CT Arthrography Visualizes Joint Regeneration after Microfracture of OLT

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Introduction/Purpose: Little is known about arthroscopic or radiographic outcome after arthroscopic microfracture for osteochondral lesions of the talus (OLTs). The purpose of this study was to investigate tissue growth after arthroscopic microfracture for OLT using computed tomography arthrography (CTA) and to correlate this defect filling with clinical outcomes. We hypothesized that the morphology of the repaired tissue would be similar to that of normal anatomy and related to the clinical outcome.

Methods: Forty-two ankles treated using arthroscopic microfracture for OLT from 2009 to 2014 were monitored. CTA was performed postoperatively at 6 months, 1, and 2 years. The postoperative thickness of the repaired tissue associated with OLT (grade) and the volume of the subchondral cystic lesions were evaluated using CTA. Clinical outcomes, including a pain visual analog scale (VAS) and the American Orthopedic Foot and Ankle Society (AOFAS) ankle functional score, were evaluated and correlated with CTA.

Results: The proportion of fully grown tissue (grade 3) increased over time; specifically, the rates were 12/40 (33.3%) at postoperative 6 months, 11/18 (61.1%) at 1 year, and 8/10 (80%) at 2 years (p=0.005). VAS pain (p<0.001) and AOFAS scores (p<0.001) also improved at the final follow-up; however, they were not associated with repaired tissue thickness on CTA (p=.409 and .579, respectively).

Conclusion: Tissue growth after arthroscopic microfracture for OLT was detected in 96% of patients using ankle CTA, with which joint congruency remodeling and subchondral bone formation were well visualized. However, CTA findings were not related to clinical outcomes.

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