To Patch or Not – A Comparative Cohort Study of Revision Rotator Cuff Repairs With versus Without an Arthroscopically-Inserted Onlay Bioinductive Implant

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INTRODUCTION: Retears are relatively common following revision rotator cuff repair. The addition of onlay biological grafts to augment difficult rotator cuff repairs has shown encouraging results in a case series. We hypothesized that the addition of a bioinductive implant would enhance repair integrity and surgical outcomes following revision rotator cuff repair, when compared to standard repair without a bioinductive implant. We aimed to determine if the addition of an onlay bioinductive implant would improve repair integrity, shear-wave elastographic appearance of the repaired tendon and patch, and patient-rated and/or surgeon-measured shoulder function when used in workers' compensation patients undergoing revision arthroscopic rotator cuff repair.

METHODS:

A post-hoc matched case-controlled study was conducted on prospectively recruited workers' compensation patients who received a bioinductive implant for revision rotator cuff repair. The control group was selected from consecutive workers' compensation revision rotator cuff repair patients prior to the introduction of bioinductive implants, then matched for age and tear size. Kaplan-Meier curves were generated to compare the primary outcome of repair integrity between groups. The secondary outcomes were to evaluate the elastographic appearance of the tendon and patch in the bioinductive implant group, and to compare patient-rated and surgeon-measured shoulder function preoperatively, and at 1 week, 6 weeks, 3 months, 6 months postoperatively between groups.

RESULTS: No major complications associated with the bioinductive implants were identified. Six months post-revision rotator cuff repair, the retear rate in the bioinductive implant group was 16% (3/19), versus 19% (6/32) in the age and tear-size matched control group (n.s.). At mean final follow up, the retear rate in the bioinductive implant group was 47% (9/19) at 14 months, versus 38% (12/32) at 29 months in the control group (n.s.). The shear-wave elastographic stiffness of repaired tendons augmented with the bioinductive implant remained unchanged at 6 m/s from 1 week to 6 months postoperatively, below the stiffness of 10 m/s in healthy tendons. There were no significant differences in patient-rated or surgeon-measured outcomes between groups 6 months post-surgery.

DISCUSSION AND CONCLUSION: The hypothesis was not supported. A bioinductive implant did not improve repair integrity or clinical outcomes in patients who underwent revision arthroscopic rotator cuff repair.