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Outcomes of Surgically and Non-Surgically Treated Distal Biceps Tears

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I (and/or my co-authors) have something to disclose.

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Introduction

- Distal biceps tears result in:
 - Pain¹
 - Weakness (27-40% supination, 21-30% flexion)¹⁻³
 - Function?



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Purpose

- To evaluate midterm patient-reported outcomes of surgically and non-surgically treated partial and complete distal biceps tears
- Report the conversion-to-surgery rate for patients initially treated without surgery



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Methods

- Patients with MRI-confirmed partial or complete distal biceps tears treated between January 1, 2018 – December 31, 2022

- RedCap Survey:
 - Initial treatment
 - Ultimate treatment
 - QuickDASH

| | Incomplete Tear | Complete Tear |
|------------|------------------------------|----------------------------|
| No Surgery | Incomplete Tear + No Surgery | Complete Tear + No Surgery |
| Surgery | Incomplete Tear + Surgery | Complete tear + Surgery |

- Statistics:
 - QuickDASH
 - Patient Acceptable Symptoms State (PASS) achievement rate (QuickDASH ≤ 19)¹
 - Conversion-to-surgery rate

1. Karjalainen, T, Lähdeoja, T, Salmela, M, Ardern, CL, Juurakko, J, Järvinen, TL, Taimela, S: Minimal important difference, patient acceptable symptom state and longitudinal validity of oxford elbow score and the quickDASH in patients with tennis elbow. *BMC Med Res Methodol* 2023;23:158.



Results - Demographics

| | | Partial Tear | | Complete Tear | |
|-----------|-------------|---------------|-------------|---------------|-------------|
| | Total Data | Non-Operative | Operative | Non-Operative | Operative |
| | N = 366 | N = 25 | N = 74 | N = 25 | N = 242 |
| Age | 53.5 (10.5) | 56.4 (7.03) | 55.6 (10.4) | 58.1 (10.6) | 52.0 (10.6) |
| Sex: | | | | | |
| Male | 347 (94.8%) | 22 (88.0%) | 72 (97.3%) | 23 (92.0%) | 230 (95.0%) |
| Female | 19 (5.19%) | 3 (12.0%) | 2 (2.70%) | 2 (8.00%) | 12 (4.96%) |
| BMI | 30.8 (5.27) | 30.7 (6.16) | 29.9 (4.82) | 33.5 (5.91) | 30.9 (5.17) |
| Smoking: | | | | | |
| No | 241 (72.2%) | 18 (85.7%) | 46 (65.7%) | 14 (70.0%) | 163 (73.1%) |
| Former | 63 (18.9%) | 3 (14.3%) | 16 (22.9%) | 5 (25.0%) | 39 (17.5%) |
| Current | 30 (8.98%) | 0 (0.00%) | 8 (11.4%) | 1 (5.00%) | 21 (9.42%) |
| Diabetes: | | | | | |
| No | 335 (94.4%) | 21 (84.0%) | 67 (91.8%) | 24 (100%) | 223 (95.7%) |
| Yes | 20 (5.63%) | 4 (16.0%) | 6 (8.22%) | 0 (0.00%) | 10 (4.29%) |

← Complete + operative tears were younger

← Partial + operative tears had lower BMI

Results

| | | Partial Tear | | Complete Tear | |
|-------------------|-------------|---------------|-------------|---------------|-------------|
| | Total Data | Non-Operative | Operative | Non-Operative | Operative |
| | N = 366 | N = 25 | N = 74 | N = 25 | N = 242 |
| Quick DASH | 6.88 (12.4) | 11.8 (14.5) | 8.75 (16.3) | 10.1 (11.6) | 5.47 (10.6) |
| PASS Achievement: | 327 (89.3%) | 18 (72.0%) | 63 (85.1%) | 22 (88.0%) | 224 (92.6%) |

← Better QuickDASH scores

← Achieved PASS more often

Overall conversion-to-surgery rate = **35.1%**

- Partial tears: 13/28 (34.2%)
- Complete tears: 14/39 (35.9%)



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Conclusion – Distal Biceps Tears

- Partial tears are challenging
- Conversion-to-surgery rate is high (35%)
- Outcomes with surgery are better (but most patients achieve PASS regardless)



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References

1. Freeman, CR, McCormick, KR, Mahoney, D, Baratz, M, Lubahn, JD: Nonoperative Treatment of Distal Biceps Tendon Ruptures Compared with a Historical Control Group. *JBJS* 2009;91:2329.
2. Morrey, BF, Askew, LJ, An, KN, Dobyns, JH: Rupture of the distal tendon of the biceps brachii. A biomechanical study. *JBJS* 1985;67:418.
3. Baker, BE, Bierwagen, D: Rupture of the distal tendon of the biceps brachii. Operative versus non-operative treatment. *JBJS* 1985;67:414.



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THANK YOU.



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