Clinical and Anatomical Outcomes of Arthroscopic Repair of Large Rotator Cuff Tears with Allograft Patch Augmentation: A Prospective, Randomized, and Single-Blinded Controlled Trial, Long Term Follow Up

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INTRODUCTION: Arthroscopic rotator cuff repair using human dermal matrix allograft augmentation has been widely used. We assessed the effect of acellular human dermal matrix augmentation after arthroscopic repair of large rotator cuff tears through a prospective, randomized, single-blinded, controlled trial, and long-term follow-up.

METHODS: Sixty patients with large sized rotator cuff tear were randomly assigned to two groups. Patients in the control group underwent arthroscopic rotator cuff repair. Allograft patch augmentation was additionally performed in the allograft group. All patients were subdivided into complete coverage (CC) or incomplete coverage (IC) according to footprint coverage after cuff repair. Constant and American Shoulder and Elbow Surgeons (ASES) scores were assessed preoperatively and at final follow-up. Magnetic resonance imaging (MRI) was also performed at the same time to evaluate the anatomical results.

RESULTS: Fourty-three patients were followed up after an average follow-up of 5.7 years. Clinical scores (Constant and ASES) increased significantly at last follow-up in both groups. The increase in ASES score in the allograft group was statistically significantly greater than that of the control group. The degree of Constant score improvement did not differ significantly between the two groups. The re-tear rate was 9.1% in the allograft group, which was significantly lower than that of the control group (38.1%). The CC subgroup of control group showed had a statistically significantly lower re-tear rate (16.7%). There were no re-tear cases in the CC subgroup of the allograft group.

DISCUSSION AND CONCLUSION: Long-term follow-up of arthroscopic repair of large rotator cuff tears with allograft patch augmentation showed better clinical and anatomical results. Footprint coverage after rotator cuff repair is an important factor affecting the re-tear rate. If the footprint is not completely covered after rotator cuff repair, allograft patch augmentation may reduce the re-tear rate.