

Focal Articular Surface Replacement (FASR) For The Treatment Of Articular Defects Of The Medial Femoral Condyle In Young Patients: A Minimum 10-Year Follow-Up Study Of 173 Cases

Turlough O'Donnell, Joseph Martin Queally¹, Brendan O'Daly

¹Royal College of Surgeons in Ireland

INTRODUCTION:

Focal articular defects (FAD) of the medial femoral condyle are common, especially in patients < 40 years of age. The overall incidence is unknown. The true natural history of these lesions is poorly understood. There are various treatment options available, mostly focused in younger patients around biological regeneration of cartilage. These techniques require prolonged and sometimes difficult rehabilitation for the patient. Focal Articular Surface Replacement (FASR) using metal implants is a technique that allows the use of modular components designed to match the geometry of the defect, restoring congruency, and preventing propagation of disease. The purpose of this study was to follow-up a large series of younger patients undergoing FASR, with a specific interest in functional outcome and risk of revision surgery for progression of disease or implant failure.

METHODS:

We prospectively followed up 188 patients aged 20-40 years at the time of surgery, who had FASR of an isolated FAD of either the medial or lateral condyle using the HemiCAPTM (Joint Operations, UK) metallic implant, performed between July 2009 and June 2013. All surgeries were performed by a single surgeon, fellowship-trained in preservation techniques of the early-arthritic knee. All patients were rehabilitated in a standard fashion. The usual demographic data was recorded. KOOS and Oxford knee scores, as well as SF-36 scores, were recorded pre-operatively, and sequentially thereafter. Satisfaction questionnaires and return to sport were recorded. Weight-bearing radiographs were performed. Implant failure was defined as revision for any reason, and survivorship recorded, with reasons for failure.

Statistical analysis was performed using SPSS.

RESULTS:

15 patients were lost to follow-up. There were 93 men and 55 women, with 25 bilateral surgeries. This gave a total of 173 surgeries. The average age at time of surgery was 32 years (Range: 17-40 years). Average length of follow-up was 153 months (Range: 120-168 months)

The average weight-bearing Hip-Knee-Ankle axis was -2° (Range: +4° to -7°). The average size of the lesion was 360mm² (Range: 150mm² – 400mm²). There was a significant improvement in the KOOS and OKS scores at a minimum 10-year follow-up (p = 0.0054 and p = 0.0096 respectively). There was a significant improvement in SF-36 scores (p = 0.0042). 83% of patients were satisfied at final follow-up.

21 patients underwent further arthroscopic examination of the joint in the follow-up period for debridement of a meniscal tear or debridement of hypertrophic periprosthetic tissue.

The revision rate for progression of disease was 96% at 10 years and 93% at 15 years. The average time to revision was 67 months (Range: 48 – 99 months). There were no revisions for infection or implant loosening.

78% of patients returned to sport at their desired level. 10% were unable to, and 12% had no desire to.

DISCUSSION AND CONCLUSION:

FASR of the medial femoral condyle is an established technique, with good results published in typically middle-aged cohorts. This is the first mid-to-long-term study reporting results in a younger age group. We report excellent functional results from a high-volume single surgeon centre with a minimum 120-month follow-up, with a revision rate for progression of disease of 4% at that time. Overall satisfaction with the procedure was 83%, and 78% patients returned to their desired level of sporting activity.

We believe that FASR should be considered a viable alternative when treating FADs of the knee in this age group, but should be considered an interim measure rather than a definitive cure, as longer-term data will be required to confirm ongoing acceptable function of the knee in what is a high demand group.