

Prospective Evaluation of Prolonged Fresh Osteochondral Allograft Transplantation of the Femoral Condyle: Minimum 2 Year Follow-Up

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INTRODUCTION: Focal osteochondral lesions of the knee in young patients present a therapeutic problem [1,2]. One potential treatment is fresh osteochondral allograft (OCA) transplantation. This study presents the results of 25 consecutive patients whom underwent prolonged fresh OCA transplantation for defects in the femoral condyle.

METHODS: The average age of the patients was 35 (range, 17-49). All of the defects were on the femoral condyles. They included degenerative, traumatic, osteonecrotic and osteochondritis dissecans lesions. Five patients (20%) had more than one defect. The average size of the primary lesion was 5.24 cm² and for the secondary lesion was 2.31 cm². Twenty-four patients (96%) had a previous procedure to address the lesion, and the average number of previous procedures was 2.28 (range, 0-6). The average interval between injury and surgery was 25 months (range, 3-70 months). There were 14 patients (56%) in whom comorbidities required either a concurrent high tibial osteotomy or meniscal transplantation. There were 13 patients (52%) on worker's compensation at the time of surgery.

RESULTS: The average age of the prolonged fresh grafts at implantation was 24 days (range, 15-43 days). The average length of follow-up was 35 months (range, 24-67 months). Prospective data was collected using several subjective scoring systems, as well as objective and radiographic assessments. Statistically significant improvements were seen for Lysholm (39 to 67), IKDC (29-58), all five components of the KOOS scores (Pain 43 to 73, Symptom 46 to 64, ADL 56 to 83, Sports 18 to 46, Quality of life 22 to 50), and the SF-12 physical component score (36 to 40). Overall, patients reported 84% satisfaction with their results and felt the knee functioned at 79% of their unaffected knee. The objective measures of knee range of motion and quad size were not significantly different from the unaffected knee. Radiographically, 22 of the grafts (88%) were incorporated into host bone. There were 2 (8%)

complications; one patient had graft fragmentation, and one patient had pain greater than 6 months.



Fig. 1: Arthrotomy to expose the defect of the femoral condyle (left) and press-fitting the osteochondral allograft into the recipient hole (right).

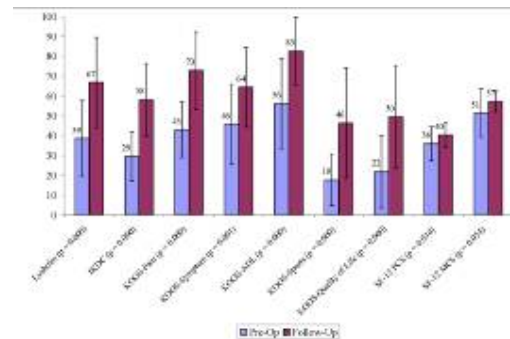


Fig. 2: Overall subjective scores with comparison of pre-operative and final follow-up.

DISCUSSION & CONCLUSIONS: Fresh osteochondral allograft transplantation is an acceptable intermediate procedure for treatment of localized osteochondral defects of the femur. At two year follow-up, it is well-incorporated and offered consistent improvements in pain and function.

REFERENCES: ¹ Buckwalter JA. Articular cartilage injuries. *Clin Orthop*. 2002;402:21-37. ² Mankin HJ. The reaction of articular cartilage to injury and osteoarthritis. *N Engl J Med* 1974;291:1285-1292.

ACKNOWLEDGEMENTS: N/A