Outcomes after Resection of the Radial Column Bones of the Wrist

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INTRODUCTION:

Trapezium resection for thumb carpometacarpal (CMC) joint arthritis and scaphoid excision with four-corner (intercarpal/ midcarpal) arthrodesis for wrist arthritis, scapholunate advanced collapse (SLAC) or scaphoid non-union advanced collapse (SNAC), are very common procedures in the population. There are numerous studies on the outcomes after trapezium resection for CMC arthritis and scaphoid excision with four-corner arthrodesis for wrist arthritis in isolation. However, the long-term outcomes after resection of the radial column of carpal bones: both scaphoid and trapezium are limited with the theoretical concern for thumb or wrist instability. The purpose of this study was to report the mid to longterm outcomes, specifically pain relief, durability, and function, after resection of the radial column bones of the wrist, trapezium and scaphoid.

METHODS: Fourteen patients with resection of the radial column of carpal bones were retrospectively reviewed. All patients underwent two separate surgical procedures of the wrist (trapezium resection and scaphoid excision with four-corner arthrodesis). Nine patients had first trapezium resection for thumb CMC joint arthritis and at a mean of 41 months later (range, 25-62 months), they underwent scaphoid excision with four-corner arthrodesis for wrist arthritis. While, five patients underwent first scaphoid excision with four-corner arthrodesis and later, at a mean of 32 months (range, 29-33 months), trapezium resection. There were six women and eight men with a mean age of 57 years (range, 51-67 years) at the time of first surgery. All patients were evaluated clinically and radiographically. Functional outcome was assessed with a pain VAS scale, measurement of grip strength, key pinch strength and range of motion. Disabilities of the Arm, Shoulder and Hand (DASH) and Modified Mayo Wrist Score (MMWS) were assessed. RESULTS:

The mean follow-up after the second operation was 84 months (range 37-153 months). No patient was lost to follow-up. All clinical parameters demonstrated improvement at final follow-up. There was a significant improvement in mean pain levels from 8.7 preoperatively to 0.3 postoperatively. Grip strength increased on average from 9 kg preoperatively to 14 kg postoperatively. Mean key pinch strength improved from 3.1 kg preoperatively to 4.8 kg postoperatively. The mean wrist flexion was 38 degrees and wrist extension was 29 degrees at the final follow-up. The mean DASH and mean MMWS significantly improved postoperatively. No patients demonstrated instability of the wrist or thumb postoperatively during the follow-up period. No radiographic failures necessitating revision were found in this study. No reoperations were required during the follow-up period.

DISCUSSION AND CONCLUSION:

The results of resection of the radial column bones of the wrist are relatively unknown. Based on our study, excision of the trapezium and scaphoid in two separate surgeries have no detrimental effect on clinical outcome and satisfactory outcomes can be expected with pain relief and improvement of function.