

Conclusions: Endoscopic or open distal biceps re-attachments are safe procedures as long as the surgical dissection does not cross the proximal 1/3 of the olecranon-radial styloid reference line with the forearm in neutral rotation. Forearm neutral and pronated positions increase the distance between the distal portal and PIN. We recommend that the distal portal be positioned at 30% of the olecranon-radial styloid (ORS) reference line with the forearm in neutral or pronation (Table 1).

References

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Paper #8 INDOMETHACIN PROPHYLAXIS DOES NOT REDUCE THE RISK OF HETEROTOPIC OSSIFICATION FOLLOWING A TWO-INCISION DISTAL BICEPS REPAIR

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Background: Use of heterotopic ossification (HO) prophylaxis remains controversial following a distal biceps repair.

Hypothesis: There will be a reduction in HO in patients treated with indomethacin (INDO)

Methods and Materials: A retrospective review of all patients who underwent a two-incision distal biceps repair was performed. Inclusion criteria included: age >18, direct two-incision repair with at least 6 months follow-up. Patient demographic information as well as time from injury to surgery, tourniquet time, tobacco use, and development of HO was recorded. Patients who were prescribed any anti-inflammatory non-steroidal medications identified and the medical record was reviewed to confirm the compliance of INDO.

Results: Of 146 patients who met our inclusion criteria, 45 (30.8%) had a post-operative radiograph, 14 (31.1%) treated with INDO for a mean of 6.7 weeks (range: 2 to 12 weeks), and 31 (68.8%) without (Controls). There was a difference in age between INDO and controls (41 vs 51 years, $P < .01$), but no difference in time from injury to surgery (43 vs 21 days, $P = .62$), tourniquet time (75 vs. 72 minutes, $P = .66$), or percentage of smokers ($P = .958$). 6 Of 14 (42.9%) INDO patients developed HO/SO and 7 of 31 (22.6%) controls developed HO ($P = .16$). In an age-adjusted logistic regression model, use of INDO was associated with 8.20 (95% CI: 1.28, 52.34) times higher odds of developing HO. There was no difference in low versus high dose ($P = .63$) or length of treatment ($P = .69$).

Conclusion: Although not statistically significant, there was an 8 times higher odds of developing HO when patients were treated with INDO after a two-incision distal biceps repair. No difference was noted in dosage, nor duration of treatment. We feel that prophylaxis is not warranted and can actually increase risk of HO following a two-incision repair.

Keywords: distal biceps, two incision, prophylaxis, indomethacin, heterotopic ossification, synostosis

Paper #9 DELAYED MANAGEMENT OF DISTAL BICEPS RUPTURE: RECONSTRUCTION WITH SEMITENDINOSIS AUTOGRAFT VERSUS PRIMARY REPAIR

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Background: Delayed presentation of distal biceps ruptures can make primary repair impossible, in which case reconstruction using a graft is an option. The current literature includes a variety of techniques with reconstruction studies reporting small patient numbers but no comparison to delayed direct repair has been made. The aim of this study was to compare functional outcomes, patient satisfaction and complications between delayed direct repair (>21 days) and reconstruction with a semitendinosus autograft.

Methods: Nineteen delayed distal biceps rupture cases treated with a tendon reconstruction were compared to sixteen delayed primary repair cases (>21 days). The reconstructions were performed using a semitendinosus autograft through a bone tunnel in the radius and a pulvertaft weave into the remnant distal biceps tendon and muscle. The patient cohorts were reviewed and completed functional outcomes testing including range-of-motion, supination and isometric elbow flexion strength, Disabilities of the Arm, Shoulder and Hand questionnaire; Patient-Reported Elbow Evaluation, Single Assessment Numeric Evaluation, and Mayo Elbow Performance Score.

Results: Mean patient age was 46 ± 8 years in the reconstruction cohort versus 49 ± 9 years in the delayed repair cohort. Mean duration of follow-up was 45 ± 27 months in the reconstruction cohort versus 47 ± 25 months in the delayed cohort. The time from injury to surgery averaged 266 ± 248 days in the reconstruction cohort versus 37 ± 12 days in the delayed repair cohort. Range of motion, supination strength and elbow flexion strength were similar between cohorts ($P = .62$, $P = .26$, $P = .93$ respectively). The average maximum elbow extension achieved in the operating room after delayed primary repair was $48 \pm 22^\circ$ vs. $57 \pm 18^\circ$ for the reconstruction cohort ($P = .12$). The mean postoperative Disabilities of the Arm, Shoulder and Hand questionnaire, and the Single Assessment Numeric Evaluation were similar between the cohorts ($P = .08$, $P = .22$ respectively). The Patient-Rated Elbow Evaluation, and the Mayo Elbow Performance Index were better in the delayed repair cohort compared to the reconstruction cohort (3.6 ± 4.5 versus 13.8 ± 19.1 , $P = .02$, and 95.3 ± 7.2 versus 85.8 ± 13.7 , $P = .04$ respectively). Complications were similar between cohorts ($P = .87$). The most common complication was transient lateral antebrachial cutaneous nerve palsy in four patients (21%) in the reconstruction cohort and six patients (38%) in the delayed repair cohort lasting beyond 6 months. One patient (5%) in the reconstruction group had an early graft failure at the muscle-tendon graft interface.

Conclusion: Delayed reconstruction of irreparable distal biceps ruptures with semitendinosus autograft produces similar strength, range of motion and complication rates but slightly worse functional outcome scores compared with delayed primary repair. Despite placing the elbow into high degrees of flexion at the end of primary repair and reconstruction, this did not impede final range of motion, strength or functional outcome scores.

Paper #10 ASYMPTOMATIC MRI FINDINGS OF THE ELBOW PREDICT INJURY AND SURGERY IN MAJOR LEAGUE BASEBALL PITCHERS

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Background: Repetitive pitching produces significant stresses onto the elbow that produce structural abnormalities discernable on Magnetic Resonance Imaging (MRI) without causing symptoms. It is unknown whether these structural abnormalities pose any long term clinical significance. The purpose of this study is to determine whether there exists an association between subclinical MRI findings in asymptomatic elbows in major league baseball pitchers, and future placement on the disabled list or future surgery.

Methods: All major league pitchers undergoing routine pre-signing imaging at a single organization were retrospectively reviewed