

## Comparing Treatment Options for Large Talar Osteochondral Lesions

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**Introduction/Purpose:** The surgical treatment of large or revision osteochondral (OCD) lesions of the talus remain challenging. Currently, there are several treatment options for these patients, including: osteochondral autograft (OATS), allograft cartilage extracellular matrix (Arthrex BioCartilage), and particulated juvenile articular cartilage allograft (Zimmer DeNovo). Due to the relative rarity of these procedures, the literature comparing these three modalities is scarce. The aim of this study was to assess midterm clinical outcomes after these surgical treatments for large or revision talar OCD lesions.

**Methods:** Hospital IRB approval was obtained. We reviewed surgical case logs and identified 78 total patients between 2003-2015 for inclusion in this retrospective study. Thirty-three patients were excluded due to incomplete preoperative or postoperative outcome scoring data, and 23 patients are pending followup, leaving a cohort of N = 22 patients (5 OATS, 5 DeNovo, 12 BioCartilage). Functional outcomes preoperatively and postoperatively were evaluated using Short Form 12-item Physical and Mental Health Survey (SF12M and SF12P) and Foot Function Index (FFI) scores, ability to return to sport or work, and the need to return to the OR for revision surgery. Data were compared using paired student's t-test and a one way ANOVA.

**Results:** Mean age was 38y with mean followup of 4.3y (range 1.1-12.5). Of 22 patients, three were revisions. Mean lesion size was (12.6x9.1x6.5mm). All groups showed significant improvements in FFI ( $p < 0.05$ ) compared to preoperative baseline. Only the BioCartilage group showed significant improvement in SF12P (37.6 vs 47.8,  $p < 0.05$ ). The OATS and DeNovo groups did not show a significant increase in SF12P, and none of the groups demonstrated significant improvement in SF12M. All patients returned to work, and 8/11 (73%) athletes returned to sport. There were no significant differences between groups when comparing SF12, FFI, and return to sport/work. Revision surgery was necessary in 6/22 (28%) patients. Post-hoc power analysis revealed limited power (0.23), and effect size ( $f=0.32$ ) may be due to small sample size.

**Conclusion:** All three treatment methods resulted in good medium-term functional results for the treatment of large or revision talar OCD lesions. However, we were unable to distinguish significant differences between OATS, Biocartilage, and Denovo, likely due to small cohort numbers and low power. Further study is warranted with increased patient numbers to improve power and differentiate among the three treatment options, as well as provide longer clinical and radiographic follow-up.

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