

Using osteochondral allograft transplantation to treat articular cartilage lesions of the knee

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Video Abstract

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Abstract

Articular cartilage lesions of the knee joint are a common finding during knee arthroscopy. However, the best way to manage these lesions remains unclear – especially when it comes to young, physically active patients. Now, researchers from Midwest Orthopaedics at Rush University Medical Center have compared patient outcomes following two different allograft procedures to shed light on the clinical outcomes that can be expected for each method. Their results could help orthopedic surgeons optimize how they treat this select patient group. The first method utilized adjacent-plug osteochondral allograft transplantation – also known as the “snowman technique”, or snowman OCA. This approach involves placement of adjacent overlapping allografts to treat irregular or ovoid lesions. All patients undergoing this procedure were being treated for a single osteochondral lesion of the femoral condyle. The second method involved multi-compartmental OCA. Patients undergoing this procedure had multiple osteochondral lesions. The main difference between this method and the snowman technique is that multiple compartments were grafted, and only a single dowel plug was put in place for each lesion. In total, the team retrospectively reviewed records from 22 patients who were followed for a minimum of two years. Nine patients underwent the snowman technique, and thirteen underwent multifocal OCA. To gauge the clinical results produced from each method, the researchers compared patient-reported outcomes, complication rates, reoperation frequency, and graft survivorship. The results suggest that multifocal OCA produces superior results across the board. Patients who underwent snowman OCA were more than twice as likely to require reoperation and nearly five times as likely to experience graft failure compared to those who underwent multifocal OCA. The multifocal procedure also led to more pronounced improvements in the majority of patient-reported outcome measures. Overall, these findings suggest that multifocal OCA is a viable knee preservation technique for young, active patients with multi-compartmental chondral disease. With enhanced understanding of the clinical efficacy of both procedures, orthopedic surgeons should be better equipped to counsel patients with oblong, irregular, or multicompartmental articular lesions of the knee joint.