Augmented or Non-Augmented Double-Row Rotator Cuff Repair with Collagen Implant or Dermal Allograft

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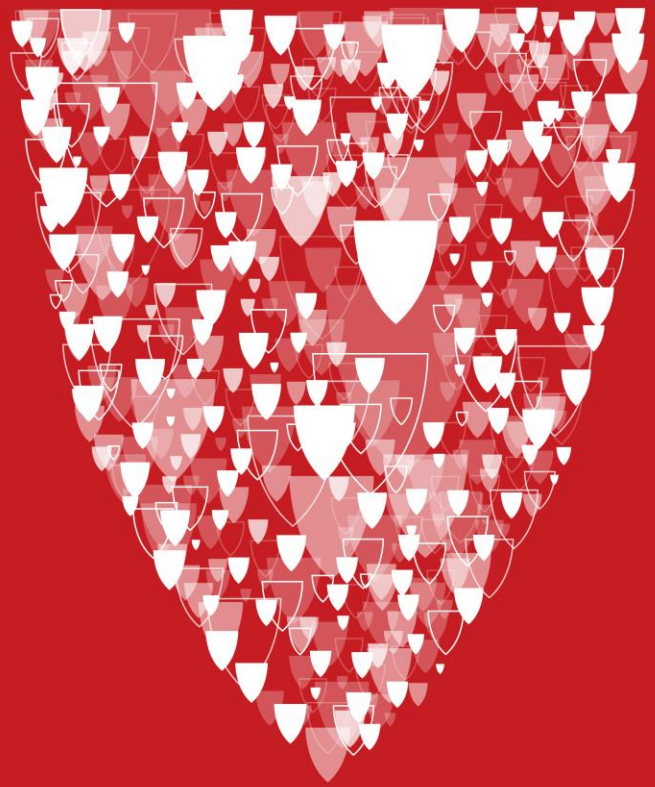

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Disclosures

James Voos, MD:

- Arthrex, Inc: Paid consultant
- Depuy, A Johnson & Johnson Company: Paid consultant

Robert Gillespie, MD:

- Aevumed: Stock or stock options
- American Shoulder and Elbow Surgeons: Board or committee member
- Collamedix: Stock or stock options
- DJ Orthopaedics: Paid consultant; Paid presenter or speaker
- Genesis Innovation Group: Stock or stock options
- Shoulder Innovations: IP royalties; Paid consultant

All other authors: None

Introduction

- Outcomes of arthroscopic rotator cuff repair (RCR) can be hindered by the inability of the rotator cuff to heal properly
- Failure of healing after primary RCR has been associated with poor functional outcomes and high likelihood of reoperation
- Restoring biologic and mechanical properties of the repaired tissue may contribute to healing
- Various products have been used to augment primary rotator cuff repair using an onlay technique

Objective

- The purpose of this study was to examine healing rates of rotator cuff tears treated with:

    1) primary **double-row repair without augmentation**

    2) onlay **bioinductive collagen implant *(Regeneten)***

    3) onlay **acellular dermal allograft *(Dermis-on-demand, DOD)***

Materials and Methods

- **Inclusion criteria:** patients 18-89 years of age who underwent primary arthroscopic RCR at a single institution starting in April 2020

- **Exclusion criteria:**
  - Patients undergoing revision RCR
  - Patients undergoing open RCR

- Patient demographics, past medical history, rotator cuff tear size (small, medium, large, or massive), and preoperative Goutallier classification were recorded

Materials and Methods

- **Control group:** consecutive double-row repairs without any augmentation
- **Augmented groups:** consecutive patients that received onlay augmentation with either *Regeneten* or *Dermis-on-Demand*

- Between 6-12 months postoperatively, patients received MRI to assess rotator cuff healing using the Sugaya classification

