difference in postoperative side-to-side laxity (isolated ACLR group 0.9 ± 0.9 mm (-1 to 3), ACLR+ALLR group 0.8 ± 1.0 mm (-2 to 3), $p=0.2120$) or Lysholm score (isolated ACLR group 93.0 (91.2-94.7), ACLR+ALLR group 93.7 (92.3-95.1), $p=0.556$) between groups. 43 patients (11.2%) underwent re-operation for failure of the medial meniscus repair or a new tear. The survival rate of meniscal repair at 36 months in the ACLR+ALLR group was 91.2% (95% IC, 85.4%-94.8) and in the ACLR group it was 83.8% (95% CI, 77.1%-88.7%) ($p=0.033$). The probability of failure of medial meniscal repair was more than two times lower in patients with ACLR+ALLR compared to patients with isolated ACLR (hazard ratio, 0.443; 95% CI, 0.218-0.866). No other prognosticators of meniscal repair failure were identified.

Conclusions

Combined ACLR and ALLR is associated with a significantly lower rate of failure of medial meniscus repairs when compared to those performed at the time of isolated ACLR.