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ACL Repair of Proximal Tears Shows Comparable Outcomes and Enhances Quadriceps Muscle at the 2-year Follow-up Compared to Hamstring Autograft Reconstruction

Presenter / Jinshen He, MD, China

Faculty Disclosure Information

- Nothing to disclosure

Primary anterior cruciate ligament (ACL) repair might a candidate surgical choice for proximal ACL rupture patients.

Objective: The study aimed to compare the postoperative clinical outcomes and MRI markers of patients who underwent primary ACL repair and ACL reconstruction two years after the procedure.

Methods: The study enrolled patients for primary ACL repair or ACL reconstruction performed with suture tape augmentation within four weeks of injury. Patients were chosen for ACL repair with suture tape augmentation if they had a proximal avulsion with good tissue quality (Sherman type 1), confirmed by intraoperative diagnostic arthroscopy. Otherwise, patients underwent ACL reconstruction with hamstring autograft and suture tape augmentation. At the two-year follow-up, patients were evaluated using the Forgotten Joint Score-12 (FJS-12) and MRI tests to assess ACL signals and quadriceps muscle cross-sectional area with coronal oblique and cross-sectional planes.

Results: 31 patients who underwent ACL repair and an equal number of patients with matched essential characteristics who had ACL reconstruction were assessed. The ACL repair group had a significantly higher mean FJS-12 score than the reconstruction group (81.2 ± 8.5 vs 71.3 ± 13.5, respectively; $P = .011$). There were no significant differences in the re-rupture rate between the two groups (repair group: 3.2%; reconstruction group: 3.2%). Furthermore, the repair group exhibited a significantly better mean quadriceps muscle cross-sectional area at the two-year mark than the reconstruction group (3.2% ± 1.4% vs -4.3% ± 2.7%, respectively; $P < .0001$). MRI at two years revealed favorable tissue healing and good tension in both treatment groups for those without re-rupture.

Conclusion: The findings at the two-year follow-up following ACL repair with suture tape augmentation indicate satisfactory clinical outcomes, good ACL tension, and superior quadriceps muscle performance.