

## Analysis of 784 Surgically Treated Distal Biceps Tendon Ruptures

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### Summary:

The surgical repair of distal biceps tendon ruptures has an overall low rate of serious complications, regardless of approach or technique. However, two-incision technique has a higher rate of posterior interosseous nerve palsy, heterotopic bone formation, and re-operation rate.

### Abstract:

**Purpose:** To examine clinical and surgical outcomes for distal biceps tendon repairs in a large, multi-specialty, integrated healthcare system.

**Methods:** Retrospective cohort study of distal biceps tendon repairs performed from January 1, 2008 through December 31, 2015. The repair methods were classified as: two-incision approach using bone tunnel-suture fixation, or anterior single incision approach. Anterior single incisions were further classified according to the fixation method: cortical button alone, cortical button and interference screw, or suture anchors alone. Patient demographics, surgeon characteristics, surgical outcomes, and complications were analyzed for all repair types.

**Results:** Of the 784 repairs that met our inclusion criteria, 639 (81.5%) were single incision approaches. When comparing two-incision and single incision repairs, there was a significantly higher rate of posterior interosseous nerve palsy (3.4% vs. 0.8% respectively,  $P = 0.010$ ), heterotopic bone formation (7.6% vs 2.7%, respectively,  $P = 0.004$ ), and re-operations (8.3% vs 2.3%, respectively,  $P < 0.001$ ). When excluding lateral antebrachial cutaneous nerve palsies, there was no significant difference in the overall nerve palsies between single incision and two-incision (5.8% vs. 6.9%, respectively,  $P = 0.612$ ). The overall rate of tendon re-rupture was 1.9% (single incision: 1.6%, two-incision: 2.8%,  $P = 0.327$ ). The overall rate of post-operative wound infection was 1.5% (single incision: 1.3%, two-incision: 2.8%,  $P = 0.182$ ). The average time from surgery to release from medical care was 14.4 weeks (single incision: 14.0 weeks, two-incisions: 16.0 weeks,  $P = 0.286$ ). Patients treated with cortical button + interference screw were released significantly sooner than other single incision repair types ( $13.1 \pm 8.01$  weeks,  $P = 0.011$ ). There were no significant differences in rates of motor neuropraxia, infection, re-rupture, re-operation in regards to surgeon's years of practice, fellowship training, or case volume.

**Conclusion:** The surgical repair of distal biceps tendon ruptures has an overall low rate of serious complications, regardless of approach or technique. However, two-incision technique has a higher rate of posterior interosseous nerve palsy, heterotopic bone formation, and re-operation rate. Surgeon's years of practice, fellowship training, and case volume do not affect the rate of major complications.