

TITLE:Chronic Distal Biceps Avulsion Treated with Suture Button

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Background:

Distal biceps tendon avulsions are a relatively rare injury of the upper extremity accounting for between 3-10% of all biceps ruptures. Studies have shown that these injuries are well tolerated in low functioning individuals; however, nonoperative treatment leads to a loss of endurance, loss of 40-50% of supination strength, and loss of 30% of flexion strength compared to operative repair or reconstruction. While many modalities have been described in the literature for treatment of acute injuries, operative management of chronic injury has classically been with graft tissue to augment the contracted muscle. Research has shown that the suture button fixation is not only a viable option in the treatment of distal biceps injuries, but it is superior in load to failure when compared to other anchoring techniques. With this in mind we present our results for a novel treatment modality for chronic distal biceps avulsion with suture button technology through a single incision and no need for allograft augmentation.

Materials and Methods:

This was a retrospective review of 20 patients with 21 injuries who underwent primary surgical repair of chronic distal biceps tendon avulsions (average 10 weeks). All patients were treated with a single incision approach with the retracted tendon secured with a single suture button armed with non-absorbable #2 core sutures. Post operatively patients were found to have between 50-90 degree flexion contracture. All patients were placed in a sling postoperatively with gentle extension to gravity as tolerated and no formal physical therapy. Patients were surveyed regarding pre and postoperative American Shoulder and Elbow Surgeons Score (ASES), Visual Analogue Scale (VAS), Mayo Elbow Performance Scores, Oxford Elbow Score (OES) and overall satisfaction. ROM, flexion, and supination strength compared to the contralateral uninjured extremity were evaluated at final follow up.

Results:

Mean clinical follow up was 26 months. All patients regained full ROM and 5/5 flexion and supination strength at final follow up. Mayo Elbow Performance Scores were 100 for all responding patients compared to an average 47.5 preoperatively ($p < .05$). Mean postoperative ASES was 97.2 compared to 41.9 preoperatively ($p < .05$). Mean OES scores pre and postoperatively were 24.2 and 48, respectively ($p < .05$). Mean VAS preoperatively was 4.4 preoperatively and was reported as 0 by all patients at final follow up ($p < .05$). 2 patients had transient sensory radial nerve neuropathy, one of which was present pre operatively. 1 patient has persistent palsy. No synostoses occurred. 4 patients reported subjective supination fatigue postoperatively compared to the uninjured extremity.

Conclusion:

Given these results we feel that chronic distal biceps tendon ruptures can be repaired successfully with a single incision using the suture button technique without the use of a graft. Though the flexion contracture is significant postoperatively, all patients regained full ROM.
