Tendon Allograft Interposition Arthroplasty for Salvage of Failed Distal Ulna Resections

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INTRODUCTION:

Distal ulnar resection procedures, such as Darrach procedure and its modifications, are associated with high failure rates. The major complications include distal radio-ulnar convergence and distal radio-ulnar instability.To overcome the symptoms associated with painful convergence after distal ulna resections, many alternative procedures have been developed with varying success to prevent painful impingement. The purpose of this study was to report the mid- to long-term outcome of the interposition arthroplasty with Achilles tendon allograft as a salvage technique for painful distal radioulnar instability after distal ulnar resection.

METHODS:

Forty-one patients with painful impingement and instability of the distal ulna following distal ulnar resection were treated with interposition arthroplasty with Achilles tendon allograft. There were 29 women and 12 men with a mean age of 40 years (range, 33-68) at the time of the surgery. The dominant hand was affected in 32 patients. The Achilles tendon allograft is interposed between the distal radius and the resected distal ulna and is secured using sutures from suture anchors to radius and sutures from drill holes to ulna.

RESULTS: The mean follow-up was 141 months (range, 36-290). At the final follow-up, patient mean pain levels (on a visual analog scale) were significantly reduced, from 8.5 to 1.2. Comparisons between preoperative and postoperative forearm rotation and grip strength measurements showed an average 31^{o} increase in pronation, 42^{o} in supination and 78% in grip strength. No patient complained of instability at the ulnar stump. The mean Mayo Modified Wrist Score significantly improved from 41 to 89. Postoperative radiographic evaluation demonstrated maintenance of a wide space between the resected ulna and the distal radius. Asymptomatic ulnar scalloping was revealed in 3 patients. No graft-related complications or infections were encountered. The first patient of this study was graded as a failure due to persistent pain. We attributed this failure to insufficient allograft bulk interposed between the resected ulna and the radius. This was a worker's compensation patient who later underwent radioulnar arthrodesis for salvage 39 months after the Achilles allograft interposition.

DISCUSSION AND CONCLUSION:

Achilles tendon allograft interposition arthroplasty provides a safe and reliable alternative for the treatment of failed distal ulna resections. Especially for patients who may not be candidates for implant arthroplasty because of their young age or high level of activity. Although this technique does not restore normal biomechanics of the distal radioulnar joint, prevents impingement and painful convergence of the ulnar stump on the distal radius.