regeneration of tendon in a chronic rotator cuff tear (RCT) model of rabbit. Method: In vitro, the cellular properties as well as the expression profiles of growth factors of BMAC were analyzed. The multiple-lineage differentiation potential of BMAC with different carriers (atelocollagen and polydeoxyribonucleotide) was also assayed. To create the chronic RCT model, we induced complete supraspinatus tendon tears in both shoulders, and let them untreated for 6 weeks. All transected tendons were repaired in a transosseous manner with saline injection in group A, only BMAC injection in group B, BMAC + polydeoxyribonucleotide (PDRN) injection in group C, and BMAC + atelocollagen injection in group D. Genetic analysis was performed at 4 weeks after repair (8 rabbits per group). Results: In vitro, the successful multi-lineage injection in group D. Genetic analysis was performed at 4 weeks after repair (8 rabbits per group). Results: In vitro, the successful multi-lineage differentiations of BMACs were achieved under the both PDRN and atelocollagen environment, forming multiphase tissues with tendon and cartilage-like regions, and there were no differentiation differences between two carrier environments. In vivo, groups with carriers (group C and D) showed higher collagen type Iα1, bone morphogenetic protein 2, and aggrecan expressions than the control groups after repair (8 rabbits per group). Conclusion: In a cohort with irreparable posterosuperior rotator cuff tears, SCR achieved a significant improvement in shoulder function and reduction in pain. However, an overall low rate of graft integration and high rate of revision when using xenografts should be noted.

Category: Shoulder - Rotator Cuff

Clinical Results After Tendon Patch Grafting Using Distal Fascia Lata Autograft For Irreparable Massive Rotator Cuff Tears

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Summary:
Purpose of this study is to investigate the clinical outcomes and MRI results of autologous fascia lata transplantation in massive rotator cuff tears.

Data:
PurPOSE: To assess minimum 2-year clinical outcomes after open biologic patch augmentation with distal fascia lata (DFL) repair in patients with irreparable large or massive rotator cuff tears (RCTs) with low-grade fatty tendon degeneration (stage 1 or 2 according to Goutallier classification). MATERIALS & METHODS: This study included 32 patients (24 men and 8 women) with a mean age of 57 years (range, 26 to 68 years) with massive rotator cuff tears who underwent open rotator cuff repair with patch augmentation were identified after clinical and MRI evaluation. All selected patients have undergone conservative therapy with ineffective results before surgical treatment and have persistent pain and weakness. Outcomes data collected included Constant and American Shoulder and Elbow Surgeons scores (ASES). After patch augmentation, there were no complications, no adverse reactions to the patch, and no patients required further surgery. Minimum 2-year outcome scores were available for 30 of 32 (96.3%) shoulders after a mean follow-up period of 2.5 years (range, 2.0 to 4.0 years). The ASES score improved by 21.5 points, especially the function component improved significantly when compared with their preoperative baselines (P < .05). Median patient satisfaction at final follow-up was 9/10 (range, 2 to 10). Regarding the Constant shoulder score an excellent grade was achieved in 27 patients of 32 form the baseline. Postoperative MRI at the final follow-up showed that 3 shoulders (8.3%) had retears of the repaired RC, 6 (12.5%) had graft tears but no retears of the repaired RC, and 25 (79.2%) had no graft tears or retears of the repaired tendon; furthermore no progression of fatty degeneration was detected. CONCLUSIONS: Biologic patch augmentation using distal fascia lata autograft was an inexpensive, safe and effective treatment method for patients with RCT with deficient rotator cuff tendons with low-grade fatty tendon degeneration.

Category: Shoulder - Rotator Cuff

The Change in Shoulder Muscle Strength After Superior Capsule Reconstruction for Reinforcement of Arthroscopic Rotator Cuff Repair

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Summary:
Superior capsule reconstruction for reinforcement prevents postoperative retear of the repaired rotator cuff tendon and improves shoulder muscle strength.

Data: