ENDOBUTTON DISTAL BICEPS REPAIR

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Epidemiology

Incidence: 1.2/100,000 per year

10% of biceps ruptures: **distal**

Dominant elbow: 85%

Men in 40's: 93%

Athletic activity: 29%

Cause: excessive eccentric tension

Smokers: 7.5 times at greater risk

Safran MR, et al. CORR, 2002

Diagnosis

Patient history

Clinical examination: hook test[1]

Sensitivity/specificity: 100% >MRI [2]

Imaging: US/MRI

1. Karen M, et al. AAOS, 2010

2. O'Driscoll SW, et al. AJ Sports Medicine, 2007

Diagnosis

Non-surgical:
- low-demand pts
- medically infirm pts
- partial rupture of tendon

Surgical:
- improvement of strength:
  flexion (30%) /supination (40%)
- strong construction (repair):
  early aggressive rehabilitation

Karen M, et al. AAOS, 2010
Baker BE, et al. JBJS, 1985
Greenberg JA, J Hand Surg., 2009

Patients

10 male pts

8 acute injuries/ 2 chronic

average age: 50.1 years (range, 38–65)

Dominant extremity: 7/10

1.5 months old injury

Presented with: pain, ecchymosis,

weakness in elbow flexion and forearm supination

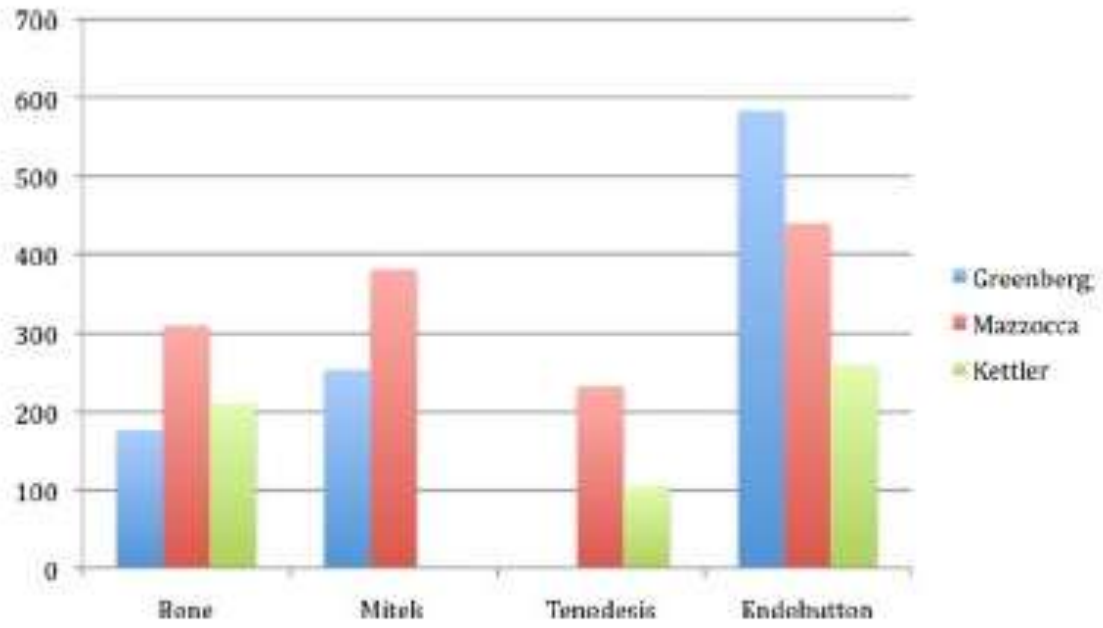
Endobutton repair

Superior load to failure strength

(Greenberg JA, J Hand Surg, 2009, Kettler M,et al. JBJS, 2008, Spang JT, et al. J Shoulder Elbow Surg 2006)

Superior Cyclic load to failure:

EndoButton (440 N), suture anchor (381 N), bone tunnel (310 N), interference screw (232 N) *(Mazzocca AD, et al. Am J Sports Med 2007)*



Surgical technique

Single incision

Henry approach (“S”)

Develop muscular interval: LAC nerve

Proximal retraction of the tendon

Krakow-type suture + engagement of EndoButton 4-5 mm from the tendon end

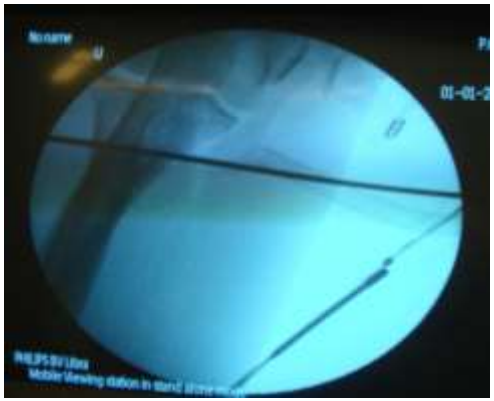
Size the tendon using ACL tubes

4.5 drill for endobutton

Cannulated drill (usually diameter of 8) only in the first cortex

Blunt ACL guide pin: EndoButton’s passage

Avoid PIN (no use of Homan retractors)



Results

Mean FU: 36 months

9/10 patients returned to previous activity level.

Mean Mayo elbow score: 89.2 (range, 75–100)

No loss of motion (**vs contralateral extremity**)

Average flexion strength recovery: 95%

Mean supination strength recovery: 90%

1 PIN palsy (resolved 5 months later)

2 ectopic ossifications (no compromise)

Conclusions

Sufficient for acute and chronic ruptures

Procedure: simple, safe and reproducible

Excellent clinical results

Minimal morbidity

Good cosmesis