Good atelocollagen containment outperform simple repair In Rotator Cuff Repair of Hith high-grade PASTA lesions.

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Introduction and Background

Atelocollagen might play a role to provide the mechanical support of repaired rotator cuff tendons with poor tendon quality. However, compared to patch-type atelocollagen , gel-type atelocollagen was easily leak in the repair site. The purpose of this study was to compare the clinical and radiological outcomes between transtendon suture bridge repair, only (Group I), ted transtendon suture bridge repair with atelocollagen (Group II) and mason-allen transtendon suture bridge repair with atelocollagen (Group III).

Material and Method

From January 2018 to January 2022, total 199 patients were enrolled in our study. In all patients, arthroscopic evaluation confirmed high-grade partial articular supraspinatus avulsion (PASTA) lesions and all patients had a minimum of 1-year follow-up. We divided these patients into 3 groups. Pre-operative and post-operative clinical assessments were performed using ROM and clinical scores. MRI was performed 6 months and 1 year postoperatively to assess repaired tendon integrity, SNQ, and tendon thickness.

Results

All techniques achieved similarly favorable clinical outcomes at mid-term follow-up, as reflected by comparable ASES, UCLA, and SST scores. However, collagen-augmented groups showed significantly greater tendon thickness on postoperative MRI compared with the non-augmented group at all time points. At 1 year, tendon thickness was 4.9 ± 1.1 mm (Group 1, n = 27), 6.4 ± 1.5 mm (Group 2, n = 39), and 5.7 ± 1.5 mm (Group 3, n = 61), with persistent significant intergroup differences ($p < 0.001$). At 1 year, the mean SNQ values were 32.1 ± 36.2 (Group 1, n = 30), 23.6 ± 21.4 (Group 2, n = 34), and 29.6 ± 25.2 (Group 3, n = 58), and the intergroup difference was no longer significant ($p = 0.43$).

Conclusions

These findings indicate that collagen-based augmentation can positively influence structural healing, while final patient-reported clinical outcomes remain similar among the three techniques.