Outcomes of Achilles Tendon Allograft Reconstruction for Chronic Ruptures of the Distal Biceps Tendon Using a Two-Incision Surgical Technique

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INTRODUCTION: Distal biceps tendon ruptures result in substantial loss of function. Surgery is recommended typically for acute distal biceps tendon tears to optimize outcomes and prevent muscle retraction and atrophy associated with delayed reattachment to the bone. However, delayed or missed diagnosis is not uncommon and may lead to irreparable disruption of the tendon. In such chronic cases, allograft augmentation is recommended for reconstruction. The Achilles tendon is commonly used for this purpose due to its physical and mechanical properties. Despite its frequent use, data on the long-term outcomes of its application using a two-incision surgical technique is limited. This report presents an analysis of the outcomes of Achilles allograft reconstruction for patients with chronic ruptures of the distal biceps tendon.

METHODS: Between 2002 and 2022, 32 patients with chronic ruptures of the distal biceps tendon underwent Achilles tendon allograft reconstruction. 12 patients were lost to follow-up. The remaining 20 patients form the basis of this study. There were 19 males and 1 female, with a mean age of 51.5±11.5 years at the time of surgery (range 30-77). Their electronic medical records were reviewed to collect demographics, pain, motion, strength, complications, reoperations, and subjective satisfaction level. 18 patients could also be contacted at the most recent follow-up to assess Visual Analog Scale (VAS) for pain and satisfaction, functional improvement, as well as Single Assessment Numeric Evaluation (SANE), American Shoulder and Elbow Surgeons (ASES) shoulder score, and Mayo Elbow Performance Score (MEPS). The median length of follow-up for the whole cohort (n=20) was 9.6±6 years, and it was 11.5±5.8 (range 2.5-19.7) years for those patients who responded to our most recent questionnaire.

RESULTS SECTION: Reconstruction of chronic ruptures of the distal biceps tendon was associated with substantial pain relief, restoration of elbow function, and satisfactory subjective results. At the most recent follow-up, the median pain score was 0±1.1 points (range 0-4). Mean extension was 34 degrees and mean flexion 157.5 degrees; the median MEPS was 100 points, with outcomes graded as excellent in 80% of patients, good in 15%, and fair in 5%. For those patients contacted at most recent follow-up, the median SANE and ASES scores were 80 (IQR 70-95) and 79.7 (IQR 76.5-82) points respectively. Two patients complained of cramping, one complained of pain with supination, and six complained of subjective weakness. No elbows underwent reoperation.

DISCUSSION: Allograft reconstruction using Achilles tendon augmentation was associated with good overall outcomes for patients with chronic ruptures of the distal biceps tendon, providing a high degree of patient satisfaction and restoration of function. Residual subjective weakness and cramping did occur, but only in a minority of patients.

SIGNIFICANCE/CLINICAL RELEVANCE: Delayed reconstruction of distal biceps tendon ruptures can lead to significant loss of function. This study demonstrates that Achilles tendon allograft reconstruction using a two-incision technique is an effective treatment option in chronic case, providing long-term functional recovery, pain relief, and high patient satisfaction.

IMAGES AND TABLES:

Fig 1 Preparation distal portion allograft prior insertion

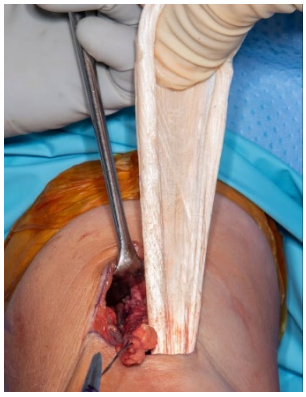

Fig 2 Distal allograft attached to bone

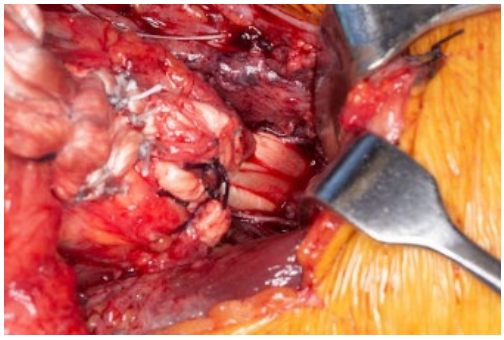

Fig 3 Distal part allograft to dorsal incision