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Treatment of Kienböck's disease with neutral ulnar variance by distal capitate shortening and arthrodesis to the base of the third metacarpal bone

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We evaluated whether a surgical technique combining distal capitate shortening and arthrodesis to the base of the third metacarpal bone for the treatment of the early stages (stages II and IIIA) of Kienböck's disease with neutral ulnar variance resulted in pain relief, improvement in wrist motion, or changes in the radiographic evaluation. This retrospective study reviewed 22 patients with early stages of Kienböck's disease with neutral ulnar variance, treated by distal capitate shortening and arthrodesis to the base of the third metacarpal bone. Patients were divided into 2 groups by disease stage: stage II (n =12) and stage IIIA (n = 10). There were 8 women and 14 men, with an average age of 35.7 years. The following parameters were measured before and after surgery: Visual Analog Scale (VAS) for pain evaluation, grip strength, Range Of Motion (ROM), ulnar variance, carpal height index, lunate height index, and the scapholunate and scaphocapitate angles. The patients were evaluated in accordance with Modified Mayo Wrist Score (MMWS). The average follow-up period was 30.5 months (range, 26-36 months). The stage II group showed significant improvements in the mean VAS (58e5), ROM (57% to 73%), grip strength (54% to 75%), and MMWS (51e78). Patients in the stage IIIA group showed nonsignificant changes in mean VAS score (64e42.5), ROM (52.5% to 55.5%), grip strength (46.5% to 57.5%), and MMWS (36e50.5). Significant decreases in the carpal height index and scaphocapitate angle, and an increase in scapholunate angle in all stage IIIA patients were observed. Distal capitate shortening with capitometacarpal arthrodesis can alleviate pain and improve ROM and grip strength in patients with stage II Kienböck's disease, but not in those with stage IIIA. Moreover, it cannot prevent carpal collapse, especially in stage IIIA of the disease. We do not recommend this technique for treating stage IIIA patients.

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