

Fresh Osteochondral Allograft Transplantation of the Capitellum for the Treatment of Osteochondritis Dissecans

Raffy Mirzayan¹, Jonathan Mina Ragheb, Kian Michael Jeshion-Nelson, David O DeWitt, Christian Cruz

¹Department of Orthopaedics, Kaiser Permanente Southern California

INTRODUCTION:

Osteochondritis Dissecans (OCD) of the humeral capitellum is a rare yet challenging diagnosis. Several surgical options exist for unstable lesions. In the last few years, the pendulum has swung from debridement and microfracture to restoration of the articular surface. Osteochondral autograft from rib and knee have been described but have donor site morbidity. The senior author chose to use fresh osteochondral allograft transplantation (FOCAT) to avoid donor site morbidity. We report the mid-term results of FOCAT of the capitellum.

METHODS: After IRB approval, patients who underwent FOCAT for OCD of the capitellum by a single surgeon were reviewed. Between 2006 and 2022, 31 patients were identified. All patients had unstable lesions (Minami 2,3) and most had loose bodies (ICRS 4). All had failed a trial of nonoperative treatment. All patients underwent a diagnostic arthroscopy, followed by a mini-open, ligament-sparing approach. Commercially available guides and instruments were used for grafting. Press fit fixation was achieved.

RESULTS: The mean age was 16 ± 3.9 years. There were 24 males. There were 21 baseball players (17 pitchers and 4 position players), 6 gymnasts, 3 students, 1 tennis player, and 1 patient with AVN from chemotherapy. Fifteen patients did not have a flexion contracture, while the remaining 16 had a mean contracture of $13.3^0 \pm 14.4^0$. Twenty-seven patients required a single plug (Figure 1) with a mean diameter of 11.2 ± 2.9 mm and 4 patients required 2 plugs (Mastercard lesion) (Figure 2). In 2 patients, concomitant grafting was performed on the radial head (6 mm graft). The mean follow up was 90 ± 56 months (range 12-202 months). There was significant improvement in Oxford (25.6 ± 5.1 to 45.6 ± 4.9 , $P < 0.00001$) and VAS (7.5 ± 2.1 to 0.4 ± 1.4 , $P < 0.0001$). In overhead athletes, there was significant improvement in KJOC score (40.8 ± 11.8 to 85.1 ± 15.5 , $P < 0.00001$). A postoperative MRI was obtained in 15 patients at a mean of 32.6 months. In all cases, the graft was incorporated. In all cases, athletes were able to return to their sport and perform at same level or higher. There were no complications. In two elbows, a subsequent arthroscopy was performed for loose body removal.

DISCUSSION AND CONCLUSION:

FOCAT is a viable option for resurfacing OCD lesions of the humeral capitellum. Excellent outcomes, and high return to sport rates are reported with mid-term follow up showing no graft failures. FOCAT is a better option to autologous graft in order to eliminate donor site morbidity.