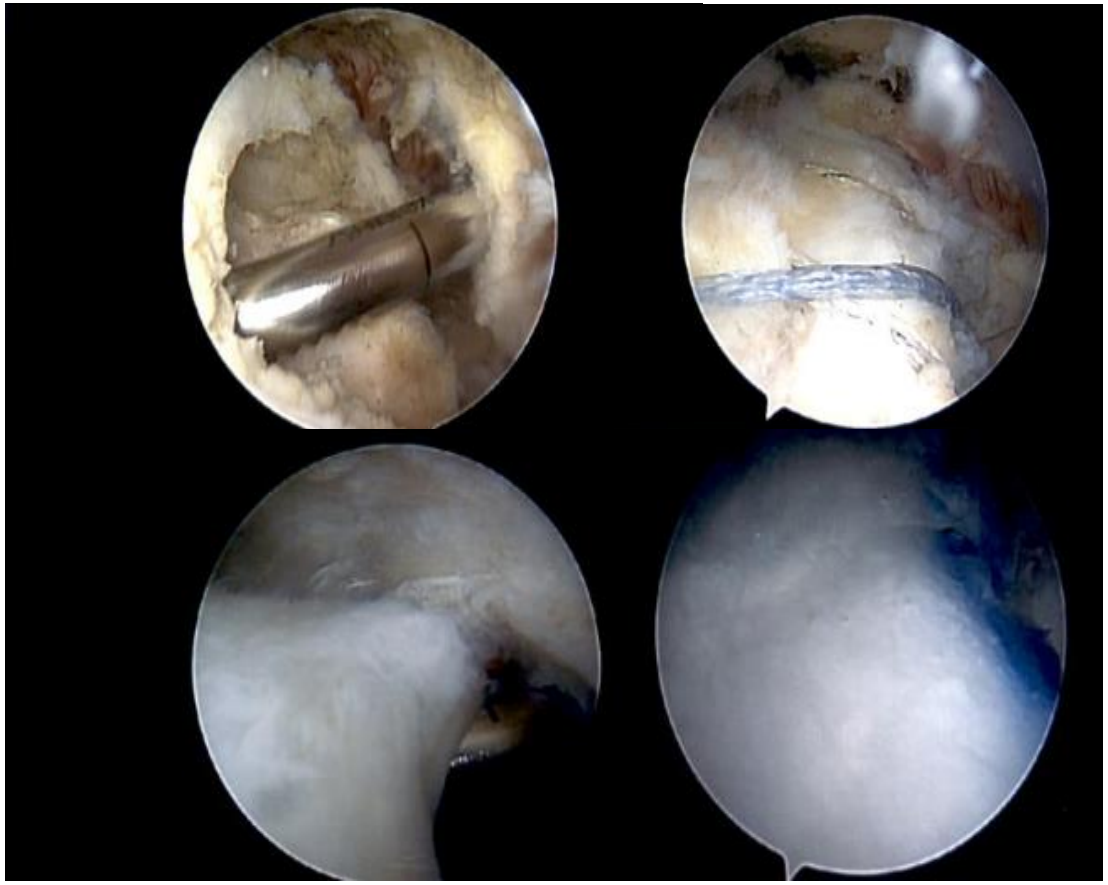
- Univariate analysis using Chi square was used to assess differences in healing between treatment groups

Technique

- Debridement of residual mineralized fibrocartilage
- Light decortication
- Tension-less, complete, double-row repair

