Clinical Outcomes of Pectoralis Major Tendon Repair with and without Platelet-Rich Plasma

Jared A. Hanson BA, Marilee P. Horan MPH, Michael J. Foster MD, Kaitlyn E. Whitney BS, Justin J. Ernat MD, Dylan R. Rakowski MD, Annalise M. Peebles BA, Johnny Huard PhD, Matthew T. Provencher MD MBA, Peter J. Millett MD MSc

Center for Outcomes-based Orthopaedic Research at the Steadman Philippon Research Institute & The Steadman Clinic

INTRODUCTION

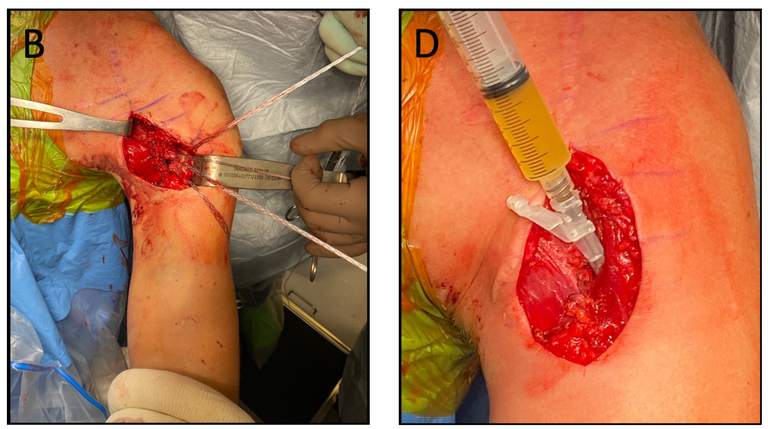
- Rupture of the pectoralis major tendon (PMT) that occurs with a rapid eccentric load on a maximally tensioned muscle with the shoulder in an abducted and externally rotated position.[1,2]
- Acute repairs are recommended in the young, active population and have better outcomes compared to non-operative management.[3,4]
- Leukocyte-Poor Platelet rich plasma (LP-PRP), containing high concentration of platelets, growth factors, and cytokines may improve tendon healing and reduce re-rupture rates.[5,6]

OBJECTIVES

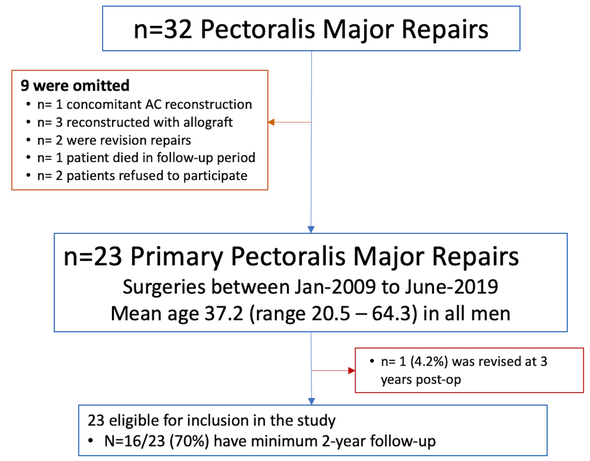
- The **purposes** of this study were to assess clinical outcomes following PMT repairs and to compare outcomes of PMT repairs augmented with and without LP-PRP.
- We **hypothesized** that patients would experience significant improvement in clinical outcomes following PMT surgical repair and that there would be superior outcomes in patients who had LP-PRP augmented repairs when compared with those without augmentation.

METHODS

- IRB approval was obtained and patients who underwent a pectoralis major repair between 05/2007 and 06/2019 with min 2-year follow-up were included.
- **Exclusion criteria**: Revision PMT repair, PMT reconstruction, concomitant repair of additional structure
- Data was collected prospectively and retrospectively reviewed
- Patients' history, including age, sex, arm dominance, mechanism of injury, tear location, time to surgery, and prior surgeries were collected
- Pre- and post-operative patient reported outcomes were compared
  - **ASES, SANE, QuickDASH, SF-12 PCS scores were utilized**
  - **Satisfaction with outcomes:** (scale 1-10; 10 = best score)
- Return to sport, complications, and revision surgeries were recorded

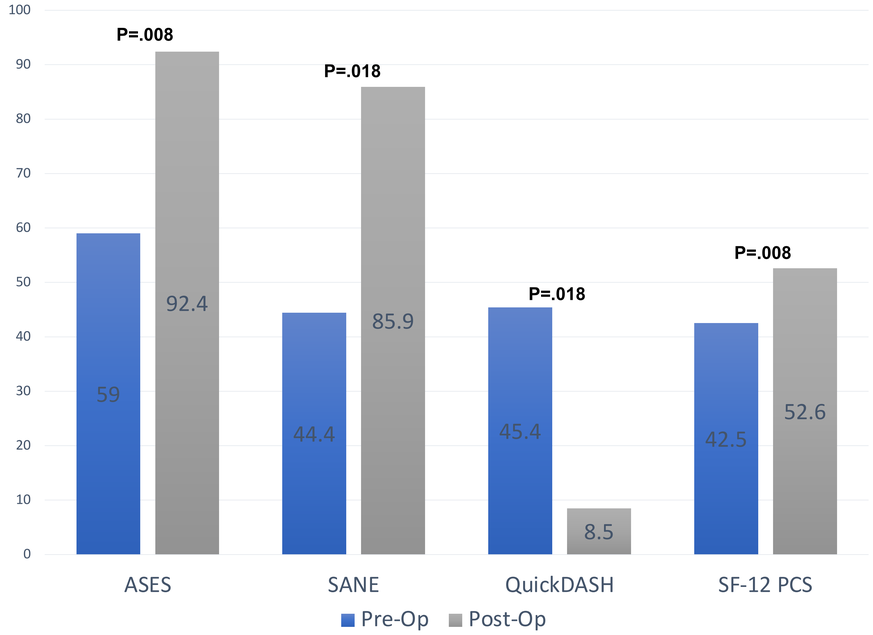


RESULTS



	Cohort Characteristics
Age at surgery	38.6 years (range, 20.5-64.3)
Sex	100% male
Affected arm	74% dominant arm, 26% non-dominant arm
Mechanism of injury	11 bench press/power lifting 7 ski or snowboarding fall 5 others
Timing of surgery Acute = less than 6 weeks	16 acute (mean, 18 days; range, 3-35) 7 chronic (mean, 66 days; range, 42-123)
Location	13 Tendon avulsion off humerus 10 Musculotendinous junction tears

PRO Score Improvement



Post-op PROs with vs. without PRP

	PRP	No PRP	P value
# of Patients	9	7	
Follow-up	2.6 years	8.5 years	**.009***
ASES	99.6	83.0	**0.001***
SANE	94.8	74.6	**0.005***
QuickDASH	0.24	19.1	**0.001***
SF-12 PCS	55.8	48.4	.100
Median Satisfaction	10 (range 8-10)	9 (range 6-10)	**.037***

Additional Results
- 100% return to sport
- 71% return to prior level of participation
- 79% with no strength deficit, 21% with "mild" deficit
- PROs not significantly different based on MOI, tear location, or chronicity of injury

CONCLUSIONS

At mean follow-up of 5.1 years:
- Pectoralis major tendon repair produces improved PROs at final follow-up compared to preoperative values
- Augmentation of repairs with leukocyte-poor PRP may further improve repair outcomes
- Excellent patient satisfaction & return to sport with the majority returning to their prior level of participation
- Low failure rates (4.2%)

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