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Arthroscopy. 2018 Oct;34(10):2821-2828. doi: 10.1016/j.arthro.2018.06.037. Epub 2018 Sep 6.

Arthroscopic Repair of Acetabular Cartilage Lesions by Chitosan-Based Scaffold: Clinical Evaluation at Minimum 2 Years Follow-up.

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Abstract

PURPOSE: To evaluate the functional outcome of using chitosan-based material in our patients after 2 years of follow-up.

METHODS: Nonarthritic nondysplastic femoroacetabular impingement patients with an acetabular chondral lesion, 18 to 55 years of age, were included for arthroscopic repair between May 2013 and July 2015. Full-thickness chondral defects ≥ 2 cm² were filled with chitosan-based implant after microfractures. Follow-up consisted of alpha angle assessment and clinical outcome in the form of the Non Arthritic Hip Score (NAHS), International Hip Outcome Tool 33 (iHOT33), Hip Outcome Score of Activities of Daily Living (HOS-ADL), and Hip Outcome Score of Sports Specific Scale (HOS-SSS).

RESULTS: Twenty-three patients were included. The mean follow-up was 38.4 ± 7.0 months (range, 24-50 months). The mean defect size was 3.5 ± 1.0 cm², principally involving zone 2 and to a lesser extent in zones 1 and 3. Using femoroplasty, the alpha angle was corrected from a mean $70.5 \pm 6.3^\circ$ to $44.3 \pm 4.9^\circ$ ($P = .00001$). Significant improvement occurred comparing the preoperative to the first-year postoperative patient-reported outcomes: $P = .00001$ for the NAHS, $P = .00004$ for the iHOT33, $P = .00005$ for the HOS-ADL, and $P = .0002$ for the HOS-SSS. No statistically significant change has been observed in the patient-reported outcomes obtained at the endpoint when compared with the first-year values ($P = .13$ for the NAHS, $P = .21$ for the HOS-ADL, and $P = .29$ for the HOS-SSS), except for the iHOT33, which showed further significant improvement ($P = .02$). Up to 91% of the patients met or exceeded the minimal clinically important difference. One patient needed total hip arthroplasty. Perineal hypoesthesia occurred in 3 patients, who recovered within 2 to 6 weeks, and 1 patient needed a prolonged physiotherapy program for postoperative muscular stiffness.

CONCLUSIONS: The arthroscopic combined treatment of microfractures and chitosan-based scaffold has maintained satisfactory clinical outcomes in 91% of the patients with a large

($\geq 2 \text{ cm}^2$) full-thickness acetabular chondral defect associated with femoroacetabular impingement at a mean follow-up of 38.4 months. The study could not definitely draw any conclusion regarding the safety of chitosan-based material for use in the hip joint.

LEVEL OF EVIDENCE: Level IV, case series.

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PMID: 30195954 DOI: [10.1016/j.arthro.2018.06.037](https://doi.org/10.1016/j.arthro.2018.06.037)

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