- *Regeneten*
    - “draping” the patch over the lateral footprint + 5 mm

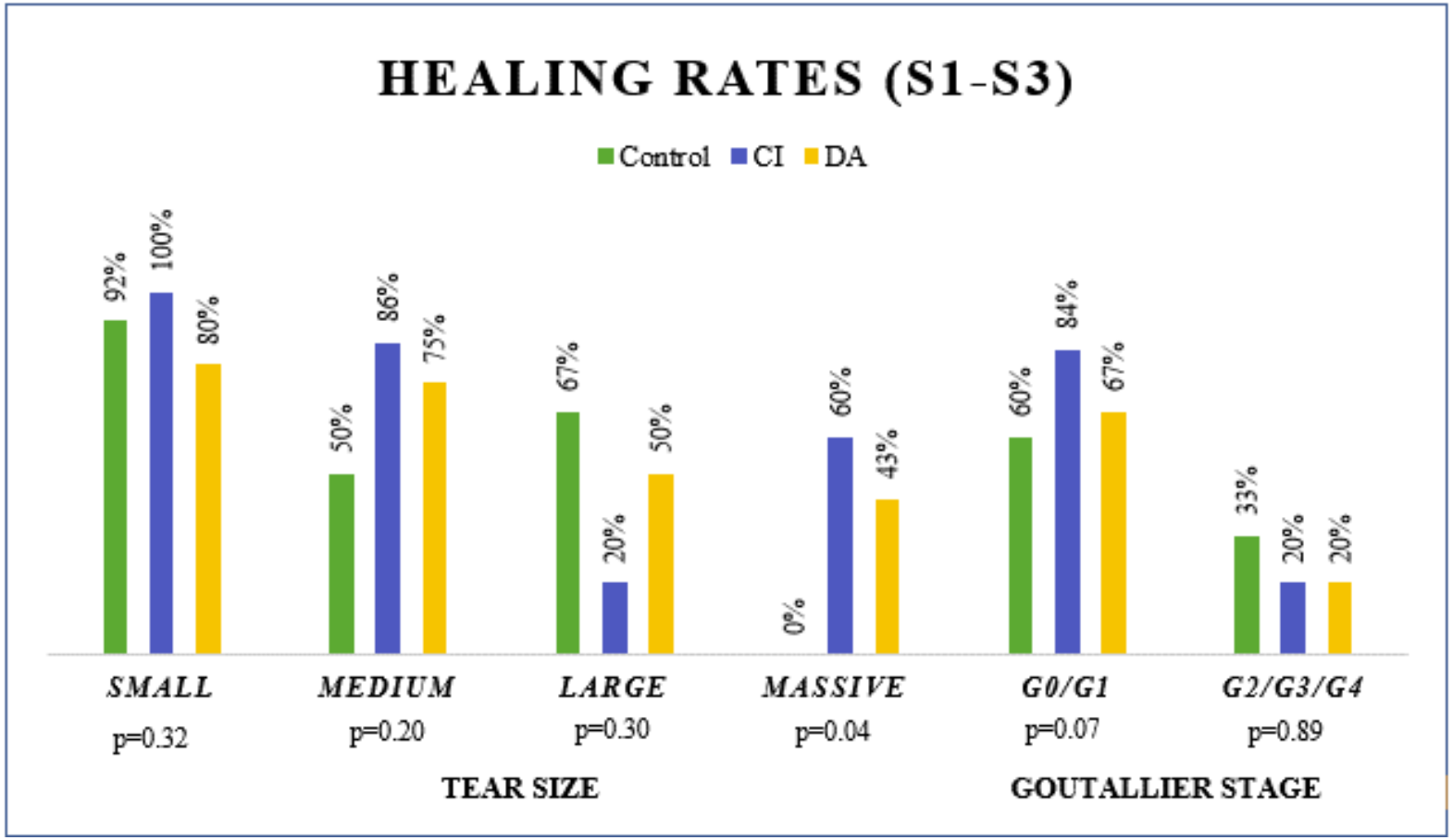
- *Dermis-on-Demand*
    - Approximately 2-3 strips over footprint



Results

- **106 patients** completed postoperative MRIs **(40 control, 37 *Regeneten*, 29 *DOD*)**
- No statistically significant differences in smoking status, rotator cuff tear chronicity, and preoperative Goutallier stage
- *DOD* patients were older (66 years) compared to control (58 years) and *Regeneten* (59 years)

Results


HEALING RATES (S1-S3)
Control
CI
DA
92%
100%
80%
50%
86%
75%
67%
20%
50%
0%
60%
43%
60%
84%
67%
33%
20%
20%
SMALL
p=0.32
MEDIUM
p=0.20
LARGE
p=0.30
MASSIVE
p=0.04
G0/G1
p=0.07
G2/G3/G4
p=0.89
TEAR SIZE
GOUTALLIER STAGE

Results

- Overall healing rate was 64% with rates being similar for control (58%), *Regeneten* (76%), and *DOD* (59%) (p= 0.19)
- Patients with CAD had significantly worse healing (50%) compared to those without CAD (70%) (p= 0.046)
- Healed controls were associated with small/ medium tear size (p= 0.02)
- Healed *Regeneten* were associated with 0 or 1 preoperative Goutallier stage (p= 0.03)

Conclusions

- **Onlay augmentation of a double-row RCR with *Regeneten* implant** demonstrated a **higher healing rate** when compared to non-augmented repairs in patients with minimal fatty infiltration

- Healing of large to massive rotator cuff tears and those with fatty infiltration continue to remain a challenge despite advances in repair augmentation technology

THANK YOU!

Questions?

Contact Molly Piper- Molly.Piper@UHhospitals.org

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