

5-year Clinical Outcomes For The Treatment Of Focal Cartilage Lesions In The Knee Using A Patient-specific Mini Metal Implant.

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Abstract

Purpose: Patients of an age between 35 and 60 years with focal cartilage lesions are considered too young for arthroplasty but also biological repair is prone to fail. An alternative treatment for this 'gap-group' is a mini-metal implant individually planned by an MRI-scan of the index knee. It covers the defect without having to remove healthy surrounding cartilage. Although this is very promising, not many clinicians use this treatment alternative. The aim of this analysis was to evaluate patient reported outcomes for this treatment up to five years.

Methods and Materials: This prospective study includes N = 68 patients (age: 53.2 ± 8.6 ; BMI: 28.6 ± 5 ; 43.2% fem.) with cartilage lesions of grade III or IV of the medial femur condyle (n=54) lateral femur condyle (n=4) and trochlea (n=4). Inclusion criteria were isolated chondral or osteochondral defects, failure of conservative treatment, less than 50% of meniscus degeneration, and sufficient bone stock. Patient reported outcomes included the KOOS, SANE and VAS. These were obtained pre surgery (at least 8 weeks prior) and post-surgery at 3-months, 1 year, 2 years and 5 years. Statistical analysis was conducted via ANOVA with repeated measures.

Results: 5-year data of 19 patients was obtained so far. Five patients had undergone revision. All five KOOS-domain scores significantly improved ($p < .001$ - $p < .002$). The SANE increased from 63.12 to 75.08 after two years and 76.5 after five years ($p < .005$). The VAS score significantly improved from 6.3 preoperatively to 3.2 at two years and 2.3 at five years ($p < .05$). This improvement exceeded the MCID.

Conclusion: This study demonstrates excellent outcomes for treating focal cartilage lesions with a personalized mini-metal implant in various areas of the knee. The revision rate observed here is significantly lower than that of prefabricated mini-implants, which ranges from 26 to 47%.