Particulated Autologous Cartilage Transplantation for the Treatment of Osteochondral Lesion of the Talus: Can the Lesion Cartilage be Recycled?

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INTRODUCTION: Osteochondral lesions of the talus (OLT) are a common cause of disability and chronic ankle pain. Many operative treatment strategies have been introduced, however, they have their own disadvantages. Recently lesion repair using autologous cartilage chip has emerged therefore we investigated the efficacy of particulated autologous cartilage transplantation (PACT) in OLT.

METHODS: We retrospectively analyzed 32 consecutive symptomatic patients with OLT who underwent PACT with minimum 1-year follow up. Standard preoperative radiography and magnetic resonance imaging (MRI) were performed for all patients. Follow-up second-look arthroscopy or MRI was performed with patient consent approximately 1 year postoperatively. Magnetic resonance Observation of Cartilage Repair Tissue (MOCART) score and International Cartilage Repair Society (ICRS) grades were used to evaluate the quality of the regenerated cartilage. Clinical outcomes were assessed using the pain Visual Analog Scale (VAS), Foot Function Index (FFI), and Foot Ankle Outcome Scale (FAOS).

RESULTS: All patients had ICRS grade IV cartilage lesions, except for one (ICRS grade III) (Figure1). The paired MOCART scores significantly improved from 42.5 ± 1.53 to 63.5 ± 22.6 ($P = 0.025$) in 10 patients. Seven patients agreed to undergo second-look arthroscopy; 5 patients had grade I (normal) ICRS scores, and 2 patients had grade II (nearly normal) ICRS scores. VAS, FFI, and all subscales of FAOS were significantly improved postoperatively ($P \leq 0.003$).

DISCUSSION AND CONCLUSION: PACT significantly improved the clinical, radiological, and morphological outcomes of OLT. We consider this to be a safe and effective surgical method based on the short-term clinical results of this study.